

This free e-Book will teach you Excel 2016 in five hours.

We've helped over 2 million students to learn Excel 2016. If you carefully work through this free book there is absolutely no doubt that you **will** master Excel 2016.

Make sure you are using the latest version of this free e-book

This book has been completely updated to cover the **July 2018 Version 1803 Semi-Annual*** update to Excel 2016. Excel is constantly updated. You can always download the most recent version of this book completely free of charge from: <https://thesmartmethod.com>. This book is for *Excel 2016 for Windows* users. If you have an older version of Excel (2007, 2010 or 2013), or if you are using the Apple Mac version, you can download the correct version of this free e-book at the <https://thesmartmethod.com> web site.

Why you should use this free e-book

- **It is up-to-date** Excel 2016 is the first Excel version that is continually updated (by regular automatic updates). This book is also continually updated to match the latest semi-annual release of Excel 2016. This means that the screen grabs will exactly match what you see on your screen and the instructions will be easy to follow. It can be very frustrating to try to learn Excel 2016 using an out-of-date book.
- **Learning success is guaranteed.** For over fifteen years, Smart Method® classroom courses have been used by large corporations, government departments and the armed forces to train their employees. This book has been constantly refined (during hundreds of classroom courses) by observing which skills students find difficult to understand and then developing simpler ways of explaining them. This has made the book effective for students of all ages and abilities. We have never had a student who has failed to learn Excel after taking one of our courses.
- **It is the preferred choice for teachers.** As well as catering for those wishing to learn Excel by self-study, Smart Method® books have long been the preferred choice for Excel teachers as they are designed to *teach* Excel and not as reference books. Books follow best-practice adult teaching methodology with clearly defined objectives for each learning session and an exercise to confirm skills transfer. With single, self-contained lessons the books cater for any teaching period (from minutes to hours).
- **It is free (and you can print it).** Because this book is **free of charge**, schools, colleges, universities and businesses are able to teach their students best-practice Excel skills without the substantial cost of designing lesson plans or purchasing books. If printed copies are needed you can print them yourself, or any copy shop can print books for you.
- **Smart Method books are #1 best sellers.** While this e-book is **entirely free of charge**, every paper printed Smart Method® Excel book (and there have been ten of them starting with Excel 2007) has been an Amazon #1 best seller in its category. This provides you with the confidence that you are using a best-of-breed resource to learn Excel.
- **No previous exposure to Excel is assumed.** You will repeatedly hear the same criticism of most Excel books: "you have to already know Excel to understand the book". This book is different. If you've never seen Excel before, and your only computer skill is using a web browser, you'll have absolutely no problems working through the lessons. No previous exposure to Excel is assumed and everything is explained clearly and in a simple way that any student, of any age or ability, can easily understand.
- **It focuses upon the everyday Excel skills used in the workplace.** This free *Basic Skills* book will teach you the basics without confusing you with more advanced, less used, Excel features. If you decide to expand your Excel education, you'll be able to move on to other Smart Method® books (or e-books) in this series to master even the most advanced Excel features.

* Excel 2016 Version 1803 was released to the *Semi-Annual* update channel on July 10, 2018. An earlier build of the same version was released earlier to the *Monthly* update channel. You'll learn more about update channels, builds and versions in: *Lesson 1-2: Check that your Excel version is up to date.*

Learn Excel in just a few minutes each day (or in one five-hour sitting)

Excel is a huge and daunting application and you'll need to invest some time in learning the skills presented in this book. This will be time well spent as you'll have a hugely marketable skill for life. With 1.2 billion users worldwide, it is hard to imagine any non-manual occupation today that doesn't require Excel skills.

This book makes it easy to learn at your own pace because of its unique presentational style. The book contains 43 self-contained lessons and each lesson only takes a few minutes to complete.

You can complete as many, or as few, lessons as you have the time and energy for each day. Many learners have developed Excel skills by setting aside just a few minutes each day to complete a single lesson. Others have worked through the entire book in less than five hours.

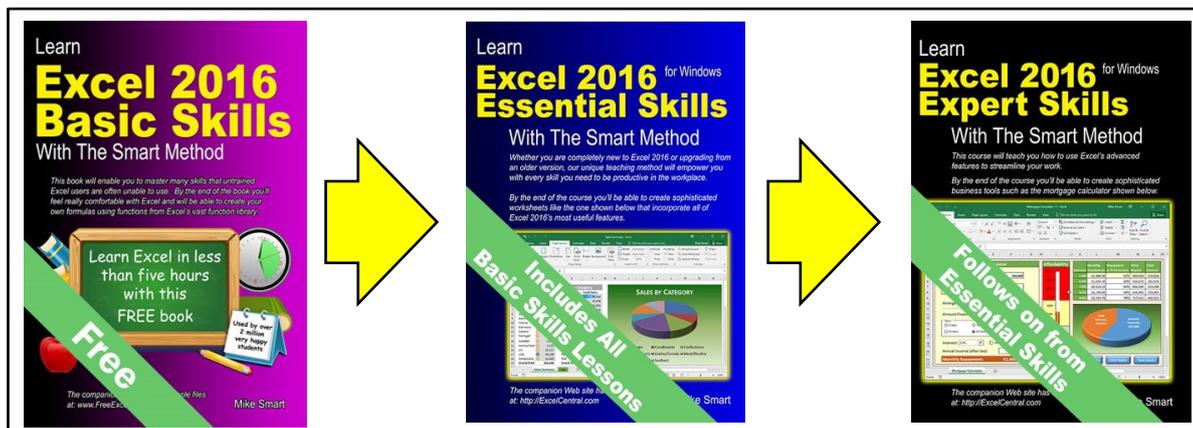
Hardly anybody understands how to use every Excel feature

It is important to realize that Excel is probably the largest and most complex software application ever created. Hardly anybody understands how to use *every* Excel feature, and for almost all business users, large parts of Excel's functionality wouldn't even be useful.

Many learners make the fundamental error of trying to learn from an Excel *reference* book that attempts to document (though not teach) *everything* that Excel can do. Of course, no single book could ever actually do this. (There are some advanced Excel features that easily justify an entire book of their own).

This free *Basic Skills* book will teach you the basic Excel skills that are used every day, in offices all over the world.

By the end of this free **Basic Skills** book you'll be completely comfortable creating your own formulas and to make use of the functions available in Excel's vast function library. You'll also have mastered many other fundamental Excel skills such as *AutoSum*, *AutoFill* and *Formula Autocomplete*. You'll be confident in the knowledge that you are using Excel's features in the correct, best-practice, professional way and you'll feel really at home with Excel.



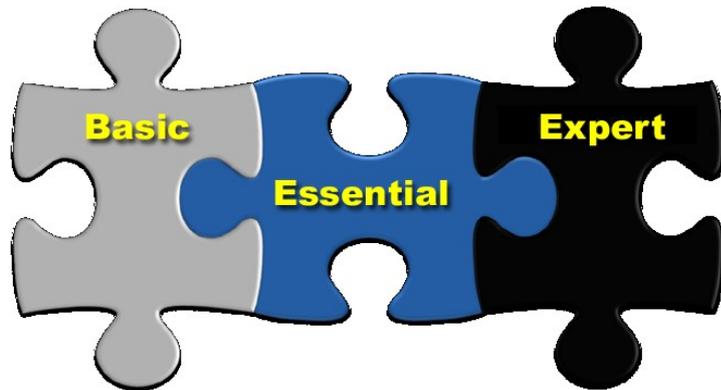
If you decide to further expand your Excel education, you'll be able to use other books in this series to master even the most advanced Excel features.

If you'd like to review the precise skills taught in each book you can view the full course outlines for *Essential Skills* and *Expert Skills* at: <https://thesmartmethod.com>.

Excel competence levels

Office workers who use Excel every day for a living generally only use (and only need) a tiny fraction of Excel's enormous feature set.

Excel is a huge application with thousands of features. For most users it is a mistake to attempt to learn **every** Excel feature but, instead, to learn Excel to a competence level that is appropriate for your needs.



Basic Skills

This is where you will be at the end of this book. You'll feel really comfortable with Excel. Even at **Basic Skills** level you'll have mastered many skills that most untrained Excel users are unable to use correctly. You'll also be using the correct professional techniques rather than "muddling through" in the way that most self-taught Excel users do. You'll be able to create your own formulas using functions from Excel's vast function library and have a complete mastery of fundamental Excel features such as *AutoFill*, *Flash Fill* and *Formula Autocomplete*.

Essential Skills

At this level you will have excellent Excel skills, good enough to impress any employer, and your Excel skills will be better than most office workers (even those with many years of experience). You'll be able to create beautifully laid-out worksheets that will really impress. You'll also have mastered many advanced features that few Excel users understand such as *absolute and relative cell references*, *visualizations*, *advanced charts*, *conditional formatting*, *date serial numbers*, *themes* and *cloud computing*. You can see a full list of the lessons in the *Essential Skills* book at: <https://thesmartmethod.com>.

Expert Skills

At *Essential Skills* level you'll be really, really good with Excel. If you want to join the tiny elite of power-users who can do absolutely everything with Excel you can use this follow-on book to move to expert level and become a true Excel guru.

This is a extremely high level of Excel competence that is very rarely found in the workplace (even amongst top professionals). Your Excel skills will be greater and broader than almost all other Excel users and you will understand (and be able to use) absolutely every Excel feature. You'll have a complete mastery of skills that are often even a mystery to Excel power users such as *Excel data models*, *many to many relationships*, *power maps*, *solver*, *macros* and *get & transform*. You can see a full list of the lessons in the Expert Skills course at: <https://thesmartmethod.com>.

Every lesson is presented on two facing pages

Pray this day, on one side of one sheet of paper, explain how the Royal Navy is prepared to meet the coming conflict.

Winston Churchill, Letter to the Admiralty, Sep 1, 1939

Winston Churchill was aware of the power of brevity. The discipline of condensing thoughts into one side of a single sheet of A4 paper resulted in the efficient transfer of information.

A tenet of our teaching system is that every lesson is presented on *two* facing sheets of A4. We've had to double Churchill's rule as they didn't have to contend with screen grabs in 1939! If we can't teach an essential concept in two pages of A4 we know that the subject matter needs to be broken into two smaller lessons.

How this book avoids wasting your time.

Over the years I have read many hundreds of computer text books and most of my time was wasted. The big problem with most books is that I must wade through thousands of words just to learn one important technique. If I don't read everything I might miss that one essential insight.

Many presentational methods have been used in this book to help you to avoid reading about things you already know how to do, or things that are of little interest to you.

There are now two versions of Excel 2016 (the pay-once Excel 2016 version and the subscription Excel 365 version). Where there are differences they are clearly documented.

Screen grabs are provided in-line with the text when they can explain what you need to do more clearly than words alone.

If you want to progress through the course as quickly as possible you don't have to read notes.

Notes usually expand a little on the information given in the lesson text.

If you already know how to do something simply read the bold text for each step and just do it. Step notes sometimes provide precise instructions about how to progress if the one-line description is inadequate. Notes also often include interesting information about the current task.

When there is a sample file (or files) to accompany a lesson, the file name will be shown in a folder icon. You can download the sample file set from: <https://TheSmartMethod.com>

Learn Excel 2016 Expert Skills with The Smart Method

note

The IFS function is only available in the Excel 365 version of Excel 2016

The IFS function was introduced in the Excel 2016 Version 1601 update (released on Feb 16, 2016).

If you have the perpetual license version (pay once, use forever) rather than a subscription version of Excel 2016, you will not have access to this function.

Lesson 3-28: Use the IFS function

If you have Excel 2016 (rather than Excel 365) you will not be able to complete this lesson (see sidebar).

In: *Lesson 3-25: Use a VLOOKUP function for an inexact lookup*, you used a VLOOKUP function to return a grade from different pass mark percentages.

In early 2016 Microsoft added a new IFS function to Excel 365. In this lesson you will solve exactly the same problem posed in: *Lesson 3-25: Use a VLOOKUP function for an inexact lookup*, with a logic based (rather than lookup based) solution.

- Open *IFS Grades-1* from your sample files folder.

	A	B	C	D	E	F
1	Exam Results					
2						
3	Name	Percentage	Grade	Percentage	Grade	
4	Johnny Caine	70%		0%	Fail	
5	George Marley	68%		60%	C	
6	Betty Anan	86%		70%	B	
7	Paris Winfrey	80%		80%	A	
8	Ozzy Dickens	95%		90%	A*	
9	Johnny Roberts	84%				

This is an exact duplicate of the *Grades-1* sample file that you used at the beginning of: *Lesson 3-25: Use a VLOOKUP function for an inexact lookup*.

- Use the IFS function to calculate the grade for each student by defining grade data within the function.

Sometimes it may be better to "hard code" data (such as the percentage grade thresholds) within the function itself. This prevents users from accidentally deleting or changing the grade percentage thresholds within the worksheet.

The argument against this approach is that the worksheet is more difficult to maintain if grade thresholds change in the future.

- Click in cell C4.
- Click: Formulas → Function Library → Logical → IFS.

The *Function Arguments* dialog for the IFS function appears. The IFS function accepts up to 127 *Logical Test/Value* pairs.

- Enter the following pair of arguments:

Logical_test1	B4 < 60%
Value_if_true1	"Fail"

The *Logical Test* is an expression that returns TRUE or FALSE. In this case the test asks if Johnny Caine's percentage is less than 60%.

note

VLOOKUP is still (usually) a better solution than IFS

In: *Lesson 3-5: Use the IF logic function* (sidebar) I advised: "Excel 2016 allows you to nest IF functions up to 64 levels deep (which is 63 too many)".

The new IFS and SWITCH functions (introduced in Feb 2016) are mainly intended to offer a simpler alternative to nested IF functions.

This doesn't mean using the IFS and SWITCH functions provides a better solution than VLOOKUP.

It is easy to introduce errors using IFS and SWITCH, as the order in which the logic pairs are listed is vital to the correct operation of the function.

In almost all business situations a VLOOKUP will provide a better and more elegant solution than the use of the IFS or SWITCH function.

IFS Grades-1

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<http://ExcelCentral.com>

Learning by participation

Tell me, and I will forget. Show me, and I may remember. Involve me, and I will understand.

Confucius, Chinese teacher, editor, politician and philosopher (551-479 BC)

Confucius would probably have agreed that the best way to teach IT skills is hands-on (actively) and not hands-off (passively). This is another of the principal tenets of The Smart Method® teaching method.

Research has backed up the assertion that you will learn more material, learn more quickly, and understand more of what you learn if you learn using active, rather than passive methods.

For this reason, pure theory pages are kept to an absolute minimum with most theory woven into the hands-on lessons, either within the text or in sidebars.

This echoes the teaching method used in Smart Method classroom courses where snippets of pertinent theory are woven into the lessons themselves so that interest and attention is maintained by hands-on involvement, but all necessary theory is still covered.

Session Three: Advanced Functions

Logical_test1	B4 < 60%
Value_if_true1	"Fail"
Logical_test2	B4 < 70%
Value_if_true2	"C"
Logical_test3	B4 < 80%
Value_if_true3	"B"
Logical_test4	B4 < 90%
Value_if_true4	"A"
Logical_test5	B4 >= 90%
Value_if_true5	"A*"

important

Excel recognizes text as having a value in logical expressions

If you try entering text into the *Percentage* column you might be surprised to find this result:

A	B	C
3	Name	Percentage Grade
4	Johnny Caine	teacup A*
5	George Marley	68% C

Excel has evaluated this logic expression:
="teacup">90%
... and has surprisingly returned TRUE.

This seems puzzling at first until it is realized that (behind the scenes) Excel does assign values to text in order to implement alphabetical sorting.

These nominal values are always higher than any number so that (in an A-Z sort) numbers will always come before text.

To work around this peculiarity you could add a new first *Logical Test/Value* pair to ensure that the value in column B was numeric like this:

Logical_test1	=ISNUMBER(B4)=FALSE
Value_if_true1	"Error"

As Johnny scored 70% the result is FALSE (as 70% is not less than 60%). If Johnny had a percentage score of less than 60%, the function would have returned the text "Fail".

Note that textual values must be placed in double quotation marks. If you omit to do this Excel will add them for you.

- Add *Logical Test/Value* pairs for the other grades (see sidebar).
- Click the OK button.

Johnny Caine's B grade is shown in cell C4.

- AutoFill cell C4 to the end of the range.

All grades are now correctly shown.

A	B	C	D	E	F
3	Name	Percentage	Grade	Percentage	Grade
4	Johnny Caine	70%	B	0%	Fail
5	George Marley	68%	C	60%	C
6	Betty Anan	86%	A	70%	B
7	Paris Winfrey	80%	A	80%	A
8	Ozzy Dickens	95%	A*	90%	A*

- USE the IFS function to calculate the grade for each student using the grade data defined in cells E3:F8.
 - Delete the functions in column C.
 - Add a new IFS function to cell C4.
 - Enter the following pair of *Logical Test/Value* arguments:

Logical_test1	B4 >= E5
Value_if_true1	"Fail"

Notice the use of an absolute reference for cell E5. This is needed to make sure that the formula AutoFills correctly.

If you do not understand absolute references see: *Lesson 1-10: Add percentage and running totals using Quick Analysis* (sidebar).

 - Add appropriate *Logical Test/Value* pairs for the other grades.
 - Click the OK button.
 - Autofill cell C4 down to the end of the range.

Exactly the same grade values are now shown. The difference from the first approach is that the grades will change if the Percentage/Grade thresholds shown in cells E3:F8 change in the future.
- Save your work as *IFS Grades-2*.

Whenever something can easily go wrong, or when the subject text is particularly important, you will see the *important* sidebar. You should always read important sidebars.

Each lesson models a real-world business problem. You'll immediately appreciate the value and relevance of each skill you learn.

A goal of this book is not to waste your time by explaining any skill twice. Sometimes you may forget something that has already been covered earlier in the course.

Cross-references are extensively used, pointing you back to the lesson in which the relevant skills were learned. The cross-references also help when you use this course as a reference book but have forgotten the more basic skills needed to complete each step.

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We encourage you to print this free book

Unlike most e-books, this one isn't locked to prevent printing (this is also true for all other Smart Method e-Books. E-books can only be obtained and downloaded from <https://thesmartmethod.com> (the publisher).

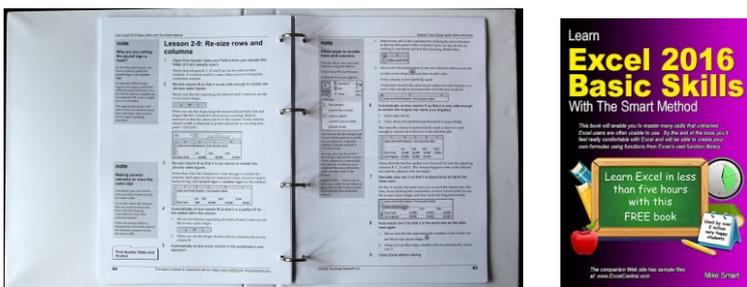
For classroom use we recommend that you print this book

While this book is useful for self-instruction, it is also ideal for teaching structured, objective-led, and highly effective classroom courses. Even though you can read this book on an iPad*, personal computer or e-Book reader, some students find it easier to use if you print it onto paper. You may legally print copies of this book (for yourself or your students) with only two conditions:

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2. You may not make *any charge of any sort* for the books that you print. It is permissible, however, to give free copies of the book to students who attend a free (or paid for) class or course.

For classroom courses you can obtain a professional-looking result by printing on both sides of the paper. You can then punch the pages and place them into a binder. Make sure that odd pages appear on the right-hand side. This enables each two-page lesson to be viewed without turning the page.

For a professional touch you can also put a color insert onto the front cover. Here's how it then looks:



You can find full instructions for printing and binding this free e-book (along with the color front and back cover pages) at: <https://thesmartmethod.com/printing-the-basic-skills-course>.

You can obtain printed books for under four dollars.

According to Lyra Research it costs between \$0.05 and \$0.08 cents per page to laser print a single black and white page. This means that it will cost between \$6.00 and \$9.60 to print this book yourself on a laser printer.

If you need five or more books you can save a considerable amount of money by ordering perfect-bound paper printed books from ourselves using our not-for-profit printing service. At time of writing our cost price (including free delivery to most world locations) was under \$4.00 per book.

You can only order these not-for-profit books from: <https://thesmartmethod.com/wholesale-printed-books>.

These paper books are often used as free giveaways by employment agencies (for job applicants who need Excel skills) and by employers (to empower their employees with basic Excel skills at minimal cost).

* If you are an iPad user you can add this e-book to your iBook library. The procedure for adding this e-book to your iBook library is detailed in a step-by-step guide at: <https://thesmartmethod.com/how-to-save-and-view-a-pdf-e-book-on-an-ipad>.

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Mike Smart

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The Smart Method® Ltd
Burleigh Manor
Peel Road
Douglas, IOM
Great Britain
IM1 5EP

Tel: +44 (0)845 458 3282 Fax: +44 (0)845 458 3281

E-mail: Use the contact page at <https://thesmartmethod.com/contact>.

Web: <https://thesmartmethod.com> (this book's dedicated web site)

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Introduction

Welcome to *Learn Excel 2016 Basic Skills With The Smart Method*®. This book has been designed to enable students to master Excel 2016 fundamentals by self-study. The book is equally useful as courseware in order to deliver courses using The Smart Method® teaching system.

Smart Method publications are continually evolving as we discover better ways of explaining or teaching the concepts presented.

Feedback

At The Smart Method® we love feedback – both positive and negative. If you have any suggestions for improvements to future versions of this book, or if you find content or typographical errors, the author would always love to hear from you.

You can make suggestions for improvements to this book using the online form at:

<https://thesmartmethod.com/contact>

Future editions of this book will always incorporate your feedback so that there are never any known errors at time of publication.

If you have any difficulty understanding or completing a lesson, or if you feel that anything could have been more clearly explained, we'd also love to hear from you. We've made hundreds of detail improvements to our books based upon reader's feedback and continue to chase the impossible goal of 100% perfection.

Downloading the sample files

In order to use this book it is sometimes necessary to download free sample files from the Internet.

The process of downloading the free sample files is explained step-by-step in: *Lesson 1-5: Download the sample files and open/navigate a workbook*.

Problem resolution

If you encounter any problem using any aspect of the course you can contact us using the online form at:

<https://thesmartmethod.com/contact>

We'll do everything possible to quickly resolve the problem.

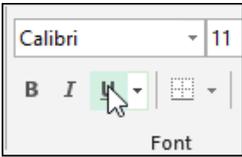
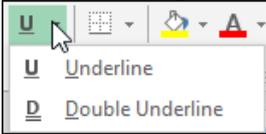
The Excel versions that were used to write this book

This edition was written using both the *Excel 2016* perpetual license (the one-time payment version) and *Excel 2016 for Office 365 subscribers* (semi-annual version 1803, released on Jul 10 2018). You'll discover which version your computer is running in: *Lesson 1-2: Check that your Excel version is up to date*. In this book, the perpetual license version of Excel is referred to as: *Excel 2016* and the subscription version as *Excel 365*.

If you are using Excel 2007, Excel 2010, Excel 2013 or Excel 2016 for Apple Mac we have a free Basic Skills e-book that matches your version available from: <https://thesmartmethod.com>.

Typographical Conventions Used in This Book

This guide consistently uses typographical conventions to differentiate parts of the text.

When you see this	Here's what it means
<p>Click <i>Line Color</i> on the left-hand bar and then click <i>No line</i>.</p>	<p>Italics are used to refer to text that appears in a worksheet cell, an Excel dialog, on the Ribbon, or elsewhere within the Excel application. Italics may sometimes also be used for emphasis or distinction.</p>
<p>Click: Home→Font→Underline.</p> 	<p>Click on the Ribbon's <i>Home</i> tab and then look for the <i>Font</i> group. Click the <i>Underline</i> button within this group (that's the left-hand side of the button, not the drop-down arrow next to it).</p> <p>Don't worry if this doesn't make sense yet. We cover the Ribbon in depth in session one.</p>
<p>Click: Home→Font→Underline Drop Down→Double Underline.</p> 	<p>Click on the Ribbon's <i>Home</i> tab and then look for the <i>Font</i> group. Click the drop-down arrow next to the <i>Underline</i> button (that's the right-hand side of the button) within this group and then choose <i>Double Underline</i> from the drop-down list.</p>
<p>Click: File→Options→Advanced→General→Edit Custom Lists→Import</p>	<p>This is a more involved example.</p> <ol style="list-style-type: none"> 1. Click the <i>File</i> tab on the Ribbon, and then click the <i>Options</i> button towards the bottom of the left-hand pane. The <i>Excel Options</i> dialog appears. 2. Choose the <i>Advanced</i> list item in the left-hand pane and scroll down to the <i>General</i> group in the right-hand pane. 3. Click the <i>Edit Custom Lists...</i> button. Yet another dialog pops up. 4. Click the <i>Import</i> button.
<p>Type: European Sales into the cell.</p>	<p>Whenever you are supposed to actually type something on the keyboard it is shown in bold faced text.</p>
<p>Press <Ctrl> + <Z>.</p>	<p>You should hold down the Ctrl key and then press the Z key.</p>



When a lesson tells you to click a button, an image of the relevant button will often be shown either in the page margin or within the text itself.

note

In Excel 2007/2010/2013/2016 there are a possible 16,585 columns and 1,048,476 rows. This is a great improvement on earlier versions.

If you want to read through the book as quickly as possible, you don't have to read notes.

Notes usually expand a little on the information given in the lesson text.

important

Do not click the *Delete* button at this point as to do so would erase the entire table.

Whenever something can easily go wrong, or when the subject text is particularly important, you will see the *important* sidebar.

You should always read important sidebars.

tip

Moving between tabs using the keyboard

You can also use the <Ctrl>+<PgUp> and <Ctrl>+<PgDn> keyboard shortcuts to cycle through all of the tabs in your workbook.

Tips add to the lesson text by showing you shortcuts or time-saving techniques relevant to the lesson.

The bold text at the top of the tip box enables you to establish whether the tip is appropriate to your needs without reading all the text.

In this example, you may not be interested in keyboard shortcuts so do not need to read further.

anecdote

I ran an Excel course for a small company in London a couple of years ago...

Sometimes I add an anecdote gathered over the years from my Excel classes or from other areas of life.

If you simply want to learn Excel as quickly as possible you can ignore my anecdotes.

trivia

The feature that Excel uses to help you out with function calls first made an appearance in Visual Basic 5 back in 1996 ...

Sometimes I indulge myself by adding a little piece of trivia in the context of the skill being taught.

Just like my anecdotes you can ignore these if you want to. They won't help you to learn Excel any better!

The World's Fastest Cars

When there is a sample file (or files) to accompany a lesson, the file name will be shown in a folder icon. You can download the sample file from:

<https://thesmartmethod.com/sample-files>.

Detailed instructions are given in: *Lesson 1-5: Download the sample files and open/navigate a workbook.*

How to use this course

This course utilizes some of the tried and tested techniques developed after teaching vast numbers of people to learn Excel during many years teaching Smart Method classroom courses.

In order to master Excel as quickly and efficiently as possible you should use the recommended learning method described below. If you do this there is absolutely no doubt that you will master the advanced Excel skills taught in this book.

Three important rules

#1 - Complete the course from beginning to end

It is always tempting to jump around the course completing lessons in a haphazard way.

We strongly suggest that you start at the beginning and complete lessons sequentially.

That's because each lesson builds upon skills learned in the previous lessons and one of our goals is not to waste your time by teaching the same skill twice. If you miss a skill by skipping a lesson you'll find the later lessons more difficult, or even impossible to follow. This, in turn, may demoralize you and make you abandon the course.

#2 If possible, complete a session in one sitting

The book is arranged into *sessions* and *lessons*.

You can complete as many, or as few, lessons as you have the time and energy for each day. Many learners have developed Excel skills by setting aside just a few minutes each day to complete a single lesson.

If it is possible, the most effective way to learn is to lock yourself away, switch off your telephone, and complete a full session, without interruption, except for a 15-minute break each hour. The memory process is associative, and we've ensured that the lessons in each session are very closely coupled (contextually) with the others. By learning the whole session in one sitting, you'll store all that information in the same part of your memory and will find it easier to recall later.

The experience of being able to remember all of the words of a song as soon as somebody has got you "started" with the first line is an example of the memory's associative system of data storage.

#3 Rest at least every hour

In our classroom courses we have often observed a phenomenon that we call "running into a wall". This happens when a student becomes overloaded with new information to the point that they can no longer follow the simplest instruction. If you find this happening to you, you've studied for too long without a rest.

You should take a 15-minute break every hour (or more often if you begin to feel overwhelmed) and spend it relaxing rather than catching up with your e-mails. Ideally you should relax by lying down and closing your eyes. This allows your brain to use all of its processing power to efficiently store and index the skills you've learned. We've found that this hugely improves retention of skills learned.

How to work through the lessons

At the end of each session, complete the session exercise

Keep attempting the exercise at the end of each session until you can complete it without having to refer to lessons in the session. Don't start the next session until you can complete the exercise from memory.

At the end of each session, review the objectives

The session objectives are stated at the beginning of each session.

Read each objective and ask yourself if you have truly mastered each skill. If you are not sure about any of the skills listed, revise the relevant lesson(s) before moving on to the next session.

You will find it very frustrating if you move to a new session before you have truly mastered the skills covered in the previous session. This may demoralize you and make you abandon the course.

How to best use the incremental sample files

Many lessons in this course use a sample file that is incrementally improved during each lesson. At the end of each lesson an interim version is always saved. For example, a sample file called Sales-1 may provide the starting point to a sequence of three lessons. After each lesson, interim versions called Sales-2, Sales-3 and Sales-4 are saved by the student.

A complete set of sample files (including all incremental versions) are provided in the sample file set. This provides three important benefits:

- If you have difficulty with a lesson it is useful to be able to study the completed workbook (at the end of the lesson) by opening the finished version of the lesson's workbook.
- When you have completed the book, you will want to use it as a reference. The sample files allow you to work through any single lesson in isolation, as the workbook's state at the beginning of each lesson is always available.
- When teaching a class one student may corrupt their workbook by a series of errors (or by their computer crashing). It is possible to quickly and easily move the class on to the next lesson by instructing the student to open the next sample file in the set (instead of progressing with their own corrupted file or copying a file from another student).

The time you spend learning Excel is hugely worthwhile

Excel is a huge and daunting application and you'll need to invest some time in learning the skills presented in this course. This will be time well spent as you'll have a hugely marketable skill for life. With 1.2 billion users worldwide, it is hard to imagine any organization of any size that does not value Excel skills.

If you persevere with this course there is no doubt that you will master Excel. A little time and effort is needed but the skills you'll acquire will be hugely valuable for the rest of your life.

Enjoy the course.

***Blank
page***

1

Session One: Basic Skills

A bad beginning makes a bad ending.

Euripides, Aegaeus (484 BC - 406 BC).

Even if you are a seasoned Excel user, I urge you to take Euripides' advice and complete this session. You'll fly through it if you already know most of the skills covered.

In my classes I often teach professionals who have used Excel for over ten years and they *always* get some nugget of fantastically useful information from this session.

In this session, I teach you the absolute basics you need before you can start to do useful work with Excel 2016.

I don't assume that you have any previous exposure to Excel (in any version) so I have to include some very basic skills.

Session Objectives

By the end of this session you will be able to:

- Start Excel and open a new blank workbook
- Check that your Excel version is up to date
- Change the Office Theme
- Maximize, minimize, re-size, move and close the Excel window
- Download the sample files and open/navigate a workbook
- Save a workbook to a local file
- Understand common file formats
- Pin a workbook and understand file organization
- View, move, add, rename, delete and navigate worksheet tabs
- Use the Versions feature to recover an unsaved Draft file
- Use the Versions feature to recover an earlier version of a workbook
- Use the Ribbon
- Understand Ribbon components
- Customize the Quick Access Toolbar and preview the printout
- Use the Mini Toolbar, Key Tips and keyboard shortcuts
- Understand views
- Hide and show the Formula Bar and Ribbon
- Use the Tell Me help system
- Use other help features

note**Windows 8.1 Users**

When Windows 10 was released in July 2015, Microsoft recommended that any Windows 8.1 users update free to the new version (the free update offer ended in July 2016).

Mainstream support for Windows 8.1 officially ended on January 9, 2018.

For these reasons, by the time that you read this book it is unlikely that there will be many Windows 8 users left in the world.

Lesson 1-1: Start Excel and open a new blank workbook

If you are using Windows 8 see sidebar.

Startup in Windows 7

- 1 Click the *Windows Start Button*  at the bottom left of your screen.
- 2 Click the *All Programs* item at the bottom of the pop-up menu.
- 3 Scroll down the list and click on the *Microsoft Office 2016* item.
- 4 Pin *Microsoft Excel 2016* to the start menu.

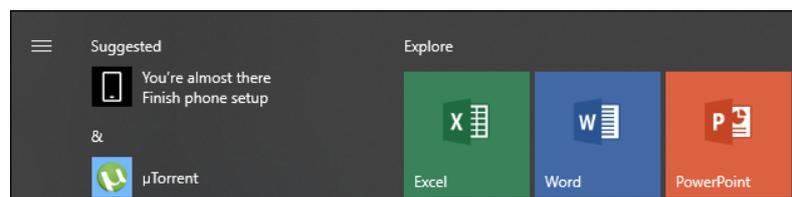
You'll be using Excel a lot, so it makes sense to pin it to the start menu. This will make it appear at the top of the list in future, so you'll be able to start Excel with just two clicks.

To pin to the start menu, point to *Microsoft Excel 2016* in the list, right-click your mouse and then choose *Pin to Start Menu* from the shortcut menu.

- 5 Left-click *Microsoft Excel 2016* to start Excel.
Excel starts and is displayed on the screen.

Startup in Windows 10

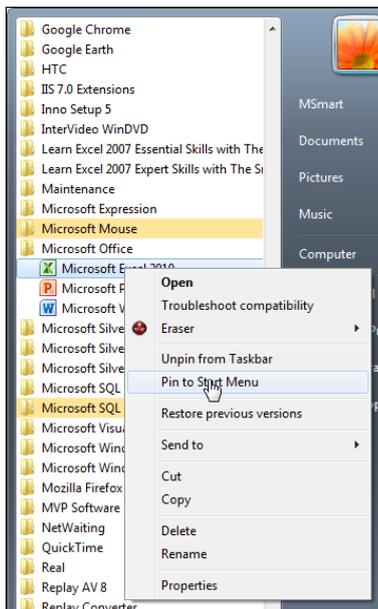
- 1 Click the Start Button  in the bottom left corner of the Windows 10 screen.
- 2 Drag the *Excel* icon to the top of the start menu.



If you can't find the Excel icon, see the facing-page sidebar for instructions on how to locate it.

You'll be using Excel a lot, so it makes sense to move the icon to the top of the Windows 10 start menu. You'll then be able to start Excel without having to search for the icon.

1. Point to the Excel icon.
2. Click and hold down the left mouse button.
3. With the left button held down, move your mouse towards the top of the start menu. The icon will move with the mouse cursor.



Windows 7 start menu

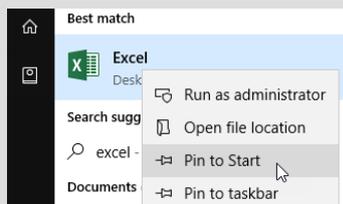
note

If you can't find the Excel icon in Windows 10

When you install Excel 2016 on a Windows 10 computer an icon is automatically added to the Start Menu. If you can't find the icon proceed as follows:

1. When the Windows 10 start menu is displayed, type: **excel** on the keyboard. You will then see the Excel application icon on the screen. If you don't, Excel is not installed on this computer.

2. Right-click the Excel application icon and click: *Pin to Start* from the shortcut menu:



You will now be able to locate the Excel icon on the start menu (though you may have to scroll down to the bottom of the icon list to find it).

note

Potential problems when using templates

Many of Microsoft's templates have been created using some very advanced Excel skills and techniques. If you make use of them there's a danger that you may depend upon a workbook you don't understand and are unable to maintain.

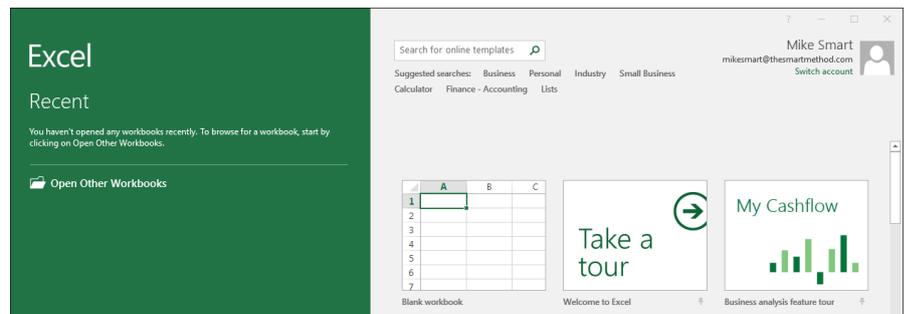
Templates you create yourself are far more useful. Creating your own custom templates is beyond the scope of this *Basic Skills* course but is covered in depth in the *Essential Skills* book in this series (in: *Lesson 3-15: Create a Template*).

4. When you reach the top of the start menu, release the left mouse button.

The Excel 2016 icon is now permanently positioned at the top of the Windows 10 start menu.

- 3 Left-click *Excel* to start Excel.

After you've started Excel



Now that Excel has started, Excel needs to know whether you want to create a new workbook, or whether you want to open a workbook that was created earlier.

When creating a new workbook, Excel also offers to give you a “flying start” by using a template. Templates are sample workbooks that you can adapt and modify for your own needs. The idea is very good but, in reality, templates are not usually a good choice as it can take longer to adapt them to your true needs than to design from scratch (see sidebar).

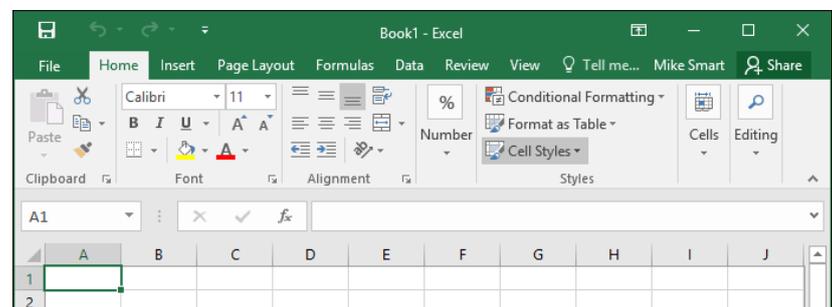
In this lesson you'll create a blank workbook.

- 1 Create a new blank workbook.

Left-click the mouse button on the *Blank workbook* template.

Note that, from now onwards, I will simply use the term “click” when I mean left-click (the mouse button you will use most of the time) and “right-click” only when you need to click the (less-used) right mouse button.

The Excel 2016 screen is displayed, showing a blank workbook:



- 2 Leave the workbook open for the next lesson.

important

Update Channels

Update channels determine *when* users will receive the latest Excel version.

Excel 2016 perpetual users

If you have a perpetual license (the pay-once version of Excel 2016) you will not receive any feature updates, so you do not have an update channel.

Excel 365 home users

If you have a subscription version of Excel 2016 (this is referred to as *Excel 365* in this book) that is targeted at home users, you are required to receive monthly updates

This is called the *Monthly Channel*.

You will potentially receive new or improved features every month.

Excel 365 business users

New features added in the *Monthly Channel* may have bugs, as they will not yet have been extensively tested by real-world use.

If you have an Excel 365 version that is targeted at business users (usually called *Excel Pro Plus*), you will (by default) have a different update channel (the *Semi-annual Channel*).

The *Semi-annual Channel* allows new features to be thoroughly tested before use. It is possible (though difficult) for Excel Pro-Plus users to change their update channel to the *Monthly Channel*.

The *Semi-annual Channel* only updates Excel twice each year (in January and July).

This book was written using the *July 2018 Semi-Annual Version 1803*.

Lesson 1-2: Check that your Excel version is up to date

Automatic Updates

Normally Excel will look after updates without you having to do anything. By default, automatic updates are enabled. This means that updates are downloaded from the Internet and installed automatically.

It is possible that automatic updates have been switched off on your computer. In this case there is a danger that you may have an old, buggy, unsupported and out of date version of Excel installed.

This lesson will show you how to make sure that you are using the latest (most complete, and most reliable) version of Excel.

- 1 Start Excel and open a new blank workbook (if you have not already done this).

You learned how to do this in: *Lesson 1-1: Start Excel and open a new blank workbook*.

- 2 Make sure that automatic updates are enabled.

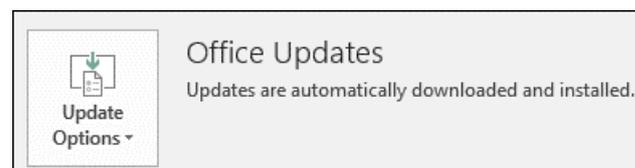
1. Click the *File* button  at the top-left of the screen.

This takes you to *Backstage View*. Backstage View allows you to complete an enormous range of common tasks from a single window.

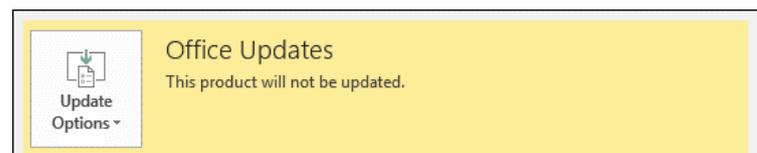
2. Click: *Account*  in the left-hand list.

Your account details are displayed on screen. Notice the *Office Updates* button displayed in the right-hand pane.

If all is well, and *automatic updates* are switched on, you will see a button similar to this:



If *automatic updates* have been switched off, you will see a similar button to this.



In this case you will need to switch *automatic updates* on (see next step).

- 3 Switch on *automatic updates* if necessary.

Click: Update Options → Enable Updates.

note

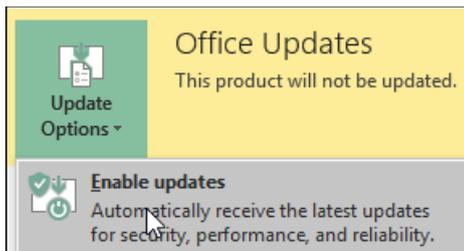
Version number and Build

A new Excel version is usually released to the monthly update channel every month.

Each new version may add new features to Excel 365.

If bugs or security issues are found in a new version, Microsoft will fix them and publish a new *build* of the same version.

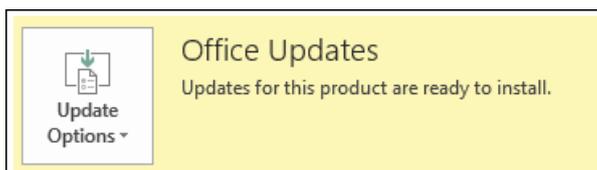
It is quite normal for there to be several new builds of each new version during the month that it is released.



4 If there are updates waiting to install, apply them.

Sometimes Excel will download updates but will not install them automatically.

In this case you will see an update button similar to the following:

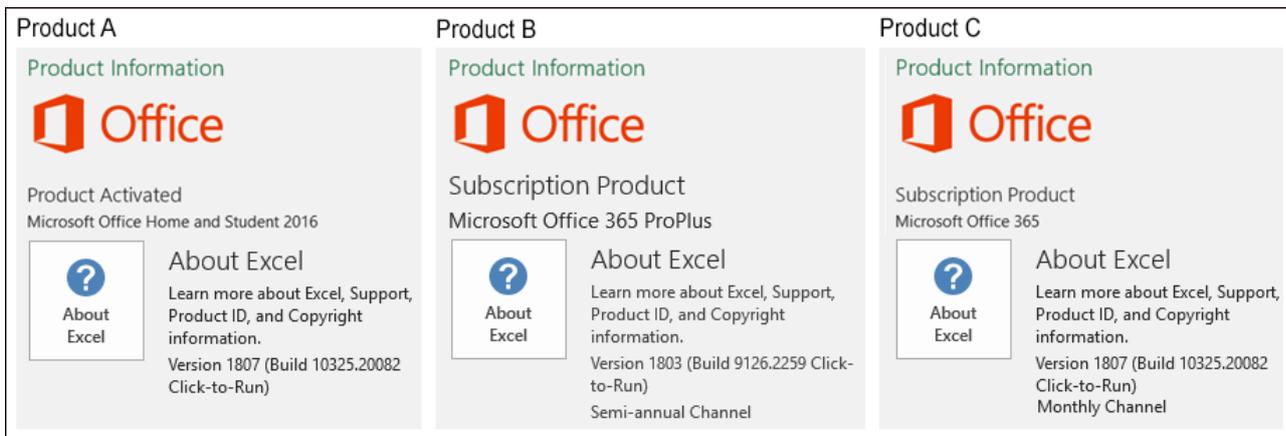


If you see this type of button you should apply the update.

Click: Update Options → Apply Updates.

You may be asked to confirm that you want to apply the update, and to close any open programs to apply the update.

5 Notice your version number and update channel.



note

Perpetual license versions have different features

Perpetual license holders still receive monthly updates but these only include security updates and bug fixes (not new features).

A perpetual license holder running Version 1803 will thus see less features than a subscription license holder running the same Excel version.

You will see product information section displayed. If you see the number 365 or the words *Subscription Product*, you will know that you are using the subscription version of Excel 2016 (this is the case for products B and C above). Otherwise you are using the *perpetual license* version (this is the case for product A above). In this book, the perpetual license version will be referred to as *Excel 2016* and the subscription version as *Excel 365*.

Notice also the *update channel* and *version numbers* (see sidebars).

6 Click the **Back** button  to leave *Backstage View* and return to the worksheet.

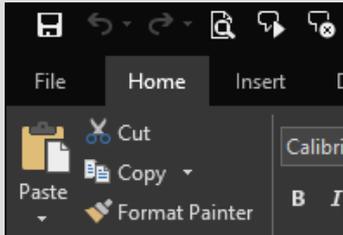
7 Click the **Close** button  in the top-right corner of the Excel screen to close Excel.

note

The new Excel 365 Black theme

The new *Black* theme was introduced as part of the Feb 2016 version 1601 update.

The *Black* theme provides even higher contrast than the *Dark Gray* theme.



note

Themes and Backgrounds affect every Office application on all of your devices

When you set a theme or background in Excel you are actually changing the theme and background for the entire Office suite.

This means that you will have a consistent experience when using other Office applications such as *Word* and *PowerPoint*.

Lesson 1-3: Change the Office Theme

Excel allows you to change the colors of screen elements (such as the menu bar and ribbon) by selecting a *theme*. Excel 2016 users have three themes available: *White*, *Dark Gray* and *Colorful*, while Excel 365 users have an additional *Black* theme also available (see sidebar).

Colorful

Rank	Country	GDP - per capita (PPP)	Date of information
1	Qatar	\$137,200	2014 est.
2	Luxembourg	\$97,600	2014 est.
3	Liechtenstein	\$89,400	2009 est.
4	Macau	\$88,700	2013 est.

Excel 2016 uses the *Colorful* theme as the default. The previous version of Excel (Excel 2013) used the *White* theme as the default. The colorful theme makes it clear which of the Office applications you are using as Word, Excel, PowerPoint, Outlook and other Office applications each have their own unique color.

White

Rank	Country	GDP - per capita (PPP)	Date of information
1	Qatar	\$137,200	2014 est.
2	Luxembourg	\$97,600	2014 est.
3	Liechtenstein	\$89,400	2009 est.
4	Macau	\$88,700	2013 est.

The *White* theme has very low contrast and shading. Some designers feel that this gives Excel a modern and “minimalist” appearance but it was widely criticized by some users of Excel 2013 for causing eye strain and being difficult to work with.

note

You can also personalize Excel by changing the background

Background customization can only be done if you are connected to the Internet and logged into a Microsoft Account.

If you are logged into your Microsoft Account, you will see an *Office Background* drop-down list (above the *Office Theme* setting) that enables backgrounds to be set:

When you choose a background a “tattoo” is added to the area above the Ribbon with your chosen design:



note

Audio cues

Audio Cues were introduced in the *July 27, 2017 Version 1707* update.

If you enable *Audio Cues* a different sound will be played whenever you complete common Excel actions (such as cut and paste).

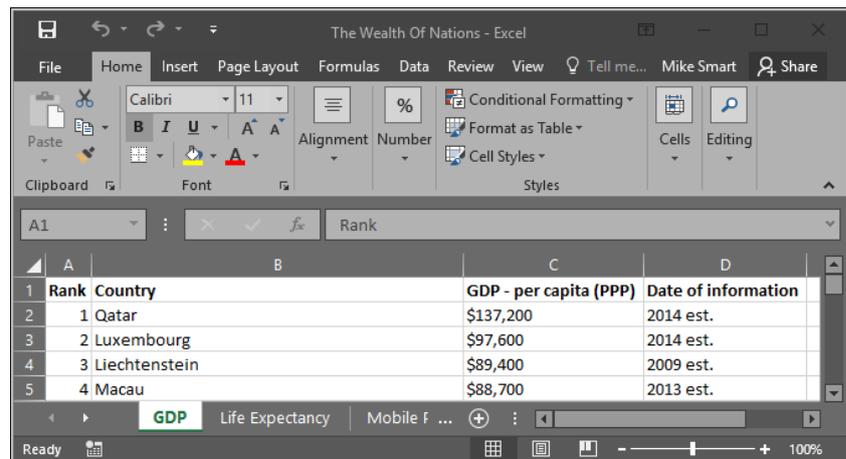
The idea is that you will subconsciously link sounds with actions so that when you make a mistake it will “sound wrong”.

To enable Audio cues:

1. Click: File→Options→Ease of Access→Feedback options→Provide Feedback with sound.

You are also able to choose between two different *Sound Schemes*.

Dark Gray



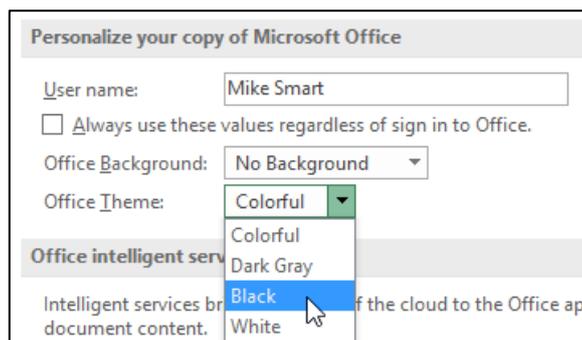
The *Dark Gray* theme provides high contrast between different screen elements. It has been suggested that this theme would be particularly useful for users with impaired vision.

- 1 Open Excel and open a new blank Excel workbook.
- 2 Change the *Office Theme*.

1. Click the *File* button  at the top-left of the screen.
2. Click the *Options* button  near the bottom of the left-hand menu bar.

The *Excel Options* dialog box appears.

In the *Personalize your copy of Microsoft Office* section, you'll see an *Office Theme* drop-down list. Click the drop-down arrow to see the different themes available.



3. Click the *Dark Gray* theme.
4. Click *OK* to return to the Excel screen.

Experiment with each theme until you discover the one you prefer. All of the screen grabs in this book were done using the *Colorful* theme. If you choose a different theme the screen grabs in the book may look slightly different to what you see on your computer screen.

- 3 Close Excel.

Lesson 1-4: Maximize, minimize, re-size, move and close the Excel window

The main Excel window has a dazzling array of buttons, switches and other artifacts. By the end of this book they will all make sense to you and you'll really feel really comfortable with Excel.

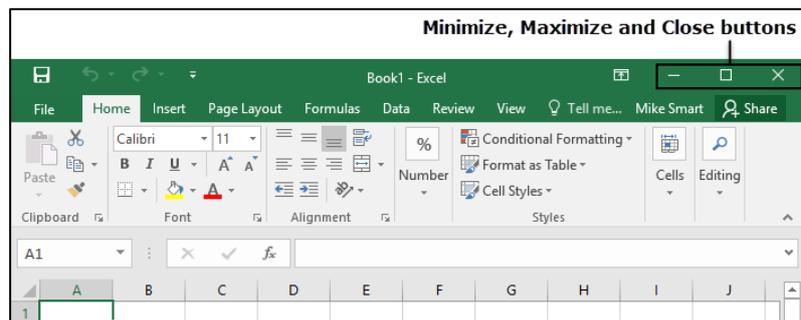
For now, you'll explore the big picture by looking at how the Excel window can be sized and moved. The details will come later.

- 1 Open Excel.
- 2 Use the *Blank workbook* template to open a new blank workbook.

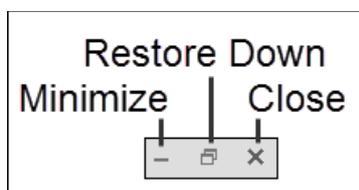
You learned how to do this in: *Lesson 1-1: Start Excel and open a new blank workbook.*

- 3 Understand the *Maximize, Minimize, Close and Restore Down* buttons

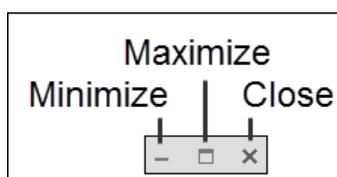
At the top right corner of the Excel window you'll see three buttons.



The buttons that you see will depend upon how the Excel window was left last time the application closed down. Normally the Excel screen is maximized to fill the screen and you'll see:



But if you had reduced the size of the Excel window so that it didn't fill the screen you'd see this instead:



Try clicking the *Maximize, Minimize* and *Restore Down* buttons.

- *Maximize* makes the Excel window completely fill the screen.

- *Minimize* reduces Excel to a button on the bottom task bar.

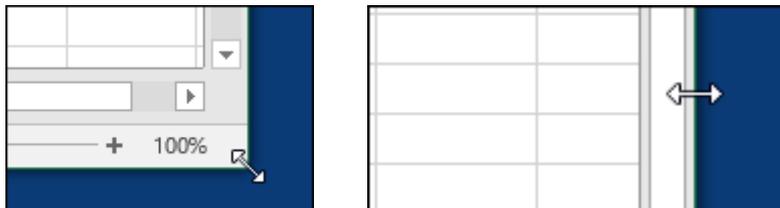


Click this button again to restore the window to its previous size.

- *Restore Down* makes the Excel window smaller, allowing you to re-size the window.

4 Re-size the Excel window.

After clicking the *Restore Down* button you are able to re-size the Excel window. Hover over either the side of the window, or a corner of the window, with your mouse cursor. The cursor shape will change to a double-headed arrow.



When you see either cursor shape, hold down the left mouse button and move the mouse (this is called *click and drag*) to re-size the window.

Clicking and dragging a corner allows you to change both the height and width of the window.

Clicking an edge allows you to change only one dimension.

5 Move the Excel window.

Click and drag the *Title Bar* (the bar at the very top of the window) to move the Excel window around the screen.



6 Close Excel.

Click on the *Close* button  at the top right of the Excel window.

This is the most common way to close down Excel

There are also two lesser known (and lesser used) methods of closing Excel (see sidebar).

Excel often provides many different ways to do exactly the same thing.

note

Other ways to close down Excel

There are two other ways of closing Excel.

1. Click *File* on the Ribbon and then *Close* on the left-hand menu bar.
2. Press the <Alt>+<F4> keys on your keyboard.

important

Organizing your sample files folder

When you complete a lesson that involves a sample file that is changed, you will be instructed to save the file with a suffix.

By the time you've completed the course you'll have sample files such as:

Sales-1
Sales-2
Sales-3
Sales-4 ... etc

The first file is the sample file that you downloaded and the others (with the number suffix) are interim versions as you complete each lesson.

The sample file set includes the starting sample file and all interim versions.

The interim versions are provided for three reasons:

1. If your work-in-progress becomes unusable (for example after a system crash) you can continue without starting at the beginning again.
2. If a lesson doesn't seem to give the results described, you can view the example to get some clues about what has gone wrong.
3. When you have completed the course you will use this book as a reference. The interim versions allow you to work through any of the lessons in isolation if you need to remind yourself how to use a specific Excel feature.

It is a good idea to place the sample files in a different folder to your saved work. If you don't do this you'll be over-writing the sample interim files (such as Sales-1, Sales-2 etc) with your own finished work.

The Wealth of Nations

Lesson 1-5: Download the sample files and open/navigate a workbook

Excel uses the analogy of a book that has many pages. In Excel terminology, the term: *Workbook* is used for the entire book and *Worksheet* for each of the pages. You'll be learning more about worksheets later in this session in: *Lesson 1-9: View, move, add, rename, delete and navigate worksheet tabs*.

1 Download the sample files (if you haven't already done so).

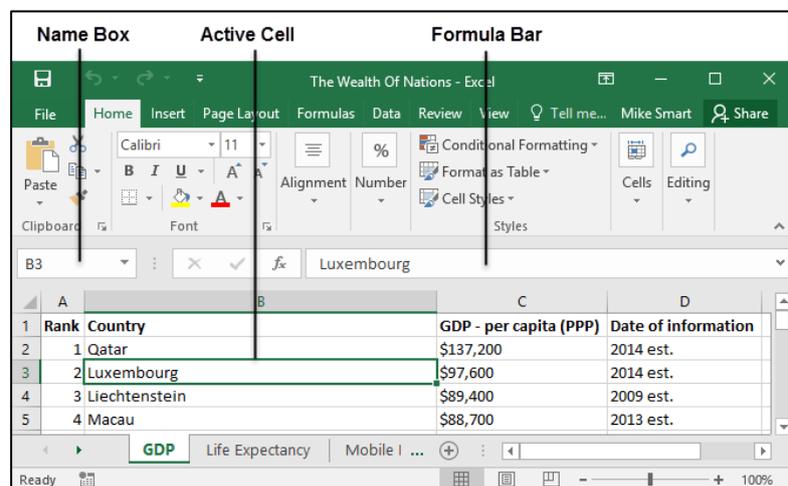
1. Open your web browser and type in the URL:
<https://thesmartmethod.com>
2. Click the *Sample Files* link on the top right of the home page.
3. Download the sample files for *Excel 2016 Basic Skills*.

If you have any difficulty downloading the sample files there is a FAQ section at the bottom of the page detailing solutions to common problems.

2 Open the sample workbook: *The Wealth of Nations*.

1. Open Excel.
2. Click *Open Other Workbooks* on at the bottom of the left-hand menu bar.
3. Click: *Browse* in the list beneath *Open*.
4. Navigate to your sample files. If you downloaded using the recommended option and didn't change the normal file location, you will find these in the *C:/Practice* folder.
5. Open the *Excel 2016 Basic Skills* folder.
6. Open the *Session 1* folder.
7. Double click *The Wealth of Nations* to open the sample workbook.

3 Go to Cell Z33 using the Name Box.



note

Potential problem when downloading sample files

Protected View is a security feature that was first introduced in Excel 2010. It is designed to protect you from potential viruses by treating all files downloaded from the Internet as being suspicious.

Any workbooks that are downloaded from the Internet, or are sent by e-mail attachment, will open in *Protected View* by default.



The user then has to click an *Enable Editing* button to use the file as normal:



While some users may find it useful to be reminded about the origin of their files, others may find this feature annoying.

To avoid seeing this message whenever you open a sample file, we provide the sample files as a digitally-signed self-extracting download. This means that the sample files will open.

We also offer an alternative zip file method to download (the link to this page is in the FAQ section at the bottom of the web page).

The alternative zip file has been provided because some companies (or anti-virus products) block the download of executable files.

If you download using the zip file option, you'll have to click the *Enable Editing* button every time you open a sample file for the first time.

Excel uses the letter of the column and the number of the row to identify cells. This is called the *cell address*. In the above example, the cell address of the active cell is B3.

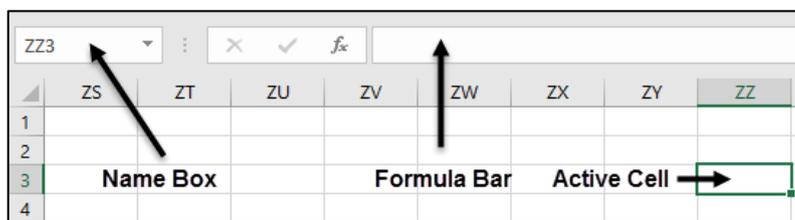
In Excel 2016 there are a little over a million rows and a little over sixteen thousand columns. You may wonder how it is possible to name these columns with only 26 letters in the alphabet.

When Excel runs out of letters it starts using two: X, Y, Z and then AA, AB, AC etc. But even two letters are not enough. When Excel reaches column ZZ it starts using three letters: ZX, ZY, ZZ and then AAA, AAB, AAC etc.

The currently selected cell is called the *Active Cell* and has a green line around it. The Active Cell's address is always displayed in the *Name Box* and its contents are displayed in the *Formula Bar*.

You can also use the *Name Box* to move to a specific cell.

To see this in action, type **ZZ3** into the *Name Box* and then press the **<Enter>** key. You are teleported to cell ZZ3:

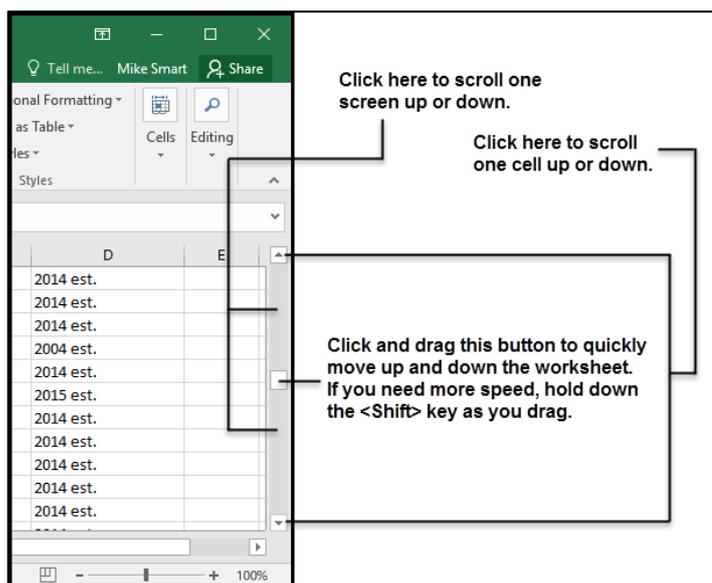


- 4 Return to Cell A1 by pressing **<Ctrl>+<Home>**.
- 5 Go to the end of the worksheet by pressing **<Ctrl>+<End>**.
- 6 Use the scroll bars.

There are two scroll bars for the Excel window.

The vertical scroll bar runs from top to bottom of the window and allows you to quickly move up and down the worksheet.

The horizontal scroll bar is at the bottom right hand side of the window and allows you to move to the left and right in wide worksheets. Here's how the scroll bars work:



Lesson 1-6: Save a workbook to a local file

- 1 Open *The Wealth of Nations* from your sample files folder (if it isn't already open).
- 2 Save the workbook.

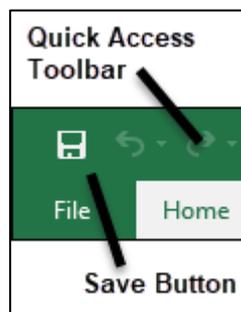
note

You can also use the <Ctrl>+<S> keyboard shortcut to save your work.

When you are editing a workbook, the changes you make are only held in the computer's memory. If there is a power cut or your computer crashes, you will lose any work that has been done since the last save.

For this reason, you should get into the habit of regularly saving your work.

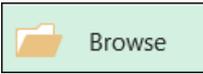
Even though you haven't changed this workbook, save it by clicking the *Save* button on the *Quick Access Toolbar* at the top left of the screen.



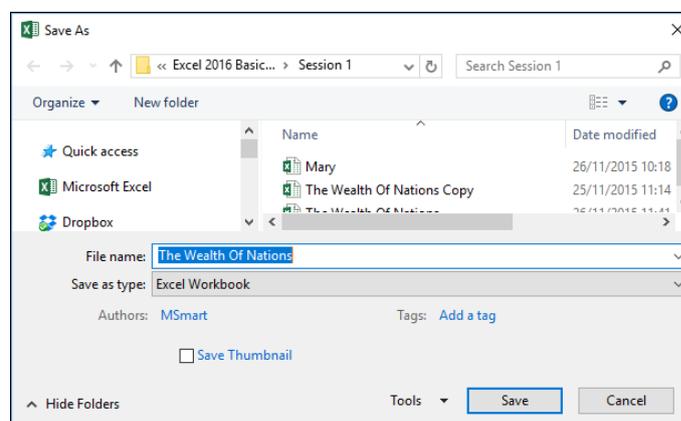
note

You can also use the <F12> key to instantly display the *Save As* dialog.

- 3 Save the workbook with a different name.

1. Click the *File* button.  at the top-left of the screen.
2. Click: *Save As*  in the left-hand list.
3. Click *Browse*  in the *Save As* menu.

The following dialog will appear if you are using Windows 10. The dialog may be slightly different for Windows 7 or 8 users but you should easily be able to figure out the differences:



The Wealth of Nations

note

OneDrive and Cloud Computing

You may have noticed that the *Save As* dialog also has an option to save your workbook to a OneDrive:



A OneDrive can be thought of as a “disk drive in the sky”.

It is just like the C:\ drive on your computer but exists on a Microsoft server many miles away, accessed via the Internet.

The OneDrive can be very useful when you need to access your files from several different computers.

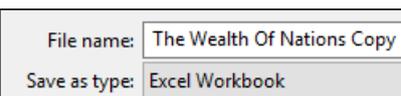
A OneDrive also provides an easier way to share files with others.

The OneDrive is part of a completely new way of working called *Cloud Computing*.

Support for Cloud Computing was first added in the Excel 2013 release.

Because Cloud Computing is such an involved (and complex) subject it is beyond the scope of this *Basic Skills* book.

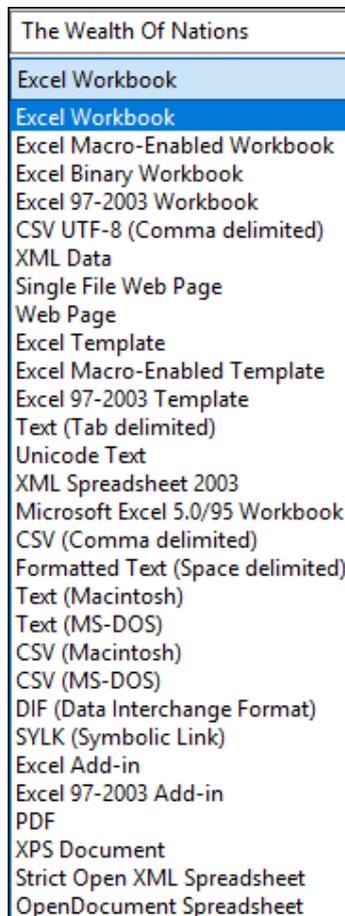
The *Essential Skills* book in this series devotes an entire session to Cloud Computing (in *Session Eight: Cloud Computing*).



1. Click the drop-down arrow to the right of the *Save as type* drop-down list.



2. A list appears showing a large number of different file types:



Most of the time you'll want to use the default format: *Excel Workbook* but there may be times when you'll need to save in one of the other formats. You'll learn all about the most important formats (and when you should use them) in the next lesson: *Lesson 1-7: Understand common file formats*. For now, you'll stay with the default: *Excel Workbook* format.

3. Click inside the *File name* box.
4. Type: **The Wealth of Nations Copy**
5. Click the *Save* button.

Notice that the name of the workbook in the title bar (at the top of the window) has now changed indicating that you are now viewing the new workbook that you have just saved.



Lesson 1-7: Understand common file formats

1 Open a new blank workbook.

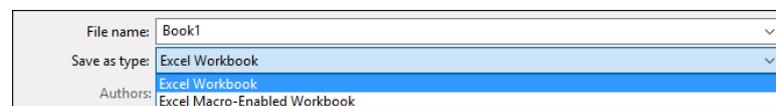
You learned how to do this in: *Lesson 1-1: Start Excel and open a new blank workbook.*

2 View the file formats supported by Excel.

1. Click the *File* button at the top-left of the screen.
2. Click: *Save As* in the left-hand list.
3. Click *Browse* in the *Save As* menu.

The *Save As* dialog appears.

4. Click the drop-down arrow to the right of the *Save as type* list.



A list appears showing all of the different file formats supported by Excel (see sidebar).

3 Understand the most important file formats.

The Wealth Of Nations
Excel Workbook
Excel Workbook
Excel Macro-Enabled Workbook
Excel Binary Workbook
Excel 97-2003 Workbook
CSV UTF-8 (Comma delimited)
XML Data
Single File Web Page
Web Page
Excel Template
Excel Macro-Enabled Template
Excel 97-2003 Template
Text (Tab delimited)
Unicode Text
XML Spreadsheet 2003
Microsoft Excel 5.0/95 Workbook
CSV (Comma delimited)
Formatted Text (Space delimited)
Text (Macintosh)
Text (MS-DOS)
CSV (Macintosh)
CSV (MS-DOS)
DIF (Data Interchange Format)
SYLK (Symbolic Link)
Excel Add-in
Excel 97-2003 Add-in
PDF
XPS Document
Strict Open XML Spreadsheet
OpenDocument Spreadsheet

Excel Workbook (the Open XML format)

Before Office 2007 was released, every program stored its information on the hard disk in a completely different way. These incompatible formats are called *binary formats*. This made it very difficult to write applications that could be used together.

All of this changed with a new format that was first introduced in Office 2007: *Office Open XML*.

Excel Macro-Enabled Workbook

An Excel Macro-Enabled Workbook is simply a workbook that has program code (called VBA code) embedded within it. Macros are beyond the scope of this book but are covered in the *Excel Expert Skills* book in this series.

While macro code is very powerful it can also be destructive as it is extremely simple to write damaging viruses within Excel macro code.

Macro programming (also called VBA programming) is a vast subject of its own and is not useful to the vast majority of Excel users. The Smart Method® run comprehensive classroom Excel VBA courses but they are usually only taken by scientists and engineers who need to add very advanced functionality to Excel.

Versions of Excel before Excel 2007 could potentially allow a workbook to infect your machine with a macro virus because all Excel files were capable of carrying macros. Because the formats are now separate, it is easier to avoid opening potentially infected files.

Excel 97-2003 Workbook

This is the old binary format that allows users with earlier versions of Excel to open your workbooks. Some features won't work in earlier versions and if you've used those in your workbook, Excel will display a warning when you save telling you which features will be lost.

note

Sharing files using Cloud Computing features

You should be aware that Excel 2016 provides another way to share files with users that do not have Excel 2016 (or, indeed, any version of Excel) installed upon their computer. This is done using Excel 2016's built in *Cloud Computing* features.

Cloud Computing also allows users to open (and even edit) Excel workbooks using devices such as iPads, Android pads, Apple Macs and Smartphones.

Support for Cloud Computing was originally introduced in the Excel 2013 release.

Because Cloud Computing is such an involved (and complex) subject it is beyond the scope of this *Basic Skills* book.

The *Essential Skills* book in this series devotes an entire session to Cloud Computing (in *Session Eight: Cloud Computing*).

Excel Binary Workbook

An oddity in Excel is a binary format called: *Excel Binary Workbook*. This is a binary alternative to Open XML but it can't be read by earlier versions of Excel. The advantages of this format are that it generally results in smaller file sizes and loads and saves more quickly than Open XML. You will only notice a speed difference when working with very large worksheets.

The *Excel Binary Workbook* format may also present a security threat as (just like the *Excel Macro-Enabled Workbook* format) it can contain macros that could infect your machine with a macro virus.

PDF

If you need to send a worksheet to a user who does not own a copy of Excel, you can save it in PDF (Portable Document Format). This format was invented by Adobe and is also sometimes called *Adobe Acrobat* or simply *Acrobat*.

All major web browsers can open and display PDF files. In Windows 10 PDF files will, by default, open using the new Edge browser. If you send a user a PDF file you can be confident that they will be able to read and print (but not change) the worksheet.

If you are reading this book as an e-book you are using a PDF file right now, as all Smart Method e-books are published using the PDF file format.

Other formats

As you can see, there are several other less commonly used formats supported by Excel 2016 but the above formats are the only ones you'll normally encounter. The most important thing to remember is that, unless there's a good reason to use a different format, you should always save documents in the default *Excel Workbook* format.

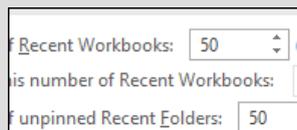
tip**Reducing the number of items, or hiding items, in the recent workbooks or recent folders lists**

Excel remembers the fifty most recently opened workbooks and folders.

As you open more documents the fiftieth oldest is removed from the *Recent* list unless you pin it.

If you'd like to reduce the number of workbooks or folders that Excel keeps track of, here's how it's done:

1. Click the *File* button at the top left of the screen.
2. Click the *Options* button at the bottom of the left-hand menu bar.
3. Choose *Advanced* from the left-hand menu bar.
4. Scroll down the right-hand list until you find the *Display* category. You'll see *Show this number of Recent Workbooks: 50* and *Show this number of unpinned Recent Folders: 50*.



5. Change the number to the number of recently opened workbooks/folders you'd prefer Excel to remember.

If you set the value to zero, Excel will not show any entries in the list.

Lesson 1-8: Pin a workbook and understand file organization

1. Close down and restart Excel.
2. Pin a workbook to the *Recent Workbooks* list.

Notice that there is a list of recently opened documents at the top of the left-hand menu bar.

The list begins with the most recently opened workbook (probably the *Wealth of Nations Copy* workbook saved in: *Lesson 1-6: Save a workbook*).



1. Hover the mouse cursor over one of the files in the *Recent* list:



Note that a pin icon  has appeared next to the workbook name.

When you hover the mouse cursor over the pin a tooltip is displayed saying: *Pin this item to the list*.

This can be a great time saver as it enables any workbook that you use a lot to always be at the top of the *Recent* list. You won't have to waste time looking for it on the hard drive.

2. Click the pin icon. The item moves to the top of the list and the pin icon changes from unpinned  to pinned. 

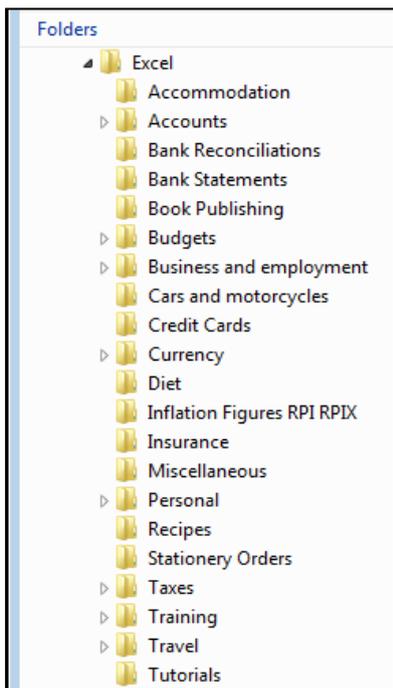


3. Click on *The Wealth of Nations* to open the workbook.

3 Understand file organization.

By default, Excel saves all workbooks into your *Documents* folder along with other Office documents (such as Word and PowerPoint files). This clearly is going to cause problems when you have a few hundred files.

The Wealth of Nations



note

How do I create a subfolder?

The concept of folders, subfolders and files is a very fundamental Windows skill rather than an Excel skill.

If you do not have basic Windows skills (an understanding of how Windows organizes files) you would get good value from a Windows book to give you the foundation skills you need to use any Windows program.

Here's how you create a new subfolder:

1. Right-click on the *Documents* folder.
2. Click: *New* → *Folder*, from the shortcut menu.

A new folder will appear called *New Folder*.

3. You will now be able to type: **Excel** in order to name the folder.

If this doesn't work for you, right-click the new folder and select *Rename* from the shortcut menu. You'll then be able to type: **Excel** to rename the folder.

It is better to organize yourself from the start by setting up an orderly filing system.

- 4 Create an *Excel* subfolder beneath your *Documents* folder.

I create a folder called *Excel* beneath the *Documents* folder. In this folder, I create subfolders to store my work. You can see a screen grab of my Excel folder in the sidebar (of course, your needs will be different to mine).

See sidebar if you don't know how to create a subfolder.

- 5 Set the default file location to point to the new *Excel* folder.

If you take my advice and create an Excel folder, you will waste a mouse click every time you open a file because Excel will take you to the *Documents* folder by default.

Here's how to reset the default file location to your new Excel folder:

1. Open Excel and click the *Blank Workbook* template to open a new blank workbook.
2. Click the *File* button at the top left of the screen.
3. Click the *Options* button towards the bottom of the left-hand list.

The *Excel Options* dialog appears.

4. Choose the *Save* category from the left-hand side of the dialog.

During the remainder of the book I'll explain the above three steps like this:

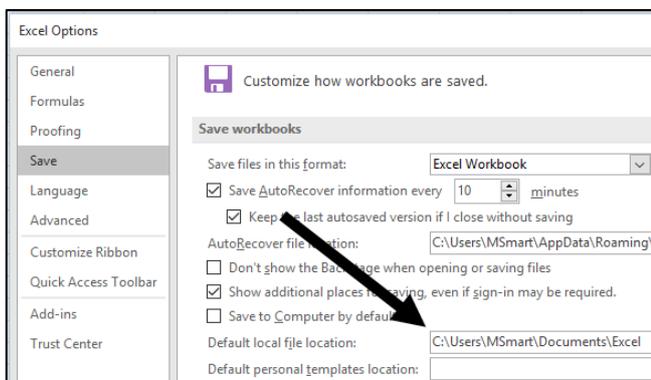
Click: *File* → *Options* → *Save*.

This will save a lot of time and forests!

5. Change the *Default local file location*.

Type: **\Excel** after the end of the current *Default local file location*.

You have to actually type this manually. Microsoft seem to have forgotten to add a browse button!



When you click *File* → *Open* → *Browse* in future you'll automatically be taken to your Excel folder ready to choose a category.

note

Changing the default number of worksheets created in new workbooks

When you open a new blank workbook in Excel 2016, one new worksheet is automatically created called *Sheet1*.

In older versions of Excel (Excel 2010 and earlier), three worksheets were created called *Sheet1*, *Sheet2* and *Sheet3*.

This is a change for the better as it keeps things neater. Most of my workbooks only need one worksheet.

But if you long for the “good old days” here’s how you can make Excel 2016 mimic Excel 2010 (and earlier versions) at start-up:

1. Click:

File→Options→General→
When creating new workbooks
→Include this many sheets:

2. Enter the number of sheets required:

Lesson 1-9: View, move, add, rename, delete and navigate worksheet tabs

When you save an Excel file onto your hard disk, you are saving a single workbook containing one or more worksheets. You can add as many worksheets as you need to a workbook.

There are two types of worksheet. *Regular* worksheets contain cells. *Chart* sheets, as you would expect, each contain a single chart. If you progress to the *Essential Skills* course in this series you’ll exploring charts in depth.

1 Open *The Wealth of Nations* from your sample files folder (if it isn’t already open).

2 Move between worksheets.

Look at the tabs in the bottom left corner of your screen. Notice that this sample workbook contains three worksheets. Click on each tab in turn to view each worksheet.

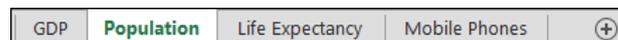


3 Add a new worksheet and name it: **Population**

1. Click the *New Sheet* button (the circle with a plus sign inside it next to *Mobile Phones*).  A new tab appears named *Sheet1*.

2. Double-click the *Sheet1* tab.

3. Type the word **Population** followed by the <Enter> key.



4 Move a worksheet’s tab.

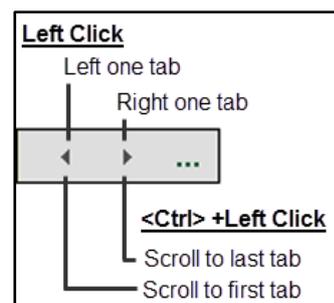
1. Click on the *Population* tab (you may have to do this twice).

2. Hold the mouse button down and drag to the left or right. As you drag you’ll notice an icon of a page and a black arrow showing you where the tab will be placed.

3. Release the mouse button to move the tab to the location of your choice.



5 Understand the tab scroll buttons.



Because this workbook only has four tabs, there's no need to use the tab scroll buttons (in fact, they don't do anything and are grayed out when all tabs are visible).

When there are more tabs than will fit on the screen the *tab scroll buttons* are used to move between tabs.

6 Move between worksheets using the keyboard.

You can move between worksheets using only the keyboard by pressing the <Ctrl>+<PgUp> and <Ctrl>+<PgDn> keyboard shortcuts to cycle through all the tabs in your workbook.

7 Change tab colors.

1. Right-click on any of the tabs and choose *Tab Color* from the shortcut menu.
2. Choose any color.

It is best practice to choose a color from the top block of *Theme Colors* rather than one of the *Standard Colors*.

If you later progress to the *Essential Skills* course in this series you'll learn to use Themes and will then understand why the use of theme colors is best practice.

3. Repeat for the other tabs on the worksheet.

8 Delete a worksheet.

Right click on the *Population* tab and click *Delete* from the shortcut menu.

9 Delete several worksheets at the same time.

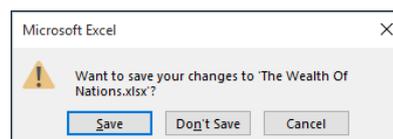
1. Hold down the <Ctrl> key.
2. Click each tab that you want to delete in turn. Don't select them all as it isn't possible to delete every worksheet in a workbook.
3. Right click any of the selected tabs and select *Delete* from the shortcut menu.

Don't worry about the missing tabs. You're going to close the workbook without saving it so you won't overwrite the original workbook.

10 Close the workbook without saving it.

1. Click: File→Close.

A dialog is displayed:



2. Click *Don't Save* so that you don't over-write the workbook.

Because you haven't saved the workbook it will remain in its original state when you next open it.

note**The versions feature will not protect you from a hard drive failure**

Carnegie Mellon University conducted a study of 100,000 hard drives in 2007. They found that there's a probability of between 1 in 50 and 1 in 25 of your hard drive failing each year.

In an office of 100 workers that means that between two and four unlucky workers will suffer a hard drive failure every year.

To insure against drive failure, you need to back up your data to a different hard drive (or other media).

If your computer is part of an office network, the normal solution is to save your files to a shared network drive. The IT department are then responsible for backing this up every night.

For home users (or small companies that only have one computer) you should back up all of your data to an external hard drive (or a memory stick if your files are not very large).

Cloud computing offers an even better solution to prevent potential file loss after hard drive failure.

If you progress to the *Essential Skills* book in this series you'll learn how to use a OneDrive to store a workbook in the cloud.

Lesson 1-10: Use the Versions feature to recover an unsaved Draft file

Excel 2010 introduced a major new feature called *Versions*. The Versions feature is fantastically useful as it finally solves two common problems that are as old as computing itself:

1. Your computer crashes, there's a power cut, or you close your work without saving, and then discover that you've lost all of your work since the last save.
2. You delete parts of your workbook and then save, only to realize that you deleted something important before saving. Because saving over-writes the old version of the file, you find that you've lost the deleted work forever.

Microsoft has finally figured out how to solve both problems. The Versions feature works like this:

1. Every so often Excel saves a backup of your workbook (called a *Version*) for you. The default time interval for these automatic backups is every 10 minutes (but you can change this to any interval). You'll see the Versions feature at work in the next lesson: *Lesson 1-11: Use the Versions feature to recover an earlier version of a workbook*.
2. If you create a new workbook and then close it without saving, Excel will still keep the last automatic backup it made. Excel calls this a *Draft* version. Draft versions are automatically deleted after four days. The Draft feature is the subject of this lesson.

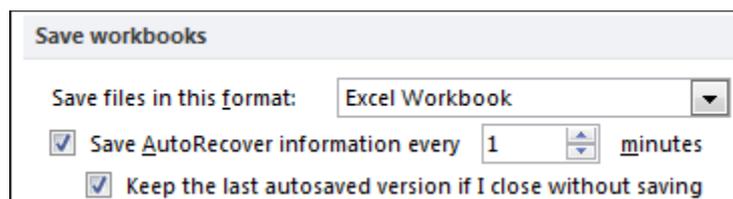
You'll need a watch or clock with a second hand for this lesson.

1 Open a new blank workbook.

You learned how to do this in: *Lesson 1-1: Start Excel and open a new blank workbook*.

2 Set the AutoSave interval to one minute and check that AutoSave features are enabled

1. Click: File→Options→Save.
2. Change the *Save AutoRecover information every* box to 1 minute.
3. Make sure that the other options are set in the same way as in this screen grab (the two check boxes will already be checked unless another user has changed them):



4. Click: OK and check the time on your clock or watch. The first AutoSave will happen one minute from now!

note

RAID arrays are a special super-reliable type of disk drive

Many years ago, I implemented an EDM (electronic document management system) for the world's largest car manufacturer.

It would have been a disaster for them to lose even one hours' work, so I specified a special drive called a RAID Array (Redundant Array of Independent Disks) to store the documents.

The simplest RAID array consists of two hard drives and automatically writes all data to both drives (this is called mirroring). If one drive fails, the other will still have the data meaning that any data loss is very unlikely.

RAID arrays don't stop workflow for even a moment. If a disk fails, the users don't even notice as data continues to be available from the other disk (or disks).

When the faulty disk drive is replaced, the files automatically restore themselves from the good disk (or disks) restoring the reliability of the array.

note

The Versions feature isn't just for Excel

Microsoft has also included the Versions feature in Word and PowerPoint.

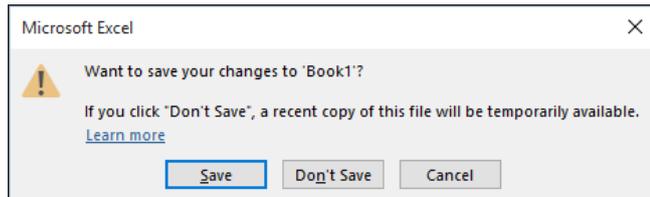
Now that you've learned how to use it in Excel, you should be able to figure out the small differences in the way it is implemented in the other Office applications.

5. Type the following into cells A1 and A2, pressing the <Enter> key after each line:

	A	B	C
1	Mary had a little lamb		
2	Its fleece was white as snow		
3			

6. Wait for at least one minute. (After one minute Excel will automatically save your workbook).

After a little over a minute try to close the workbook. The following dialog should appear:



Excel is telling you that it has already saved a draft copy of the workbook.

7. Click the *Don't Save* button.

Even though you told Excel not to save, a draft copy has been secretly saved just in case you made a mistake and may need the file later.

3 Recover the draft document.

1. Open Excel.
2. Click: *Open Other Workbooks* at the bottom of the menu bar.
3. Click: *Recover Unsaved Workbooks*.

You'll find this at the bottom center of the screen (you may need to scroll down).



4. A dialog appears showing the unsaved document that you were working on:

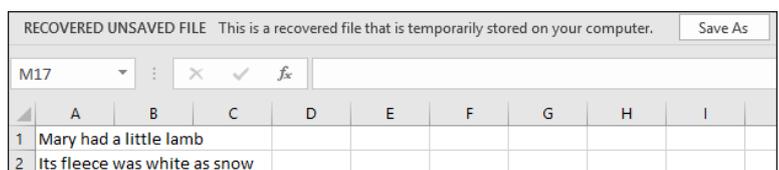
Name	Date modified
Book1((Unsaved-306056443257458486))	20/07/2017 11:38

5. Double-click the document to open it.

The document is now shown on screen (even though you have never saved it).

6. Recover the unsaved file.

Click the *Save As* button in the top information bar.



7. Save the file in your sample files folder with the name: **Mary**.

Lesson 1-11: Use the Versions feature to recover an earlier version of a workbook

Excel's ability to automatically backup your document at a chosen time interval was explored in the previous lesson: *Lesson 1-10: Use the Versions feature to recover an unsaved Draft file.*

This lesson will show you how to view the automatic backups and to revert to an earlier version if you've messed up the current version.

You can even cut-and-paste sections from older versions of a workbook and paste them into the current version.

You'll need a watch or clock with a second hand for this lesson.

- 1 Open *Mary* from your sample files folder (if it isn't already open).
- 2 Cause Excel to automatically save a different version of the workbook.

In the last lesson: *Lesson 1-10: Use the Versions feature to recover an unsaved Draft file*, you set the time interval for automatic backups to 1 minute. If you are not completing this course sequentially, you will need to go back to this lesson and make sure that this setting is set to 1 minute.

Add the following text to cells A4 and A5, pressing the <Enter> key after each line:

	A	B	C	D
1	Mary had a little lamb			
2	Its fleece was white as snow			
3				
4	and everywhere that Mary went			
5	The lamb was sure to go			
6				

Look at your watch or clock and wait for a little over one minute. Excel should have automatically saved a new version of the workbook.

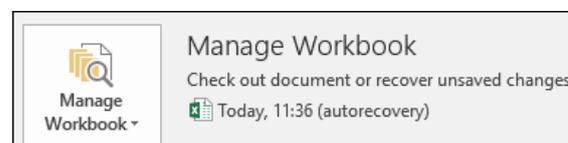
- 3 Make sure that Excel AutoSaved the new version.

Some users have reported that Excel sometimes takes as long as ten minutes to AutoSave a file (even when the AutoSave interval is set to one minute). Here's how to check that it performed as it should:

1. Click the *File* button.



You should see an AutoSave file version alongside the *Manage Workbook* button.



important

Version files don't stay around forever

As discussed in: *Lesson 1-10: Use the Versions feature to recover an unsaved Draft file*, draft versions of unsaved files are kept for four days.

But what about the regular *Version* backups that Excel makes? Obviously, Excel would fill up your hard drive with version files if it didn't have a mechanism for automatically deleting them.

Excel uses two rules when deciding whether version files are still useful.

1/ While you are in the current editing session, version files are **never** deleted (even if you save the current version).

2/ When you close the workbook **all version files are deleted** unless you close without saving. If you close without saving only the last version is retained (as a draft version).

Mary



If you don't see the AutoSave version, click the *Back* button wait another minute and then click the *File* tab again. Don't move on to the next step until it has appeared.

4 Further modify the file and then save it.

1. Add the following text to cells A7 and A8 pressing the <Enter> key after each line:

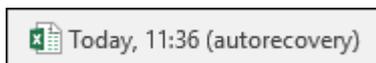
	A	B	C
1	Mary had a little lamb		
2	Its fleece was white as snow		
3			
4	and everywhere that Mary went		
5	The lamb was sure to go		
6			
7	It followed her to school one day		
8	It was against the rules		

	A	B	C
7	It followed her to school one day		
8	It was against the rules		

2. Save the workbook.

5 View the earlier version that Excel automatically saved.

1. Click the *File* button. 
2. Click the earlier AutoSaved version.



The earlier version opens in Excel.

AUTOSAVED VERSION		A newer version is available.		Restore		
G15		✕ ✓ fx				
	A	B	C	D	E	F
1	Mary had a little lamb					
2	Its fleece was white as snow					
3						
4	and everywhere that Mary went					
5	The lamb was sure to go					
6						
7						

Notice that Excel advises that there is a later version of your workbook available should you need to go back to the version that you have just replaced.



Notice also that it would be possible to copy and paste sections from the older version into the newer version if you needed to do that.

6 Replace the current version of the workbook with the earlier AutoSaved version.

1. Click the *Restore* button on the top information bar.
2. Click the OK button to confirm.

7 Reset the AutoSave interval to 10 minutes.

You learned how to do this in: *Lesson 1-10: Use the Versions feature to recover an unsaved Draft file.*

important

The Ribbon shows more if you have a wider screen

When I work with Excel I use a 32-inch monitor running at 2,560X1,440 pixels.

Excel uses all of the available screen space to display extended descriptions of each feature on the Ribbon.

For example, the *Styles* pane on the *Home* Ribbon shows ten buttons for common cell styles allowing them to be applied with a single click rather than two clicks.

Lesson 1-12: Use the Ribbon

The Ribbon provides fast access to hundreds of Excel features.

The sheer breadth of Excel features can seem overwhelming. This book will gently introduce all of the most important features, one at a time.

By the end of the book you'll be really comfortable and productive with the Ribbon.

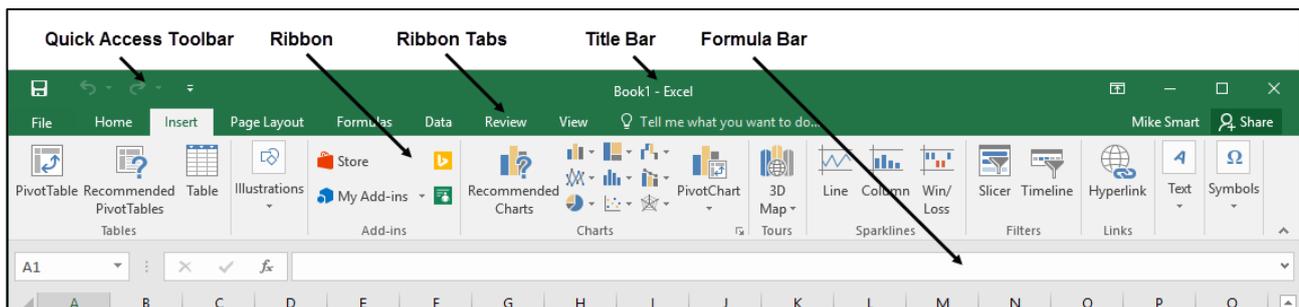
1 Start Excel and open a new blank workbook.

You learned how to do this in: *Lesson 1-1: Start Excel and open a new blank workbook.*

2 Use Ribbon tabs.

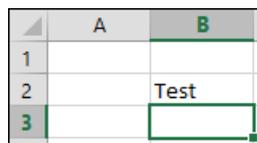
Each Ribbon tab has its own toolkit available to you. By far the most important tab is the *Home* tab which has buttons for all of the most common and useful features.

Click each tab in turn and view the buttons. The screen grab below has the *Insert* tab selected. Don't worry if the buttons seem cryptic at the moment. Most of them will make complete sense by the end of this book. (And if you later go on to complete the *Expert Skills* course, Excel will have no mysteries left at all!)



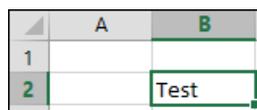
3 Type the word **Test** into any blank cell and then press the **<Enter>** key on the keyboard once.

Notice how the active cell moves to the cell beneath.



4 Make the cell with the word *Test* into the active cell.

Click once on the word *Test* or use the arrow keys on the keyboard to navigate back to the cell. Be very careful not to double-click, otherwise Excel will think that you want to edit the cell.



5 Click the *Home* tab on the Ribbon and focus upon the Font command group (it's the second panel from the left). Try clicking each of the buttons and you will see the word *Test* change to reflect your choices.

important

If your Ribbon doesn't look like the illustrations in this book

If you have Excel 2016 (the one-time purchase version) rather than an Excel 365 subscription, your Ribbon may have less (or different) commands than are found in the latest (Excel 365) version.

The Ribbon will also look different depending upon the size of your screen (see important sidebar on previous page).

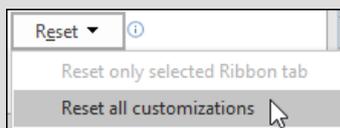
Excel 2016 also allows you to customize the Ribbon.

Customizing the Ribbon is an expert-level skill covered in the *Expert Skills* book in this series.

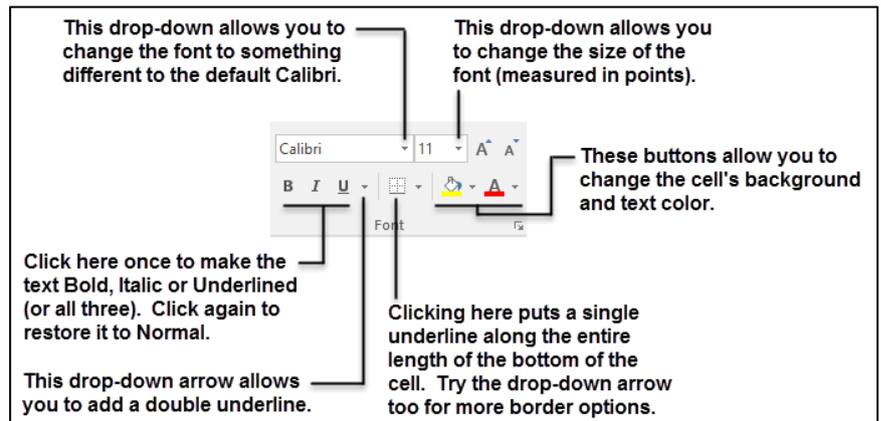
If another user has been playing with this feature, they may have rendered Excel unusable!

If you suspect this to be the case, you can put things back to normal like this:

1. Right-click in a blank area of the Ribbon.
2. Click: *Customize the Ribbon...* from the shortcut menu.
3. Click: Customizations → Reset → Reset all customizations.



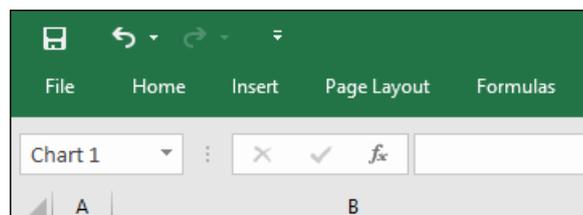
4. Click: Yes.



6 Minimize the Ribbon.

1. Double-click any of the Ribbon tabs except the *File* tab (for example the *Home* tab or the *Insert* tab).

Notice how the Ribbon is now minimized in order to save screen space (though the *Formula Bar* is still visible).



2. Click once on any tab, except the *File* tab, to temporarily bring the Ribbon back to full size.

Notice that as soon as you click back onto the worksheet the Ribbon is minimized again.

7 Bring back the Ribbon.

Double-click on any tab except the *File* tab to permanently bring back the Ribbon.

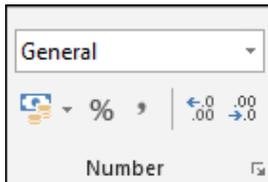
8 Close Excel without saving changes.

1. Click: File → Close or click the cross  in the top right corner.
2. When asked if you want to save your changes, click the *Don't Save* button.

Lesson 1-13: Understand Ribbon components

The whole is more than the sum of its parts.
Aristotle, Greek critic, philosopher, physicist & zoologist
 (384 BC – 322 BC)

The Ribbon is made up of several different controls.

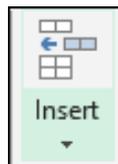


Command group

Similar actions are grouped into a cluster. For example, every control relating to numbers is clustered into the *Number* group.

Normal button

Simply executes a command when clicked. The *Bold* button on the *Home* tab is a good example.



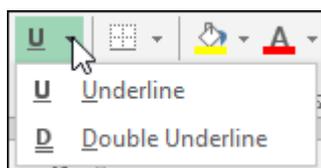
Menu button

This type of button has a little down-arrow on it. It will display a *list*, *menu* or *rich menu* drop-down when clicked.



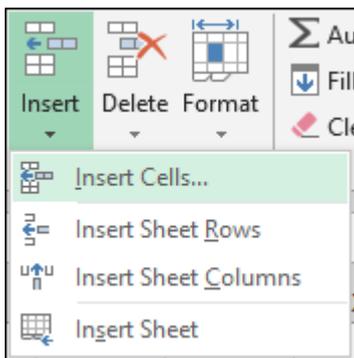
Split button

This is the hardest button to understand because these buttons look almost the same as the *Menu* button. When you hover the mouse cursor over a split button, the icon and drop-down arrow highlight separately as different “buttons within a button”.



A good example is the *underline* button on the *Home* toolbar.

Clicking the icon part of a split button (the U) will perform the default action of the button (in this case a single underline). Clicking the arrow part of the button will display a drop-down list of further choices (in this case the choice between a single and double underline).



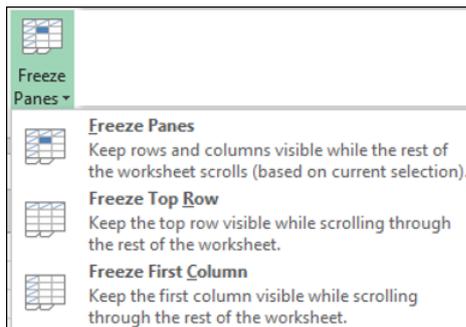
Drop-down list

I often shorten this to simply “Drop-Down” in this book. A drop-down is a simple menu listing several choices.

If you see an ellipsis (...) after a drop-down list item, this means that a dialog will be displayed after you click, offering further choices.

Rich menu

The rich menu is a drop-down list with added help text explaining what each item will do.

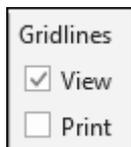
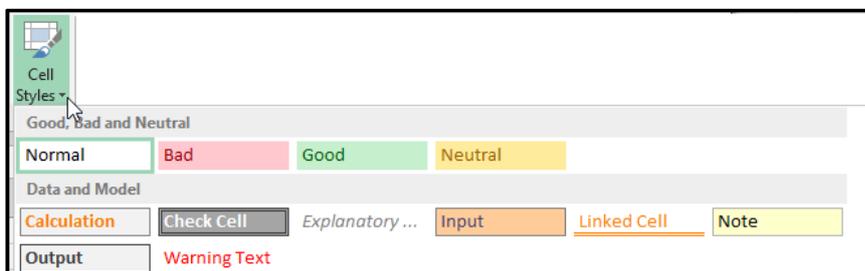


This rich menu can be found at:
View → Window → Freeze Panes

The *Freeze Panes* feature is not covered in this *Basic Skills* book but is covered in-depth in the *Essential Skills* book in this series (in: *Lesson 3-19: Freeze Columns and Rows*).

Drop-down gallery

This is a little like a drop-down list but has graphics to visually demonstrate the effect of each choice.



Check box

A little square box that you can click to switch an option on or off.

In this example (from the *Page Layout* Ribbon tab) you are able to switch the gridlines on and off for the screen display and/or the printout.

Dialog launcher

Dialog launchers appear on the bottom right-hand corner of some command groups. Dialogs offer more choices than it is possible for the Ribbon to express graphically.



note

There are many more commands available in Excel 365 than there are in Excel 2016

In this lesson, I have shown screen grabs from the Excel 2016 Quick Access Toolbar, but Excel 365 users (who have touchscreen devices) may notice an extra button (included on the quick access toolbar by default):

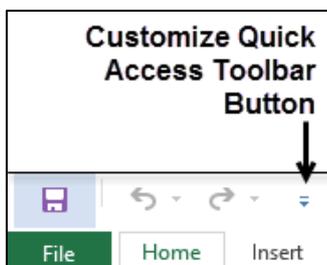
The Touch/Mouse Mode button



The new button adds more space between commands to make Excel easier to use with a touch screen.

With the increasing availability of touch screen computers running Windows 10, this is a very useful new Excel 365 feature if you use this type of device.

If you are using Excel 2016 (the pay once, use forever version of Excel) you will not be able to use this feature.



The Wealth of Nations

Lesson 1-14: Customize the Quick Access Toolbar and preview the printout

You can customize the *Quick Access Toolbar* to suit your own special requirements. In this lesson, you'll add some useful buttons to the *Quick Access Toolbar* to save a few clicks when accessing common commands.

The *Quick Access Toolbar* is one of the keys to being really productive with Excel. This lesson will introduce you to the main features.

- 1 Open *The Wealth of Nations* from your sample files folder.
- 2 Preview how the *Life Expectancy* worksheet will look when printed.

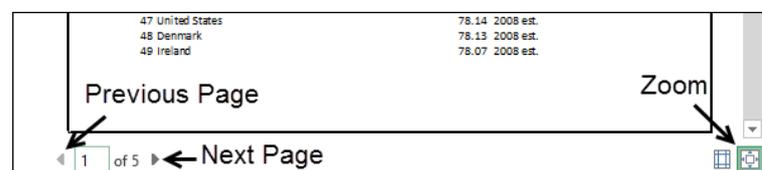
1. Click the *Life Expectancy* tab at the bottom of the worksheet.
2. Click: File→Print.

Backstage View is displayed.

Backstage view displays a huge number of print-related features. A preview of how the page will look when it is printed is displayed on the right-hand side of the screen.

3. Click the *Next Page* and *Previous Page* buttons to move through the print preview.

Notice there's a button to the bottom-left of the preview pane that allows you to cycle through each page:



4. Use the *Zoom* button to magnify the page for a clearer view. (You may not notice much of a zoom if you have a large screen).



5. Click the *Back* button at the top left of *Backstage View* to return to the workbook.

- 3 Add a *Print Preview* button to the Quick Access Toolbar.

The quick *Print Preview* offered by the *Backstage View* is a very useful feature and you'll probably use it a lot. Every time you use it, however, it is going to take two clicks of the mouse. Wouldn't it be better if you could show a print preview with just one click?

1. Click the *Customize Quick Access Toolbar* button (see sidebar).
2. Click the *Print Preview and Print* item in the drop-down list.

A new button appears on the Quick Access Toolbar. You are now able to *Print Preview* your work with a single click of the mouse.

note

Some amazing “hidden” Excel features cannot be used at all without customizing the Quick Access Toolbar or the Ribbon

One of my favourite “hidden” features in Excel 2016 is its ability to read the workbook to me via its *Text to Voice* facility.

When I need to input lots of numbers from a sheet of paper and want to check them, I get Excel to read them to me as I tick each off my list. This is much faster and nicer than continuously looking first at the screen, then at the paper, for each entry.

This feature is covered in depth in the *Expert Skills* book in this series.

You can't use this feature at all unless you either add some custom buttons to the Quick Access Toolbar or customize the Ribbon.

tip

The Quick Access Toolbar is one of the keys to being really productive with Excel 2016.

Always try to minimize the number of mouse clicks needed to do common tasks.

If you find yourself forever changing tabs to use a button, change two clicks into one by adding the button to the Quick Access Toolbar.

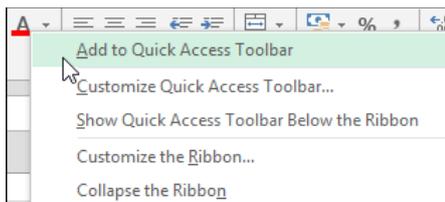
All of those extra clicks add up to a lot of time over the weeks and years.



4 Add a *Font Color* button to the Quick Access Toolbar.

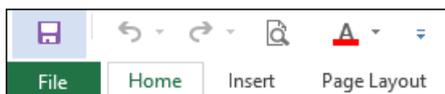
A *More Commands...* option is available when you click the *Customize Quick Access Toolbar* button. This enables you to add any of Excel's commands to the toolbar. But there's an easier way!

1. Click the *Home* tab on the Ribbon (if it isn't already selected).
2. Right-click on the *Font Color* button  in the *Font* group.



3. Click *Add to Quick Access Toolbar* from the shortcut menu.

A *Font Color* button is added to the Quick Access Toolbar.



5 Remove a button from the Quick Access Toolbar.

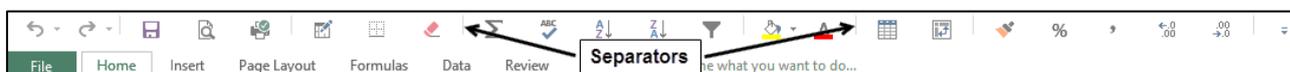
1. Right-click on the *Font Color* button that you've just added to the Quick Access Toolbar. 
2. Click *Remove from Quick Access Toolbar* from the shortcut menu.

6 Add separators to make a heavily customized Quick Access Toolbar more readable.

When you add many items to the Quick Access Toolbar it is a good idea to use separators to split icons into logical groups.

1. Click the *Customize Quick Access Toolbar* button. 
2. Click *More Commands...* from the shortcut menu.
3. Click the  item at the top of the *Commands* list.
4. Click the *Add >>* button. 
5. Use the up  and down  buttons to move the separator to the required location.
6. Click the *OK* button.

Here's a screen grab of my own Quick Access Toolbar. I've added buttons for all of the features I use most often. This means that I can always access these features with a single click of the mouse:



Lesson 1-15: Use the Mini Toolbar, Key Tips and keyboard shortcuts

- 1 Open the *Wealth of Nations* sample worksheet (if it isn't already open).
- 2 Select cell B2 (Qatar) on the GDP worksheet.
 1. Click on the *GDP* tab.
 2. Click on cell B2 (Qatar).

Make sure that you only click once, otherwise Excel will think that you are trying to edit the cell.

	A	B	C
1	Rank	Country	GDP - per capita (PPP)
2	1	Qatar	\$137,200

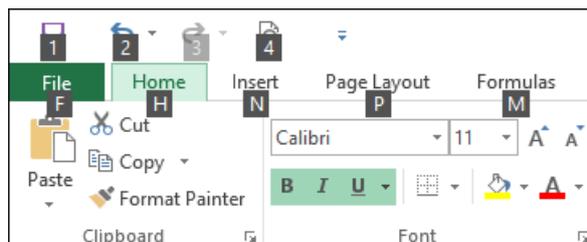
- 3 Make cell B2 (Qatar) bold, italicized and underlined.
 1. Click: Home→Font→Bold.
 2. Click: Home→Font→Italic.
 3. Click: Home→Font→Underline.

	A	B	C
1	Rank	Country	GDP - per capita (PPP)
2	1	<i><u>Qatar</u></i>	\$137,200

- 4 Display *Key Tips*.

Hold down the <Alt> key on the keyboard.

Notice how *Key Tips* are now displayed on the Ribbon and the Quick Access Toolbar:



- 5 Use the *Key Tips* to show a print preview using only the keyboard.

The key tips reveal the key you need to press to simulate clicking any of the Ribbon and Quick Access Toolbar icons.

Hold down the <Alt> key and press the relevant number to show a print preview (in the above example this is 4).

NB: Your toolbar, and the number you need to press, may look different to the screen grab above. Note that the print preview button will not be on the Quick Access Toolbar unless you added it during: *Lesson 1-14: Customize the Quick Access Toolbar and preview the printout.*

note

Keyboard shortcuts are one of the secrets of maximizing productivity with Excel

Many years ago, I took my mouse and stuck it to the back of my monitor with sticky tape.

For a whole day, I struggled to work without it.

The first few hours weren't much fun, but after that my work became faster and faster. It became a challenge to figure out how to do things without the mouse.

You will be far more productive if you can get into the same habit.

These days, there are some things that you simply need the mouse for, and some things that are genuinely faster (or easier) with the mouse.

For many common tasks, however, you'll find it faster and more efficient to work with the keyboard.

The Wealth of Nations

note

If you don't like the Mini Toolbar you can switch it off

Personally, I really like the mini toolbar and wouldn't dream of switching it off but if you are used to an early version of Excel and find that it annoys you, here is how it's done:

1. Click:
File→Options→General
2. In the *User Interface options* section, uncheck the *Show Mini Toolbar on selection* item.
3. Click the *OK* button.

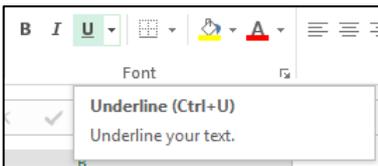
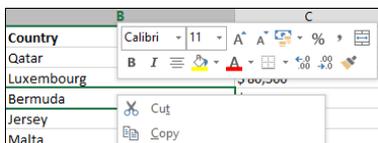
note

The shortcut menu

If you right-click on a cell, a shortcut menu is displayed.

The shortcut menu doesn't display *everything* that you can do to a cell but Excel's best guesses at the *most likely* things you might want to do.

Because Excel is guessing at the actions you might want to take in the context of what you are doing, the *shortcut menu* is also sometimes referred to as the *contextual menu*.



6 Click the *Back* button  to leave *Backstage View* and return to the worksheet.

7 Use the mouse to select the text *Qatar* in cell B2.

1. Double-click the cell containing the text.

You'll see the cursor flashing in the cell. This means that you have entered *Edit Mode*, enabling you to change the contents of the cell

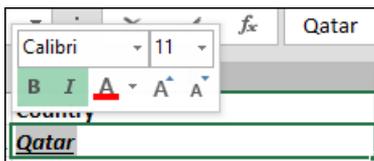
2. Position the cursor just after the word *Qatar* and hold down the left mouse button.
3. Drag the mouse across the complete word until it is highlighted like this:



4. Release the mouse button but do not move it away from the text.

8 Observe the *Mini Toolbar*.

Provided you didn't move the mouse cursor away from cell B2 you will now see the mini toolbar above the cell:



9 Use the *Mini Toolbar* to restore the text to non-bold and non-italic.

Click on the Bold  and Italic  buttons to remove the bold and italic attributes from the text.



10 Show a bigger Mini Toolbar with a right-click.

Right-click on *Bermuda* (Cell B6). Notice that, as well as the shortcut menu (see sidebar), you now get an even better Mini Toolbar with a few extra buttons.

11 Remove the underline from *Qatar* using a shortcut key.

1. Click once on *Qatar* (cell B2).
2. Press the <Ctrl>+<U> keys on the keyboard to remove the underline.

But how can you remember cryptic keyboard shortcuts like <Ctrl>+<U>? Fortunately, you don't have to. Hover the mouse over the underline button  (on the Home tab of the Ribbon) and you'll see the keyboard shortcut listed in the tooltip.

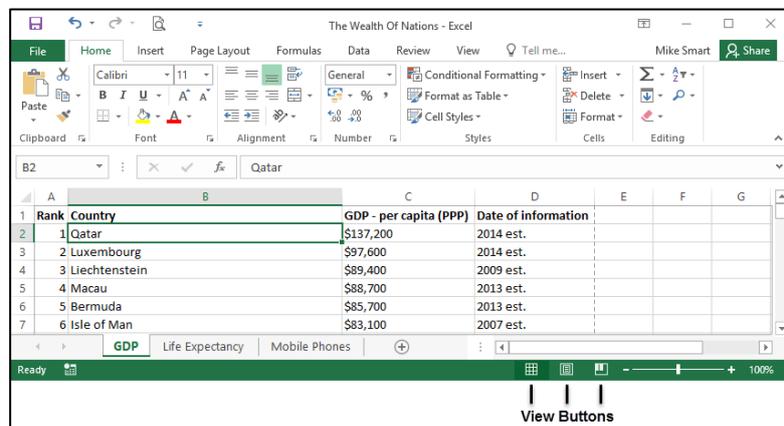
Lesson 1-16: Understand views

Views provide different ways to look at your worksheet.

Excel 2016 has three main views. They are:

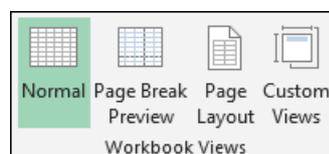
View	Icon	What it is used for
Normal		This is the view you've been using until now. It's the view most users use all of the time when they are working with Excel.
Page Layout		This view allows you to see (almost) exactly what the printout will look like. Unlike running a <i>Print Preview</i> , you are able to edit cells just as you can in <i>Normal</i> view.
Page Break Preview		A page break indicates when the printer should advance onto a new sheet of paper. If you progress to the Essential Skills course in this series, you'll use this view in: <i>Lesson 7 5: Insert, delete and preview page breaks</i> , to make sure that the page breaks in the right place.

- 1 Open the *Wealth of Nations* sample workbook (if it isn't already open).



You can change views in two ways:

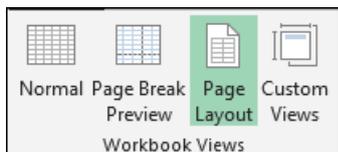
1. By clicking one of the View buttons at the bottom of the window (see above).
2. By clicking one of the buttons in the *Workbook Views* group on the Ribbon's *View* tab (see below).



The Wealth of Nations

2 View the GDP worksheet in *Page Layout* view.

1. Click on the *GDP* tab to select it.
2. Click: View→Workbook Views→Page Layout.



Rank	Country	GDP - per capita (PPP)
1	Qatar	\$137,200
2	Luxembourg	\$97,600

The worksheet is displayed in *Page Layout* view. You are able to see (almost) exactly what will be printed. Headers, footers and margins are all shown.

You are also able to edit the worksheet.

You may wonder why Excel users don't use *Page Layout* view all of the time when editing worksheets. While some users may prefer to do this, most will want to see the maximum amount of data possible on screen and so will prefer the *Normal* view.

3 Select Page Break Preview view.

Click: View→Workbook Views→Page Break Preview.

The worksheet is displayed in *Page Break Preview* view (you may also see a help dialog first).

This view shows each page with a watermark to indicate which sheet of paper it will be printed on:

	B	C	D	E
22	Ireland	\$51,300	2014 est.	
23	Bahrain	\$49,000	2014 est.	
24	Netherlands	\$48,000	2014 est.	
25	Austria	\$46,600	2014 est.	
26	Australia	\$46,600	2014 est.	
27	Sweden	\$46,200	2014 est.	
28	Germany	\$46,200	2014 est.	
29	Taiwan	\$46,000	2014 est.	

This view also shows the break between each page as a dotted line:

	A	B	C	D	E
49	48	Korea, South	\$35,400	2014 est.	
50	49	New Zealand	\$35,300	2014 est.	
51	50	Italy	\$35,100	2014 est.	
52	51	Saint Pierre and Miquelon	\$34,900	2006 est.	
53	52	Spain	\$33,800	2014 est.	
54	53	Malta	\$33,200	2014 est.	
55	54	Israel	\$33,100	2014 est.	
56	55	Trinidad and Tobago	\$32,200	2014 est.	

It is possible to click and drag the dotted line to change the place where the page breaks.

This view is not covered in this *Basic Skills* book but is covered in depth in the *Essential Skills* book in this series (*Session Seven: Printing Your Work*).

4 Select *Normal* view.

Click: View→Workbook Views→Normal.

Lesson 1-17: Hide and Show the Formula Bar and Ribbon

Most desktop computers have large display screens. The space taken by the Ribbon and Formula Bar isn't usually a problem.

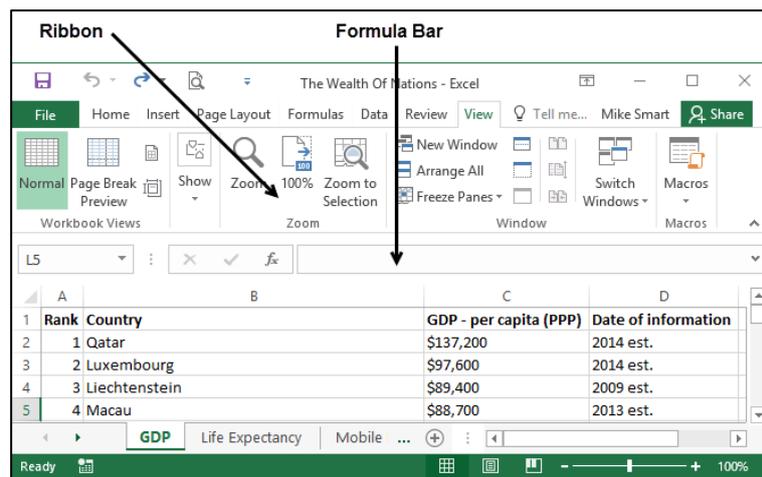
If you progress to the Essential Skills course in this series, you'll discover in: *Session Eight: Cloud Computing* that it is now possible to run Excel 2016 on tablet computers (and even on Smartphones). These devices often have a very small display screen, meaning that the Ribbon and Formula Bar take up too much valuable screen space.

When screen space is limited, you may wish to hide the Formula Bar, Ribbon, or even both, to maximize the number of cells visible on the screen.

- 1 Open *The Wealth of Nations* from your sample files folder (if it isn't already open) and click the *Life Expectancy* tab.

Notice that the *Ribbon* and *Formula Bar* are taking up space that could be used to display the contents of the worksheet.

Consider the screen below:



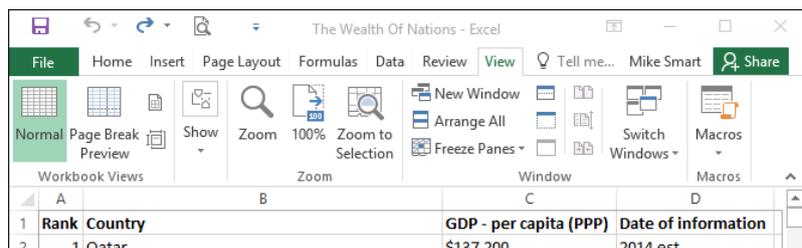
This is the type of smaller screen you might see on a small tablet device or Smartphone.

Only five rows are visible, making the worksheet difficult to work with. Hiding the Ribbon, Formula Bar, or both, will free up some valuable screen space.

- 1 Hide the Formula Bar.

Click: View→Show→Formula Bar.

The Formula Bar vanishes:



The Wealth of Nations

2 Use the *Ribbon Display Options* to reduce the Ribbon display to only show tabs.

In: *Lesson 1-12: Use the Ribbon*, you learned how to hide the Ribbon by double-clicking any of the Ribbon tabs (except the *File* tab).

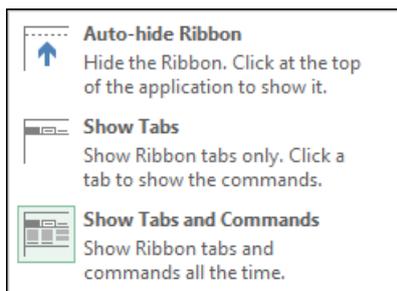
In this lesson, you'll do the same thing in a different way by using the *Ribbon Display Options* button.

1. Click the *Ribbon Display Options* button  at the top right of the Excel window.

A *Rich Menu* is displayed showing three different ways to hide the Ribbon.

2. Click *Show Tabs* to reduce the Ribbon to a row of tabs.

The Ribbon now reduces in size to only show tabs. You can still access the Ribbon. It now pops up when you click on any tab and disappears when you click back onto the worksheet.



	A	B	C	D
1	Rank	Country	GDP - per capita (PPP)	Date of information
2	1	Qatar	\$137,200	2014 est.

3 Completely hide both the Ribbon and Ribbon tabs.

1. Click the *Ribbon Display Options* button  at the top right of the Excel window.
2. Click *Auto-hide Ribbon* from the rich menu.

This time both the Ribbon, and Ribbon tabs disappear. The worksheet also fills the entire screen. This is called *Full Screen View*.

	A	B	C	D
1	Rank	Country	GDP - per capita (PPP)	Date of information
2	1	Qatar	\$137,200	2014 est.

When you are in *Full Screen View* you can temporarily bring back the Ribbon by clicking at the very top of the screen. The Ribbon then re-appears but vanishes once again when you click back into the body of the worksheet.

4 Restore the Ribbon and the Formula Bar.

1. Click the *Ribbon Display Options* button  at the top right of the Excel window.
2. Click: *Show Tabs and Commands* from the rich menu.
The Ribbon is restored.
3. Click: View→Show→Formula Bar.
The Formula Bar is restored.

note**You need an Internet connection to use Excel 2016's help features**

In previous versions of Excel, it was possible to access offline help when no Internet connection was available.

Support for offline help has been dropped from Excel 2016. If you have no Internet connection, you will not be able to access Excel's help features.

note

You can also use the <Alt>+<Q> shortcut keys to instantly move the cursor into the *Tell Me* help box.

note**The screen grabs shown in this lesson may differ from those you see on your screen**

The Excel 2016 help system is delivered online. This means that Microsoft are able to constantly correct and update help topics.

For this reason, the information you see on your screen may differ from the screen grabs shown in this lesson.

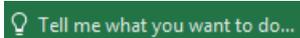
The Wealth of Nations

Lesson 1-18: Use the Tell Me help system

Microsoft have completely redesigned the help system for Excel 2016 and they really have done a wonderful job. Help is now delivered in a far more sophisticated way than in any previous Excel version. Microsoft call this new feature: *Tell Me* help.

Tell Me help is novel because it not only provides information about Excel features but also enables you to execute Ribbon commands directly from inside the help system. This can be a huge time saver.

- 1 Open the *Wealth of Nations* from your sample files folder (if it isn't already open).
- 2 Click inside the *Tell Me* help box located on the right-hand side of the Ribbon tabs.



When you click inside the *Tell Me* help box, a flashing cursor appears and you can type a question.

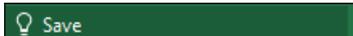


- 3 Ask Excel how you can save a file.

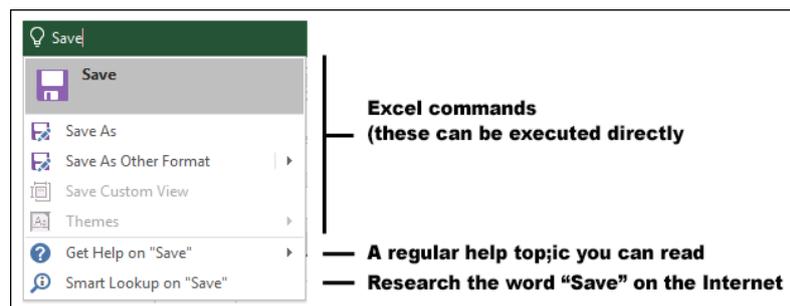
You learned how to save a file in: *Lesson 1-6: Save a workbook to a local file*. In that lesson, you clicked the *Save* button on the *Quick Access Toolbar*.

Imagine that you have forgotten how to save a file.

Type: **Save** into the *Tell Me* help box:



Excel displays a menu of choices.



Notice that the list is delineated into three sections. The first section contains commands. The second has the type of regular help topic that you are used to reading in traditional help systems, and the third allows you to research the topic using a wider Internet search.

Note that the help features will only work if you are connected to the Internet (see facing page sidebar).

- 4 Execute the *Save* command directly from *Tell Me* help.

Click the *Save* command at the top of the menu:



In a traditional help system, you would have expected to see some text explaining how the *Save* command works. Instead *Tell Me* help executes the command. The workbook is saved in the same way it would have been if you had clicked the *Save* button on the *Quick Access Toolbar*.

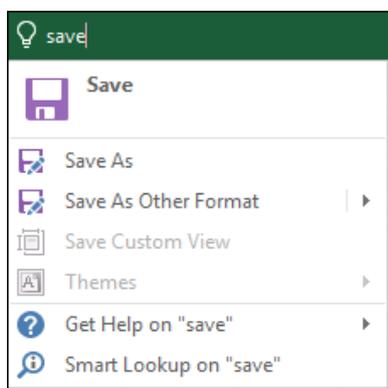
You can see how useful *Tell Me* help is when you can't remember where a command is situated on the Ribbon and want to execute the command as quickly as possible.

You can also see that it could be dangerous to execute commands that you don't understand.

5 Understand the other *Tell Me* help options.

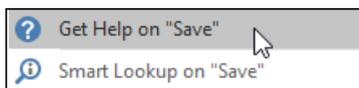
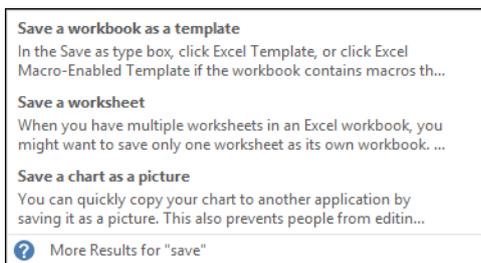
Tell Me help also allows you to execute two other commands and to access regular help that you can read as a reference:

- *Save As*. You learned how to use the *Save As* command in: *Lesson 1-6: Save a workbook to a local file*.
- *Save As Other Format*. You learned about different file formats in: *Lesson 1-7: Understand common file formats*.
- *Save Custom View*. Custom Views is an expert-level skill that isn't used by most Excel users but is covered in depth in the *Expert Skills* book in this series.
- *Themes*. Themes are not covered in depth in this *Basic Skills* book. The *Essential Skills* book in this series covers the Themes feature in depth (in *Session Four: Making Your Worksheets Look Professional*).



6 Read the Excel help topic relating to the *Save* command.

Click: *Get Help on "Save"*.



Links to several topics from the Excel 2016 reference manual are shown. You can click on any of these links to read any of Microsoft's help topics about *Save* related features.

note

The screen grabs shown in this lesson may differ from those you see on your screen

The Excel 2016 help system is delivered online. This means that Microsoft can constantly correct and update help topics.

For this reason, the information you see on your screen may differ from the screen grabs shown in this lesson.

Lesson 1-19: Use other help features

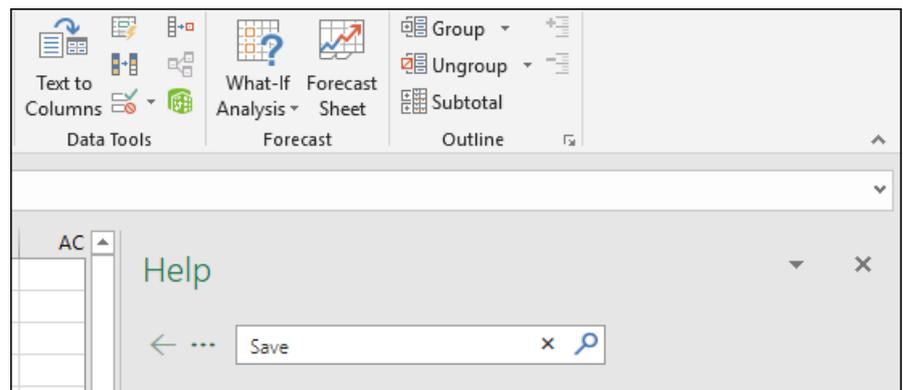
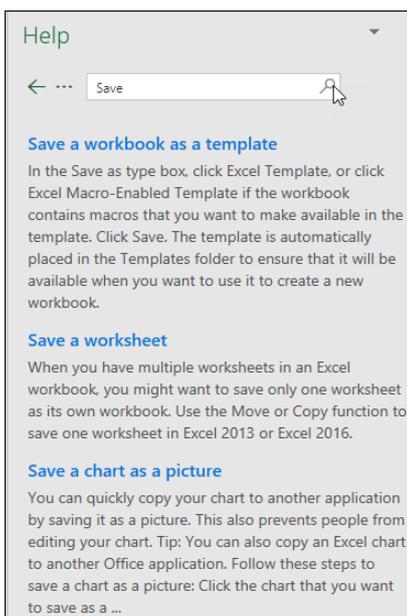
Tell Me help (discussed in: *Lesson 1-18: Use the Tell Me help system*) is a fantastic brand-new feature for Excel 2016. You'll probably use this most of the time as your help system of first choice.

You can also access the same help topics that are available in *Tell Me Help* directly from their associated Ribbon commands. This can be useful when exploring new and unfamiliar features you may discover on Excel's many Ribbon tabs.

Later, in: *Lesson 2-13: Create functions using Formula AutoComplete*, you'll learn how to access and use Excel's vast function library (that contains over 300 functions such as SUM and AVERAGE). You'll also learn how to access a special Excel help feature that documents the use of each function.

1 Access help using the *Help* task pane.

1. Press the <F1> key. A *Help* task pane appears at the right of the screen.
2. Type: **Save** into the text box at the top of the page:



3. Click the magnifying glass icon or press the <Enter> key. A list of help topics relating to *Save* topics appears (see sidebar). Note that this list is served from the Internet and is constantly updated.
4. Click on any of the help topics displayed to read a detailed description.

2 Get help directly from the Ribbon.

1. Close the *Help* task pane by clicking the close button  in the top right corner of the help pane.
2. Click the *Home* tab on the Ribbon and hover the mouse cursor over the drop down arrow to the right of the word *General* in the *Number* group.
3. If you keep the mouse still, after a short delay a screen tip pops up providing a short description of what the drop-down list is for:

note

Why can't you learn Excel using the Help system?

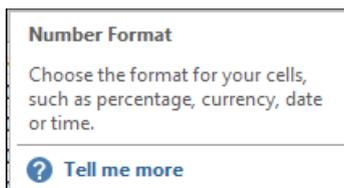
Excel's Help system is designed as a reference work and not as a structured tutorial.

Try reading the detailed help about any of the topics. You'll usually find that to make sense of the help topic you will already need to have learned to use Excel. This is because the writer assumes that you already know how to use Excel.

Many Excel books are also written in this way (as reference books).

This book is a carefully structured *tutorial*. The book is carefully structured to teach Excel by building new skills upon existing skills so that each lesson is easy to understand.

Once you have learned Excel (using Smart Method tutorials) you will find Excel's reference topics easy to understand.

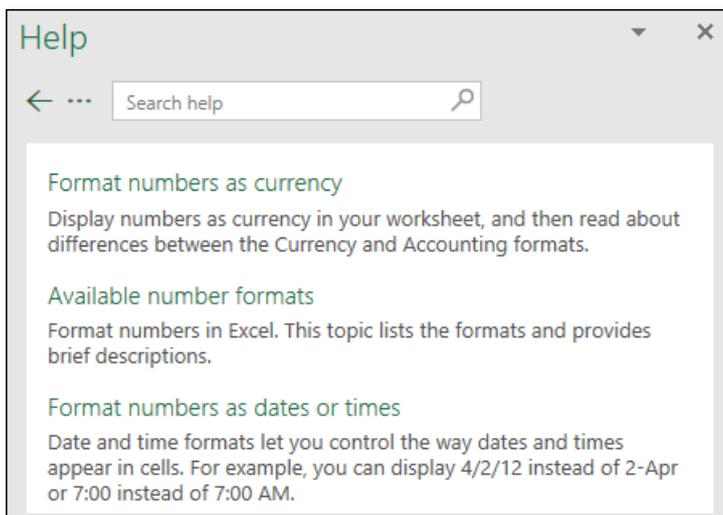


A *Tell me more* hyperlink is also provided offering more detailed help. This will only work if you are connected to the Internet.

- Click the *Tell me more* hyperlink.



The *Help task pane* re-appears displaying a list of help topics relating to *Number Format* topics.



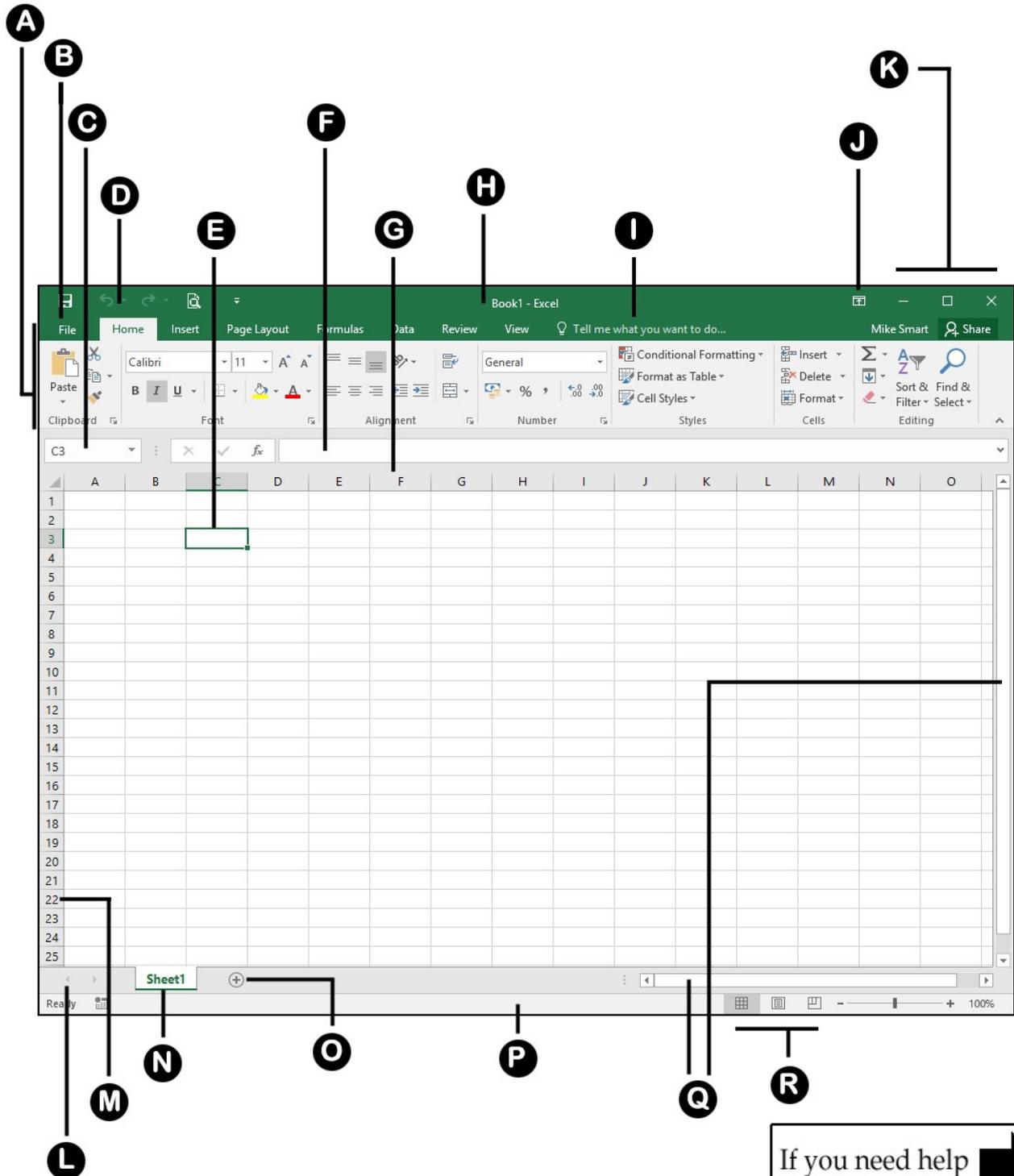
- Click on any of the help topics displayed to read a detailed description.

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page***

Session 1: Exercise

In this exercise you'll try to remember the name of each of the Excel screen elements. The answers are on the next page so you might want to recap by turning the page for a little revision before you start.

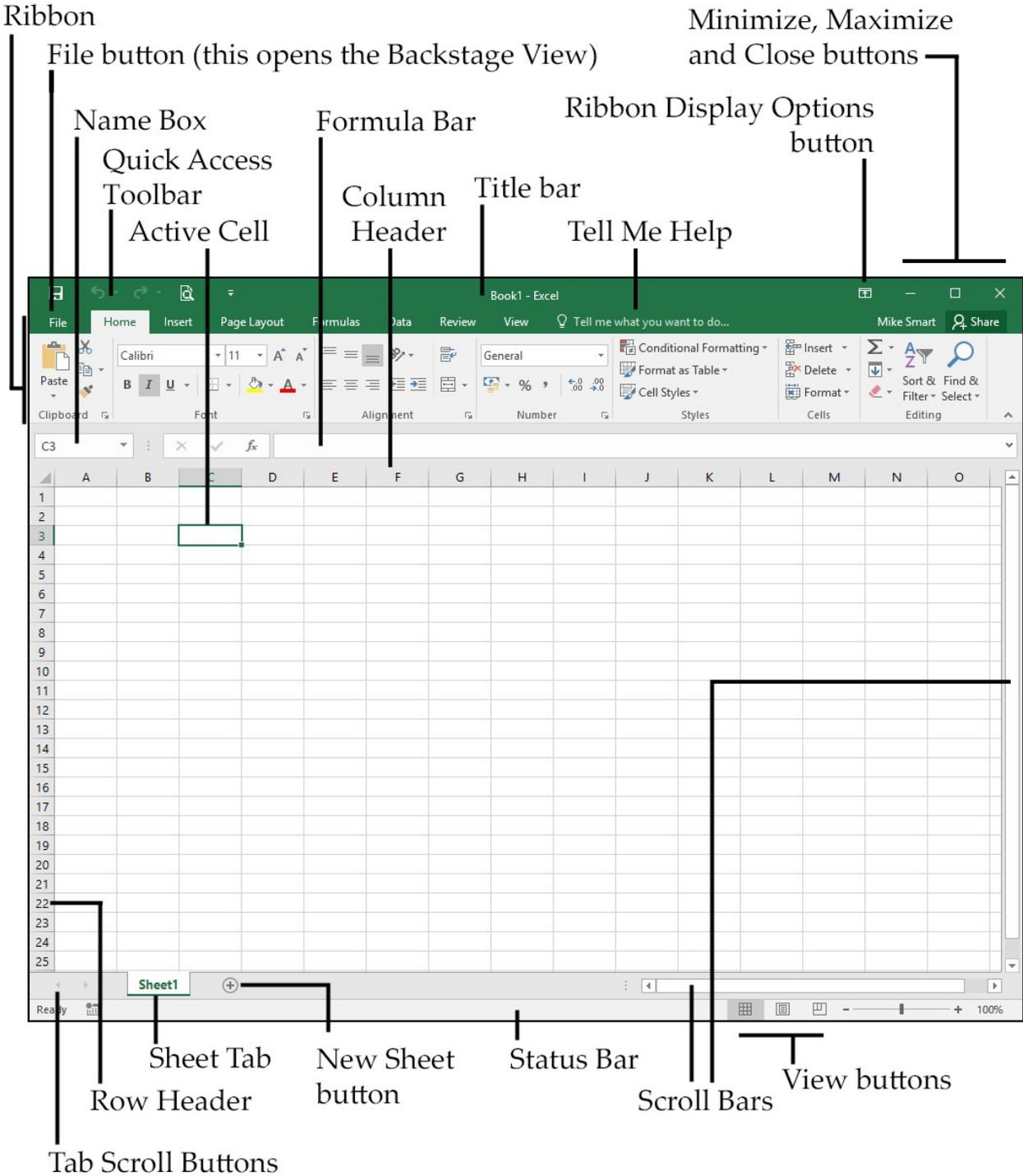
Keep trying until you are able to name each of the screen elements from memory. You'll be seeing this terminology during the remainder of the book, so it's important that you can correctly identify each element.



If you need help
slide the page to
the left 

***Blank
page***

Session 1: Exercise answers



***Blank
page***

2

Session Two: Doing Useful Work with Excel

Only those who have the patience to do simple things perfectly ever acquire the skill to do difficult things easily.

Unknown author

Now that you've mastered the basics, you are ready to do really useful work with this amazing tool. In this session, you will learn to use all of Excel's basic features properly. This will put you far ahead of anybody that hasn't been formally trained in Excel best practice. You'll be doing simple things, but you'll be doing them perfectly!

Even after years of daily use, many users are unable to properly use Excel's fundamental features. They often reach their goal, but get there in a very inefficient way, simply because they were never taught how to do things correctly. By the end of this session you'll be astonished with how well you are working with Excel.

Session Objectives

By the end of this session you will be able to:

- Enter text and numbers into a worksheet
- Create a new workbook and view two workbooks at the same time
- Use AutoSum to quickly calculate totals
- Select a range of cells and understand Smart Tags
- Enter data into a range and copy data across a range
- Select adjacent and non-adjacent rows and columns
- Select non-contiguous cell ranges and view summary information
- AutoSelect a range of cells
- Re-size rows and columns
- Use AutoSum to sum a non-contiguous range
- Use AutoSum to calculate average and maximum values
- Create your own formulas
- Create functions using Formula AutoComplete
- Use AutoFill for text and numeric series
- Use AutoFill to adjust formulas and use AutoFill options
- Speed up your AutoFills and create a custom fill series
- Understand linear and exponential series
- Use Flash Fill to split and concatenate text
- Use the zoom control
- Print out a worksheet

Lesson 2-1: Enter text and numbers into a worksheet

Excel beginners tend to reach for the mouse far too often. One of the keys to productivity with Excel is to avoid using the mouse when entering data. In this lesson, you'll quickly populate a worksheet without using the mouse at all.

- 1 Open *First Quarter Sales and Profit* from your sample files folder.

	A	B	C	D
1	Sales and Profit Report - First Quarter 2016			
2				
3		Jan	Feb	Mar
4	New York	22,000	29,000	19,000
5	Los Angeles			
6	London			
7	Paris			
8	Munich			

- 2 Notice the difference between values and text.

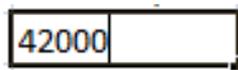
Cells can contain values or text. Values can be numbers, dates or formulas (more on formulas later).

Excel usually does a great job of recognizing when there are values in a cell and when there is text. The giveaway is that text is always (by default) left aligned in the cell and values are right aligned.

Look at the numbers on this worksheet. Notice how they are all right aligned. This lets you know that Excel has correctly recognized them as values and will happily perform mathematical operations using them.

- 3 Save a value into a cell.

1. Type the value 42000 into cell B5. Notice that the mouse cursor is still flashing in the cell.



At this stage, the value has not been saved into the cell.

If you change your mind, you can still undo the value by pressing the <ESC> key at the top left of your keyboard or by clicking the *Cancel* button  on the left-hand side of the Formula Bar.

2. Decide that you want to keep this value in the cell by either pressing the <Enter>, <Tab> or an <Arrow> key on the keyboard, or by clicking the *Enter* button  on the left-hand side of the Formula Bar.

- 4 Enter a column of data without using the mouse.

When you enter data into a column, there's no need to use the mouse. Press the <Enter> key after each entry and the active cell

tip

Entering numbers as text

Sometimes you need Excel to recognize a number as text.

If you type an apostrophe (') before the number, Excel won't display the apostrophe but will format the cell as text. You'll notice that the number is then left justified to reflect this.

When a number is formatted as text you cannot perform any mathematical calculation with it.

First Quarter Sales and Profit

important

The many ways of entering numbers

Negative numbers

-123.56
(123.56)

Currency prefixes

Excel is quite happy for you to prefix a number with a currency symbol. The currency symbol it will accept depends upon how you defined the regional options in your operating system.

\$123.56 (works in USA)
£123.56 (works in UK)

If you progress to the Essential Skills course in this series you'll learn an easy method of setting \$, £ and € currency prefixes whatever your locale (in: *Lesson 4-3: Format numbers using built-in number formats*).

Commas

12,234,567.78

Fractions

You must leave a space between a number and a fraction for this to work.

6 1/4
(six, space, one, /, four)

The above will appear on the worksheet as 6.25 after you enter it in this way.

0 1/4
(zero, space, one, /, four)

The above will appear on the worksheet as 0.25. The leading zero is needed to prevent Excel from assuming that you are entering a date.

Formula Bar			
: X ✓ fx January			
B	C		
Profit Report - First Quarter 2008			
January	Feb	Mar	
22,000	29,000		
42,000	39,000		

moves to the cell beneath. Try this now with the following January sales data:

1. Type **18,000** into cell B6.
2. Press the <Enter> key to move to cell B7.
3. Do the same to enter the following values into the next two cells.

	A	B	C	D
3		Jan	Feb	Mar
4	New York	22,000	29,000	19,000
5	Los Angeles	42,000		
6	London	18,000		
7	Paris	35,000		
8	Munich	12,000		

5 Enter a row of data without using the mouse.

You can also enter a row of data without using the mouse.

1. Click in cell C5.
2. Type **39,000** and then press the <Tab> key on your keyboard.

The <Tab> key is on the left-hand side of the keyboard above the <Caps Lock> key. Notice how pressing the <Tab> key saves the value into the cell and then moves one cell to the right.

3. Type **43,000** into cell D5 and press the <Enter> key.

You magically move to cell C6, as Excel guesses that you probably want to begin entering data into the next row.

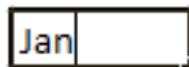
6 Complete the table without using the mouse.

By using the <Tab> or <Enter> key in the right places you should be able to complete the table now without using the mouse:

	A	B	C	D
3		Jan	Feb	Mar
4	New York	22,000	29,000	19,000
5	Los Angeles	42,000	39,000	43,000
6	London	18,000	20,000	22,000
7	Paris	35,000	26,000	31,000
8	Munich	12,000	15,000	13,000

7 Change the text in cell B3 to January.

1. Double-click cell B3. Notice that there is now a flashing cursor in the cell.



2. Type: **uary** on the keyboard to change Jan to January.
3. Press the <Enter> key.

8 Change the text in cell B3 back to Jan using the formula bar.

Click once in cell B3 and then change the text in the formula bar back to **Jan** (see sidebar).

9 Save your work as *First Quarter Sales and Profit-2*.

Lesson 2-2: Create a new workbook and view two workbooks at the same time

tip

Other ways of creating a new workbook

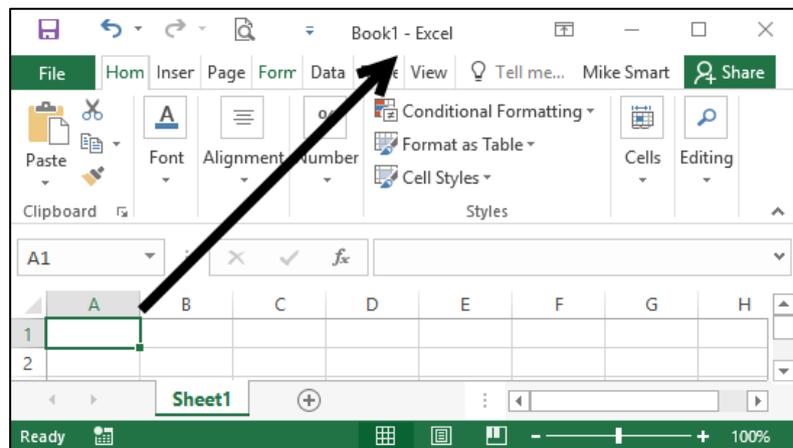
- Use the keyboard shortcut <Ctrl>+<N>.
- Add a button to the Quick Access Toolbar.

You learned now to add a button to the Quick Access Toolbar in: *Lesson 1-14: Customize the Quick Access Toolbar and preview the printout.*

- 1 Create a new workbook by opening Excel.
 1. Open Excel.
 2. Click the *Blank workbook* template to create a new workbook.

Excel helpfully creates a workbook, unimaginatively named *Book1*. If you already have a workbook open called *Book1*, the new workbook will be called *Book2...* and so on.

Notice that *Book1 – Excel* is displayed on the *Title Bar*.



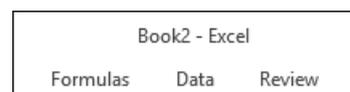
- 2 Create another new workbook.

1. Click the *File* button  at the top left of the screen and click the *New* button in the left-hand menu.

You are presented with the same familiar dialog that you see when you start up Excel.

2. Click the *Blank workbook* template. A new blank workbook called *Book2* is displayed in the workbook window.

You could be forgiven for thinking that nothing has happened, but you can see that the *Title Bar* now says: *Book2 – Excel*, showing that you are looking at a different workbook.



- 3 Use the taskbar to move between workbooks.

You should see an Excel icon with two right-hand borders at the very bottom-left of the screen (this area is called the Windows taskbar). Hover over this icon with your mouse. A gallery pops up showing two workbooks: *Book1* and *Book2*.

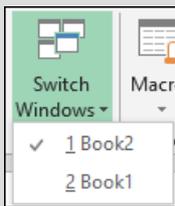
note

Finding a workbook when many are open

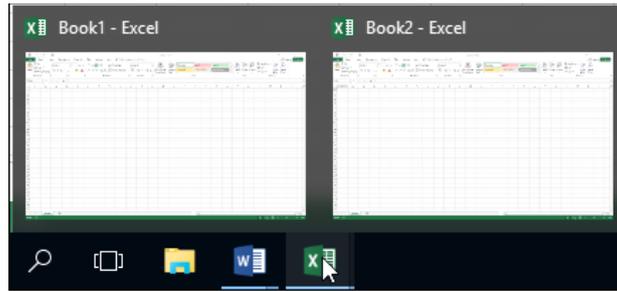
An alternative way to quickly find a workbook when many are open is to click:

View → Window → Switch Windows

This presents you with a list of all open workbooks.



You can also use the <Ctrl>+<Tab> keyboard shortcut to cycle through all open workbooks.



Hover over each item in the pop-up gallery to display each workbook. The only difference you will see is the *Title Bar* changing from *Book1* to *Book2* because both workbooks are empty.

See sidebar for other methods of switching windows.

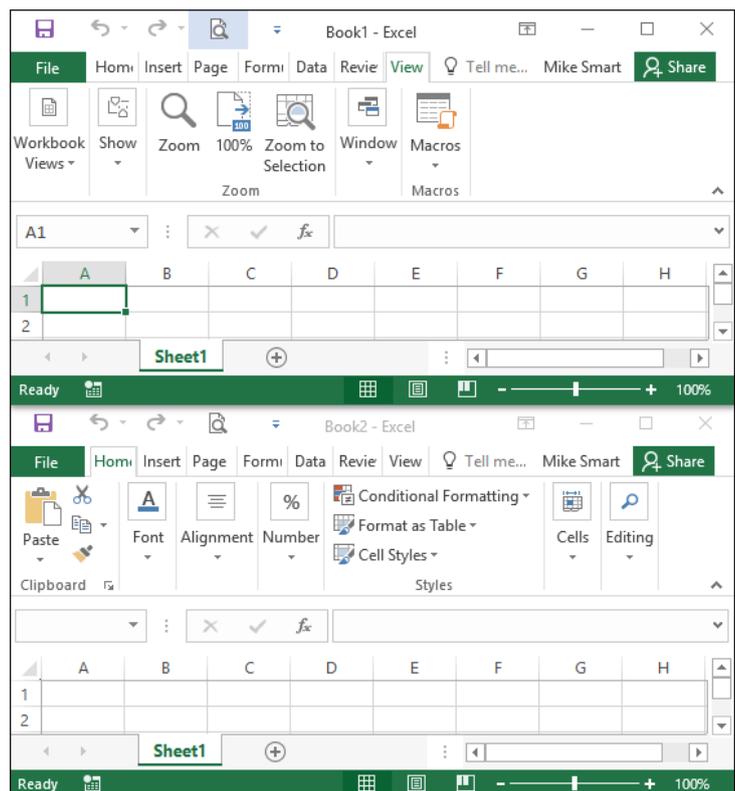
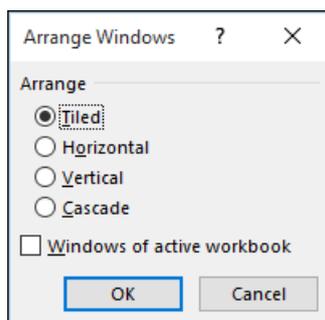
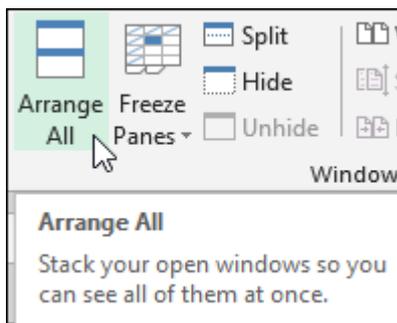
4 Display both *Book1* and *Book2* at the same time.

1. Click: View → Window → Arrange All.

The *Arrange Windows* dialog is displayed.

2. Choose the *Horizontal* arrangement and click the OK button.

Both workbooks are now shown, one above the other. Each window occupies exactly half of your screen:



Notice that as you click each workbook window the *Title Bar* and the *Close/Minimize/Restore Down* buttons light up, to show that this is the active window.

5 Close *Book2* and maximize *Book1* to restore the display to a single workbook.

If you've forgotten how to do this, refer back to: *Lesson 1-4: Maximize, minimize, re-size, move and close the Excel window.*

Lesson 2-3: Use AutoSum to quickly calculate totals

anecdote

I ran an Excel course for a small company in London a few years ago.

The boss had sent his two office staff to learn a little more about Excel.

Before the course began I asked the delegates how long they had been using Excel. They told me that they'd been using it for two years to do all of their office reports.

When I showed them AutoSum they gasped in delight. "This will save us hours" they told me.

I was curious how they had been doing their reports before.

Believe it or not, they had been adding up all of the figures in each column with a calculator and then manually typing the totals at the bottom of each column.

In this case the boss had given them Excel as he had heard it was a very good tool.

Unfortunately, he had not initially seen the need to train the staff in its use.

With no training, it seemed quite logical to them to use it like a word processor and the boss had still been delighted that his staff were using such impressive technology.

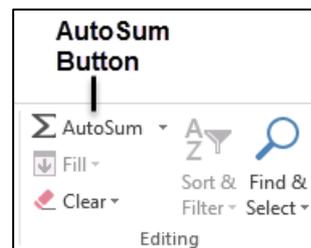
Excel's *AutoSum* feature is a really useful and fast way to add the values in a range of cells together.

- 1 Open *First Quarter Sales and Profit-2* from your sample files folder.
- 2 In cell A9 type the word **Total** followed by the <Tab> key.

The active cell moves to the right and is now in cell B9:

	A	B	C	D
7	Paris	35,000	26,000	31,000
8	Munich	12,000	15,000	13,000
9	Total			

- 3 Click: Home→Editing→ (this is the AutoSum button).



Something interesting has happened to the worksheet:

	A	B	C	D
3		Jan	Feb	Mar
4	New York	22,000	29,000	19,000
5	Los Angeles	42,000	39,000	43,000
6	London	18,000	20,000	22,000
7	Paris	35,000	26,000	31,000
8	Munich	12,000	15,000	13,000
9	Total	=SUM(B4:B8)		
10				

Excel has placed a *marquee* around the number range that AutoSum has guessed you want to work with. The dots that mark the boundary of the marquee are called the *marching ants*.

The marching ants surround all the numbers in the column above, up to the first blank cell or text cell (in this case, up to the word: Jan).

=SUM(B4:B8) is your first glimpse of an Excel *Formula*. Formulas always begin with an equal sign. This formula is using the *SUM function* to compute the Sum (or total) of the values in cells B4 to B8. You'll learn more about functions later, in: *Lesson 2-13: Create functions using Formula AutoComplete*.

- 4 Press the <Enter> key or click the AutoSum button  once more to display the total January sales:

First Quarter Sales and Profit-2

tip

Entering an AutoSum using only the keyboard

You can also execute an AutoSum using the keyboard shortcut:

<Alt>+<=>

note

You can also add an AutoSum formula using the Quick Analysis button

Later, in: *Lesson 2-4: Select a range of cells and understand Smart Tags*, you'll learn how to select a range of cells.

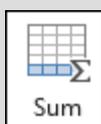
Whenever you select a range of cells, a *Quick Analysis* button appears just outside the bottom-right corner of the selected range.

Jan	Feb
22,000	
42,000	
18,000	
35,000	
12,000	

When you click the *Quick Analysis* button, the *Quick Analysis* dialog appears.

One of the menu options on this dialog is *Totals*.

The *Totals* dialog allows you to add an AutoSum beneath a selected range (in a similar way to the AutoSum button method described in this lesson).



	A	B	C	D
3		Jan	Feb	Mar
4	New York	22,000	29,000	19,000
5	Los Angeles	42,000	39,000	43,000
6	London	18,000	20,000	22,000
7	Paris	35,000	26,000	31,000
8	Munich	12,000	15,000	13,000
9	Total	129,000		

- 5 Type the word **Total** into cell E3 and press the <Enter> key once.

The active cell moves down one row and is now in cell E4.

	A	B	C	D	E
3		Jan	Feb	Mar	Total
4	New York	22,000	29,000	19,000	
5	Los Angeles	42,000	39,000	43,000	

- 6 Use AutoSum to calculate the total sales for New York.

1. Click: Home→Editing→AutoSum.

This time AutoSum correctly guesses that you want to sum the values to the left of cell E4:

	B	C	D	E	F
3	Jan	Feb	Mar	Total	
4	22,000	29,000	19,000	=SUM(B4:D4)	
5	42,000	39,000	43,000	SUM(number1, [number2], ...)	

2. Press the <Enter> key, or click the AutoSum button once more.

	A	B	C	D	E
1	Sales and Profit Report - First Quarter 2016				
2					
3		Jan	Feb	Mar	Total
4	New York	22,000	29,000	19,000	70,000
5	Los Angeles	42,000	39,000	43,000	
6	London	18,000	20,000	22,000	
7	Paris	35,000	26,000	31,000	
8	Munich	12,000	15,000	13,000	
9	Total	129,000			
10					

- 7 Save your work as *First Quarter Sales and Profit-3*.

Lesson 2-4: Select a range of cells and understand Smart Tags

- 1 Open *First Quarter Sales and Profit-3* from your sample files folder (if it isn't already open).
- 2 Observe the formula behind the value in cell B9.

Click once on cell B9 or move to it with the arrow keys on your keyboard.

Look at the *formula bar* at the top of the screen. Notice that the cell displays the *value* of a calculation and the formula bar shows the *formula* used to calculate the value:

	A	B	C	D
8	Munich	12,000	15,000	13,000
9	Total	129,000		
10				
11				

- 3 Delete the contents of cell B9.
Press the <Delete> key on your keyboard.
- 4 Change the word *Total* in cell A9 to *USA Sales* and press the <Tab> key once.

The cursor moves to cell B9.

8	Munich	12,000
9	USA Sales	

- 5 Select cells B4:B5 with your mouse.

When the mouse cursor is hovered over a selected cell there are three possible cursor shapes:

Cursor	What it does
	The white cross (Select) cursor appears when you hover over the center of the active cell. You can then click and drag to select a range of cells.
	The black cross (AutoFill) cursor appears when you hover over the bottom right-hand corner of the active cell. You'll be covering AutoFill later in this session.
	The four-headed arrow (Move) cursor appears when you hover over one of the edges of the active cell (but not the bottom right corner).

note

You can also delete cell contents using the mouse

Pressing the <Delete> key is the fastest way to delete cell contents.

You can also delete the contents of a cell using the mouse. To do this:

1. Right-click the cell.
2. Click *Clear Contents* from the shortcut menu.

First Quarter Sales and Profit-3

note

Selecting cells with the keyboard

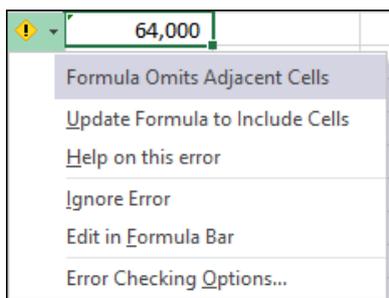
To select cells with the keyboard hold down the <Shift> key and then use the <Arrow> keys to select the range needed.

note

Selecting a large range of cells with the <Shift>-click technique

If you need to select a very large range of cells it is sometimes useful to use this technique:

1. Click the cell in the top left corner of the required range.
2. If necessary, use the scroll bars to make the bottom right corner of the required range visible.
3. Hold down the <Shift> key.
4. Click in the bottom right corner of the required range.



Beginners often have difficulty selecting cells and end up moving them or AutoFilling them by mistake.

Carefully position the mouse at the center of cell B4 so that you see the white cross (Select) cursor. When you see the white cross, hold down the left mouse button and drag down to cell B5. You have now selected cells B4 and B5 (in Excel terminology you'd say that you have selected the *range* B4:B5).

	A	B
3		Jan
4	New York	22,000
5	Los Angeles	42,000

6 Display total USA sales in cell B9.

Because you have selected only the cells containing USA sales, (cells B4:B5), AutoSum can be used to show the value of the selected cells.

Click the AutoSum button  to display the total value of the selected cells.

USA sales are shown in cell B9.

9	USA Sales	64,000
---	-----------	--------

Notice the small green triangle at the top left of cell B9. This is Excel's way of saying: "I think you may have made a mistake".

7 Inspect a potential error using a Smart Tag.

1. Click once on cell B9 to make it the active cell.

An *Exclamation Mark* icon appears . This is called a *Smart Tag*.

2. Hover the mouse cursor over the Smart Tag.

A tip box pops up telling you what Excel thinks you may have done wrong (see below). Of course, in this case, everything is fine.



The Smart Tag thinks that perhaps you didn't want to total just the USA sales – but, in this case, the Smart Tag is wrong.

8 Examine the remedial actions suggested by the Smart Tag.

1. Hover the mouse cursor over the Smart Tag icon .
2. Click the drop-down arrow that appears.

A list of possible remedial actions is displayed. In this case you can choose *Ignore Error* to remove the green triangle from the corner of the cell.

9 Save your work as *First Quarter Sales and Profit-4*.

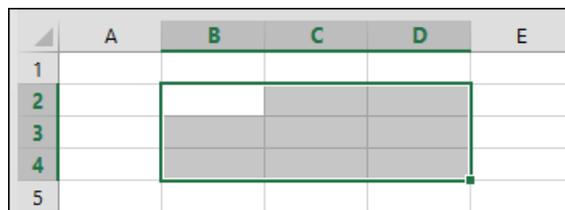
Lesson 2-5: Enter data into a range and copy data across a range

Now that you have mastered the technique of selecting cells, you can use it to speed up data entry.

When you select a range of cells prior to entering data, Excel knows that all data entered belongs in that range. Several key combinations are then available to greatly speed up data entry.

- 1 Open a new workbook and save it as *Data Range Test*.
- 2 Select cells B2:D4.

You learned how to do this in: *Lesson 2-4: Select a range of cells and understand Smart Tags*.



- 3 Type: **London**

The text appears in cell B2: the top left cell in the range selected.

- 4 Press the **<Enter>** Key.

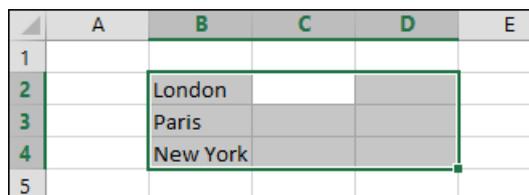
The cursor moves to cell B3 as it normally would.

- 5 Type: **Paris** followed by the **<Enter>** key.

The cursor moves to cell B4 as it normally would.

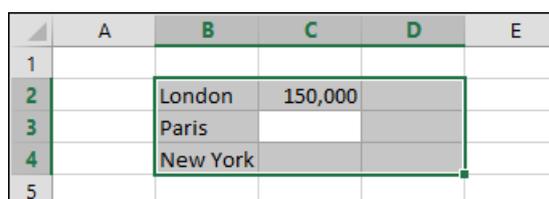
- 6 Type: **New York** followed by the **<Enter>** key.

This time something new happens. The cursor doesn't move to cell B5 as you might expect but jumps to cell C2 instead.



- 7 Type: **150,000** followed by the **<Enter>** key.

The value appears in C2 and Excel moves down the column again to cell C3.



- 8 Press the **<Enter>** key without entering a value to leave C3 blank.

Excel moves down the column to cell C4.

- 9 Type **225,000** followed by the **<Enter>** key.

The cursor jumps to cell D2.

- 10 Press **<Shift>+<Enter>** twice to change your mind about leaving the value for Paris blank.

1. Press **<Shift>+<Enter>** to move backwards to the value for New York.
2. Press **<Shift>+<Enter>** a second time and you are back to the Paris cell.

	A	B	C	D	E
1					
2		London	150,000		
3		Paris			
4		New York	225,000		
5					

- 11 Type **180,000** followed by the **<Tab>** key.

<Tab> moves you across the range, to cell D3.

	A	B	C	D	E
1					
2		London	150,000		
3		Paris	180,000		
4		New York	225,000		
5					

You can now appreciate how to use the technique of **<Enter>**, **<Tab>**, **<Shift>+<Tab>** and **<Shift>+<Enter>** to save a lot of time when entering a whole table of data.

- 12 Select cells D2:D4.

- 13 Type **50%** but don't press the **<Enter>** or **<Tab>** keys.

The challenge this time is to place the same value into cells D3 and D4 without having to type the value two more times.

- 14 Press **<Ctrl>+<Enter>**.

The value is replicated into all of the other cells in the selected range.

	A	B	C	D	E
1					
2		London	150,000	50%	
3		Paris	180,000	50%	
4		New York	225,000	50%	
5					

- 15 Click the Save button to save the *Data Range Test* workbook.

The *Save* button is at the left of the *Quick Access Toolbar* at the top left of your screen. 

Lesson 2-6: Select adjacent and non-adjacent rows and columns

- 1 Open *First Quarter Sales and Profit-4* from your sample files folder (if it isn't already open).
- 2 Select all of column A.
 1. Hover the mouse cursor over the letter **A** at the top of the column. The column header lights up and the mouse cursor changes to a black down arrow:

	A	B	C
1	Sales and Profit Report - First Quarter 2016		

2. Click to select the entire column. The column becomes slightly shaded and a green line surrounds all of the cells.

	A	B	C	D
1	Sales and Profit Report - First Quarter 2016			
2				
3		Jan	Feb	Mar
4	New York	22,000	29,000	19,000

- 3 Bold face all of the contents of column A.

Click: Home→Font→Bold B

Because the whole column was selected, all of the values become bold faced.

	A	B	C	D
1	Sales and Profit Report - First Quarter 2016			
2				
3		Jan	Feb	Mar
4	New York	22,000	29,000	19,000
5	Los Angeles	42,000	39,000	43,000
6	London	18,000	20,000	22,000

- 4 Click: Home→Font→Bold B once more to change the type in column A back to normal.
- 5 Select all of row 4.

1. Hover the mouse cursor over the number on the left-hand side of row 4. The number button lights up and the mouse cursor changes to a black arrow pointing across the row:

3		Jan
4	New York	22,000
5	Los Angeles	42,000

2. Click to select the row.

- 6 Select columns B and C.

First Quarter Sales and Profit-4

Hover the mouse cursor over the letter at the top of column B until you see the black down arrow. When you see the arrow, click and drag to the right to select columns B and C.

	A	B	C	D
1	Sales and Profit Report - First Quarter 2016			
2				
3		Jan	Feb	Mar
4	New York	22,000	29,000	19,000

7 Select rows 6 and 7.

1. Hover over the number at the left of row 6 until you see the black arrow pointing across the row.
2. When you see the arrow, click and drag down to row 7 to select both rows.

5	Los Angeles	42,000	39,000
6	London	18,000	20,000
7	Paris	35,000	26,000

8 Select columns A, B, C, D and E without dragging the mouse.

Sometimes you will need to select a large number of adjacent columns or rows. You could drag across them, but it is often easier to use the following technique:

1. Select column A.
2. Hold down the <Shift> key.
3. Select column E.

Columns A to E are selected.

	A	B	C	D	E
1	Sales and Profit Report - First Quarter 2016				
2					
3		Jan	Feb	Mar	Total
4	New York	22,000	29,000	19,000	70,000

9 Select rows 4 and 6.

Perhaps you need to perform an operation on two non-adjacent rows. To select rows 4 and 6 you need to:

1. Select row 4.
2. Hold down the <Ctrl> key on the keyboard.
3. Select row 6.

3		Jan	Feb	Mar
4	New York	22,000	29,000	19,000
5	Los Angeles	42,000	39,000	43,000
6	London	18,000	20,000	22,000
7	Paris	35,000	26,000	31,000

important

You can also Deselect cells using Ctrl-Click

Excel 365 Version 1801 (released in February 2018) added the ability add or remove cells from a selection using <Ctrl>+<Click>.

Here's an example of how you can use this (fantastically useful) new feature:

1. Select cells B4:B5.

	A	B
3		Jan
4	New York	22,000
5	Los Angeles	42,000
6	London	18,000

2. Hold down the <Ctrl> key and then select cells B6:B7.

The selected cells are added to the selection:

	A	B
3		Jan
4	New York	22,000
5	Los Angeles	42,000
6	London	18,000
7	Paris	35,000
8	Munich	12,000

3. Hold down the <Ctrl> key and then click on cell B4.

Cell B4 is removed from the selection:

	A	B
3		Jan
4	New York	22,000
5	Los Angeles	42,000
6	London	18,000
7	Paris	35,000
8	Munich	12,000

First Quarter Sales and Profit-4

Lesson 2-7: Select non-contiguous cell ranges and view summary information

Non-contiguous is a very impressive word! It simply means a range of cells that is split across two or more blocks of cells in different parts of the worksheet.

Non-contiguous ranges can be selected using both the mouse and keyboard. The keyboard method may seem a little involved at first but some users prefer it.

1. Open *First Quarter Sales and Profit-4* from your sample files folder (if it isn't already open).
2. Select the contiguous range B4:D8 with the keyboard.

When you need to select a contiguous range with the keyboard here's how it's done:

1. Use the arrow keys on the keyboard to navigate to cell B4.
2. Hold down the <Shift> key on the keyboard
3. Still holding the <Shift> key down, use the arrow keys on the keyboard to navigate to cell D8

The contiguous range B4:D8 is selected.

	A	B	C	D	E
1	Sales and Profit Report - First Quarter 2016				
2					
3		Jan	Feb	Mar	Total
4	New York	22,000	29,000	19,000	70,000
5	Los Angeles	42,000	39,000	43,000	
6	London	18,000	20,000	22,000	
7	Paris	35,000	26,000	31,000	
8	Munich	12,000	15,000	13,000	
9	USA Sales	64,000			
10					

3. Select the non-contiguous range B4:B8,D4:D8 using the mouse.

1. Select the range B4:B8 using the mouse.
2. Hold down the <Ctrl> key and select the range D4:D8 using the mouse.

The non-contiguous range B4:B8,D4:D8 is selected:

	A	B	C	D	E
3		Jan	Feb	Mar	Total
4	New York	22,000	29,000	19,000	70,000
5	Los Angeles	42,000	39,000	43,000	
6	London	18,000	20,000	22,000	
7	Paris	35,000	26,000	31,000	
8	Munich	12,000	15,000	13,000	
9	USA Sales	64,000			

note

“Extend Selection” mode and “Add to Selection” mode

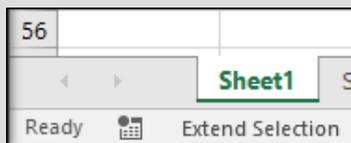
In this lesson, you use Excel’s *Add to Selection* mode.

There’s also an *Extend Selection* mode that can be used instead of the <Shift> key (in this lesson) but it is not recommended as it is less efficient.

Extend Selection Mode

The <F8> key switches *Extend Selection Mode* on and off.

Try pressing the <F8> key once. You’ll see the words *Extend Selection* appear at the bottom left of the screen:



When you press the <F8> key once again, the words: *Extend Selection* disappear, showing that you have switched this mode off.

In this lesson, you could have selected cells B4:B8 using *Extend Selection* mode like this:

1. Navigate to cell B4.
2. Press the <F8> key to enter *Extend Selection* mode.
3. Use the <Down Arrow> key to move down the column to cell B8.
4. Press the <F8> key to switch *Extend Selection* mode off.

Add to Selection mode

This mode is far more useful and is switched on and off by pressing the <Shift>+<F8> key combination.

Add to Selection mode keeps any selected cells selected as you navigate to a new position on the worksheet using the keyboard.

You don’t need to explicitly turn this mode off as Excel will do this for you.

4 Select the same non-contiguous range with the keyboard.

This is a little more involved than using the simple <Shift>+<Arrow keys> method used earlier.

Here’s how it’s done:

1. Use the arrow keys on the keyboard to navigate to cell B4
2. Hold down the <Shift> key and then use the <Down Arrow> key to move down the column to cell B8.
3. Press: <Shift>+<F8> to enter *Add to Selection* mode (see sidebar).
4. Use the arrow keys to navigate to cell D4.
5. Hold down the <Shift> key and then use the <Down Arrow> key to move down the column to cell D8.

The non-contiguous range B4:B8,D4:D8 is selected:

	A	B	C	D	E
3		Jan	Feb	Mar	Total
4	New York	22,000	29,000	19,000	70,000
5	Los Angeles	42,000	39,000	43,000	
6	London	18,000	20,000	22,000	
7	Paris	35,000	26,000	31,000	
8	Munich	12,000	15,000	13,000	
9	USA Sales	64,000			

5 Obtain a total sales figures for January and March using the status bar.

The status bar contains summary information for the currently selected range.

Look at the bottom right of your screen. You can see the average sales and total sales (sum of sales) for January and March:

Average: 25,700 Count: 10 Sum: 257,000

6 View the maximum and minimum sales for January and March using the status bar.

Right-click the status bar and click *Maximum* and *Minimum* on the shortcut menu.

✓	Average	25,700
✓	Count	10
	Numerical Count	
✓	Minimum	12,000
✓	Maximum	43,000
✓	Sum	257,000

The status bar now also displays maximum and minimum values.

Average: 25,700 Count: 10 Min: 12,000 Max: 43,000 Sum: 257,000

7 Close the workbook without saving.

Lesson 2-8: AutoSelect a range of cells

- 1 Open *Sales Report* from your sample files folder.

	A	B	C	D	E
1	Weekly Sales Report				
2					
3	Invoice No	Date	Customer	Country	Total
4	10918	10 March 2016	Bottom-Dollar Markets	Canada	1,700.81
5	10917	10 March 2016	Romero y tomillo	Spain	429.92
6	10926	10 March 2016	Ana Trujillo Emparedados y helados	Mexico	604.42
7	10929	11 March 2016	Frankenversand	Germany	1,380.33
8	10934	11 March 2016	Lehmanns Marktstand	Germany	587.50
9	10939	11 March 2016	Magazzini Alimentari Riuniti	Italy	749.05
10	10939	11 March 2016	Magazzini Alimentari Riuniti	Italy	- 749.05
11	10925	12 March 2016	Hanari Carnes	Brazil	558.29
12	10944	12 March 2016	Bottom-Dollar Markets	Canada	1,204.75
13	10923	12 March 2016	La maison d'Asie	France	879.83
14	10937	13 March 2016	Cactus Comidas para llevar	Argentina	757.64
15	10947	13 March 2016	B's Beverages	UK	258.50
16	10933	13 March 2016	Island Trading	UK	1,081.71
17	10938	14 March 2016	QUICK-Stop	Germany	3,209.95
18	10949	14 March 2016	Bottom-Dollar Markets	Canada	5,195.85
19	10945	14 March 2016	Morgenstern Gesundkost	Germany	287.88
20					
21	This report excludes sales to Asia and South Africa.				Range

This report contains a single block of cells in the range A3 to E19.

When data is arranged in this way it is referred to as a *Range*.

You will often want to select a row or column of cells within a range, or even the entire range.

You can select ranges by using any of the techniques covered so far but this could be very time consuming if the range encompassed hundreds, or even thousands, of rows and columns.

In this lesson, you'll learn how to select range rows, range columns and entire ranges with a few clicks of the mouse.

- 2 Select all cells within the range to the right of cell A7.

1. Click in cell A7 to make it the active cell.
2. Hover over the right-hand border of cell A7 until you see the four-headed arrow cursor shape.

7	10929	11 March 2016	
8	10934	11 March 2016	

3. When you see this cursor shape, hold down the <Shift> key and double-click.

All cells to the right of A7, but within the range, are selected.

7	10929	11 March 2016	Frankenversand	Germany	1,380.33
---	-------	---------------	----------------	---------	----------

- 3 Select all cells within the range except the header row.

1. Click in cell A4 to make it the active cell.
2. Hover over the right-hand border of cell A4 until you see the four-headed arrow cursor shape.

Sales Report

note

Other ways to AutoSelect a range

Using the keyboard

Here's how you would select the entire range in the *Weekly Sales Report* (excluding the header row) using the keyboard method.

Make cell A4 the active cell by navigating to it with the <Arrow> keys.

1. Press: <Ctrl>+<Shift>+<DownArrow>

Cells A4:A19 are selected.

2. Press: <Ctrl>+<Shift>+<RightArrow>

The entire range (excluding the header row) is selected.

Using shortcut keys

The shortcut keys method is the fastest way to select the entire range *including* the header row.

1. Click anywhere inside the range.
2. Press: <Ctrl>+<A>

The entire range (including the header row) is selected.

From the Ribbon

You can select the entire range including the header row (described as the *Current region* in the dialog) using the Ribbon. This method is the least efficient way to select an entire range.

Make sure that the active cell is within the range.

1. Click:
Home→**Editing**→
Find & Select→
Go To Special...

The *Go To Special* dialog is displayed.

2. Click the *Current Region* option button and then click the OK button.

The entire range (including the header row) is selected.

4	10918	10
5	10917	10

3. When you see this cursor shape, hold down the <Shift> key and double-click.

All cells to the right of cell A4, but within the range, are selected.

4. Hover over the bottom border of the selected cells until you see the four-headed arrow cursor shape.

Date	Customer
10 March 2016	Bottom-Dollar Markets
10 March 2016	Romero y tomillo

5. When you see this cursor shape, hold down the <Shift> key and double-click.

The entire range (except the header row) is selected.

	A	B	C	D	E
1	Weekly Sales Report				
2					
3	Invoice No	Date	Customer	Country	Total
4	10918	10 March 2016	Bottom-Dollar Markets	Canada	1,700.81
5	10917	10 March 2016	Romero y tomillo	Spain	429.92
6	10926	10 March 2016	Ana Trujillo Emparedados y helados	Mexico	604.42
7	10929	11 March 2016	Frankenversand	Germany	1,380.33
8	10934	11 March 2016	Lehmans Marktstand	Germany	587.50
9	10939	11 March 2016	Magazzini Alimentari Riuniti	Italy	749.05
10	10939	11 March 2016	Magazzini Alimentari Riuniti	Italy	- 749.05
11	10925	12 March 2016	Hanari Carnes	Brazil	558.29
12	10944	12 March 2016	Bottom-Dollar Markets	Canada	1,204.75
13	10923	12 March 2016	La maison d'Asie	France	879.83
14	10937	13 March 2016	Cactus Comidas para llevar	Argentina	757.64
15	10947	13 March 2016	B's Beverages	UK	258.50
16	10933	13 March 2016	Island Trading	UK	1,081.71
17	10938	14 March 2016	QUICK-Stop	Germany	3,209.95
18	10949	14 March 2016	Bottom-Dollar Markets	Canada	5,195.85
19	10945	14 March 2016	Morgenstern Gesundkost	Germany	287.88
20					
21	Thsi report excludes sales to Asia and South Africa.				

You can also use this technique to select cells to the left of the active cell or above the active cell.

4. Close the workbook without saving.

note

Why are you calling the pound sign a hash?

In the USA and Canada, the hash symbol is called the **pound sign** or the **number sign**.

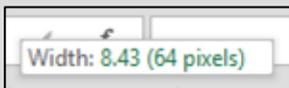
In different USA/Canada regions the single symbol has different names because it can be used to denote a number (as in contestant #5) or as a weight (as in 3# of butter).

Throughout this book I will refer to the # as a *hash* because that is the term used in most other English-speaking countries.

note

Excel column widths are expressed in characters and pixels

In this lesson Excel displays the default column width as:



8.43 characters is Excel's default column size (meaning that 8.43 characters can be displayed in each cell using the default *Calibri* font).

Pixels are the tiny dots that make up a computer display.

With 64 pixels to each column, a computer screen with a resolution of 1680X1050 (the norm for a 22 inch display) should display about $1680/64=26.25$ Excel columns.

Row heights are displayed in points (a point is approximately 1/72 inch or 0.035cm).

First Quarter Sales and Profit-4

Lesson 2-9: Re-size rows and columns

1. Open *First Quarter Sales and Profit-4* from your sample files folder.

Notice that columns B, C, D and E are far too wide for their contents. It would be useful to make them narrower to keep the worksheet compact.

2. Re-size column B so that it is just wide enough to contain the January sales figures.

1. Hover the mouse cursor over the line separating the letters B and C until you see the *re-size* cursor shape:



2. When you see the *re-size* cursor shape, keep the mouse still and then click and drag to the left. Column B will re-size as you drag. Make it narrower so that the values just fit in the column. Notice that the column width is displayed in characters and pixels (see sidebar) as you drag.

	A	B	C	D
1	Sales and Profit Report - First Quarter 2016			
2				
3		Jan	Feb	Mar
4	New York	22,000	29,000	19,000

3. Re-size column B so that it is too narrow to contain the January sales figures.

Notice that when the column isn't wide enough to contain the contents, hash signs are shown instead of values (if you're used to hashes being called **pound signs** or **number signs** see the sidebar).

	A	B	C	D	E
1	Sales and Profit Report - First Quarter 2016				
2					
3		Jan	Feb	Mar	Total
4	New York	###	29,000	19,000	70,000

4. Automatically re-size column B so that it is a perfect fit for the widest cell in the column.

1. Hover over the line separating the letters B and C until you see the *re-size* cursor shape:



2. When you see this shape, double-click to automatically re-size column B.

5. Automatically re-size every column in the worksheet in one operation.

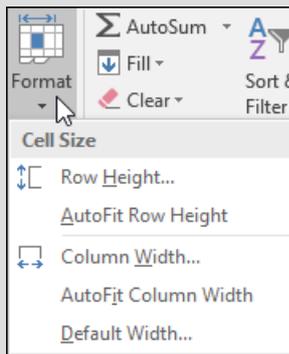
note

Other ways to re-size rows and columns

You can also re-size rows and columns using the Ribbon.

Click: Home→Cells→Format.

A drop-down menu appears.



You can use the *Row Height* and *Column Width* options to set the row or column to a specific number of characters (for column widths) or points (for row height).

You can also use the *AutoFit Row Height* and *AutoFit Column Width* options to automatically re-size the row or column (you achieved this more efficiently with a double-click in the lesson).

Default Width... allows you to set a new width for all columns but will not affect columns that have already been manually resized.

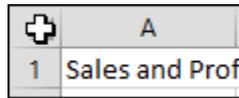
note

Making several columns or rows the same size

Select the columns that you want to resize and then click and drag the intersection of any of the selected columns.

When the mouse button is released, this will make each of the selected columns exactly the same width.

1. Select every cell in the worksheet by clicking the *Select All* button in the top left corner of the worksheet (you can also do this by clicking in any blank cell and then pressing <Ctrl>+<A>).



2. Hover over the intersection of any two columns until you see the re-size cursor shape  and then double-click.

Every column is now perfectly sized.

Notice that AutoFit has done its job rather too well. Column A is now wide enough to accommodate all of the text in cell A1.

	A	B
1	Sales and Profit Report - First Quarter 2016	

- 6 Automatically re-size column A so that it is only wide enough to contain the longest city name (Los Angeles).

1. Select cells A4:A9.
2. Click: Home→Cells→Format→AutoFit Column Width.

This time the column is automatically sized so that it is wide enough to contain all of the text in the selected cells.

	A	B	C	D	E
1	Sales and Profit Report - First Quarter 2016				
2					
3		Jan	Feb	Mar	Total
4	New York	22,000	29,000	19,000	70,000
5	Los Angeles	42,000	39,000	43,000	

Notice that the text has spilled over from cell A1 into the adjoining columns B, C, D and E. This always happens when a cell contains text and the adjacent cells are empty.

- 7 Manually re-size row 3 so that it is about twice as tall as the other rows.

Do this in the same way you re-sized the column but, this time, hover between the intersection of rows 3 and 4 until you see the re-size cursor shape, and then click and drag downwards.

1	Sales and Profit Report - First Quarter 2016				
2					
3		Jan	Feb	Mar	Total
4	New York	22,000	29,000	19,000	70,000
5	Los Angeles	42,000	39,000	43,000	

- 8 Auto-resize row 3 so that it is the same size as the other rows again.

1. Hover over the line separating the numbers 3 and 4 until you see the re-size cursor shape. 
2. When you see this shape, double-click to automatically re-size row 3.

- 9 Close Excel without saving.

Lesson 2-10: Use AutoSum to sum a non-contiguous range

In: *Lesson 2-7: Select non-contiguous cell ranges and view summary information*, you learned how to view the sum of January and March sales using the status bar. But how can you put that value onto the worksheet?

Now that you have the hang of selecting non-contiguous ranges, you can use this skill in conjunction with your AutoSum skills to create a formula that will calculate the total of a non-contiguous range.

- 1 Open *First Quarter Sales and Profit-4* from your sample files folder.
- 2 Enter the text: **Jan/Mar Sales** in cell A10 and press the <Tab> key.

The active cell moves to cell B10.

- 3 Re-size column A so that it is wide enough to contain the text.

1. Hover over the line separating the letters A and B until you see the re-size cursor shape:



2. When you see this shape, keep the mouse still and then click and drag to the right. Column A will re-size as you drag. Make it wider so that the words *Jan/Mar Sales* comfortably fit in the column:

	A	B	C	D
1	Sales and Profit Report - First Quarter 2016			
2				
3		Jan	Feb	Mar
4	New York	22,000	29,000	19,000
5	Los Angeles	42,000	39,000	43,000
6	London	18,000	20,000	22,000
7	Paris	35,000	26,000	31,000
8	Munich	12,000	15,000	13,000
9	USA Sales	64,000		
10	Jan/Mar Sales			

- 4 Use AutoSum to calculate the total sales for January and March in cell B10.

1. Click Home→Editing→ (the AutoSum button).

An AutoSum appears in cell B10 but it isn't the formula you need. AutoSum guesses that you simply want to repeat the value in the USA Sales cell.

8	Munich	12,000	15,000	13,000
9	USA Sales	64,000		
10	Jan/Mar Sales	=SUM(B9)		
11		SUM(number1, [number2], ...)		

2. Select the range B4:B8 with the mouse.

First Quarter Sales and Profit-4

- Hold down the <Ctrl> key and select the range D4:D8 with the mouse.

Notice that the non-contiguous range **B4:B8,D4:D8** is shown in the AutoSum's formula:

	A	B	C	D
1	Sales and Profit Report - First Quarter 2016			
2				
3		Jan	Feb	Mar
4	New York	22,000	29,000	19,000
5	Los Angeles	42,000	39,000	43,000
6	London	18,000	20,000	22,000
7	Paris	35,000	26,000	31,000
8	Munich	12,000	15,000	13,000
9	USA Sales	64,000		
10	Jan/Mar Sales	=SUM(B4:B8,D4:D8)		
11		SUM(number1, [number2], ...)		

- Press the <Enter> key or click the AutoSum button  again to show the sales for January and March in cell B10.

	A	B	C	D	E
1	Sales and Profit Report - First Quarter 2016				
2					
3		Jan	Feb	Mar	Total
4	New York	22,000	29,000	19,000	70,000
5	Los Angeles	42,000	39,000	43,000	
6	London	18,000	20,000	22,000	
7	Paris	35,000	26,000	31,000	
8	Munich	12,000	15,000	13,000	
9	USA Sales	64,000			
10	Jan/Mar Sales	257,000			

- Save your work as *First Quarter Sales and Profit-5*.

Lesson 2-11: Use AutoSum to calculate average and maximum values

- 1 Open *First Quarter Sales and Profit-5* from your sample files folder (if it isn't already open).

- 2 Delete cells E3:E4.

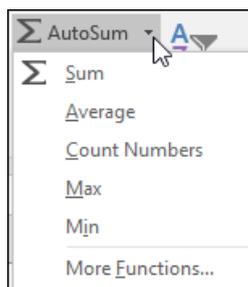
Select cells E3 and E4 and press the <Delete> key on your keyboard.

- 3 Type the word *Average* in cell E3 and press the <Enter> key.

The cursor moves to cell E4:

	A	B	C	D	E
3		Jan	Feb	Mar	Average
4	New York	22,000	29,000	19,000	

- 4 Use AutoSum to create a formula that will show the average New York sales in cell E4.



1. Click: Home→Editing→AutoSum→Drop-down arrow (see sidebar).

A drop-down menu is displayed showing different ways in which AutoSum can operate upon a range of cells:

2. Click *Average*.

Excel generates an AVERAGE function and inserts the cell range B4:D4. This is exactly what you want:

E	F	G
Average		
=AVERAGE(B4:D4)		
AVERAGE(number1, [number2], ...)		

3. Press the <Enter> key or click the AutoSum button  again to see the average sales for New York:

	A	B	C	D	E
3		Jan	Feb	Mar	Average
4	New York	22,000	29,000	19,000	23,333

- 5 Type the word: **Maximum** into cell F3 and then press the <Enter> key.

- 6 Use AutoSum to create a formula in cell F4 that will show the Maximum New York Sales for this period.

1. Place an AutoSum in cell F4 but this time, choose *Max* from the drop-down menu.

This time you have a small problem. AutoSum is including the average value (23,333) in the calculation.

First Quarter Sales and Profit-5

	B	C	D	E	F
	Jan	Feb	Mar	Average	Maximum
	22,000	29,000	19,000	23,333	=MAX(B4:E4)

2. Select cells B4:D4 with the mouse

The marquee now covers the correct cells.

3		Jan	Feb	Mar	Average	Maximum
4	New York	22,000	29,000	19,000	23,333	=MAX(B4:D4)

Notice that the MAX function is now working with the (correct) range B4:D4.

3. Press the <Enter> key or click the AutoSum button  once more to see the maximum sales the New York office managed during the first quarter of the year:

3		Jan	Feb	Mar	Average	Maximum
4	New York	22,000	29,000	19,000	23,333	29,000

- 7 Change the words *USA Sales* in cell A9 back to *Sales* and press the <Tab> key.

- 8 Press the <F2> key on the keyboard (or double-click cell B9) to bring back the marquee (shown as a blue box).

- 9 Adjust the marquee using click and drag so that all offices are included in the Sales total.

Notice that there is a small blue spot on each corner of the range. These are called *sizing handles*.

1. Hover the mouse cursor over the bottom right (or bottom left) sizing handle until the cursor shape changes to a double-headed arrow. It is really important that you see the double-headed arrow and not the four-headed arrow or white cross.

4	New York	22,000
5	Los Angeles	42,000
6	London	18,000

2. When you see the double headed arrow click and drag with the mouse down to cell B8.

3. Release the mouse button.

4. Press the <Enter> key or click the AutoSum button  again.

	A	B
3		Jan
4	New York	22,000
5	Los Angeles	42,000
6	London	18,000
7	Paris	35,000
8	Munich	12,000
9	Sales	129,000
10	Jan/Mar Sales	257,000

- 10 Save your work as *First Quarter Sales and Profit-6*.

tip

Another way to bring back the blue box showing a range is to click the range in the *Formula Bar*.

Lesson 2-12: Create your own formulas

The AutoSum tool is very useful for quickly inserting SUM(), AVERAGE(), COUNT(), MAX() and MIN() formulas into cells. Many Excel users never get any further with their formulas than this.

In this session, you'll create your own formulas without the use of AutoSum. You'll be amazed at how easy it is.

- 1 Open *First Quarter Sales and Profit-6* from your sample files folder (if it isn't already open).
- 2 Select cells A10:B10 and press the **<Delete>** key once.
The previous contents of cells A10:B10 are removed.
- 3 Type the word **Costs** into cell A11 and **Profit** into cell A12.
- 4 Type the value **83,000** into cell B11 and press the **<Enter>** key to move down to cell B12.

11	Costs	83,000
12	Profit	

- 5 Enter a formula into cell B12 to compute the profit made in January.
 1. Type: **=B9-B11** into cell B12.
 2. Press the **<Enter>** key.

The profit for January is displayed:

9	Sales	129,000
10		
11	Costs	83,000
12	Profit	46,000

- 6 Enter the formula again using the mouse to select cell references.

The method that you have just used to enter the formula works just fine but it isn't the best method. Eventually you will make a mistake. For example, you could easily type **=B8-B11** resulting in an incorrect answer.

To eliminate such errors, you should always select cell references visually rather than simply typing them in. You can visually select cells using either the mouse or the keyboard. First, you'll use the mouse method.

1. Click in cell B12 and press the **<Delete>** key on the keyboard to clear the old formula.
2. Press the equals **<=>** key on the keyboard.
3. Click once on the value 129,000 in cell B9.
4. Press the minus **<->** key on the keyboard.

important

Formulas automatically recalculate whenever any of the cells in the formula change.

For example: If you were to change the *Paris* sales to 45,000 this would cause cell B9 to recalculate to 139,000.

Because B9 has changed this would, in turn, cause the profit to recalculate to 56,000.

First Quarter Sales and Profit-6

5. Click once on the value 83,000 in cell B11.
6. Press the <Enter> key on the keyboard.

If you followed the above steps carefully you will see that you have created the same formula but with a much lower possibility of making a mistake.

7 Enter the formula again using the visual keyboard technique.

The very best Excel experts hardly use the mouse. You waste valuable seconds every time you reach for the mouse.

Here's the expert technique of visual selection via keyboard:

1. Use the arrow keys to navigate to cell B12 and then press the <Delete> key on the keyboard to clear the old formula.
2. Press the <=> key on the keyboard.
3. Press the <Up Arrow> key three times to move to cell B9.
4. Press the <-> key on the keyboard.
5. Press the <Up Arrow> key once to move to cell B11.
6. Press the <Enter> key on the keyboard.

8 Enter a formula that uses the multiplication operator to calculate a 10% bonus paid upon profits.

This employer is very generous and pays the staff ten percent of all profits as an incentive bonus.

In cell A13 type the words: **10% Bonus** and then press the <Tab> key on the keyboard to move to cell B13.

The multiplication operator is not an X as you might expect but an asterisk (*). The other Excel operators are shown in the sidebar.

You need to press <Shift>+<8> to enter an asterisk. If you are using a full size keyboard with a numeric keypad at the right-hand side you can also use the numeric keypad's <*> key.

Whichever key you use you'll still see an asterisk in the formula.

Use either the *mouse selection* technique or the *visual keyboard* technique to enter the formula shown below into cell B13 and then press the <Enter> key to see how much bonus was earned:

important

The Excel Operators

	Name	Example
+	Addition	1+2
-	Subtraction	7-5
*	Multiplication	6*3
/	Division	15/5
%	Percent	25%
^	Exponentiation	4^2

	A	B
11	Costs	83,000
12	Profit	46,000
13	10% Bonus	=B12*0.1

Note that multiplying a value by 0.1 calculates ten percent of the value. If you progress to the Essential Skills course in this series, you'll learn more about calculating percentages in: *Lesson 4-3: Format numbers using built-in number formats.*

11	Costs	83,000
12	Profit	46,000
13	10% Bonus	4,600

9 Save your work as *First Quarter Sales and Profit-7*.

trivia

The feature that Excel uses to help you out with function calls first made an appearance in Visual Basic 5 back in 1996 and had the wonderful name:

IntelliSense. The Excel implementation is called *Formula AutoComplete*.

In 1996 I was working in Switzerland (as a programmer and analyst) developing a ski-school management application. I was extremely impressed by how easy *IntelliSense* made my job. I didn't have to remember hundreds of function names any more.

I was even slightly worried that just about anybody could now program (but, of course, I was wrong).

Recently I was in London being driven by a Hackney cab driver (Hackney cab drivers know every shortcut and back street in London). He was worried that Satellite Navigation would now mean that anybody could become a London cabbie.

Of course, he really had nothing to worry about either.

note

Excel automatically adds closing brackets to functions

If you type:

```
=SUM(B4:B5
```

... and then press the **<Enter>** key, Excel will automatically add the closing bracket for you resulting in:

```
=SUM(B4:B5)
```

First Quarter Sales and Profit-7

Lesson 2-13: Create functions using Formula AutoComplete

- 1 Open *First Quarter Sales and Profit-7* from your sample files folder (if it isn't already open).
- 2 Type the words **USA Sales** into cell A15 and **European Sales** into cell A16.
- 3 If necessary, re-size column A so that it is wide enough for the words *European Sales* to fit within the column.

You learned how to do this in: *Lesson 2-9: Re-size rows and columns*.

	A
15	USA Sales
16	European Sales

- 4 Click into cell B15 and type **=S** into the cell.

Something amazing happens:

15	USA Sales	=S	
16	European Sales		
17			
18			
19			

SEARCH

SEC

SECH

SECOND

A list appears showing every function in the Excel function library beginning with S. This feature is called *Formula AutoComplete* (if AutoComplete didn't display as expected see the facing-page sidebar).

You've already encountered the SUM, AVERAGE and MAX functions courtesy of AutoSum.

You may be pleased (or dismayed) to know that there are over 450 functions in the Excel function library. The good news is that most untrained Excel users only ever get to understand SUM and AVERAGE.

When you typed =S Excel listed all functions beginning with S.

- 5 Continue typing: **=SU**

Notice that the list now only shows functions beginning with SU and look... there's the *SUM()* function you need three down in the list.

You could simply click on the Sum() function with the mouse but let's work like an Excel pro and use the keyboard.

- 6 Press the **<Down Arrow>** key twice to move the cursor over the SUM function.

The SUM function now has a tip telling you what the function does:

note

Enabling and disabling AutoComplete

As with so many other features, Microsoft allows you to turn this very useful feature off.

You'd never want to do this but you may work on a machine that has had Formula AutoComplete switched off and you need to turn it on again.

Click: File→Options→Formulas and make sure that the *Formula AutoComplete* box is checked.

note

The syntax box

The Syntax box tells you which arguments (sometimes called parameters) the function needs.

```
SUM(number1, [number2], ...)
```

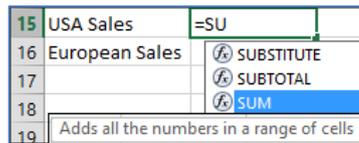
The first argument has no square brackets meaning that you can't leave it out.

The second argument (shown in square brackets) is optional.

The third argument is an ellipsis (a row of three dots). This means that you could continue with more arguments such as [number3], [number4] etc.

For such a simple function as SUM the syntax box is hardly needed but later you'll encounter functions that require several arguments and then the syntax box will be invaluable.

15	USA Sales	64,000
16	European Sales	65,000



- 7 Display Excel's help topic for the SUM function.

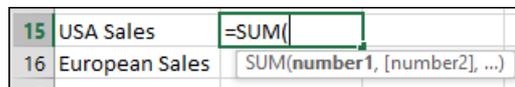
The tip tells you a little about the SUM function but to get the full story press the <F1> key while SUM is still highlighted in the dropdown list.

The Excel help system opens showing detailed help for the SUM function.

Read the help text if you are interested and then close the help window.

Notice that Excel has now left you with only =SU in the cell.

- 8 Complete the formula by typing: M(



Notice that a little box has appeared beneath the function. This box displays the *Syntax* of the SUM function (see sidebar for more information).

- 9 Select the cells that you need to sum (cells B4:B5) with the mouse or keyboard.

If you want to be a real pro you should select them with the keyboard. To do this:

1. Press the <Up Arrow> key repeatedly until you reach cell B4.
2. Hold down the <Shift> key and press the <Down Arrow> key once to select cells B4:B5.

- 10 Type a closing bracket to complete the formula and then press the <Enter> key.

The total USA sales are displayed in cell B15.

- 11 Use the same technique to create a SUM() function in cell B16 to show the total European sales (cells B6:B8).

1. Click in cell B16.
2. Type =SU
3. Press the <Down Arrow> key twice to move the cursor over the SUM function.
4. Press the <Tab> key to automatically enter the SUM function into cell B16.
5. Select the range B6:B8.
6. Type the closing bracket (this isn't actually necessary – see sidebar facing page).
7. Press the <Enter> key.

The formula should now be: =SUM(B6:B8)

- 12 Save your work as *First Quarter Sales and Profit-8*.

Lesson 2-14: Use AutoFill for text and numeric series

1 Open *First Quarter Sales and Profit-8* from your sample files folder (if it isn't already open).

2 Delete the text **Feb** and **Mar** from cells C3:D3.

Select cells C3:D3 and then press the <Delete> key on your keyboard.

3 Make B3 the active cell

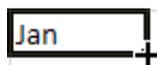
Click once inside cell B3. Notice that there is a green border around the cell and a spot on the bottom right-hand corner. This is the AutoFill handle. If you don't see it, refer to the sidebar.



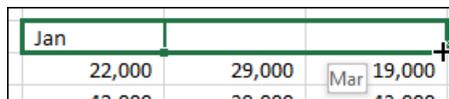
4 Hover over the AutoFill handle with your mouse until the cursor shape changes to a black cross.

Many of my students have great difficulty with this when they try it for the first time.

- You don't want the four-headed arrow:  – that would move the cell.
- You don't want the white cross:  – that would select the cell.
- You want the black cross:  – the AutoFill cursor.

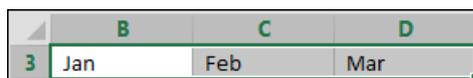


5 When the black cross cursor is visible, hold down the mouse button and drag your mouse to the right to AutoFill the other months: **Feb** and **Mar**.



Notice the tip that appears as you drag, previewing the month that will appear in each cell.

When you release the mouse button, the name of each month appears in cells C3 and D3.



6 Type: **Monday** into cell A18 and AutoFill down to cell A24 to show the days of the week.

(If you are not using an English language version of Excel you will need to type **Monday** in your own language).

note

If you don't see the AutoFill handle somebody has disabled AutoFill

It's almost certain that AutoFill will be enabled on any computer that you work on. It is such a useful feature that you wouldn't want to disable it.

If you don't see the AutoFill handle (the black spot on the bottom right hand corner of the active cell) it's because somebody has switched AutoFill off.

To bring it back click:

File→Options→Advanced

In the first section (*Editing Options*) check the box next to *Enable fill handle and cell drag-and-drop*.

First Quarter Sales and Profit-8

tip

You don't have to enter two numbers if you want to create a numeric range.

If you simply type a number into a cell and then AutoFill while holding down the <Ctrl> key, you will automatically generate sequential numbers.

7 In cell B18 type the number **1** and in cell B19 type the number **2**.

8 Select cells B18 and B19.



9 AutoFill down to B24 to create sequential numbers:

	A	B
18	Monday	1
19	Tuesday	2
20	Wednesday	3

10 In cell C18 type **9** and in cell C19 type **18**.

11 Select cells C18 and C19.



12 AutoFill down to cell B24 to create the nine times table.

	A	B	C
18	Monday	1	9
19	Tuesday	2	18
20	Wednesday	3	27

These are both examples of linear series. You'll learn more about linear series later, in: *Lesson 2-18: Understand linear and exponential*.

13 Use AutoFill to create sequential dates.

1. Type: **01-Jan-16** into cell D18.
2. Type: **02-Jan-16** into cell D19.
3. Select cells D18:D19.
4. AutoFill down to D24 to create sequential dates.

14 Use AutoFill to quickly copy text.

Sometimes you will want to duplicate the value from one cell into many others to the right of, left of, beneath, or above the active cell.

When a cell containing text is the active cell and it isn't defined as a *fill series* (the built-in fill series are days of the week and months of the year), AutoFill will simply duplicate the contents of the cell.

Type the text **Adjusted** into cell E18 and then AutoFill it down as far as cell E24. The same text is now shown in each of the cells:

	A	B	C	D	E
18	Monday	1	9	01-Jan-16	Adjusted
19	Tuesday	2	18	02-Jan-16	Adjusted
20	Wednesday	3	27	03-Jan-16	Adjusted
21	Thursday	4	36	04-Jan-16	Adjusted
22	Friday	5	45	05-Jan-16	Adjusted
23	Saturday	6	54	06-Jan-16	Adjusted
24	Sunday	7	63	07-Jan-16	Adjusted

15 Save your work as *First Quarter Sales and Profit-9*.

Lesson 2-15: Use AutoFill to adjust formulas

AutoFill can save you a lot of time when extending or copying text and number sequences. But the story's not over yet.

AutoFill's ability to copy and adjust formulas is one of the most powerful tools in Excel's impressive armory.

- 1 Open *First Quarter Sales and Profit-9* from your sample files folder (if it isn't already open).
- 2 Consider the formula in cell B9.

Click onto cell B9 and view the formula displayed in the formula bar (the formula bar is at the top right of the screen grab below).

	A	B	C	D	E
1	Sales and Profit Report - First Quarter 2016				
2					Formula Bar
3		Jan	Feb	Mar	Average
4	New York	22,000	29,000	19,000	23,333
5	Los Angeles	42,000	39,000	43,000	
6	London	18,000	20,000	22,000	
7	Paris	35,000	26,000	31,000	
8	Munich	12,000	15,000	13,000	
9	Sales	129,000			

The formula is **=SUM(B4:B8)**. AutoSum created it for you in: *Lesson 2-3: Use AutoSum to quickly calculate totals*. The formula uses the SUM function to add together the values in the range B4:B8.

Think about the formula that would work in cell C9 (the total sales for February). It would be: **=SUM(C4:C8)**. Similarly the formula that would work in cell D9 (the total sales for March) would be **=SUM(D4:D8)**.

As you move to the right, all that is needed is to increment the letter for each cell reference in the formula and you'll get the right answer every time.

AutoFill is very clever and realizes this. When you AutoFill a cell containing a formula to the right, AutoFill increments the letters in each cell reference.

Most of the time that is exactly what you want.

There's also a way to fine-tune the way in which AutoFill adjusts cell references, allowing you to implement some more advanced AutoFill techniques. While this is beyond the scope of this *Basic Skills* book, it is covered in-depth in the *Essential Skills* book in this series (in *Lesson 3 12: Understand absolute and relative cell references*, and *Lesson 3 13: Understand mixed cell references*).

- 3 AutoFill cell B9 to the right as far as cell D9.

You learned how to do this in: *Lesson 2-14: Use AutoFill for text and numeric series*.

First Quarter Sales and Profit-9

You may see a row of hashes in cell C9 and/or D9. This is because the value may be too wide to fit in the cell. If this is the case, AutoFit the column using the skills learned in: *Lesson 2-9: Re-size rows and columns.*

The correct answers for *Feb* and *Mar* sales are shown on the worksheet. Click on the *Feb* total cell (C9) and look at the formula in the formula bar.

	A	B	C	D
1	Sales and Profit Report - First Quarter 2016			
2				
3		Jan	Feb	Mar
4	New York	22,000	29,000	19,000
5	Los Angeles	42,000	39,000	43,000
6	London	18,000	20,000	22,000
7	Paris	35,000	26,000	31,000
8	Munich	12,000	15,000	13,000
9	Sales	129,000	129,000	128,000

You can see that AutoFill has done its job perfectly, creating the sum of the values in cells C4:C8. Our five branches have sold exactly the same amount in both January and February, but a little less in March.

4 Consider the formula in cell E4.

Click onto cell E4 and view the formula displayed in the formula bar.

	A	B	C	D	E
1	Sales and Profit Report - First Quarter 2016				
2					
3		Jan	Feb	Mar	Average
4	New York	22,000	29,000	19,000	23,333
5	Los Angeles	42,000	39,000	43,000	
6	London	18,000	20,000	22,000	

The formula is **=AVERAGE(B4:D4)**. AutoSum created it for you in:

Lesson 2-11: Use AutoSum to calculate average and maximum values.

Think about the formula that would work in cell E5 (the average sales for Los Angeles). It would be: **=AVERAGE(B5:D5)**. Similarly the formula that would work in cell E6 (the average sales for London) would be **=AVERAGE(B6:D6)**.

As you move downward, all that is needed is to increment the number for each cell reference in the formula. This is exactly what AutoFill will do.

E	F
Average	Maximum
23,333	29,000
41,333	43,000
20,000	22,000
30,667	35,000
13,333	15,000

5 AutoFill cell E4 down to E8 to see the average sales for each branch.

6 AutoFill cell F4 down to F8 to view the maximum sales for each branch.

7 Save your work as *First Quarter Sales and Profit-10*.

Lesson 2-16: Use AutoFill options

Sometimes AutoFill begins to misbehave and actually gets in the way of efficient work by wrongly anticipating what you need.

- 1 Open *First Quarter Sales and Profit-10* from your sample files folder (if it isn't already open).
- 2 Populate cells F18 to F24 with sequential dates beginning with 1-Jan-16 using AutoFill.
 1. In cell F18 type the date: **1-Jan-16**
 2. AutoFill cell F18 down as far as cell F24.

The cells are populated with sequential dates:

	A	B	C	D	E	F
18	Monday	1	9	01-Jan-16	Adjusted	01-Jan-16
19	Tuesday	2	18	02-Jan-16	Adjusted	02-Jan-16
20	Wednesday	3	27	03-Jan-16	Adjusted	03-Jan-16
21	Thursday	4	36	04-Jan-16	Adjusted	04-Jan-16
22	Friday	5	45	05-Jan-16	Adjusted	05-Jan-16
23	Saturday	6	54	06-Jan-16	Adjusted	06-Jan-16
24	Sunday	7	63	07-Jan-16	Adjusted	07-Jan-16

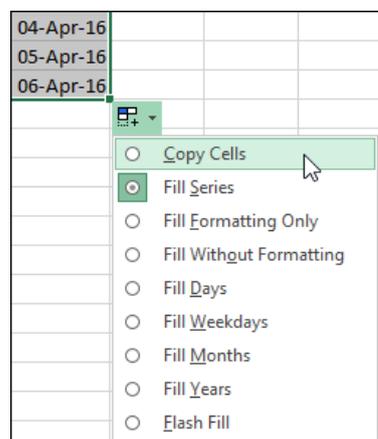
- 3 Populate cells G18 to G24 with the date **31-Mar-16** using the AutoFill Smart Tag.
 1. In cell G18 type the date: **31-Mar-16**.
 2. AutoFill down as far as cell G24.

At some time, you'll need to add transaction dates to a worksheet and will have four or five entries with the same date.

AutoFill is perfect for eliminating the need to re-type the date for each transaction, but its insistence upon incrementing the date every time could be very frustrating.

Fortunately, you can change the default behavior.

3. Click the Auto Fill Options Smart Tag  at the bottom right corner of the filled cells.



First Quarter Sales and Profit-10

4. Click *Copy Cells* to tell AutoFill not to increment the date.

4 Understand AutoFill options.

The *Fill Formatting* option is beyond the scope of this *Basic Skills* book but is covered in-depth in the *Essential Skills* book in this series (in *Session Four: Making Your Worksheets Look Professional*).

Flash Fill will be introduced later in: *Lesson 2-19: Use automatic Flash Fill to split delimited text*. Here's what the other options will do:

Copy Cells	Fill Series	Fill Days	Fill Weekdays	Fill Months	Fill Years
This is what we just did. The first cell is copied to the other cells.	The default for dates that include the day. The date increments by one day at a time.	The date increments by one day at a time.	Because 1 st April 2016 is a Friday the weekend days are omitted and the series jumps from 1 st April to 4 th April.	Normally this would show the same day number for each month. In this example, there are only 30 days in three of the months so 30 th is shown instead of 31 st .	The same calendar day is shown for each subsequent year.
31-Mar-16	31-Mar-16	31-Mar-16	31-Mar-16	31-Mar-16	31-Mar-16
31-Mar-16	01-Apr-16	01-Apr-16	01-Apr-16	30-Apr-16	31-Mar-17
31-Mar-16	02-Apr-16	02-Apr-16	04-Apr-16	31-May-16	31-Mar-18
31-Mar-16	03-Apr-16	03-Apr-16	05-Apr-16	30-Jun-16	31-Mar-19
31-Mar-16	04-Apr-16	04-Apr-16	06-Apr-16	31-Jul-16	31-Mar-20
31-Mar-16	05-Apr-16	05-Apr-16	07-Apr-16	31-Aug-16	31-Mar-21
31-Mar-16	06-Apr-16	06-Apr-16	08-Apr-16	30-Sep-16	31-Mar-22

5 Populate cells F18 to F24 with sequential dates using a right-click AutoFill.

1. Click on cell F18 to make it the active cell.
2. AutoFill down to cell F24, but this time hold down the right mouse button instead of the left.

When you release the mouse button you are instantly presented with the AutoFill options (see sidebar).

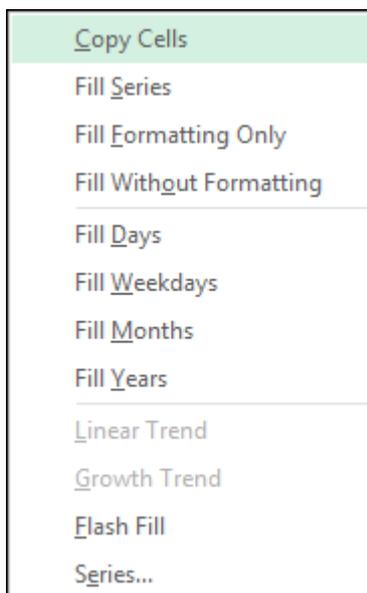
There are two new options here: *Linear Trend* and *Growth Trend*.

You'll learn how these can be used later, in: *Lesson 2-18: Understand linear and exponential series*.

This method is preferred to the Smart Tag method because it is faster (one click instead of two).

3. Click: *Fill Series* or *Fill Days*.

In this example *Fill Series* and *Fill Days* produce exactly the same result.



6 Save your work as *First Quarter Sales and Profit-11*.

Lesson 2-17: Speed up your AutoFills and create a custom fill series

In this lesson, you're going to learn some advanced AutoFill techniques that will massively speed up your efficient use of the AutoFill feature.

- 1 Open *First Quarter Sales and Profit-11* (if it isn't already open).
- 2 Use an AutoFill double-click to populate cells G19:G24 with sequential dates.
 1. Delete the contents of cells G18:G24.
 2. Type: **31-Mar-16** into cell G18.

	A	B	C	D	E	F	G
17							
18	Monday	1	9	01-Jan-16	Adjusted	01-Jan-16	31-Mar-16
19	Tuesday	2	18	02-Jan-16	Adjusted	02-Jan-16	
20	Wednesday	3	27	03-Jan-16	Adjusted	03-Jan-16	
21	Thursday	4	36	04-Jan-16	Adjusted	04-Jan-16	
22	Friday	5	45	05-Jan-16	Adjusted	05-Jan-16	
23	Saturday	6	54	06-Jan-16	Adjusted	06-Jan-16	
24	Sunday	7	63	07-Jan-16	Adjusted	07-Jan-16	

3. Double click the AutoFill handle to automatically fill cells G19:G24.

Hover over the AutoFill handle (the black spot at the bottom right hand corner of cell G18). When you are sure that you have the correct black cross cursor shape, double click to automatically fill down to the end of the range.

- 3 Use an *AutoFill <Ctrl>-Drag* to copy the value in cell G18 to cells G19:G24.
 1. Delete all of the dates from cells G19:G24 leaving only the date *31-Mar-16* in cell G18.
 2. Click in cell G18 to make it the active cell.
 3. Hold down the **<Ctrl>** key and AutoFill cell G18 down as far as cell G24 by dragging the AutoFill handle down with the mouse.
 4. Release the mouse button.

Because you held the **<Ctrl>** key down, AutoFill simply copied the cell instead of creating a series of values.

	A	B	C	D	E	F	G
17							
18	Monday	1	9	01-Jan-16	Adjusted	01-Jan-16	31-Mar-16
19	Tuesday	2	18	02-Jan-16	Adjusted	02-Jan-16	31-Mar-16
20	Wednesday	3	27	03-Jan-16	Adjusted	03-Jan-16	31-Mar-16
21	Thursday	4	36	04-Jan-16	Adjusted	04-Jan-16	31-Mar-16
22	Friday	5	45	05-Jan-16	Adjusted	05-Jan-16	31-Mar-16
23	Saturday	6	54	06-Jan-16	Adjusted	06-Jan-16	31-Mar-16
24	Sunday	7	63	07-Jan-16	Adjusted	07-Jan-16	31-Mar-16

First Quarter Sales and Profit-11

This is even faster than using the right-click method when you want to prevent the date (or a number) from incrementing.

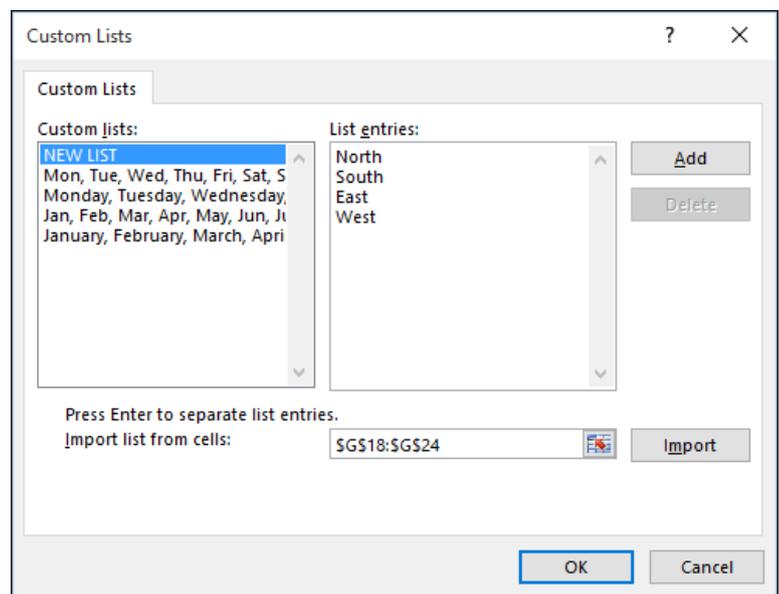
4 Create a custom list containing the values: *North*, *South*, *East* and *West*.

1. Click: File→Options→Advanced.
2. Scroll down to the *General* category and click the *Edit Custom Lists...* button.



The *Custom Lists* dialog appears.

3. Click in the *List entries* window and add four custom list entries: **North**, **South**, **East** and **West** (pressing the <Enter> key after each entry).



4. Click the OK button and OK again to close the dialogs.

5 Use the newly created custom list.

Type **North** in any cell and AutoFill down.

As you AutoFill, the custom list entries appear in the worksheet (see sidebar).

North
South
East
West
North
South
East
West

6 Delete the North, South, East, West... cells from the worksheet.

7 Save your work as *First Quarter Sales and Profit-12*.

important

A *synonym* is a word you use when you can't spell the other one.

Baltasar Gracián
(Philosopher 1601-1658)

Excel uses different terminology in various menus, dialog boxes and task panes that mean the same thing (in the context of this lesson):

Series, *Forecast* and *Trend* mean the same thing.

Growth and *Exponential* also mean the same thing.

In this lesson I'll consistently use the terminology *Series* and *Exponential*.

note

Excel can calculate a linear series when the step values of cells are not equal

Excel calculates a linear series (AutoFill also calls this a *fill series*) using this formula:

Start Value + Step Value

Sometimes you may need to produce linear series values from a series of numbers that have different step values. For example, consider this range:

	A	B
2	Value	Step Value
3	1	
4	2.1	1.1
5	2.9	0.8
6	4.1	1.2

In this case Excel will use a more complex mathematical operation (called the *least-squares algorithm*) to determine the correct step value to use. In the above example, Excel would calculate a step value of 1.01.

Rabbit Population

Lesson 2-18: Understand linear and exponential series

Linear series

In: *Lesson 2-14: Use AutoFill for text and numeric series*, you used AutoFill's *Fill Series* method to automatically create these numeric series:

	A	B	C
18	Monday	1	9
19	Tuesday	2	18
20	Wednesday	3	27

These are both examples of *Linear* series.

Imagine that you had originally selected cells B1:B2 before AutoFilling column B:

	B
1	9
2	18
3	

To calculate a linear series Excel first identifies the *step value*. The linear series in column B has a *step value* of nine ($18-9=9$).

When you use AutoFill to *Fill Series*, Excel adds the *step value* to the *start value* (the number shown in the previous cell).

After you have AutoFilled down to cell B3, the value shown in cell B3 will thus be twenty-seven (18 (the start value) $+9$ (the step value) $= 27$)

This is an example of a very simple linear series. Excel is also able to calculate a linear series even when the step values of the selected cells are not equal (see sidebar).

Exponential (or Growth) series

An exponential series is calculated by *multiplying* (rather than adding) the *start value* by the *step value*. This type of series is usually referred to as an *exponential* (rather than linear) series. Excel also uses the term *growth series* as a synonym for *exponential series* (see sidebar).

Here's an example:

- A truly excellent restaurant opens in town. On the first day they only have one customer, but the customer is so delighted by the food, service and value that the customer tells two friends.
- The next day the two friends eat there, and the restaurant has two diners.
- The two friends are also so pleased with their experience that they each tell two friends. On the third day the restaurant has four diners.

You can see that the restaurant owner might expect that this trend will continue and that each day the number of diners will double (in Excel's terminology, the *step value* is 2). Eventually, of course, the restaurant will

note

Here's how you could have used the Ribbon to complete this lesson:

1. Enter the value **200** into cell B4.
2. Select cells B4:B51.
3. Click: Home → Editing → Fill → Series...

The *Series* dialog appears.

4. Enter the following values into the *Series* dialog:

Note that the value: **1.2** is used because an exponential (growth) series multiplies each *start value* by the *step value*.

trivia

According to an old legend, the inventor of the game of Chess presented his new game to a powerful king. The king was so pleased with the game that he offered the inventor any reasonable reward.

The inventor asked for one grain of rice for the first square on the chessboard, two for the second, four for the third... and so on for each square on the chessboard.

The king thought the inventor was foolish to ask for such a simple gift. Much later he found that there was not enough rice in the entire world to fulfil the inventor's request.

With the Excel skills you have learned in this lesson, you should easily be able to model the King's dilemma and discover exactly how many grains of rice would have been needed (about 18.5 Quintillion).

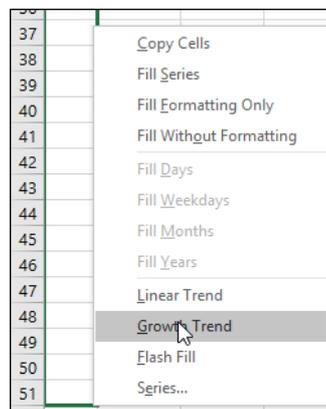
become full and the trend will have to end (in Excel's terminology the number of seats in the restaurant is the *stop value*).

In this lesson you will model this type of exponential series.

1. Open *Rabbit Population* from your sample files folder.
2. If the rabbit population of an island increases at the rate of 20% per month, use an exponential progression to calculate how a newly introduced community of 200 rabbits will grow in four years.
 1. Type the value: **200** into cell B4 to set the rabbit population at the beginning of the period.
 2. Type the value: **240** into cell B5 to set the rabbit population after one month.
 3. Select the range B4:B5.
 4. Hold down the right-click mouse button on the AutoFill handle at the bottom-right of the selected range and drag down to AutoFill to cell B51.

	A	B	C
1	Rabbit Population		
2			
3	Month	Population	
4	1	200	
5	2	240	
6	3		
7	4		

5. Click *Growth Trend* on the shortcut menu. Note that this is the shortcut menu's synonym for: *Exponential Series*.



After four years (48 months) the 200 rabbits will have grown to a population of a little over a million.

	A	B
49	46	731,452
50	47	877,743
51	48	1,053,291

3. Save your work as *Rabbit Population-1*.

note**If Flash Fill doesn't work for you, somebody has switched it off**

It's almost certain that Flash Fill will be enabled on any computer that you work on. It is such a useful feature that you wouldn't want to disable it.

If Flash Fill doesn't work, there are two possible explanations:

1. You are using an earlier version of Excel. Flash Fill is a relatively new feature introduced in Excel 2013.
2. Somebody has switched Flash Fill off.

To switch it back on click:

File→Options→Advanced

In the first section (*Editing Options*) make sure that the *Automatically Flash Fill* check box is checked.

note**Help Flash Fill to work correctly by formatting header rows differently**

You will notice that, in this lesson's sample file, I have bold-faced the header row:

	B	C
3	First Name	Last Name
4	Jessica	Sagan
5	Stephen	Bell
6	John	Jennings

When Flash Fill sees different formatting in the first row, it will treat this row (correctly) as a header row. Flash Fill then excludes the values in this row from its logic, providing more reliable results.

Employee Names-1

Lesson 2-19: Use automatic Flash Fill to split delimited text

When you place data in cells it is useful to observe an important rule:

"Keep data atomic"

If you strictly observe this rule, you'll avoid an enormous number of potential problems.

The rule means that, in the same way that the atom is the smallest basic unit you can divide matter into, each worksheet cell should contain the smallest possible amount of data.

Here's a simple example to illustrate the concept:

	A	B
3	Name	
4	Jessica Sagan	
5	Stephen Bell	
6	John Jennings	

Imagine that you want to use the worksheet above to create a mail merge in Word. In this case you'd need the first names in a cell of their own. This would enable you to personalize the mail merge with an introduction such as: *Dear Jessica*.

If you had observed the *keep data atomic* rule, you would have split your data into multiple columns like this:

	B	C
3	First Name	Last Name
4	Jessica	Sagan
5	Stephen	Bell
6	John	Jennings

Excel 2013 added a wonderful new feature called *Flash Fill*. This feature enables you quickly and simply split delimited text (such as the above) into separate cells. The term *delimited text* means text that is split using a separator. In this case the separator is a space (see facing page sidebar).

Automatic Flash Fill will only work for very simple text splitting tasks such as the one described above. In the lessons that follow you'll learn more complex Flash Fill techniques that will enable you to perform some very advanced text splitting tasks.

- 1 Open *Employee Names-1* from your sample files folder.
- 2 Add column headings for *First Name* and *Last Name* in cells B3 and C3.
 1. Click in cell B3.
 2. Type: **First Name**
 3. Press the <Tab> key to move to cell C3.
 4. Type: **Last Name**
 5. Press the <Tab> key to save the value into the cell and move to cell D3.
- 3 Bold face the text in cells B3 and C3.

note

Limitations of automatic Flash Fill

Automatic Flash Fill always works perfectly when the source data column has the same type of *separators*.

In this lesson's example, space separators are used. The following example (using comma separators) would also work perfectly:

Sting, Musician
Kingdom Brunel, Engineer
Billie Jean King, Tennis Player

You can see that, without the commas, Flash Fill wouldn't know where the name ended and the occupation began.

Sometimes you will need to extract data that does not have separators.

You'll discover how to solve this type of problem later, in: *Lesson 2-20: Use manual Flash Fill to split text.*

note

Use automatic Flash Fill to extract initials

You can often save a lot of space by showing initials instead of full names.

Automatic Flash Fill is well suited to this task.

Try this (at the end of the lesson, after populating columns B and C with first and last names).

1. Type: **JS** (for Jessica Sagan) in cell D4.
2. Type **S** (Stephen Bell's first initial) into cell D5.
3. Press the <Enter> key to accept the Flash Fill.

	B	C	D
4	Jessica	Sagan	JS
5	Stephen	Bell	SB
6	John	Jennings	JJ

You learned how to do this in: *Lesson 1-15: Use the Mini Toolbar, Key Tips and keyboard shortcuts.*

	A	B	C
3	Name	First Name	Last Name

4 Use Flash Fill to extract the *First Name* values from column A into column B.

1. Type: **Jessica** into cell B4. Be careful to type it exactly as it is spelled in cell A4. Be careful not to leave any leading or trailing spaces.
2. Press the <Enter> key to move to cell B5.
3. Type: **S** (the first letter of *Stephen*) into cell B5.

Notice that something interesting has happened. *Flash Fill* has figured out that you possibly want to extract all the first names from column A and has displayed them all as grayed out names in the cells below:

	A	B	C
3	Name	First Name	Last Name
4	Jessica Sagan	Jessica	
5	Stephen Bell	Stephen	
6	John Jennings	John	
7	Meryl Simpson	Meryl	
8	Alfred Hawking	Alfred	

4. Press the <Enter> key to instruct Flash Fill to enter all the remaining *First Name* values.

All the first names appear in column B.

	A	B	C
3	Name	First Name	Last Name
4	Jessica Sagan	Jessica	
5	Stephen Bell	Stephen	
6	John Jennings	John	
7	Meryl Simpson	Meryl	
8	Alfred Hawking	Alfred	

The status bar (at the bottom left of the screen) also confirms how many cells were changed:

Ready	Flash Fill Changed Cells: 23
-------	------------------------------

5 Use Flash Fill to extract the *Last Name* values from column A into column C.

Follow the same procedure you used to extract the first names:

	A	B	C
3	Name	First Name	Last Name
4	Jessica Sagan	Jessica	Sagan
5	Stephen Bell	Stephen	Bell
6	John Jennings	John	Jennings
7	Meryl Simpson	Meryl	Simpson

6 Save your work as *Employee Names-2*.

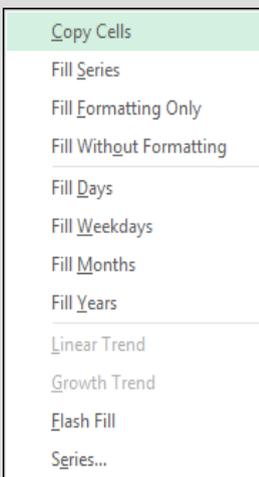
note

You can also Flash Fill more quickly by using the AutoFill handle

The *AutoFill handle* is the small black dot on the bottom-right corner of the active cell (or range of cells).



In: *Lesson 2-16: Use AutoFill options*, you learned that if you right-click and drag the AutoFill handle you are presented with *AutoFill options*:



You can use the *Flash Fill* item on the *AutoFill options* list to request a Flash Fill.

This will do the same as clicking:

Home → Editing → Fill → Flash Fill

You'll find that this method is faster than using the Ribbon.

This method is also the preferred way to provide Flash Fill with more than one example result for more complex problems (you'll do this in: *Lesson 2-21: Use multiple example Flash Fill to concatenate text*).

Phone Book-1

Lesson 2-20: Use manual Flash Fill to split text

Here are two examples of international telephone numbers.

+44 (0)113-4960227 (a UK telephone number)

+356 (0)2138-3393 (a Maltese telephone number)

The *country code* (or international dialing code) is shown as a + symbol followed by one or more numbers. The *NDD* (National Direct Dialing prefix) is shown in brackets. This is the access code used to make a call within the relevant country but is omitted when calling from outside the country. The *Area Code* consists of the numbers after the closing bracket but before the hyphen.

In this lesson, you'll use *Manual Flash Fill* to split telephone numbers into the *Country Code*, *Area Code* and *Phone Number* like this:

	A	B	C	D	E
3	Company	Telephone	Country Code	Area Code	Phone Number
4	Books A Million	+44 (0)113-4960227	+44	113	4960227
5	Maltese Books	+356 (0)2138-3393	+356	2138	3393
6	Bargain Bookstore	+44 (0)115-4960498	+44	115	4960498

In Excel versions prior to Excel 2013 you had to use some very complex formulas to split this type of text. With the new *Flash Fill* feature, you can achieve the same result in seconds.

- 1 Open *Phone Book-1* from your sample files folder.
- 2 Extract the *Country Code* from the telephone number in column B and place it into column C.

If you were to type +44 into cell C4, Excel would interpret it as a positive number and display the result as 44 (without the plus sign).

In order to signal to Excel that you want the plus sign to be displayed, you will need to indicate that +44 should be regarded as text rather than as a number.

You discovered the technique for doing this in: *Lesson 2-1: Enter text and numbers into a worksheet*.

If an apostrophe is placed before a number, Excel will regard it as text.

1. Type: '+44 into cell C4 (an apostrophe followed by +44).
2. Press: <Enter>
3. Making sure that the active cell is in one of the cells that will be Flash Filled (ie anywhere in the range C3:C18), click:

Home → Editing → Fill → Flash Fill

(Alternatively, you could also use the shortcut keys: <Ctrl>+<E> to flash fill).

The country code is extracted into the remaining cells in column C.

note

The difference between Flash Fill and a formula-based solution

There are two ways to solve the problem posed in this lesson:

1. Use Flash Fill

This is the method used in this lesson. Flash Fill provides a fast and simple solution.

2. Use complex formulas

Only expert Excel users could construct the complex formulas required to split the telephone numbers contained in the sample file without the use of Flash Fill.

In the *Expert Skills* book in this series you will solve exactly the same problem presented in this lesson without Flash Fill.

Complex formulas are used instead, to provide a formula-based solution.

Advantage of a formula-based solution

The results of a Flash Fill do not automatically update when the source data changes.

This means that if you changed the telephone number in column B you would then need to Flash Fill three times to update columns C, D and E.

Formula results automatically update whenever the source cells change.

This means that if you changed the telephone number in the formula-based solution, the *Country Code*, *Area Code* and *Phone Number* would automatically update.

	A	B	C
3	Company	Telephone	Country Code
4	Books A Million	+44 (0)113-4960227	+44
5	Maltese Books	+356 (0)2138-3393	+356
6	Bargain Bookstore	+44 (0)115-4960498	+44

Notice that Excel has placed a green triangle in the top-left corner of each cell. Excel thinks you may have made an error but, of course, the value is fine. If you want to remove the green triangles, use the method you learned in: *Lesson 2-4: Select a range of cells and understand Smart Tags.*

3 Extract the *Area Code* from the telephone number in column B and place it into column D.

Use the same method as you did for the country code. The first area code you need to type is: '113

Even though there is no plus sign, it is still useful to include the apostrophe as it will prevent Excel from re-formatting numbers (see next step for more on this).

4 Extract the *Phone Number* from the telephone number in column B and place it into column E.

Use the same method as you did for the country code. The first telephone number is: '4960227

In this case you must use a leading apostrophe to prevent Excel from re-formatting large numbers. For example, the telephone number: 20180948 would be displayed as 2E+07 if you didn't include the apostrophe.

The *Country Code*, *Area Code* and *Phone Number* are now extracted for every international telephone number:

	A	B	C	D	E
3	Company	Telephone	Country Code	Area Code	Phone Number
4	Books A Million	+44 (0)113-4960227	+44	113	4960227
5	Maltese Books	+356 (0)2138-3393	+356	2138	3393
6	Bargain Bookstore	+44 (0)115-4960498	+44	115	4960498

5 Save your work as *Phone Book-2*.

note

Flash Fill doesn't understand mathematics

Consider this problem:

	A	B
1	100	101
2	1120	1121
3	180	
4	149	

You could be forgiven for thinking that Flash Fill could populate cells B3 and B4 with the numbers 181 and 150. In order to produce this result Flash Fill would have to detect a mathematical relationship between the numbers in columns A and B.

Because Flash Fill doesn't understand mathematics, it will always see the problem as a textual one and will produce this result:

	A	B
1	100	101
2	1120	1121
3	180	181
4	149	141

Flash Fill has used the logic "replace the last character displayed in column A with 1" and not "Add one to the value displayed in column A".

Lesson 2-21: Use multiple example Flash Fill to concatenate text

Understand concatenation

In: *Lesson 2-19: Use automatic Flash Fill to split delimited text*, you learned how to split text with this example:

	A	B	C
3	Name	First Name	Last Name
4	Jessica Sagan	Jessica	Sagan
5	Stephen Bell	Stephen	Bell

In the above example, the text: *Jessica Sagan* was split into two separate words: *Jessica* and *Sagan*.

Concatenation is exactly the opposite of splitting. The two separate words *Jessica* and *Sagan* can be concatenated to produce the single word: *Jessica Sagan*. This is an example of very simple concatenation.

In this lesson, you'll perform some very advanced concatenation using *Flash Fill*.

- 1 Open *Client Names-1* from your sample files folder.

This workbook contains a list of very inconsistently formatted client names:

	A	B	C	D
3	Last	Middle	First	
4	Sagan	Elizabeth	Jessica	
5	Bell	p	Stephen	
6	Jennings		John	

You want to clean up this data so that client names are consistently formatted like this:

	A	B	C	D
3	Last	Middle	First	Formatted Name
4	Sagan	Elizabeth	Jessica	Sagan, Jessica E.
5	Bell	p	Stephen	Bell, Stephen P.
6	jennings		John	Jennings, John
7	Simpson	Jane	Meryl	Simpson, Meryl J.
8	hawking		Alfred	Hawking, Alfred
9	Ashe	m	Lucille	Ashe, Lucille M.

For Flash Fill to automate this task you will need to tell Flash Fill what is needed by providing more than one example.

- 2 Type: **Formatted Name** into cell D3 and bold face the text.

(Excel will probably bold-face the text automatically).

It is important that the header text in row 3 is bold faced.

Client Names-1

When Flash Fill sees different formatting in the first row the row is assumed to be a header row. Flash Fill then excludes the value in the header row from its logic, providing more reliable results.

3 Provide a single example result in cell D4.

Type: **Sagan, Jessica E.** into cell D4.

4 Flash Fill cells D5:D9 based upon the example result in cell D4.

	A	B	C	D
3	Last	Middle	First	Formatted Name
4	Sagan	Elizabeth	Jessica	Sagan, Jessica E.
5	Bell	p	Stephen	Bell, Stephen T.
6	jennings		John	jennings, John O.
7	Simpson	Jane	Meryl	Simpson, Meryl E.
8	hawking		Alfred	hawking, Alfred L.
9	Ashe	m	Lucille	Ashe, Lucille U.

You learned how to do this in: *Lesson 2-20: Use manual Flash Fill to split text.*

Excel completes the task but the results are not what you wanted (see sidebar).

With only one example, Flash Fill has completely misunderstood the requirement.

5 Provide two example results in cells D4 and D5.

1. Delete the names in cells D5:D9.
2. Provide another example of the correct result (in cell D5).

	A	B	C	D
3	Last	Middle	First	Formatted Name
4	Sagan	Elizabeth	Jessica	Sagan, Jessica E.
5	Bell	p	Stephen	Bell, Stephen P.
6	Jennings		John	

6 Flash Fill cells D6:D9 based upon the example results in cells D4 and D5.

1. Select cells D4:D9.
2. Click: Home→Editing→Fill→Flash Fill.

This time Flash Fill has done a better job (see sidebar).

Notice the two blank results (for *John Jennings* and *Alfred Hawking*).

Flash Fill doesn't yet understand how to treat clients without a middle name. The blank spaces are Flash Fill's way of asking you for yet another example.

	A	B	C	D
3	Last	Middle	First	Formatted Name
4	Sagan	Elizabeth	Jessica	Sagan, Jessica E.
5	Bell	p	Stephen	Bell, Stephen P.
6	jennings		John	
7	Simpson	Jane	Meryl	Simpson, Meryl J.
8	hawking		Alfred	
9	Ashe	m	Lucille	Ashe, Lucille M.

7 Provide another example result in cell D6.

1. Type: **Jennings, John** into cell D6.
2. Press the <Enter> key.

Usually Flash Fill will instantly replace the value in cell D8. If it doesn't, you'll have to manually Flash Fill the entire list based upon the three examples provided. Do this by completing the following steps:

3. Select cells D4:D9.
4. Click: Home→Editing→Fill→Flash Fill.

This time Flash Fill has completed the task successfully (see sidebar).

	A	B	C	D
3	Last	Middle	First	Formatted Name
4	Sagan	Elizabeth	Jessica	Sagan, Jessica E.
5	Bell	p	Stephen	Bell, Stephen P.
6	jennings		John	Jennings, John
7	Simpson	Jane	Meryl	Simpson, Meryl J.
8	hawking		Alfred	Hawking, Alfred
9	Ashe	m	Lucille	Ashe, Lucille M.

8 Save your work as *Client Names-2*.

Lesson 2-22: Use Flash Fill to solve common problems

Flash Fill (introduced in Excel 2013) is one of Excel's most useful features. It isn't possible to over-state how useful this tool is. I find myself using Flash Fill almost every day to solve a huge number of different problems.

This lesson gives examples of many everyday tasks that I have found can be quickly and simply completed using Flash Fill. I've also included all of the examples in the sample file: *Flash Fill Examples*.

In the following examples, Flash Fill filled the shaded cells.

Split text

Full Name	First Name	Last Name
Jessica Elizabeth Sagan	Jessica	Sagan
Stephen Bell	Stephen	Bell
John Paul Jennings	John	Jennings

Extract initials from names

Name	Initials
Jessica Elizabeth Sagan	JES
Stephen Bell	SB
John Paul Jennings	JPJ

Remove title from names

Full Name	Short Name
Miss Jessica Elizabeth Sagan	Jessica Sagan
Mr Stephen Bell	Stephen Bell
Mr John Paul Jennings	John Jennings

Add commas (a useful name format for alphabetical sorting)

Name	Sort Name
Jessica Elizabeth Sagan	Sagan, Jessica
Stephen Bell	Bell, Stephen
John Paul Jennings	Jennings, John

Concatenate text

First Name	Middle Name	Last Name	Full Name
Jessica	Elizabeth	Sagan	Jessica Elizabeth Sagan
Stephen		Bell	Stephen Bell
John	Paul	Jennings	John Paul Jennings

Flash Fill Examples

Concatenate text and insert extra text

First Name	Middle Name	Last Name	Full Name
Jessica	Elizabeth	Sagan	First Name: Jessica, Last Name: Sagan
Stephen		Bell	First Name: Stephen, Last Name: Bell
John	Paul	Jennings	First Name: John, Last Name: Jennings

Change capitalization

Mixed Case	Title Case
jessica elizabeth sagan	Jessica Elizabeth Sagan
stephen bell	Stephen Bell
john paul jennings	John Paul Jennings

Extract the day, month or year from a date

In all the date-based examples note that the *Date* column is formatted as a date. If you progress to the Essential Skills book in this series, you will learn how to format cells as dates in: *Lesson 4-1: Format Dates*.

Date	Day	Date	Month	Date	Year
19th January 2013	19	19th January 2013	January	19th January 2013	2013
5th August 1967	5	5th August 1967	August	5th August 1967	1967
20th September 1999	20	20th September 1999	September	20th September 1999	1999

Extract the day/month from a date

Date	Day/Month
19th January 2013	19th January
5th August 1967	5th August
20th September 1999	20th September

Extract domain names from e-mail addresses

E-mail address	Domain
Mary@QuiteContrary.com	QuiteContrary.com
Humpty@Dumpty.com	Dumpty.com
Jack@Nimble.com	Nimble.com

Format telephone numbers

Name	Tel (unformatted)	Tel (formatted)
Books A Million	1134960227	(113) 496-0227
Bargain Bookstore	1154960498	(115) 496-0498
Books for Less	1164960593	(116) 496-0593

Lesson 2-23: Use the zoom control

Zooming is used to magnify or reduce the worksheet. If you have a lot of rows in a worksheet and have good eyes, you might want to zoom out sometimes to see more of the worksheet on one screen.

- 1 Open *First Quarter Sales and Profit-12* from your sample files folder.
- 2 Zoom in and out of the worksheet using the mouse wheel.

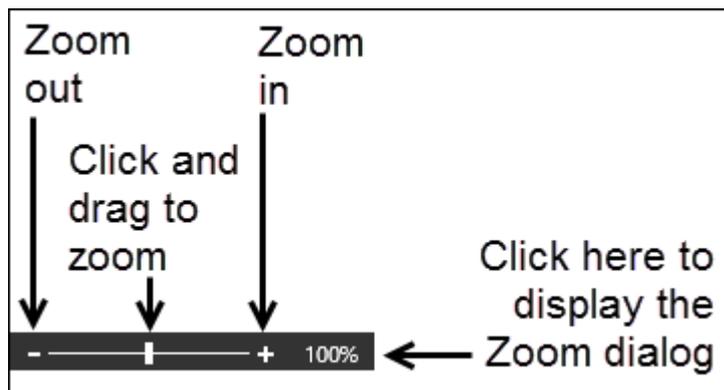
The fastest way to zoom a worksheet is by using the mouse.

Most mice these days have a wheel in the middle of the buttons. To zoom using this wheel hold down the <Ctrl> key on the keyboard and roll the wheel to zoom in and out.

- 3 Zoom in and out of a worksheet using the zoom control.

The zoom control is at the bottom right of your screen.

Click and drag on the zoom control slider to zoom in and out of your worksheet. You can also zoom by clicking the plus and minus buttons on either side of the Zoom control.

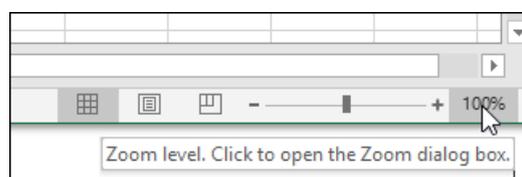


- 4 Use the Zoom dialog to make cells A3:D9 fill the screen.

1. Select cells A3:D9.

	A	B	C	D	E
2					
3		Jan	Feb	Mar	Average
4	New York	22,000	29,000	19,000	23,333
5	Los Angeles	42,000	39,000	43,000	41,333
6	London	18,000	20,000	22,000	20,000
7	Paris	35,000	26,000	31,000	30,667
8	Munich	12,000	15,000	13,000	13,333
9	Sales	129,000	129,000	128,000	

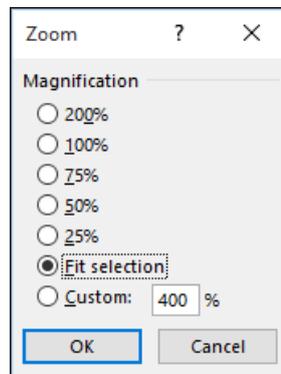
2. Click on the right-hand side of the zoom bar.



First Quarter Sales and Profit-12

The *Zoom* dialog is displayed.

3. Select the *Fit Selection* option button.
4. Click the OK button.



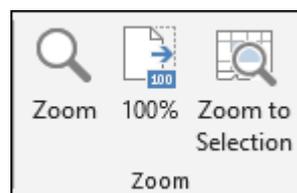
The worksheet is zoomed so that the selected cells completely fill the screen.

	A	B	C	D
4	New York	22,000	29,000	19,000
5	Los Angeles	42,000	39,000	43,000
6	London	18,000	20,000	22,000
7	Paris	35,000	26,000	31,000
8	Munich	12,000	15,000	13,000
9	Sales	129,000	129,000	128,000

- 5 Zoom back to 100% using the Ribbon.

You'll probably find the zoom bar to be the quickest and most convenient way to zoom, but you can also zoom using the Ribbon.

Click: View→Zoom→100%.



The screen is restored to normal size.

Lesson 2-24: Print out a worksheet

You aren't going to explore every option for preparing and printing a worksheet in this lesson. Printing is such a huge subject that a whole session is dedicated to it in the *Essential Skills* book in this series (in *Session Seven: Printing Your Work*).

This lesson only aims to teach you the bare minimum skills you need to put your work onto paper.

- 1 Open *First Quarter Sales and Profit-12* from your sample files folder (if it isn't already open).

	A	B	C	D	E	F	G
1	Sales and Profit Report - First Quarter 2016						
2							
3		Jan	Feb	Mar	Average	Maximum	
4	New York	22,000	29,000	19,000	23,333	29,000	
5	Los Angeles	42,000	39,000	43,000	41,333	43,000	
6	London	18,000	20,000	22,000	20,000	22,000	
7	Paris	35,000	26,000	31,000	30,667	35,000	
8	Munich	12,000	15,000	13,000	13,333	15,000	
9	Sales	129,000	129,000	128,000			
10							
11	Costs	83,000					
12	Profit	46,000					
13	10% Bonus	4,600					
14							
15	USA Sales	64,000					
16	European Sales	65,000					
17							
18	Monday	1	9	01-Jan-16	Adjusted	01-Jan-16	31-Mar-16
19	Tuesday	2	18	02-Jan-16	Adjusted	02-Jan-16	31-Mar-16
20	Wednesday	3	27	03-Jan-16	Adjusted	03-Jan-16	31-Mar-16
21	Thursday	4	36	04-Jan-16	Adjusted	04-Jan-16	31-Mar-16
22	Friday	5	45	05-Jan-16	Adjusted	05-Jan-16	31-Mar-16
23	Saturday	6	54	06-Jan-16	Adjusted	06-Jan-16	31-Mar-16
24	Sunday	7	63	07-Jan-16	Adjusted	07-Jan-16	31-Mar-16

- 2 Click File→Print.

Backstage View appears offering many preview and print options:

Send the worksheet to the printer

Select printer

Preview of how the page will look when printed

Print

Copies: 1

Printer: hp LaserJet 420 UPD PCL 6 Ready

Settings

Print Active Sheets: Only print the active sheets

Pages: to

Print One Sided: Only print on one side of th...

Collated: 1,2,3 1,2,3 1,2,3

Portrait Orientation

A4: 21 cm x 29.7 cm

Normal Margins: Left: 1.78 cm Right: 1.78 cm

No Scaling: Print sheets at their actual size

1 of 1

Show margins

Print options

Move to a different page

Zoom preview

3 Click on the zoom button  to see the zoom feature working.

Each time you click on the button the page zooms in and out.

If you have a large screen you may not see a lot of difference when you zoom.

4 Print the worksheet.

Click the *Print* button:



The page is printed on the selected printer.

***Blank
page***

Session 2: Exercise

- 1 Open a new blank workbook.
- 2 Use AutoFill to put the three months Jan, Feb, and Mar into cells A4:A6.
- 3 Using only the keyboard, add the following data:

	A	B	C	D	E
1	Profit Analysis				
2					
3		London	Paris	New York	Average
4	Jan	2,500	3,100	2,300	
5	Feb	2,200	2,700	2,600	
6	Mar	2,100	2,600	2,800	
7	Total				

- 4 Use AutoSum to compute London's total profit for Jan/Feb/Mar in cell B7.
- 5 Use AutoSum to compute the average January profit in cell E4.
- 6 Use AutoFill to extend the London total in cell B7 to the Paris and New York totals in cells C7 and D7.
- 7 Use AutoFill to extend the January average profit in cell E4 to the February and March average profits in cells E5 and E6.
- 8 Select all of column A and all of column E (at the same time) and bold face the values in them.
- 9 Select row 3 and row 7 (at the same time) and bold face the values in them.

	A	B	C	D	E
1	Profit Analysis				
2					
3		London	Paris	New York	Average
4	Jan	2,500	3,100	2,300	2,633
5	Feb	2,200	2,700	2,600	2,500
6	Mar	2,100	2,600	2,800	2,500
7	Total	6,800	8,400	7,700	

- 10 Select cells B4:B6 and cells D4:D6 at the same time and then read the total London and New York sales figure for Jan, Feb and March from the summary information displayed on the status bar.
- 11 Select cells B4:D6 and zoom the selection so that these cells fill the screen.
- 12 Save your work as *Exercise2-End*.

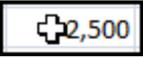
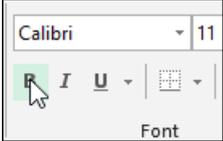
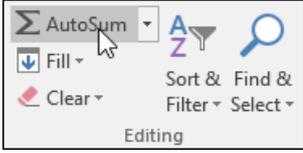
If you need help
slide the page to
the left



***Blank
page***

Session 2: Exercise answers

These are the questions that students find the most difficult to answer:

Q 10	Q 8	Q 4	Q 2
<p>1. Hover over the center of cell B4 so that you see the white cross cursor shape.</p>  <p>2. Click and drag down to cell B6.</p> <p>3. Hold down the <Ctrl> key.</p> <p>4. Hover over cell D4 until you see the white cross cursor shape.</p> <p>5. Click and drag down to cell D6.</p> <p>6. Look at the status bar at the bottom right of the screen.</p> <p>This was covered in: <i>Lesson 2-7: Select non-contiguous cell ranges and view summary information.</i></p>	<p>1. Click on the column A header.</p>  <p>2. Hold down the <Ctrl> key.</p> <p>3. Click on the column E header.</p> <p>4. Click:</p> <p>Home→Font→Bold</p>  <p>This was covered in: <i>Lesson 2-6: Select adjacent and non-adjacent rows and columns.</i></p>	<p>1. Click in cell B7.</p> <p>2. Click:</p> <p>Home→Editing→AutoSum</p>  <p>3. Either press the <Enter> key or click the AutoSum button again.</p> <p>This was covered in: <i>Lesson 2-3: Use AutoSum to quickly calculate totals.</i></p>	<p>1. Type Jan into cell A4 and press the <Enter> key.</p> <p>2. Click cell A4 once to make it the active cell.</p> <p>3. Hover the mouse cursor over the bottom right corner of the cell until you see the black cross cursor shape.</p>  <p>4. Click and drag down to cell A6.</p> <p>This was covered in: <i>Lesson 2-14: Use AutoFill for text and numeric series.</i></p>

If you have difficulty with the other questions, here are the lessons that cover the relevant skills:

- 1** Refer to: *Lesson 1-1: Start Excel and open a new blank workbook.*
- 3** Refer to: *Lesson 2-1: Enter text and numbers into a worksheet.*
- 5** Refer to: *Lesson 2-3: Use AutoSum to quickly calculate totals.*
- 6** Refer to: *Lesson 2-15: Use AutoFill to adjust formulas.*
- 7** Refer to: *Lesson 2-15: Use AutoFill to adjust formulas.*
- 9** Refer to: *Lesson 2-6: Select adjacent and non-adjacent rows and columns.*
- 11** Refer to: *Lesson 2-23: Use the zoom control.*
- 12** Refer to: *Lesson 1-6: Save a workbook to a local file.*

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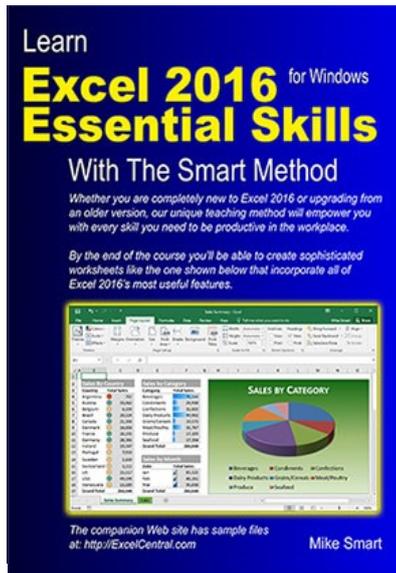
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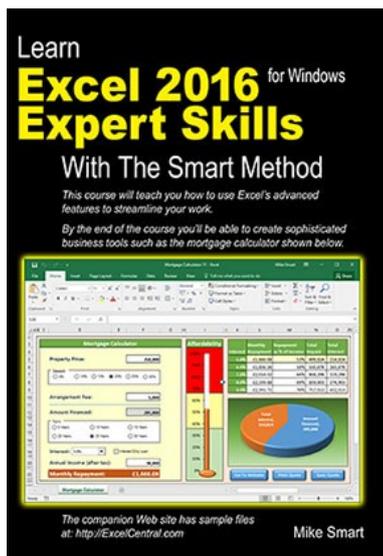
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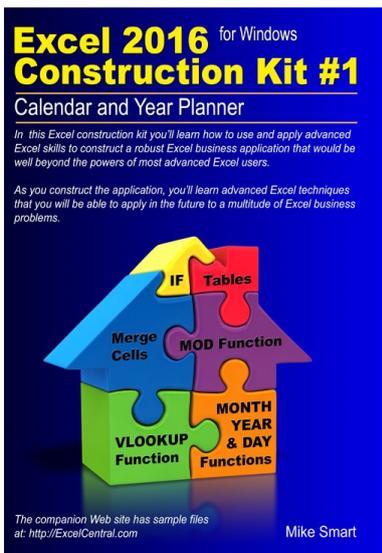
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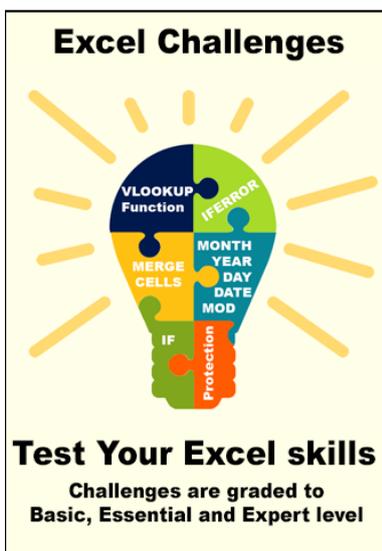


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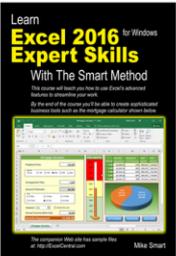
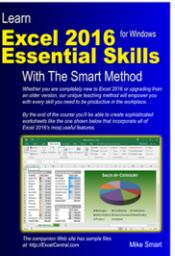
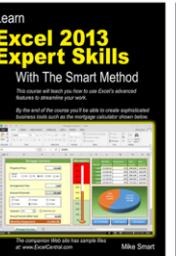
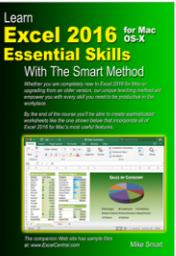
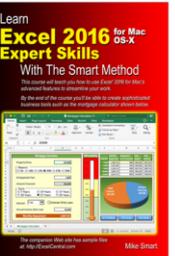
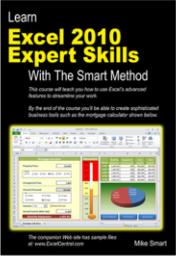
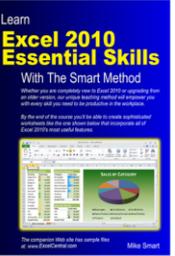
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