Excel Challenge No 1: Conditional Formatting

Level: Essential Skills

Mike Smart

Excel Challenge No 1: Conditional Formatting

Challenge overview

In this challenge you'll begin with a very basic worksheet that has not been formatted in any way:

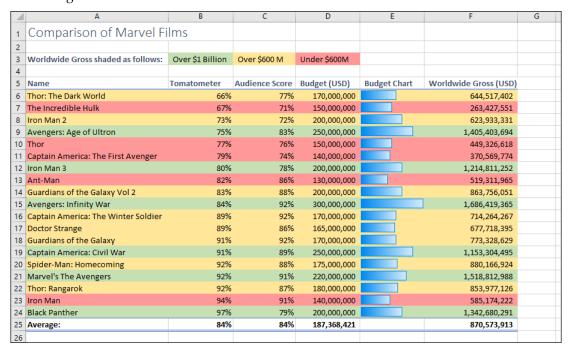|	A	B	C	D	E
1	Comparison of Marvel Films				
2					
3	Name	Tomatometer	Audience Score	Budget (USD)	Worldwide Gross (USD)
4	Thor: The Dark World	66%	77%	170000000	644517402
5	The Incredible Hulk	67%	71%	150000000	263427551
6	Iron Man 2	73%	72%	200000000	623933331
7	Avengers: Age of Ultron	75%	83%	250000000	1405403694
8	Thor	77%	76%	150000000	449326618
9	Captain America: The First Avenger	79%	74%	140000000	370569774
10	Iron Man 3	80%	78%	200000000	1214811252
11	Ant-Man	82%	86%	130000000	519311965
12	Guardians of the Galaxy Vol 2	83%	88%	200000000	863756051
13	Avengers: Infinity War	84%	92%	300000000	1686419365
14	Captain America: The Winter Soldier	89%	92%	170000000	714264267
15	Doctor Strange	89%	86%	165000000	677718395
16	Guardians of the Galaxy	91%	92%	170000000	773328629
17	Captain America: Civil War	91%	89%	250000000	1153304495
18	Spider-Man: Homecoming	92%	88%	175000000	880166924
19	Marvel's The Avengers	92%	91%	220000000	1518812988
20	Thor: Rangarok	92%	87%	180000000	853977126
21	Iron Man	94%	91%	140000000	585174222
22	Black Panther	97%	79%	200000000	1342680291
23					

You'll transform this worksheet into the one shown below that uses many of Excel's advanced conditional formatting features:

	A	B	C	D	E	F	G
1	Comparison of Marvel Films						
2							
3	Worldwide Gross shaded as follows:	Over $1 Billion	Over $600 M	Under $600M			
4							
5	Name	Tomatometer	Audience Score	Budget (USD)	Budget Chart	Worldwide Gross (USD)	
6	Thor: The Dark World	66%	77%	170,000,000		644,517,402	
7	The Incredible Hulk	67%	71%	150,000,000		263,427,551	
8	Iron Man 2	73%	72%	200,000,000		623,933,331	
9	Avengers: Age of Ultron	75%	83%	250,000,000		1,405,403,694	
10	Thor	77%	76%	150,000,000		449,326,618	
11	Captain America: The First Avenger	79%	74%	140,000,000		370,569,774	
12	Iron Man 3	80%	78%	200,000,000		1,214,811,252	
13	Ant-Man	82%	86%	130,000,000		519,311,965	
14	Guardians of the Galaxy Vol 2	83%	88%	200,000,000		863,756,051	
15	Avengers: Infinity War	84%	92%	300,000,000		1,686,419,365	
16	Captain America: The Winter Soldier	89%	92%	170,000,000		714,264,267	
17	Doctor Strange	89%	86%	165,000,000		677,718,395	
18	Guardians of the Galaxy	91%	92%	170,000,000		773,328,629	
19	Captain America: Civil War	91%	89%	250,000,000		1,153,304,495	
20	Spider-Man: Homecoming	92%	88%	175,000,000		880,166,924	
21	Marvel's The Avengers	92%	91%	220,000,000		1,518,812,988	
22	Thor: Rangarok	92%	87%	180,000,000		853,977,126	
23	Iron Man	94%	91%	140,000,000		585,174,222	
24	Black Panther	97%	79%	200,000,000		1,342,680,291	
25	Average:	84%	84%	187,368,421		870,573,913	
26							

Estimated time to complete this challenge: 4 minutes, 12 seconds

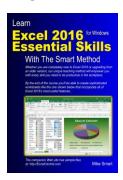The solution video shows this task being completed in the estimated time shown above.

It is interesting to compare the time a trained Excel user (trained to Essential Skills level only) can complete a simple task when compared to an untrained user. An untrained user could spend many hours figuring out how to complete this task (if they were able to complete it at all) and would probably attempt it in an unnecessarily complex way.

You can use this challenge in two ways

As an *Excel Essential Skills* Trained User

This challenge is graded: *Essential Skills*

This means that if you've completed the *Essential Skills* tutorial you should have the skills you need to complete this challenge.

The Essential Skills book/e-book is designed for learners who have never used Excel before and who need Excel skills to get a job. The course is designed to give students all the skills an employer would expect. After completing the *Essential Skills* course students will have acquired Excel skills that are better than those of most office workers.

While the Essential Skills book teaches all the techniques needed to complete this challenge it is possible that students may lack the experience needed to identify the best approach to completing this challenge.

The *Essential Skills* book already includes an exercise with answers at the end of each session.

Our Excel challenges take things to the next level and are far more involved than the exercises presented in the book. Challenges are designed to allow users to test their ability to apply some of the Excel skills taught in the book/e-book.

As an Excel user wishing to test their existing skills

If you are self-taught or have acquired your Excel skills from a classroom course, or by other means, you may well have the skills needed to complete this challenge.

Completing the challenge will reassure you that you have excellent Excel skills. You can see a list of all the skills that are taught in the Essential Skills book in: *Appendix A: Skills Covered in the Essential Skills Course*, at the end of this book.

Contents

Support, Feedback and Sample Files

Support

If you encounter any problem downloading the free sample file you can contact us for free support at:

https://thesmartmethod.com/contact/

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

For assistance in completing the challenge you should first refer to the Challenge Solution Video and solution workbook (available from https://thesmartmethod.com). If you are still unable to complete the challenge after using these resources you can contact us for support using the same contact link above and we'll assist in every way we can.

Feedback

At The Smart Method® we love feedback – both positive and negative. If you have any suggestions for improvements to future versions of this challenge, 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 challenge will always incorporate your feedback so that there are never any known errors at time of publication.

If you have any difficulty understanding the challenge, working through the step-by-step solution to the challenge, 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 free sample file

Before beginning this challenge you will find it useful to download an Excel workbook that contains the starting point of the challenge. You'll find a free file available for instant download at:

https://TheSmartMethod.com

Challenge Description

Challenges are graded at three levels of difficulty: *Basic Skills, Essential Skills* and *Expert Skills.*

This challenge is graded: *Essential Skills.* This means that you will only need some of the skills taught in our *Essential Skills* book/e-book to complete the challenge.

Challenges

There are six incremental challenges detailed in the following pages:

1. Download the sample file and open it in Excel

2. Add an average row

3. Improve the appearance of the worksheet

4. Add a visualization to show the budget for each film

5. Shade the Wordwide Gross values to visually identify the best performers

6. Extend the shading in column F across rows A:E

Challenge 1: Download the sample file and open it in Excel

To save you time typing in the data you can download this free sample file that has the starting point for the challenge.

You can download the file from https://TheSmartMethod.com.

	A	B	C	D	E
1	Comparison of Marvel Films				
2					
3	Name	Tomatometer	Audience Score	Budget (USD)	Worldwide Gross (USD)
4	Thor: The Dark World	66%	77%	170000000	644517402
5	The Incredible Hulk	67%	71%	150000000	263427551
6	Iron Man 2	73%	72%	200000000	623933331
7	Avengers: Age of Ultron	75%	83%	250000000	1405403694
8	Thor	77%	76%	150000000	449326618
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20	Thor: Rangarok	92%	87%	180000000	853977126
21	Iron Man	94%	91%	140000000	585174222
22	Black Panther	97%	79%	200000000	1342680291
23					

The *Tomatometer* shows the percentage of professional film reviews that are positive while the *Audience Score* shows the approval rating from members of the public.

The films are sorted in *Tomatometer* percentage ascending order. You can see that *Thor: The Dark World* had the lowest number of professional positive reviews while *Black Panther* had the highest.

You'll probably agree that this isn't a very impressive worksheet. It has all the information, but it isn't particularly presentable or easy to read. If an employee created this worksheet for you, you might send them on an Excel training course.

Challenge 2: Add an average row

Add averages to row 23 so that the worksheet looks like this:

	A	B	C	D	E
1	Comparison of Marvel Films				
2					
3	Name	Tomatometer	Audience Score	Budget (USD)	Worldwide Gross (USD)
4	Thor: The Dark World	66%	77%	170000000	644517402
5	The Incredible Hulk	67%	71%	150000000	263427551
6	Iron Man 2	73%	72%	200000000	623933331
7	Avengers: Age of Ultron	75%	83%	250000000	1405403694
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13	Avengers: Infinity War	84%	92%	300000000	1686419365
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16	Guardians of the Galaxy	91%	92%	170000000	773328629
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20	Thor: Rangarok	92%	87%	180000000	853977126
21	Iron Man	94%	91%	140000000	585174222
22	Black Panther	97%	79%	200000000	1342680291
23	Average:	84%	84%	187368421.1	870573912.6
24					

Tasks

1. Add the text **Average:** to cell A23.

2. Add formulas to cells B23, C23, D23 and E23 to show the average of all values displayed in the column above.

Hint

There is a way to add average formulas to cells B23:E23 with just three clicks of the mouse.

Estimated time: 17 seconds

The solution video shows this task being completed in the estimated time shown above.

Challenge 3: Improve the appearance of the worksheet

Format the worksheet so that it looks the same as the worksheet shown below:

	A	B	C	D	E
1	Comparison of Marvel Films				
2					
3	Name	Tomatometer	Audience Score	Budget (USD)	Worldwide Gross (USD)
4	Thor: The Dark World	66%	77%	170,000,000	644,517,402
5	The Incredible Hulk	67%	71%	150,000,000	263,427,551
6	Iron Man 2	73%	72%	200,000,000	623,933,331
7	Avengers: Age of Ultron	75%	83%	250,000,000	1,405,403,694
8	Thor	77%	76%	150,000,000	449,326,618
9	Captain America: The First Avenger	79%	74%	140,000,000	370,569,774
10	Iron Man 3	80%	78%	200,000,000	1,214,811,252
11	Ant-Man	82%	86%	130,000,000	519,311,965
12	Guardians of the Galaxy Vol 2	83%	88%	200,000,000	863,756,051
13	Avengers: Infinity War	84%	92%	300,000,000	1,686,419,365
14	Captain America: The Winter Soldier	89%	92%	170,000,000	714,264,267
15	Doctor Strange	89%	86%	165,000,000	677,718,395
16	Guardians of the Galaxy	91%	92%	170,000,000	773,328,629
17	Captain America: Civil War	91%	89%	250,000,000	1,153,304,495
18	Spider-Man: Homecoming	92%	88%	175,000,000	880,166,924
19	Marvel's The Avengers	92%	91%	220,000,000	1,518,812,988
20	Thor: Rangarok	92%	87%	180,000,000	853,977,126
21	Iron Man	94%	91%	140,000,000	585,174,222
22	Black Panther	97%	79%	200,000,000	1,342,680,291
23	Average:	84%	84%	187,368,421	870,573,913
24					

Tasks

1. Apply the *Title* style to cell A1.

2. Apply the *Heading 3* style to cells A3:E3.

3. Apply the *Total* style to cells B23:E23.

4. Display whole numbers in columns D and E (no decimal places) with comma separators.

Hints

If you're not familiar with *Cell Styles* you might think that you need to manually apply borders and change font sizes and colors. The correct approach is to use Excel's *Cell Styles* feature.

Estimated time: 29 seconds

The solution video shows this task being completed in the estimated time shown above.

Challenge 4: Add a visualization to show the budget for each film

For this challenge you need to make your worksheet look the same as the one shown below. The blue bars must automatically adjust if any of the values in column D change:

	A	B	C	D	E	F
1	Comparison of Marvel Films					
2						
3	Name	Tomatometer	Audience Score	Budget (USD)	Budget Chart	Worldwide Gross (USD)
4	Thor: The Dark World	66%	77%	170,000,000		644,517,402
5	The Incredible Hulk	67%	71%	150,000,000		263,427,551
6	Iron Man 2	73%	72%	200,000,000		623,933,331
7	Avengers: Age of Ultron	75%	83%	250,000,000		1,405,403,694
8	Thor	77%	76%	150,000,000		449,326,618
9	Captain America: The First Avenger	79%	74%	140,000,000		370,569,774
10	Iron Man 3	80%	78%	200,000,000		1,214,811,252
11	Ant-Man	82%	86%	130,000,000		519,311,965
12	Guardians of the Galaxy Vol 2	83%	88%	200,000,000		863,756,051
13	Avengers: Infinity War	84%	92%	300,000,000		1,686,419,365
14	Captain America: The Winter Soldier	89%	92%	170,000,000		714,264,267
15	Doctor Strange	89%	86%	165,000,000		677,718,395
16	Guardians of the Galaxy	91%	92%	170,000,000		773,328,629
17	Captain America: Civil War	91%	89%	250,000,000		1,153,304,495
18	Spider-Man: Homecoming	92%	88%	175,000,000		880,166,924
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20	Thor: Rangarok	92%	87%	180,000,000		853,977,126
21	Iron Man	94%	91%	140,000,000		585,174,222
22	Black Panther	97%	79%	200,000,000		1,342,680,291
23	Average:	84%	84%	187,368,421		870,573,913
24						

Before the visualization was added it would have taken a few moments for you to tell which of the Marvel films had the highest budget.

The visualization elegantly conveys that *Avengers: Infinity War* was Marvel's most expensive film with a budget of twice that for *The Incredible Hulk*.

Visualizations really make data come alive.

Tasks

1. Add a column to the right of the Budget (USD) column.

2. Type the column heading: **Budget Chart** at the top of the new column.

3. Add a visualization to cells E4:E22 to visually convey the values shown in cells D4:D22.

Hint

Don't try to use Sparklines to create the bar chart. The correct approach is to use a visualization.

Estimated time: 33 seconds

The solution video shows this task being completed in the estimated time shown above.

Challenge 5: Shade the Wordwide Gross values to visually identify the best performers

At the end of this challenge your worksheet needs to look like the one shown below:

	A	B	C	D	E	F
1	Comparison of Marvel Films					
2						
3	Worldwide Gross shaded as follows:	Over $1 Billion	Over $600 M	Under $600M		
4						
5	Name	Tomatometer	Audience Score	Budget (USD)	Budget Chart	Worldwide Gross (USD)
6	Thor: The Dark World	66%	77%	170,000,000		644,517,402
7	The Incredible Hulk	67%	71%	150,000,000		263,427,551
8	Iron Man 2	73%	72%	200,000,000		623,933,331
9	Avengers: Age of Ultron	75%	83%	250,000,000		1,405,403,694
10	Thor	77%	76%	150,000,000		449,326,618
11	Captain America: The First Avenger	79%	74%	140,000,000		370,569,774
12	Iron Man 3	80%	78%	200,000,000		1,214,811,252
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14	Guardians of the Galaxy Vol 2	83%	88%	200,000,000		863,756,051
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17	Doctor Strange	89%	86%	165,000,000		677,718,395
18	Guardians of the Galaxy	91%	92%	170,000,000		773,328,629
19	Captain America: Civil War	91%	89%	250,000,000		1,153,304,495
20	Spider-Man: Homecoming	92%	88%	175,000,000		880,166,924
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23	Iron Man	94%	91%	140,000,000		585,174,222
24	Black Panther	97%	79%	200,000,000		1,342,680,291
25	Average:	84%	84%	187,368,421		870,573,913
26						

The data now yields some interesting insights at a glance:

- You can instantly identify the six most successful (and five most unsuccessful) films.

- Critical opinion is not a strong indicator of how well a film will do, since one of the least well-received films, *Iron Man 2*, was one of the most financially successful.

- You can see a strong correlation between a film's budget and the amount of revenue it generates. (all of the films that generated over $1 Billion had budgets of over $600 Million).

Tasks

1. Add a key to the top of the worksheet to indicate what the shading signifies.

2. In column F, automatically shade the background color of values that exceed one billion dollars to Green.

3. In column F, automatically shade the background color of values that exceed $600 million dollars to Yellow.

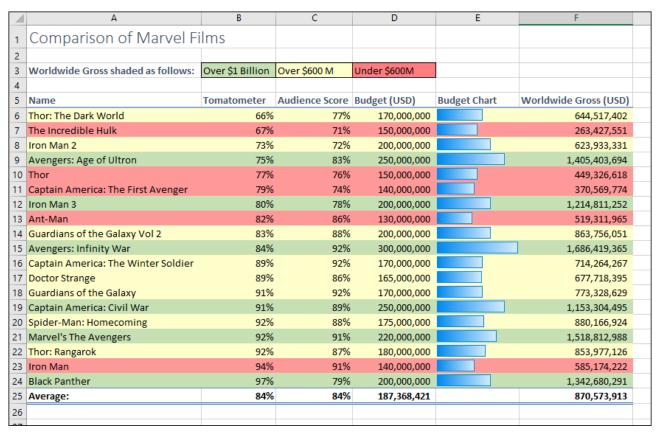4. In column F, automatically shade the background color of values that are 600 million dollars or less to Red.

Estimated time: 2 minutes, 26 seconds

The solution video shows this task being completed in the estimated time shown above.

Challenge 6: Extend the shading in column F across rows A:E

The shading works well but the worksheet would be more readable if the *Worldwide Gross* indication color extended across all columns.

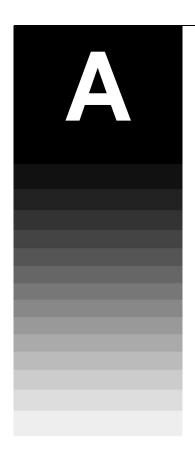Edit the worksheet so that it looks like this:

	A	B	C	D	E	F
1	Comparison of Marvel Films					
2						
3	Worldwide Gross shaded as follows:	Over $1 Billion	Over $600 M	Under $600M		
4						
5	Name	Tomatometer	Audience Score	Budget (USD)	Budget Chart	Worldwide Gross (USD)
6	Thor: The Dark World	66%	77%	170,000,000		644,517,402
7	The Incredible Hulk	67%	71%	150,000,000		263,427,551
8	Iron Man 2	73%	72%	200,000,000		623,933,331
9	Avengers: Age of Ultron	75%	83%	250,000,000		1,405,403,694
10	Thor	77%	76%	150,000,000		449,326,618
11	Captain America: The First Avenger	79%	74%	140,000,000		370,569,774
12	Iron Man 3	80%	78%	200,000,000		1,214,811,252
13	Ant-Man	82%	86%	130,000,000		519,311,965
14	Guardians of the Galaxy Vol 2	83%	88%	200,000,000		863,756,051
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16	Captain America: The Winter Soldier	89%	92%	170,000,000		714,264,267
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22	Thor: Rangarok	92%	87%	180,000,000		853,977,126
23	Iron Man	94%	91%	140,000,000		585,174,222
24	Black Panther	97%	79%	200,000,000		1,342,680,291
25	Average:	84%	84%	187,368,421		870,573,913
26						

Hints:

If you used mixed cell references in the previous step, you'll be able to complete this challenge very quickly.

Estimated time: 18 seconds

The solution video shows this task being completed in the estimated time shown above.

A Appendix A: Skills Covered in the Essential Skills Course

Our Excel Challenges are graded *Basic Skills, Essential Skills* and *Expert Skills.*

This is an Essential Skill challenge, meaning that it should be possible to complete the challenge using only the skills outlined in the Essential Skills book/e-book.

ISBN: 978-1-909253-08-7
(371 pages).

This appendix lists the lessons contained in the eight sessions that make up the *Essential Skills* book.

Learn Excel 2016 Essential Skills with The Smart Method is available as both a low-cost printed paper book (always in stock at Amazon) and as a PDF e-Book (provided in the same unlocked, printable format as this e-Book).

You can only obtain the *Essential Skills* e-Book from the https://TheSmartMethod.com web site (this is the publisher's own web site).

Essential skills course outline

Session 1: Basic Skills

- 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

Session 2: Doing Useful Work with Excel

- 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 quickly calculate averages
- Create your own formulas

- Create functions using Formula AutoComplete
- Use AutoFill for text and numeric series
- Use AutoFill to adjust formulas
- 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

Session 3: Taking Your Skills to the Next Level

- Insert and delete rows and columns
- Use AutoComplete and fill data from adjacent cells
- Cut, copy and paste
- Cut, copy and paste using drag and drop
- Use Paste Values
- Increase/decrease decimal places displayed
- Transpose a range
- Use the multiple item clipboard
- Use Undo and Redo
- Insert, View and Print cell comments
- Understand absolute, relative and mixed cell references
- Understand templates and set the default custom template folder
- Create a template
- Use a template
- Add an Office Add-In to a workbook
- Freeze columns and rows
- Split the window into multiple panes
- Check spelling

Session 4: Making Your Worksheets Look Professional

- Format dates
- Understand date serial numbers
- Format numbers using built-in number formats
- Create custom number formats
- Horizontally and Vertically align the contents of cells

- Merge cells, wrap text and expand/collapse the formula bar

- Understand themes

- Use cell styles and change themes

- Add color and gradient effects to cells

- Add borders and lines

- Create your own custom theme

- Create your own custom cell styles

- Use a master style book to merge styles

- Use simple conditional formatting

- Manage multiple conditional formats using the Rules Manager

- Bring data alive with visualizations

- Create a formula driven conditional format

- Insert a Sparkline into a range of cells

- Apply a common vertical axis and formatting to a Sparkline group

- Apply a date axis to a Sparkline group and format a single Sparkline

- Use the Format Painter

- Rotate text

Session 5: Charts and Graphics

- Understand chart types, layouts and styles

- Create a simple chart with two clicks

- Move, re-size, copy and delete a chart

- Create a chart using the Recommended Charts feature

- Add and remove chart elements using Quick Layout

- Apply a pre-defined chart style and color set

- Manually format a chart element

- Format 3-D elements and add drop shadows

- Move, re-size, add, position and delete chart elements

- Apply a chart filter

- Change a chart's source data

- Assign non-contiguous source data to a chart

- Understand data series and categories

- Change source data using the Select Data Source dialog tools

- Chart non-contiguous source data by hiding rows and columns

- Create a chart with numerical axes

- Deal with empty data points

- Add data labels to a chart

- Highlight specific data points with color and annotations
- Add gridlines and scale axes
- Emphasize data by manipulating pie charts
- Create a chart with two vertical axes
- Create a combination chart containing different chart types
- Work with trend lines and forecast sheets
- Add a gradient fill to a chart background
- Create your own chart templates
- Create a filled map chart

Session 6: Working with Multiple Worksheets and Workbooks

- View the same workbook in different windows
- View two windows side by side and perform synchronous scrolling
- Duplicate worksheets within a workbook
- Move and copy worksheets from one workbook to another
- Hide and unhide a worksheet
- Create cross worksheet formulas
- Understand worksheet groups
- Use find and replace

Session 7: Printing Your Work

- Print Preview and change paper orientation
- Use Page Layout view to adjust margins
- Use Page Setup to set margins more precisely and center the worksheet
- Set paper size and scale
- Insert, delete and preview page breaks
- Adjust page breaks using Page Break Preview
- Add auto-headers and auto-footers and set the starting page number
- Add custom headers and footers
- Specify different headers and footers for the first, odd and even pages
- Print only part of a worksheet
- Add row and column data labels and grid lines to printed output
- Print several selected worksheets and change the page order
- Suppress error messages in printouts

Session 8: Cloud Computing

- Understand Cloud Computing
- Save a workbook to a OneDrive
- Open a workbook from a OneDrive
- Understand operating systems and devices
- Understand Office versions
- Understand Excel Online
- Open a workbook using Excel Online
- Share a link to a workbook
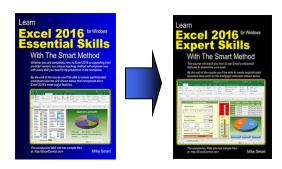- Edit a workbook simultaneously with other users using Excel Online

B

Appendix B: Skills Covered in the follow-on Expert Skills Course

Every Excel user can benefit from the *Essential Skills* book. After completing this course, students have an Excel skill level that would impress any employer. Your Excel skills will be better than most office workers (even those with many years of Excel experience).

Not many Excel users will need to go further than *Essential Skills* in expanding their skill set. Some users may have special requirements, or simply a desire to understand **absolutely every** Excel feature. For such users, we created our *Expert Skills* book that builds upon the skills learned in the *Essential Skills* book.

The *Expert Skills* book teaches advanced Excel skills that are rarely mastered by Excel users.

By the end of the book you'll be a true Excel expert. Your Excel skills will be greater and broader than almost all other Excel users in the workplace.

This appendix lists the lessons contained in the eleven sessions that make up the *Expert Skills* book.

Learn Excel 2016 Expert Skills with The Smart Method is available as both a low-cost printed paper book (always in stock at Amazon) and as a PDF e-Book (provided in the same unlocked, printable format as this e-Book).

You can only obtain the *Expert Skills* e-Book from the https://TheSmartMethod.com web site (this is the publisher's own web site: The Smart Method Ltd).

Expert skills course outline

Session 1: Tables, and Ranges

- Understand update channels
- Check that automatic updates are enabled
- Change the Office Theme
- Apply a simple filter to a range
- Apply a top 10 and custom filter to a range
- Apply an advanced filter with multiple OR criteria
- Apply an advanced filter with complex criteria
- Apply an advanced filter with function-driven criteria
- Extract unique records using an advanced filter
- Add totals using Quick Analysis
- Add percentage and running totals using Quick Analysis
- Convert a range into a table and add a total row
- Format a table using table styles and convert a table into a range
- Create a custom table style
- Sort a range or table by rows
- Sort a range by columns
- Sort a range or table by custom list
- Name a table and create an automatic structured table reference
- Create a manual structured table reference
- Use special items in structured table references
- Understand unqualified structured table references

Session 2: Data Integrity, Subtotals and Validations

- Split fixed width data using Text to Columns
- Split delimited data using Text to Columns
- Automatically subtotal a range
- Create nested subtotals
- Consolidate data from multiple data ranges
- Use data consolidation to generate quick subtotals from tables
- Validate numerical data
- Create user-friendly messages for validation errors
- Create data validation input messages
- Add a formula-driven date validation and a text length validation

- Add a table-based dynamic list validation
- Use a formula-driven custom validation to enforce complex business rules
- Remove duplicate values from a table
- Use a custom validation to add a unique constraint to a column

Session 3: Advanced Functions

- Understand precedence rules and use the Evaluate feature
- Use common functions with Formula AutoComplete
- Use the Insert Function dialog and the PMT function
- Use the PV and FV functions to value investments
- Use the IF logic function
- Use the SUMIF and COUNTIF functions to create conditional totals
- Understand date serial numbers
- Understand common date functions
- Use the DATEDIF function
- Use date offsets to manage projects using the scheduling equation
- Use the DATE function to offset days, months and years
- Enter time values and perform basic time calculations
- Perform time calculations that span midnight
- Understand common time functions and convert date serial numbers to decimal values
- Use the TIME function to offset hours, minutes and seconds
- Use the AND and OR functions to construct complex Boolean criteria
- Understand calculation options (manual and automatic)
- Concatenate strings using the concatenation operator (&)
- Use the TEXT function to format numerical values as strings
- Extract text from fixed width strings using the LEFT, RIGHT and MID functions
- Extract text from delimited strings using the FIND and LEN functions
- Use a VLOOKUP function for an exact lookup
- Use an IFERROR function to suppress error messages
- Use a VLOOKUP function for an inexact lookup

Session 4: Using Names and the Formula Auditing Tools

- Automatically create single-cell range names

- Manually create single cell range names and named constants
- Use range names to make formulas more readable
- Automatically create range names in two dimensions
- Use intersection range names and the INDIRECT function
- Create dynamic formula-based range names using the OFFSET function
- Create table based dynamic range names
- Create two linked drop-down lists using range names
- Understand the #NUM!, #DIV/0! and #NAME? error values
- Understand the #VALUE!, #REF! and #NULL! error values
- Understand background error checking and error checking rules
- Manually check a worksheet for errors
- Audit a formula by tracing precedents
- Audit a formula by tracing dependents
- Use the Watch Window to monitor cell values
- Use Speak Cells to eliminate data entry errors

Session 5: What If Analysis and Security

- Create a single-input data table
- Create a two-input data table
- Define scenarios
- Create a scenario summary report
- Use Goal Seek
- Use Solver
- Hide and unhide worksheets, columns and rows
- Create custom views
- Prevent unauthorized users from opening or modifying workbooks
- Control the changes users can make to workbooks
- Restrict the cells users are allowed to change
- Allow different levels of access to a worksheet with multiple passwords
- Create a digital certificate
- Add an invisible digital signature to a workbook
- Add a visible digital signature to a workbook

Session 6: Working with Hyperlinks, Other Applications and Workgroups

- Hyperlink to worksheets and ranges

- Hyperlink to other workbooks and the Internet
- Hyperlink to an e-mail address and enhance the browsing experience
- Embed an Excel worksheet object into a Word document
- Embed an Excel chart object into a Word document
- Link an Excel worksheet to a Word document
- Understand the three different ways to share a workbook
- Share a workbook using the lock method
- Share a workbook using the merge method
- Share a workbook on a network
- Accept and reject changes to shared workbooks

Session 7: Forms and Macros

- Add group box and option button controls to a worksheet form
- Add a combo box control to a worksheet form
- Set form control cell links
- Connect result cells to a form
- Add a check box control to a worksheet form
- Use check box data in result cells
- Add a temperature gauge chart to a form
- Add a single input data table to a form
- Improve form appearance and usability
- Understand macros and VBA
- Record a macro with absolute references
- Understand macro security
- Implement macro security
- Understand trusted documents
- Record a macro with relative references
- Use shapes to run macros
- Run a macro from a button control
- Show and hide ribbon tabs
- Add custom groups to standard ribbon tabs
- Create a custom ribbon tab

Session 8: Pivot Tables

- Create a one-dimensional pivot table report from a table
- Create a grouped pivot table report

- Understand pivot table rows and columns
- Understand the pivot table data cache
- Apply a simple filter and sort to a pivot table
- Use report filter fields
- Filter a pivot table visually using slicers
- Add a timeline control to a pivot table
- Use slicers to create a custom timeline
- Use report filter fields to automatically create multiple pages
- Format a pivot table using PivotTable styles
- Create a custom pivot table style
- Understand pivot table report layouts
- Add/remove subtotals and apply cell styles to pivot table fields
- Display multiple summations within a single pivot table
- Add a calculated field to a pivot table
- Add a calculated item to a pivot table
- Group by text, date and numeric value ranges
- Show row data by percentage of total rather than value
- Use pivot table values in simple formulas
- Use the GETPIVOTDATA function
- Create a pivot chart from a pivot table
- Embed multiple pivot tables onto a worksheet
- Use slicers to filter multiple pivot tables

Sessions 9-11 cover OLAP technology

Microsoft introduced some extremely sophisticated OLAP (On Line Analytical Processing) tools into Excel 2013. This was further expanded in Excel 2016. OLAP skills are not commonly found in Excel users (even IT professionals often struggle with data modeling and OLAP concepts).

Recognizing that OLAP skills will not be needed by many users (even Excel experts) we placed the OLAP related skills into the last three sessions of the *Expert skills* book.

These sessions cover not only the new OLAP related features, but also the relational modeling theory needed to understand and use them. Full coverage is given to the new OLAP pivot table (a new type of pivot table that can be used with an OLAP data source).

OLAP is the key to working with *Big Data* (in an Excel context, *Big Data* is data that has more than a million rows). In the OLAP sessions you'll sometimes work with very large data sets that contain well over a million rows (exceeding the capacity of an Excel worksheet).

Session 9: Data Modeling, OLAP and Business Intelligence

- Import tables from an external relational database
- Understand primary and foreign keys
- Link primary and foreign keys using VLOOKUP
- Efficiently import data using a view
- Understand linked tables
- Work with big data
- Create a simple data model
- Understand OLAP pivot tables
- Understand OLAP cubes and Business Intelligence
- Create an OLAP pivot table directly from a relational database
- Understand many-to-many relationships
- Create an OLAP pivot table using a many-to-many relationship
- Understand MDX queries and OLAP pivot table limitations
- Use the CUBEVALUE function to query an OLAP cube
- Convert CUBEVALUE functions to include MDX expressions
- Create an asymmetric OLAP pivot table using Named Sets

Session 10: 3D Maps

- Create a simple 3D Map
- Confirm the accuracy of geocoding
- Map using different location fields
- Apply filters to a 3D Map
- Set layer options and customize data cards
- Add a height field to a layer
- Apply different visualization types
- Visualize multiple categories
- Create a visualization with multiple layers
- Add annotations
- Create a video from temporal data
- Set scene options
- Create a tour with multiple scenes

Session 11: Create Get & Transform queries

- Understand Get & Transform and ETL
- Create a simple extract and load web query

- Understand queries and connections
- Move, remove, rename, filter and sort columns
- Split delimited data
- Specify data types
- Understand steps and PQFL
- Remove empty, error and top and bottom rows
- Understand and work with null values
- Transform date and time columns
- Transform number columns
- Add a custom calculated column
- Create an aggregated data query
- Unpivot aggregated data
- Work with multiple queries
- Create an append query
- Understand normal and de-normalized data
- Create a simple two-table merged query
- Create a five-table merged query

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