

# Excel 2016

## Conditional Formatting Techniques

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By

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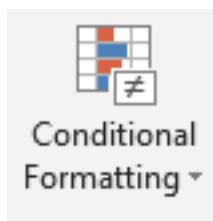
**A4 ACCOUNTING**  
EXCEL CONSULTING, TRAINING AND WEBINARS

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# 1. Introduction

Conditional formats allows you to automatically:

- change the format of a cell based on the value in the cell
- change the format of a cell based on a formula
- change the format of a cell based on the cell's value in relation to a range of values
- change an icon in the cell based on the cell's value
- change an icon in the cell based on the cell's relation to a range of values



Conditional formats are dynamic and they change the format / icon whenever the values in the sheet change.

This icon is in the Styles section of the Home Ribbon.

Little changed between Excel 2013 and Excel 2010 in terms of conditional formatting. Excel 2010 did improve on Excel 2007.

## Defaults

Many of the new conditional formats have default settings that may not work as you expect with your data. They can be modified to suit your data.

The number of conditions that you can apply is only limited by your computer's RAM.

## Colour Blindness

According to Wikipedia about 8% of men in Australia are colour blind (it mainly affects males – very few females are affected). This condition affects their ability to recognise the colours red and green. Keep that in mind when creating conditional formats and dashboards. Including icons will assist people with colour blindness.

## 2. Data Bars

These are applied to ranges of values and come in different colours.

They place a coloured bar in the cell. The size of the bar represents the relative size of the cell's value compared to the other values in the range selected. The width of the cell changes the data bar length. The cell width is 100%.

### **WARNING:**

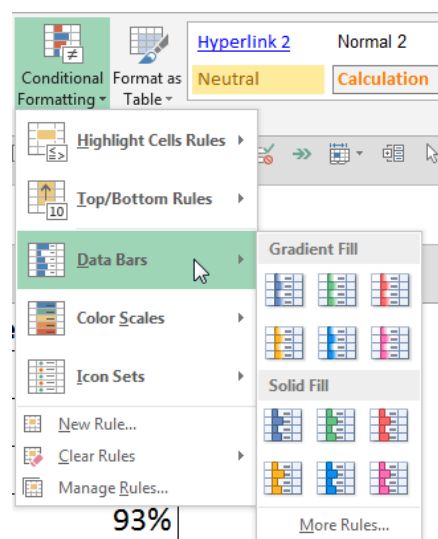
In Excel 2007 the size of the bar can give unreliable values if negatives or zeroes are involved. So it is indicative only and gives a quick guide to relative size of values. Excel 2010 fixed this issue.

In terms of options, the bar formatting can have either the gradient or solid fill and you can choose the colour of the fill. You may want one colour for budget and another colour for actuals. Note the range you select determines the default upper and lower limits. These defaults can be changed.

### **PRACTICE:**

1. Open the Conditional Built-in sheet
2. Select the range B2 to C5
3. Click the Conditional Format button
4. Select Data Bars and then point the mouse at the top left data bar – no need to click yet.

Notice that on the sheet Excel shows you what this will look like. Click that top left option.



### **Gradient**

Sales	Actual	Budget	Variance
WA	250	300	-50
SA	800	400	400
VIC	750	800	-50
QLD	100	200	-100
<b>Total</b>	<b>1,900</b>	<b>1,700</b>	<b>200</b>

### **Solid Fill**

Sales	Actual	Budget	Variance
WA	250	300	-50
SA	800	400	400
VIC	750	800	-50
QLD	100	200	-100
<b>Total</b>	<b>1,900</b>	<b>1,700</b>	<b>200</b>

This provides a quick visual indication that the budget sales were dominated by VIC, but the actuals have a split between SA and VIC.

The size of the data bar is relational to the range you select. The largest value(s) will fill the cell.

Changing Qld to zero will clear the bar in the cell. Try a negative value and see the effect.

I prefer the solid data bars.

## Progress Bar

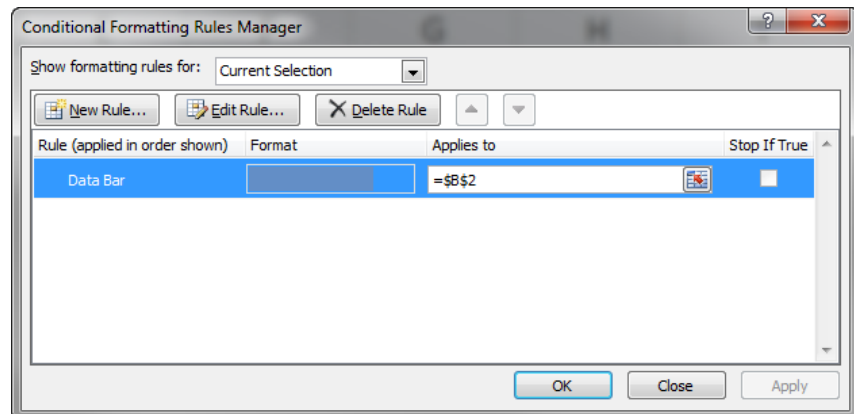
You can modify a data bar and turn it into a progress bar.

### **PRACTICE:**

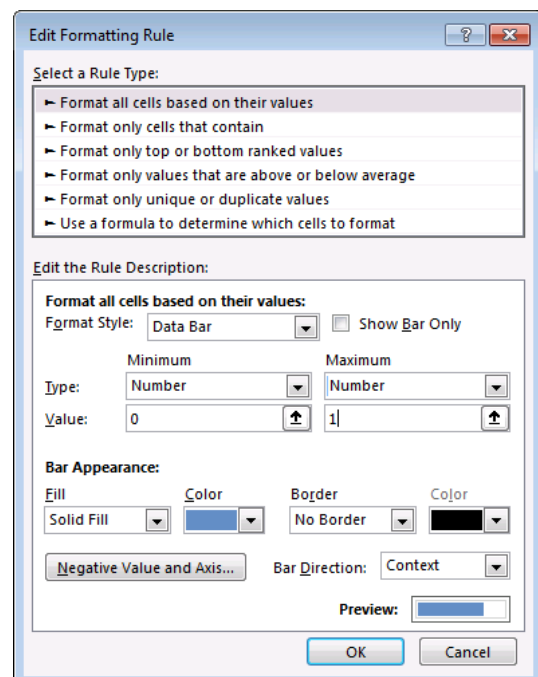
1. Open the Progress sheet. To insert a progress bar in cell B2 do the following.
2. Click the cell B2 which contains an input percentage. Use Conditional Formatting to apply one of the Data Bars.

3. Click Conditional Formatting drop down and select Manage Rules.

Double click the Data Bar rule to edit it.



4. Click in the Type: Minimum drop down and select Number. Type in 0 in the Value box.
5. Click in the Type: Maximum drop down and select Number. Type in 1 in the Value box.
6. Click OK and then click Apply or Close.
7. Changing the % will vary the data bar. It will never exceed 100%.
8. B2 was an input cell, but the cell could contain a formula.



## Manage Rules

When creating multiple rules I recommend you use the Manage Rules option rather than the New Rule option. Once you have created a rule it takes you back to the Manage Rules dialog each time where there is a New Rule button. This requires fewer mouse click than using the New Rule option in the Conditional Formatting icon drop down.

Another advantage of using the Manage Rules dialog is it clearly shows existing rules and ensures you are not duplicating rules.

### 3. Color Scales

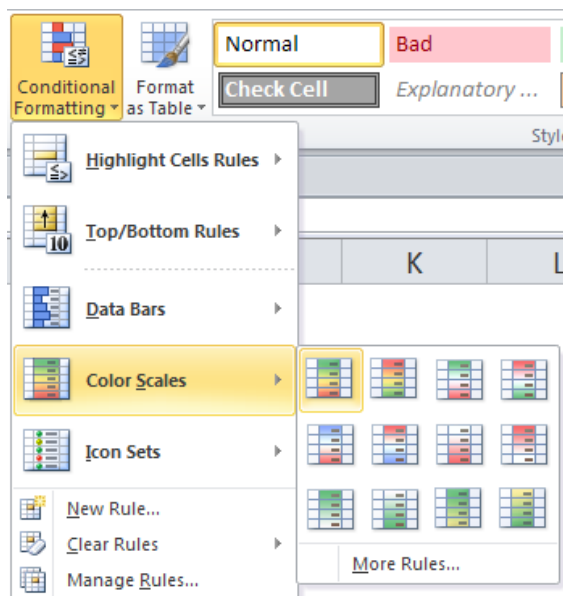
This format uses two or three colours. In the three colour version there is a colour for a “good” result and another colour for a “bad” result. The third colour is used for results in between. The colours have a gradient and the better the result the brighter the colour. The Green, Orange and Red combination is the most common version. Each colour scheme can be reversed.

The blue and yellow colour scheme is perceived better by colour blind people.

The problem with this format is that the standard setting uses the range’s values to determine the levels to arrive at the highest and lowest and then decides from that what is good and bad. The good news is this can be modified.

#### **PRACTICE:**

1. In the Conditional Built-in sheet select the range G2 to G5
2. Click the Conditional Format button and select the Colour Scales and the top left option as below.

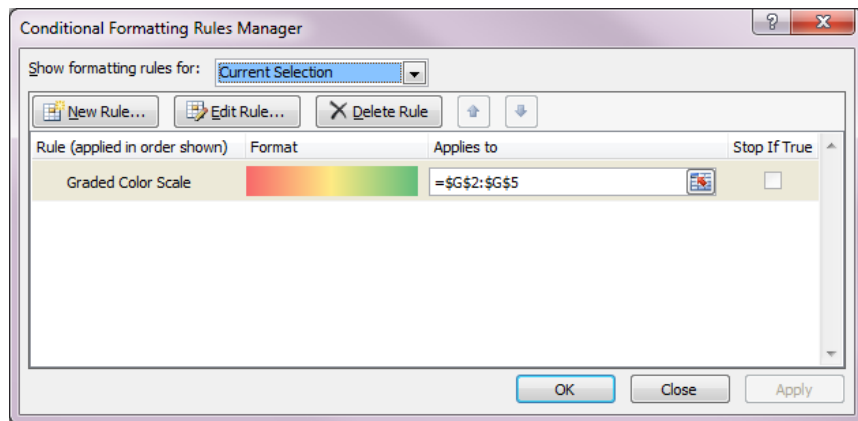


3. The resulting format may not be what you were expecting.

	Client Feedback %
WA	95%
SA	92%
VIC	90%
QLD	93%

The 90% for VIC is red (bad). However 90% and above could be an acceptable result. Because 90% is the lowest value in the range it is deemed “bad”. This is the standard setting, but it can be amended to display to meet your requirements.

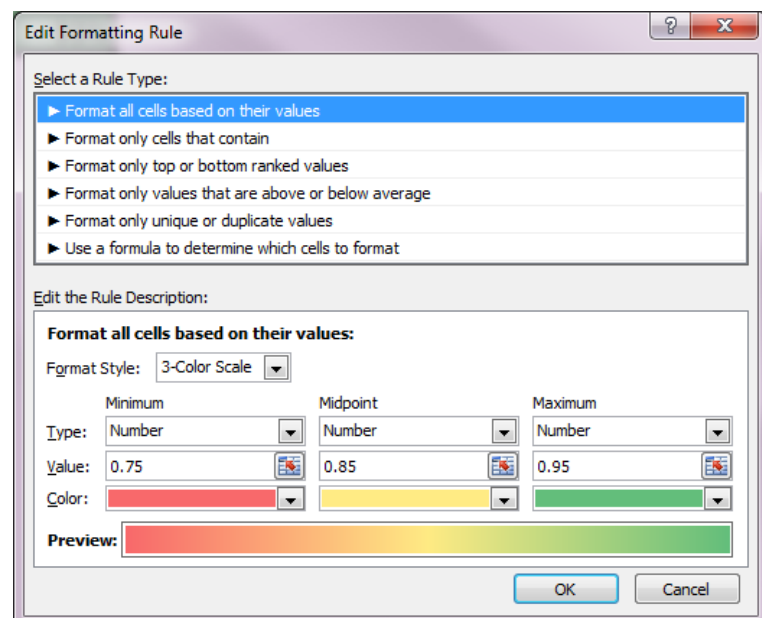
4. Select the range again. And click the Conditional Format button and select Manage Rules. This opens the Rules Manager dialog box.



This is where you can edit existing formats.

5. Click the Edit Rule button.

6. Change the Options in the Edit Formatting Rule as shown below. Click OK, Click OK.



This means that any values less than 75% will be red, near 85% will be orange and around 90% will be green. Between 95% and 100% the colours will be the same.

You can edit the settings for all the conditional formats in this dialog.

	Client Feedback %
WA	95%
SA	92%
VIC	90%
QLD	93%

The entries where we keyed in the values could also have been fixed cell entries.

Linking to cell entries makes the format more flexible and easier to change in the future.

The cell you link to could contain a formula, allowing even more flexibility and automation.

On the sheet there is a Scales table (I2:J4) which we will link to. The values replicate the values keyed in above. The dialog with the linked cell references is shown on the next page.

**Note:** All the cell references are fixed (two \$ signs).

F	G	H	I	J
	<b>Client Feedback %</b>		<b>Scales</b>	<b>Link</b>
WA	95%		Poor	75%
SA	92%		Average	85%
VIC	90%		Excellent	90%
QLD	93%			

**Edit Formatting Rule**

Select a Rule Type:

- Format all cells based on their values
- Format only cells that contain
- Format only top or bottom ranked values
- Format only values that are above or below average
- Format only unique or duplicate values
- Use a formula to determine which cells to format

Edit the Rule Description:

**Format all cells based on their values:**

Format Style: 3-Color Scale

	Minimum	Midpoint	Maximum
Type:	Number	Number	Number
Value:	= \$J\$2	= \$J\$3	= \$J\$4
Color:			

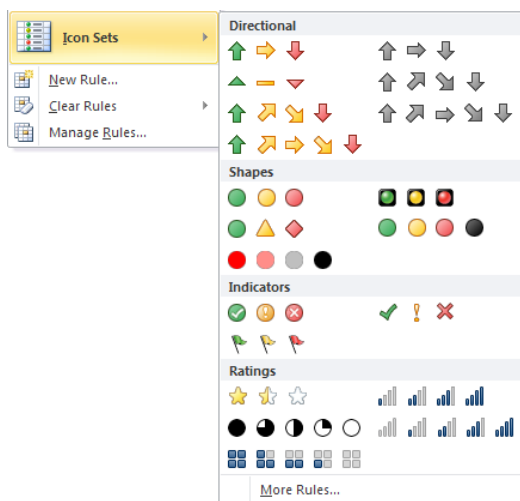
Preview:

OK Cancel










## 4. Icon Sets

Adding icons to cells provides a visual representation of the value in the cell. Users can at a glance understand what the figures mean. There are 3, 4 and 5 icon scales. See below.



### PRACTICE:

1. We'll add the  format to the variances in the Sales report.
2. Select the range D2 to D6
3. Click the Conditional Format button and select Icons Sets and click the  option.

Sales	Actual	Budget	Variance
WA	250	300	 -50
SA	800	400	 400
VIC	750	800	 -50
QLD	100	200	 -100
<b>Total</b>	<b>1,900</b>	<b>1,700</b>	 <b>200</b>

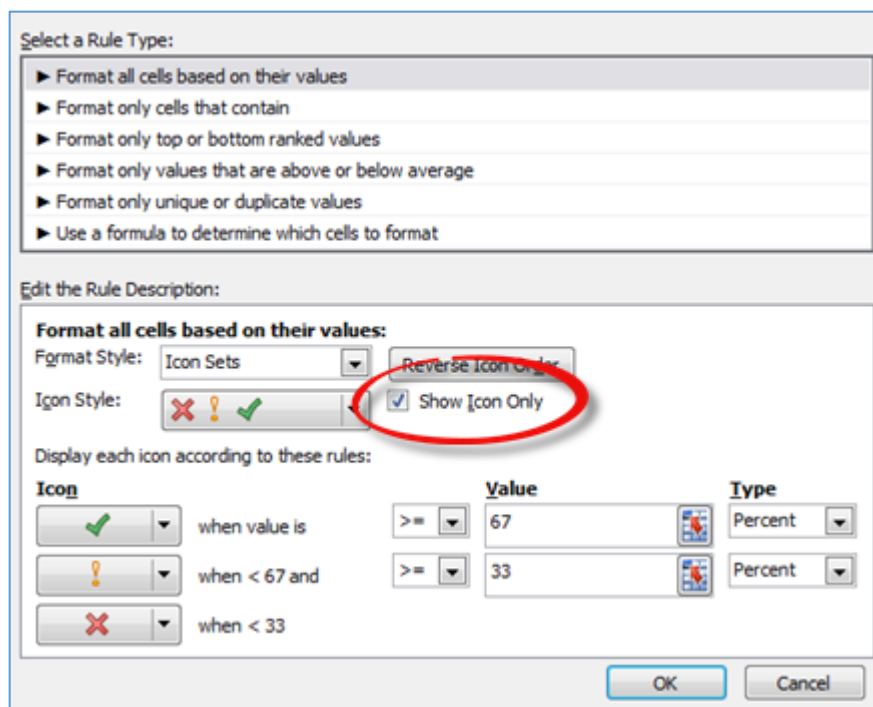
Only one State was better than budget. Three were below budget and the total exceeded budget.

The defaults here aren't perfect as you can see the Total was favourable, yet it only shows an exclamation mark and not a tick – see the bottom of the following page for a solution.

## Dashboards

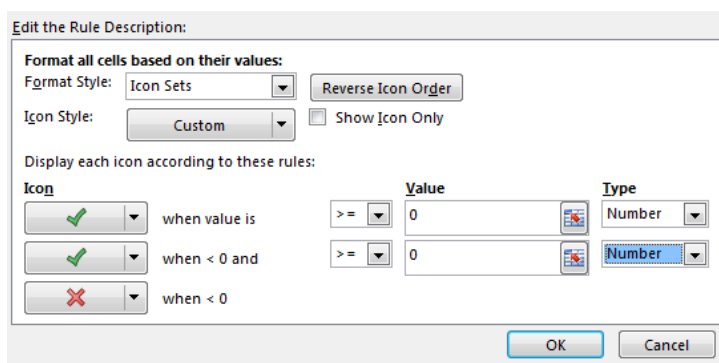
Sometimes when creating dashboard reports you only want to display the icon. There is an option to only display the icon and hide the value.

In our previous example for variances, select the range and use Manage Rules to edit the Conditional Format and tick the Show Icon Only option and click OK twice.



	A	B	C	D
1	<b>Sales</b>	<b>Actual</b>	<b>Budget</b>	<b>Variance</b>
2	WA	250	300	✗
3	SA	800	400	✓
4	VIC	750	800	✗
5	QLD	100	200	✗
6	<b>Total</b>	<b>1,900</b>	<b>1,700</b>	!

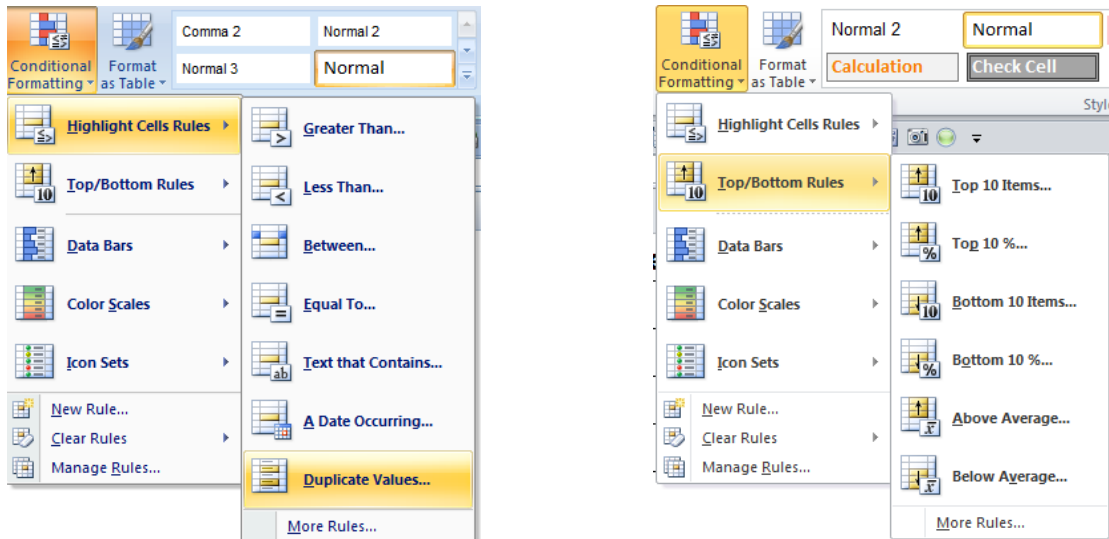
To fix the exclamation mark issue we could amend the defaults as per the image on the right this will only display ticks (positive) and crosses (negatives) – see image below.



	A	B	C	D
1	<b>Sales</b>	<b>Actual</b>	<b>Budget</b>	<b>Variance</b>
2	WA	250	300	✗ -50
3	SA	800	400	✓ 400
4	VIC	750	800	✗ -50
5	QLD	100	200	✗ -100
6	<b>Total</b>	<b>1,900</b>	<b>1,700</b>	✓ 200

## 5. Other Conditional Formats

There are many more Conditional formats. Many of the new built-in formats previously required complicated formula to achieve. I encourage you to have a look and try a few of the others. The Duplicated Values option (shown below on left) is handy for identifying duplicate invoice or order numbers in lists that should be unique. It also has an option to identify unique values.



### Top and Bottom (Items and Percent)

The Top and Bottom options shown (above right) are actually flexible and not limited to the top or bottom 10, you can select the number. You can use these options for Pareto 80/20 analysis.

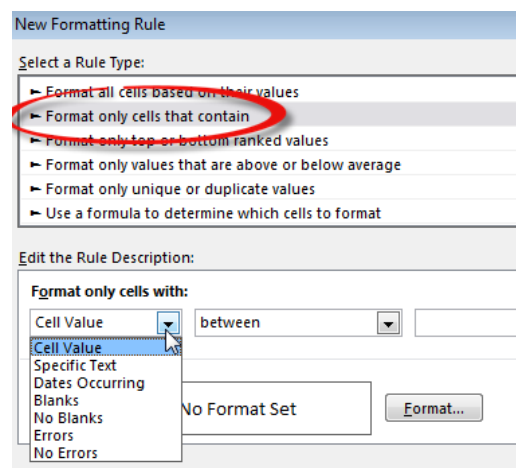
#### **PRACTICE:**

1. Use the Top & Bottom sheet to experiment with the Top and Bottom rules.

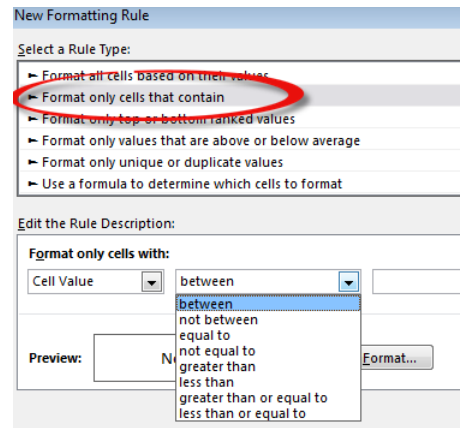
### Cell-Based Rules

When you use the cell-based conditions note that there are many options to choose from in the drop down boxes. See dialog on right.

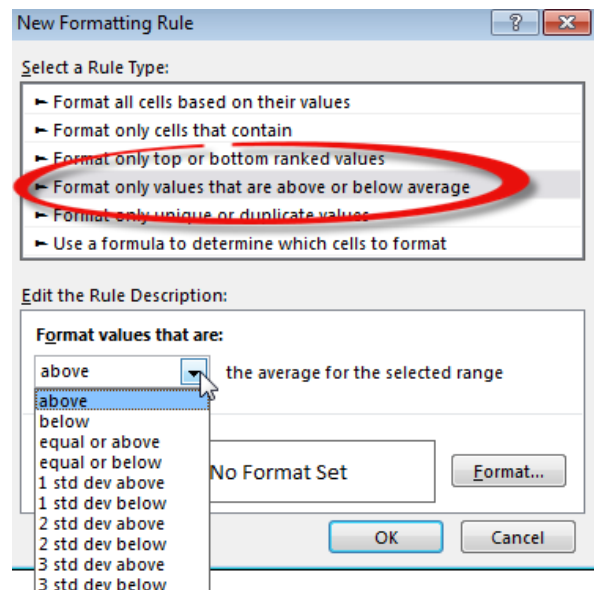
Blank cells are often treated differently and this drop down allows for the identification of both blank cells and cells that contain errors.



The comparisons option lists the standard comparisons that you need. Any comparisons not there could be created using a formula.



The Above / Below Average options also has a few other options listed that use multiples of standard deviations (std dev). These relate to the normal distribution, bell curve.

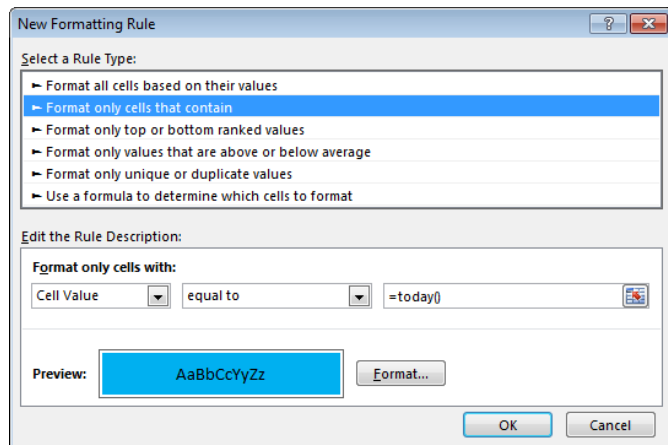


## Working with Dates

We will apply three different colours to a range containing dates. Due today; due in 7 days and overdue.

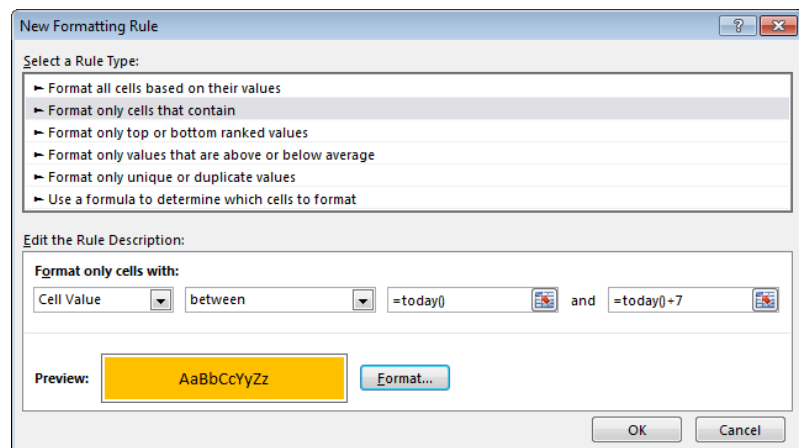
### **PRACTICE:**

1. Open the Conditional Dates sheet.
2. Select the range C8:C19, click on the Conditional Formatting icon on the Home Ribbon and select Manage Rules. Click the New Rule button.
3. Select the second option - Format only cells that contain.
4. Make changes as per the dialog on the right. Click the Format button to select the blue fill colour. Click OK. This formats the cell blue if it has today's date in it.

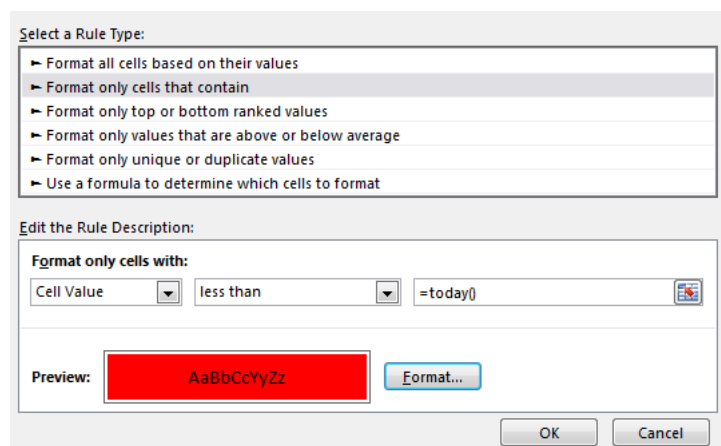


The TODAY() function returns today's date. This makes the format dynamic.

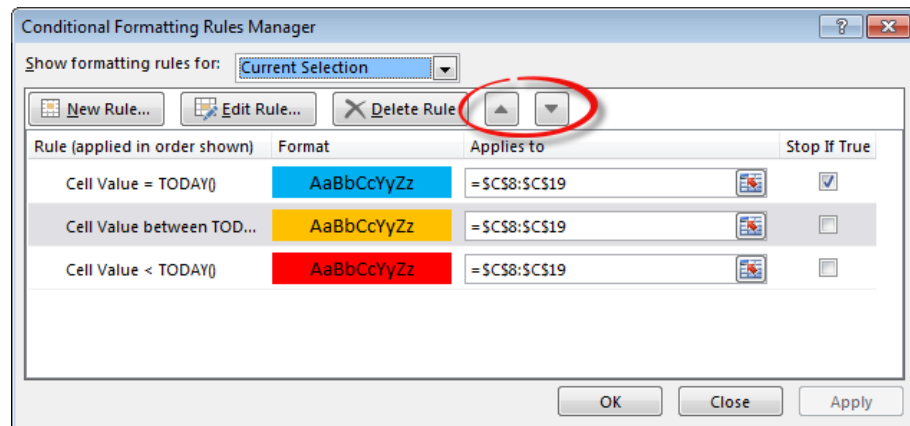
5. Repeat the process for this screen – next week orange fill.



6. Repeat the process for this screen – Overdue red fill.



7. Use the arrow buttons (right of Delete Rule button) to move selected conditions so that they match the screen shot on the right.



The order of the conditions is important. The Stop If True tick box on the right hand side allows you to control how to apply the conditions.

## Formula-Based Conditional Formats

To make Conditional Format completely flexible you can use a formula to determine the condition. You can use Excel's functions in the formulas.

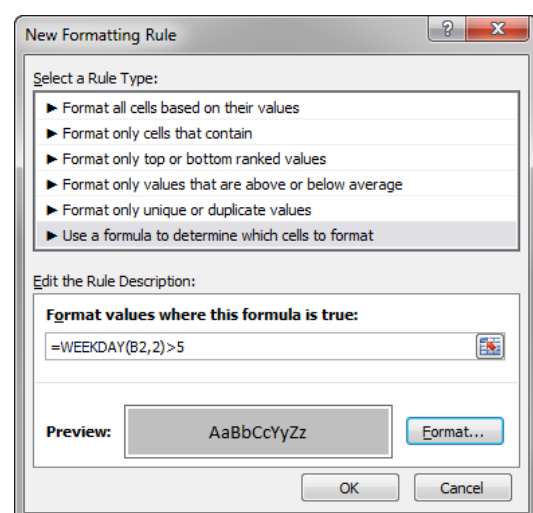
## Shading Weekends

When creating rosters or timetables you may want to identify weekends with a different colour.

### **PRACTICE:**

1. In the Weekends sheet select the range B2:B22. I have added a formula in column C so you can confirm that format applied to column B is correct. Column C is not required and is for information only.
2. Create a New Rule and use the following settings. Use the last option in the Rule Type: I have used the grey fill colour.

The WEEKDAY function when used with ,2 returns 1 for a Monday and 7 for a Sunday. Hence, Saturday is 6. So > 5 refers to the weekend days.



**WARNING:**

Avoid using the arrow key to move around the formula as it will put in cell references from the sheet. See TIP below.

**TIP:**

Press F2 to stop the references updating when you move around the formula using the arrow keys.

## Comparisons

Conditional formats can be used to compare two lists. The image on the right has two invoice number lists. We want to format any invoice number in each list that isn't in the other list.

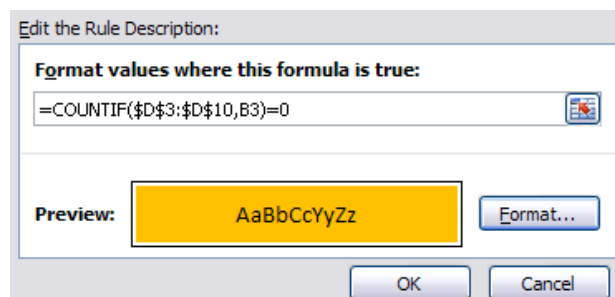
	A	B	C	D
1				
2		<b>Invoices_1</b>		<b>Invoices_2</b>
3		1234		1234
4		1235		1236
5		1236		1237
6		1237		1238
7		1238		1239
8		1240		1240
9		1241		1241
10		1242		1242

**PRACTICE:**

1. Select the range B3:B10. Click the Conditional Formatting icon.
2. Select New Rule and then choose the option "Use a formula to determine which cells to format".
3. The following formula will return TRUE if the invoice number in the Invoices\_1 list is NOT in Invoices\_2 list.

=COUNTIF(\$D\$3:\$D\$10,B3)=0

B3 in the above formula does not have \$ signs as it is a relative reference. Its row number reference will change for each cell in the selected range.

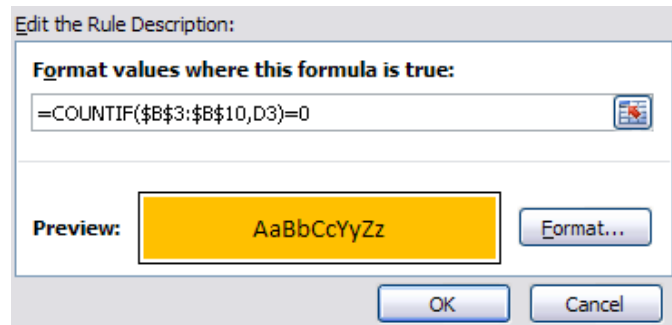


4. Click the Format button and choose the orange Fill colour and click OK. The image above shows the dialog for the Invoices\_1 list. Click OK to apply the format.
5. Select the range D3:D10 and repeat the above steps and use the formula.

=COUNTIF(\$B\$3:\$B\$10,D3) = 0

The COUNTIF function counts how many entries are in a range match the criteria. If it returns zero it means the entry is not in the range.

6. The figure on the right shows the dialog for the Invoices\_2 list. Click OK the OK again to apply the format.



There is one missing invoice number in each list. When creating the formula for the conditions the use or non-use of the \$ sign to fix row and column references is very important.

**Note:** Excel can filter by colour. Hence, you could use a condition la format to drive filtering in a table layout.

	A	B	C	D
1				
2		Invoices_1		Invoices_2
3		1234		1234
4		1235		1236
5		1236		1237
6		1237		1238
7		1238		1239
8		1240		1240
9		1241		1241
10		1242		1242

## Trial and Error

When dealing with TRUE and FALSE conditions it is common to have to use trial and error plus testing to perfect the results.