Conditional Formatting

The mass of figures in a large data table can make it difficult to read but this can be made a lot easier with the aid of *Conditional Formatting*. Unlike regular formatting, conditional formatting can change the appearance of a cell according to the value displayed in it. Consider the example of a two-variable table shown in the section on *Data Tables*. Suppose your criteria for a loan were that the monthly repayment was between £300 and £350. There are numerous cells in the table whose values fall in that range but it is difficult to find them, and the table will change if any of the other variables in the calculation are changed. It's an ideal candidate for conditional formatting.

In this example (*Fig. 1*) three different conditional formats have been applied to the data table. Cells displaying values greater than £350 are shown in red (these are beyond the upper end of my price range – I can't afford them); cells displaying values less that £300 are shown in yellow (these are below the lower end of my price range – I can afford a higher payment); and cells whose values fall between £300 and £350 are shown in green (these are the ones I am interested in).

£394.14	36	48	60	72	84	96	108	120	132	144
£ 15,000	£ 461.79	£ 357.80	£ 295.60	£ 254.30	£ 224.93	£ 203.02	£ 186.08	£ 172.62	£ 161.69	£ 152.66
£ 16,000	£ 492.57	£ 381.66	£ 315.31	£ 271.25	£ 239.92	£ 216.55	£ 198.48	£ 184.13	£ 172.47	£ 162.84
£ 17,000	£ 523.36	£ 405.51	£ 335.02	£ 288.20	£ 254.92	£ 230.08	£ 210.89	£ 195.64	£ 183.25	£ 173.02
£ 18,000	£ 554.14	£ 429.36	£ 354.73	£ 305.16	£ 269.91	£ 243.62	£ 223.29	£ 207.14	£ 194.03	£ 183.20
£ 19,000	£ 584.93	£ 453.22	£ 374.43	£ 322.11	£ 284.91	£ 257.15	£ 235.70	£ 218.65	£ 204.81	£ 193.37
£ 20,000	£ 615.71	£ 477.07	£ 394.14	£ 339.06	£ 299.90	£ 270.69	£ 248.10	£ 230.16	£ 215.59	£ 203.55
£ 21,000	£ 646.50	£ 500.92	£ 413.85	£ 356.02	£ 314.90	£ 284.22	£ 260.51	£ 241.67	£ 226.37	£ 213.73
£ 22,000	£ 677.29	£ 524.78	£ 433.55	£ 372.97	£ 329.89	£ 297.76	£ 272.91	£ 253.18	£ 237.15	£ 223.91
£ 23,000	£ 708.07	£ 548.63	£ 453.26	£ 389.92	£ 344.89	£ 311.29	£ 285.32	£ 264.68	£ 247.93	£ 234.08
£ 24,000	£ 738.86	£ 572.49	£ 472.97	£ 406.88	£ 359.88	£ 324.83	£ 297.73	£ 276.19	£ 258.71	£ 244.26
£ 25,000	£ 769.64	£ 596.34	£ 492.67	£ 423.83	£ 374.88	£ 338.36	£ 310.13	£ 287.70	£ 269.49	£ 254.44
£ 26,000	£ 800.43	£ 620.19	£ 512.38	£ 440.78	£ 389.87	£ 351.89	£ 322.54	£ 299.21	£ 280.27	£ 264.62
£ 27,000	£ 831.21	£ 644.05	£ 532.09	£ 457.73	£ 404.87	£ 365.43	£ 334.94	£ 310.72	£ 291.05	£ 274.79
£ 28,000	£ 862.00	£ 667.90	£ 551.80	£ 474.69	£ 419.86	£ 378.96	£ 347.35	£ 322.22	£ 301.83	£ 284.97
£ 29,000	£ 892.79	£ 691.75	£ 571.50	£ 491.64	£ 434.86	£ 392.50	£ 359.75	£ 333.73	£ 312.61	£ 295.15
£ 30,000	£ 923.57	£ 715.61	£ 591.21	£ 508.59	£ 449.85	£ 406.03	£ 372.16	£ 345.24	£ 323.39	£ 305.33

Fig. 1 Three level conditional formatting applied to a data table.

To apply this kind of conditional formatting:

1. Select the cells to be formatted.
2. Go to the **Data** tab and click the **Conditional Formatting** button then choose **Highlight Cells Rules** then **Greater Than…**
3. In the *Greater Than* dialog box enter a value above which the cells should display a certain format, in this example **350**. Notice that as you do so Excel displays a preview of the chosen format on your data (*Fig. 2*).
4. Choose a preset format from the drop-down list (in this example **Light Red Fill with Dark Red Text** was chosen) or choose *Custom Format* and devise your own format.
5. Click **OK** to apply the first format rule and close the dialog box. Leave the cells selected.
6. Repeat the procedure on the same range of cells, this time choose **Conditional Formatting > Highlight Cells Rules > Less Than…** and in the *Less Than* dialog box enter **300** and choose **Yellow Fill with Dark Yellow Text**.
7. Click **OK** to apply the second format rule and close the dialog box. Leave the cells selected.
8. Repeat the procedure on the same range of cells and choose **Conditional Formatting > Highlight Cells Rules > Between…** and in the *Between* dialog box enter **300** and **350** and choose **Green Fill with Dark Green Text**.
9. Finally, click **OK** to apply the third format rule and close the dialog box.
10. When you deselect the cells you should now have a formatted range of cells looking something like that shown here (*Fig. 1*).

You don't have to apply several different formats. You may just want to highlight cells that satisfy a particular condition.

When applying multiple conditional formats you are not limited to just three conditions as in this example. You can add as many as you need but remember to apply all your formats to the same range of cells. Make sure that your format rules do not conflict. For example, if you choose *Greater than 100* as one rule and *Greater Than 200* as another rule, which of the rules should apply to a cell showing a value of *250* since both rules apply? (You can in fact specify a rule for this dilemma

using the *Manage Rules* tool but if you are new to conditional formatting it is best to avoid conflicts in the first place!)
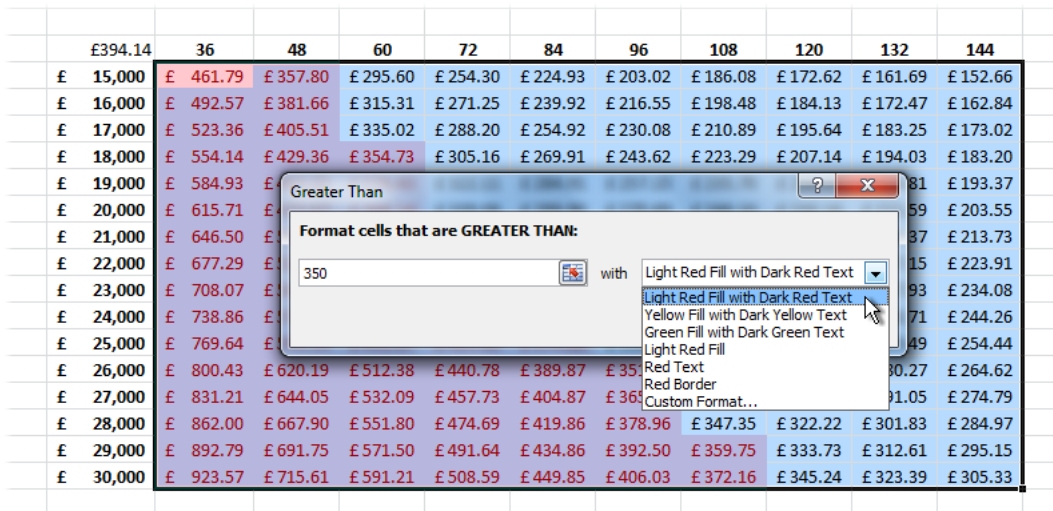

Fig. 2 Applying conditional formatting.

In addition to using regular formatting tools such as cell fill colours and font colours as in the previous example, Excel offers a range of Icon Sets, Data Bars and Colour Scales to denote specified cell values. You can apply these directly to your data but it is more likely that you will want to specify your own particular conditions. Excel allows you to do this using the *Manage Rules* tool.

Using CustomConditional Formats

Using the previous example, you might choose to apply the *Traffic Light* icon set instead fill and font formatting. To do this first apply your chosen icon set by going to **Conditional Formatting > Icon Sets** and choose an icon set from the list, in this case the three-colour traffic light set. Excel applies the icon set to the data but at the same time applies its own rule for which value range each colour represents (*Fig. 3*).

NOTE: When you apply an icon set you might find that your cell values are replaced by hash marks (####). This simply means that in order to make room for the icon the number cannot be properly displayed. Simply widen each column to allow the values to be shown.

To specify your own rules go to **Conditional Formatting > Manage Rules**. In the *Conditional Formatting Rules Manager* select your chosen rule and click **Edit Rule** (*Fig. 3*).
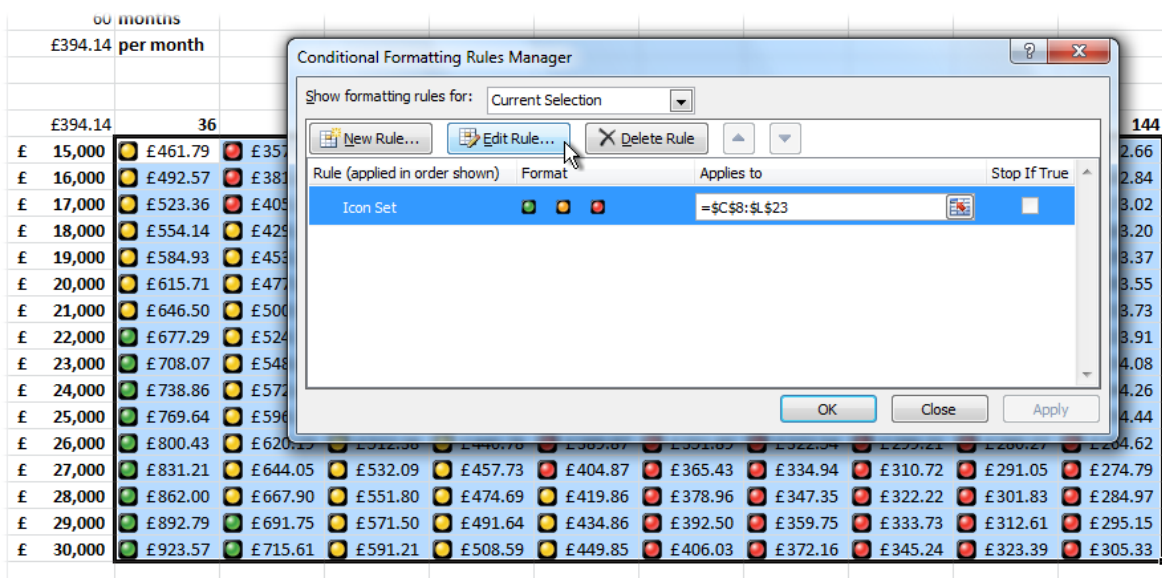

Fig. 3 Editing an Icon Set rule.

Because there are three icon colours in this set Excel has created its own rule dividing the range of values into three by percent (>=67% green, <67% and >=33% yellow, <33% red) but I want the colours to apply to specific numerical ranges and in the opposite order with red representing the highest values.

In the *Edit Formatting Rule* dialog I could simply click the **Reverse Icon Order** button but this would make the middle range yellow and I want that one to be green, the same as I had in the previous example. Fortunately Excel lets me specify which icon applies to each range. Making sure that **Format all cells based on their values** is selected, all I have to do is select the appropriate icon from the **Icon** dropdown, choose my operator (>= or >) and enter a value in the **Value** box and choose *Number* from the **Type** dropdown (*Fig. 4*).
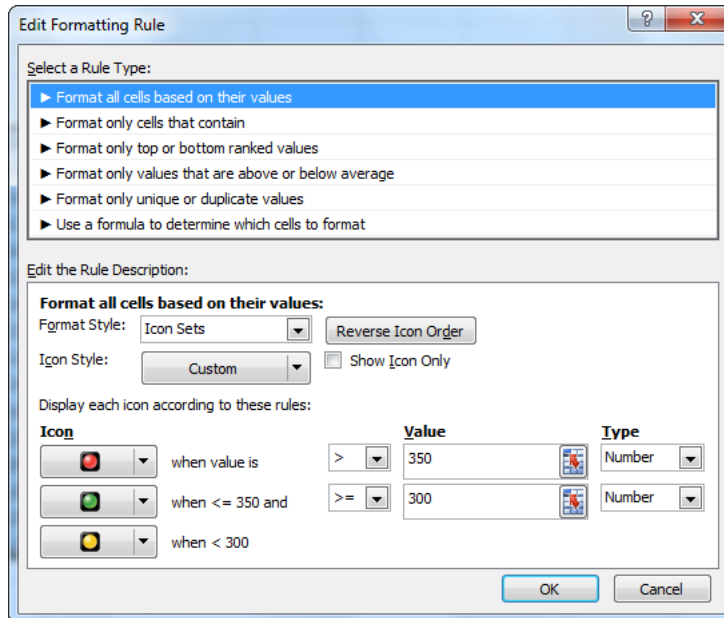

Fig. 4 Creating a custom conditional formatting rule.

After clicking **OK** to dismiss the dialogs and apply the modified rule the data appears with the same colours as before but using traffic light icons instead of fill and font colours (*Fig. 5*).

	£394.14	36	48	60	72	84	96	108	120	132	144
£	15,000	🔴 £461.79	🟡 £357.80	🟡 £295.60	🟡 £254.30	🟡 £224.93	🟡 £203.02	🟡 £186.08	🟡 £172.62	🟡 £161.69	🟡 £152.66
£	16,000	🔴 £492.57	🟡 £381.66	🟢 £315.31	🟡 £271.25	🟡 £239.92	🟡 £216.55	🟡 £198.48	🟡 £184.13	🟡 £172.47	🟡 £162.84
£	17,000	🔴 £523.36	🟡 £405.51	🟢 £335.02	🟡 £288.20	🟡 £254.92	🟡 £230.08	🟡 £210.89	🟡 £195.64	🟡 £183.25	🟡 £173.02
£	18,000	🔴 £554.14	🔴 £429.36	🟡 £354.73	🟢 £305.16	🟡 £269.91	🟡 £243.62	🟡 £223.29	🟡 £207.14	🟡 £194.03	🟡 £183.20
£	19,000	🔴 £584.93	🔴 £453.22	🟡 £374.43	🟢 £322.11	🟡 £284.91	🟡 £257.15	🟡 £235.70	🟡 £218.65	🟡 £204.81	🟡 £193.37
£	20,000	🔴 £615.71	🔴 £477.07	🟡 £394.14	🟢 £339.06	🟡 £299.90	🟡 £270.69	🟡 £248.10	🟡 £230.16	🟡 £215.59	🟡 £203.55
£	21,000	🔴 £646.50	🔴 £500.92	🔴 £413.85	🔴 £356.02	🟢 £314.90	🟡 £284.22	🟡 £260.51	🟡 £241.67	🟡 £226.37	🟡 £213.73
£	22,000	🔴 £677.29	🔴 £524.78	🔴 £433.55	🔴 £372.97	🟢 £329.89	🟡 £297.76	🟡 £272.91	🟡 £253.18	🟡 £237.15	🟡 £223.91
£	23,000	🔴 £708.07	🔴 £548.63	🔴 £453.26	🔴 £389.92	🟢 £344.89	🟢 £311.29	🟡 £285.32	🟡 £264.68	🟡 £247.93	🟡 £234.08
£	24,000	🔴 £738.86	🔴 £572.49	🔴 £472.97	🔴 £406.88	🔴 £359.88	🟢 £324.83	🟡 £297.73	🟡 £276.19	🟡 £258.71	🟡 £244.26
£	25,000	🔴 £769.64	🔴 £596.34	🔴 £492.67	🔴 £423.83	🔴 £374.88	🟡 £338.36	🟢 £310.13	🟡 £287.70	🟡 £269.49	🟡 £254.44
£	26,000	🔴 £800.43	🔴 £620.19	🔴 £512.38	🔴 £440.78	🔴 £389.87	🟡 £351.89	🟢 £322.54	🟡 £299.21	🟡 £280.27	🟡 £264.62
£	27,000	🔴 £831.21	🔴 £644.05	🔴 £532.09	🔴 £457.73	🔴 £404.87	🟡 £365.43	🟢 £334.94	🟢 £310.72	🟡 £291.05	🟡 £274.79
£	28,000	🔴 £862.00	🔴 £667.90	🔴 £551.80	🔴 £474.69	🔴 £419.86	🔴 £378.96	🟢 £347.35	🟢 £322.22	🟢 £301.83	🟡 £284.97
£	29,000	🔴 £892.79	🔴 £691.75	🔴 £571.50	🔴 £491.64	🔴 £434.86	🔴 £392.50	🔴 £359.75	🟢 £333.73	🟢 £312.61	🟡 £295.15
£	30,000	🔴 £923.57	🔴 £715.61	🔴 £591.21	🔴 £508.59	🔴 £449.85	🔴 £406.03	🔴 £372.16	🟢 £345.24	🟢 £323.39	🟢 £305.33

Fig. 5 Data displayed using a custom Icon Set rule.

NOTE: *If you know that you are going to need to customize your formatting rules you can go straight to the Edit Formatting Rule dialog by choosing* **Conditional Formatting > New Rule.**