Advanced PBI Reports

Sample manual - first two chapters

Wise Owl Training

TABLE OF CONTENTS (1 of 4)

TABLE OF CONTENTS (2 of 4)

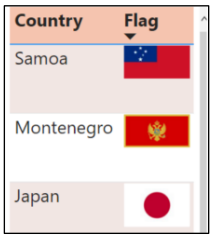
TABLE OF CONTENTS (3 of 4)

TABLE OF CONTENTS (4 of 4)

CHAPTER 1 - ADVANCED TABLES

1.1 Showing Images in Tables

It's easy to show images in tables like this one, provided that you remember to choose the right data type:



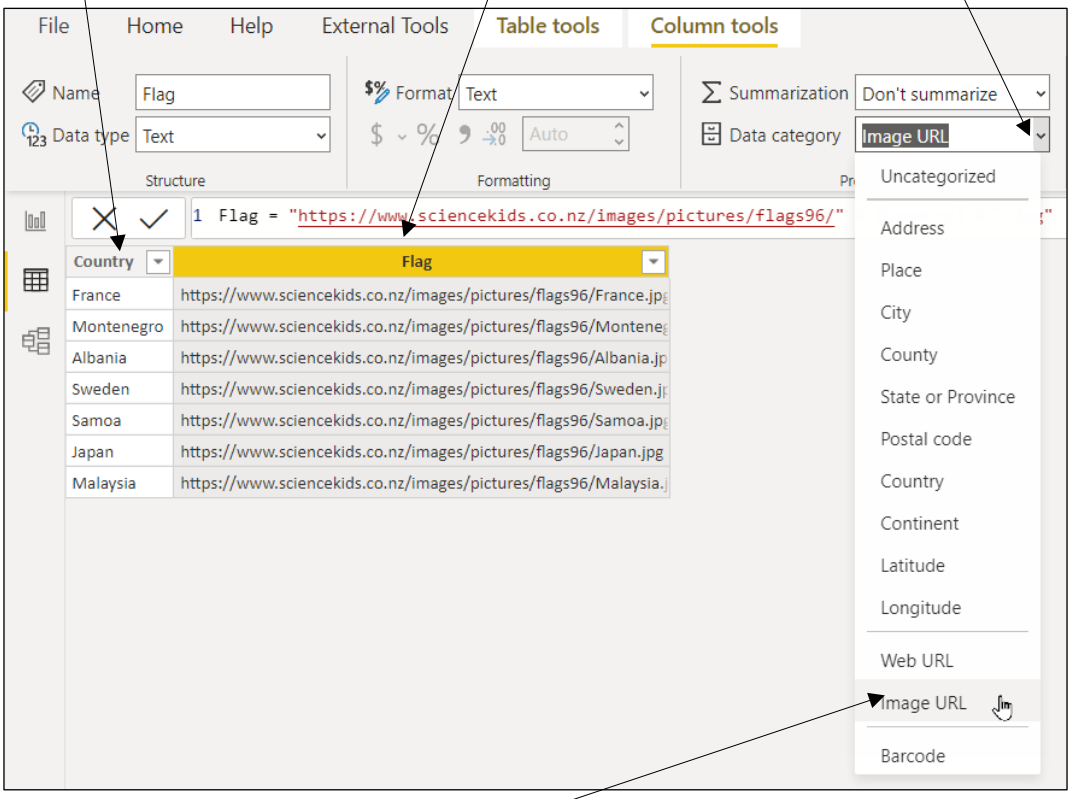
The flag for each country is displayed using a link to website www.sciencekids.co.nz/pictures/flags.html .

To get this to work, follow the steps below:

a) Get data which contains the website address of an image for each row.

b) Select the column containing the image.

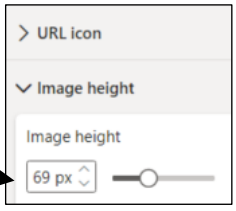
c) On the **Column tools** tab which appears in the ribbon, click on this drop arrow.



d) Choose to display this column in the table as an image (assuming that it contains the URL to an image).

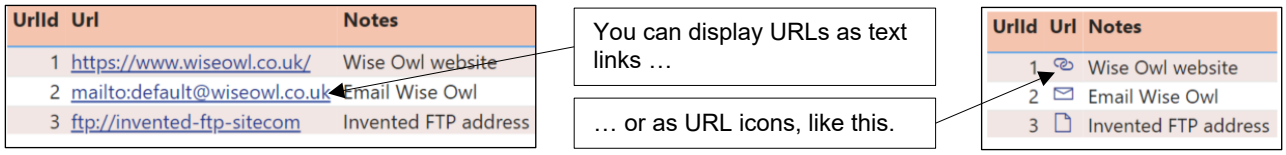
Note that it's often a good idea to reduce the height of each image:

At the bottom of the table's format properties, it's often a good idea to reduce the height allowed for each image (use trial and error to determine the best height).



1.2 URLs in Tables

You can display URLs as clickable links or text:



Displaying Text Entries as URLs

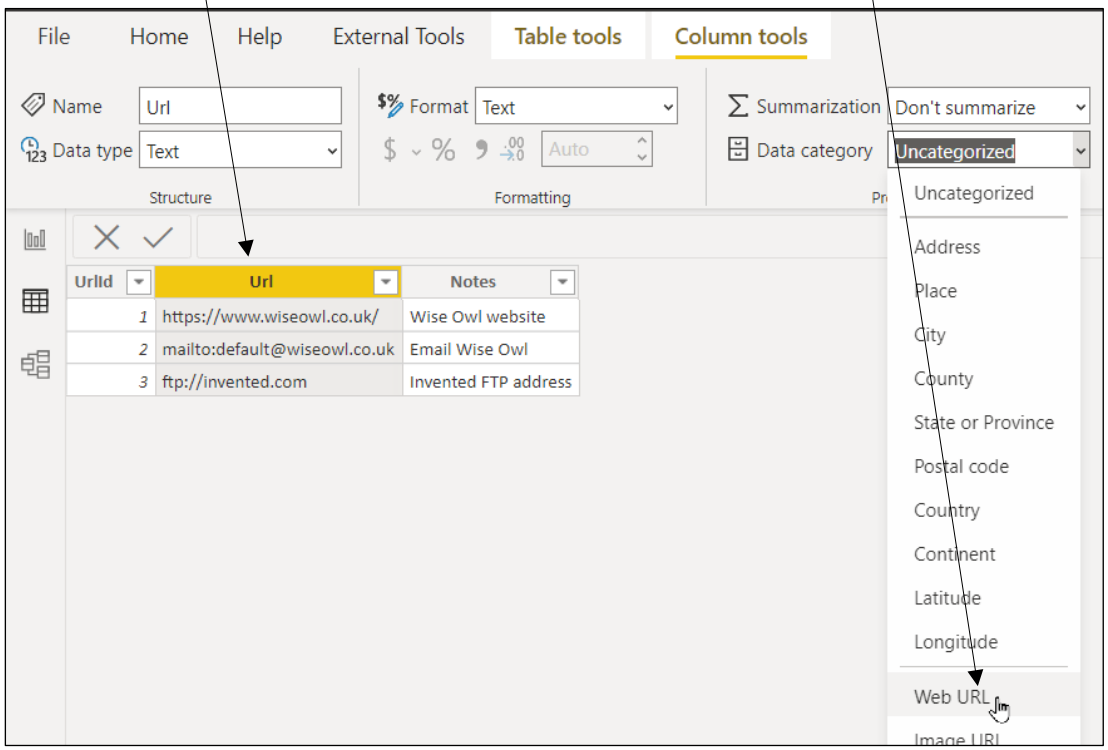
Start by creating a table containing one or more different types of links:

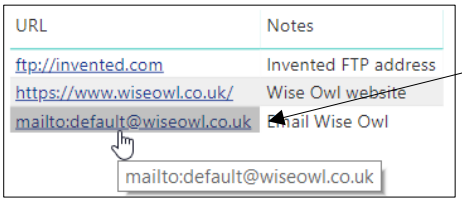
This table contains a website address, an email link and an FTP site address.

You can then designate one of the columns as a URL:

a) Select the column which gives the URL to link to.

b) Choose this option on the **Column tools** tab which appears in the *Power BI Desktop* ribbon to designate this as a clickable hyperlink.

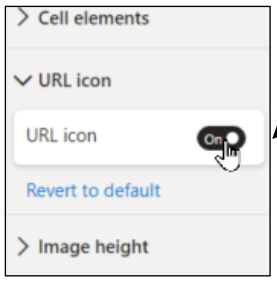




c) If you create a table based on this data, you can then click on any of the links (for example, this one would try to open your web-based mail client, such as Outlook).

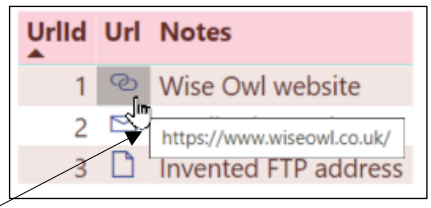
Displaying URLs as Icons

You can use the formatting properties of a table to show URLs as icons:



a) Choose this option towards the bottom of the table's formatting toolbar to show links as icons.

b) The results: you can see each URL as a clickable icon, with the tooltip showing the address to go to.



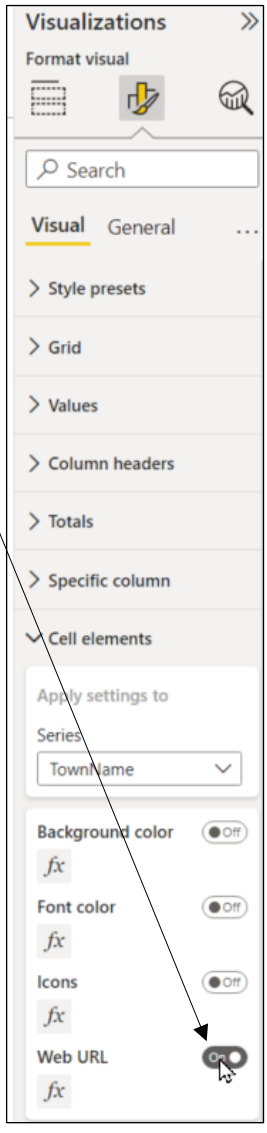
Displaying Other Columns as Clickable URLs

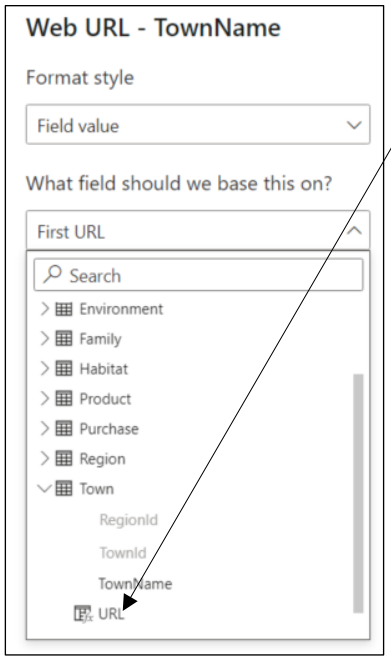
One nice idea is to make text clickable using the value of another column as the URL:

TownId	TownName	URL
1	Aintree	https://www.dayoutwiththekids.co.uk/things-to-do/north-west/merseyside/aintree
2	Aldershot	https://www.dayoutwiththekids.co.uk/things-to-do/south-east-and-london/hampshire/aldershot
3	Altrincham	https://www.dayoutwiththekids.co.uk/things-to-do/north-west/greater-manchester/altrincham
4	Andover	https://www.dayoutwiththekids.co.uk/things-to-do/south-east-and-london/hampshire/andover

a) Make sure that you have a table containing a column containing the URL a user can visit when they click on each row (here for each town we'll be able to find out things to do in it).

b) In the table's formatting properties, choose the **Cell elements** card and enable the **Web URL** for (in our case) the **TownName** column.





c) Set the URL for each town to be the first (and we assume only!) value of the URL column for this town.

d) The result is that you can see each town's name, but click on it to go to the corresponding URL:

TownId	TownName
1	Aintree
2	Aldershot
3	Altrincham
4	Andover
5	Ashford

1.3 Sorting by Multiple Columns

You can sort by more than one column as shown below:

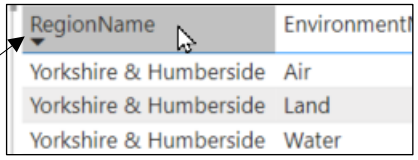
For this example we've sorted the data:

- In reverse alphabetical order by region name; then
- Within this, in reverse alphabetical order by environment name.

RegionName	EnvironmentName	Average of Quantity
Yorkshire & Humberside	Water	2.33
Yorkshire & Humberside	Land	2.29
Yorkshire & Humberside	Air	2.39
West Midlands	Water	2.36
West Midlands	Land	2.32
West Midlands	Air	2.15
South West	Water	2.06
South West	Land	2.28
South West	Air	2.38

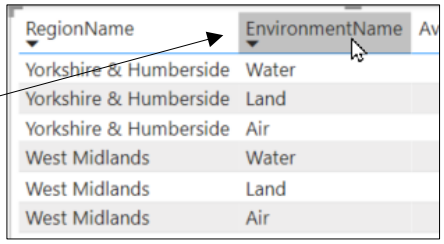
To do this, first click once on the main column you want to sort by (click a second time to reverse the sort order):

A downward arrow shows that you're sorting in reverse order by this column.



Now hold down the Shift key and click on each subsequent column that you want to sort by:

Click a second time (with the Shift key still held down) to reverse the sort order for any subsequent column.



To return to normal sorting just click at the top of any column without holding down the Shift key.

1.4 Preventing Data Grouping

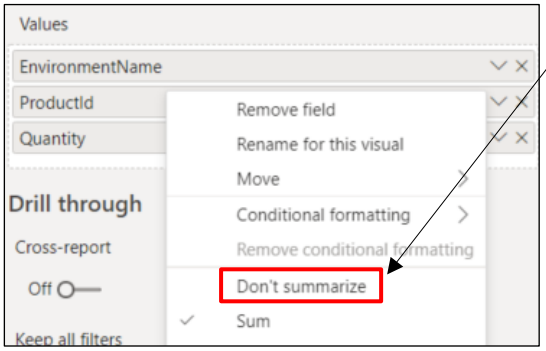
By default Power BI treats numerical fields as numbers (and aggregates them) but you can get round this either for a single table or by changing the default field setting.

Because the **ProductId** is an integer, Power BI is summing its values for each environment.

EnvironmentName	ProductId	Quantity
Air	28	5594
Land	120	61366
Water	42	7455
Total	**190**	**74415**

Preventing Summarising for a Single Field

You can turn off summarising for a single field like this:



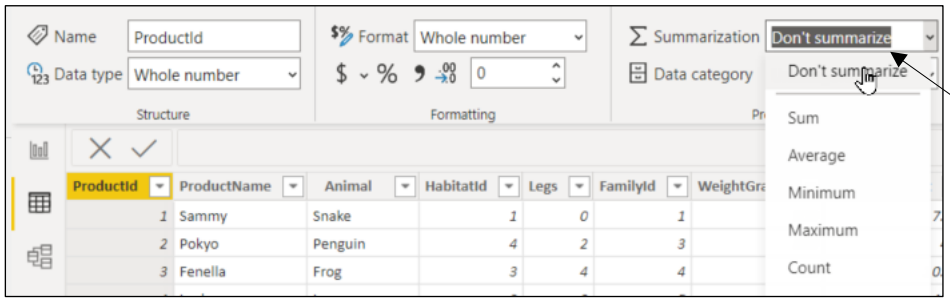
a) Click on the arrow to the right of a field in the field well and choose **Don't summarize**, as shown.

b) Power BI now groups the data by each product's id number, rather than adding these numbers together.

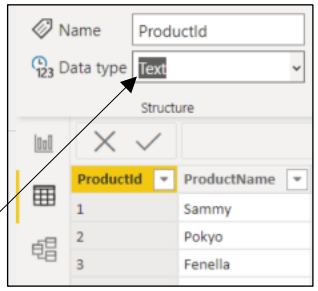
EnvironmentName	ProductId	Quantity
Air	7	118
Air	9	5204
Air	12	272
Land	1	22668
Land	4	6459
Land	5	383
Land	6	1996

Changing the Default Summarisation Options

Here are two of ways to force Power BI to group data by a field by default:



The obvious way is to click on a column (such as the **ProductId** one here) and change the default summarisation option to **Don't summarize**.



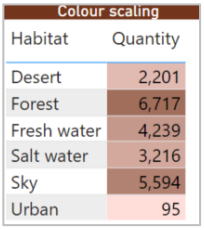
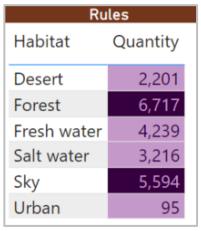
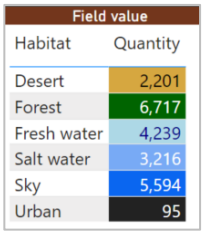
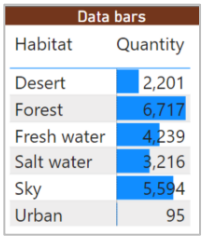
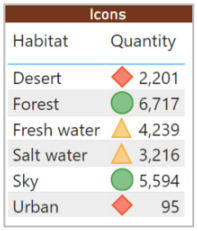
However, you could also change the data type of a numerical column to text. This will mean that it is left-aligned by default, and it will be impossible to sum it!

*The example on this page is a bit forced: when you import data from a table where the numerical id field is the primary key (that is, unique for each row of data), Power BI will usually mark this as **Don't summarize** anyway.*

CHAPTER 2 - CONDITIONAL FORMATTING

2.1 Conditional Formatting

Conditional formatting allows you to produce the following effects:

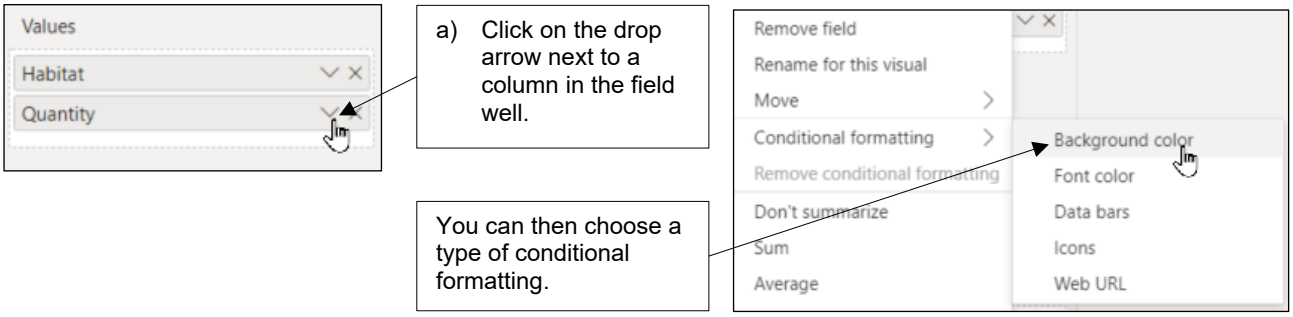
Effect	Example	Notes
Gradient		In general, the larger the number the darker the colour, although there are quite a few variations on this as shown later in this chapter.
Rules		The rules here are: • Anything up to 5000 is lightly coloured; and • Anything over 5000 is dark-coloured.
Field colour		We'll use fields in the **Habitat** table to choose the foreground and background colours to use for each row.
Data bars		Overlaid on top of each number is a bar showing how big it is.
Icons		Here we're using different icons to show how well we're doing against a target.

2.2 Applying Conditional Formatting to Fields

You can apply conditional formatting to the fields in a table or matrix either in the field well or via the formatting pane.

Applying Conditional Formatting through the Field Well

To choose conditional formatting when viewing the fields used by your visual:



Applying Conditional Formatting through the Format Pane

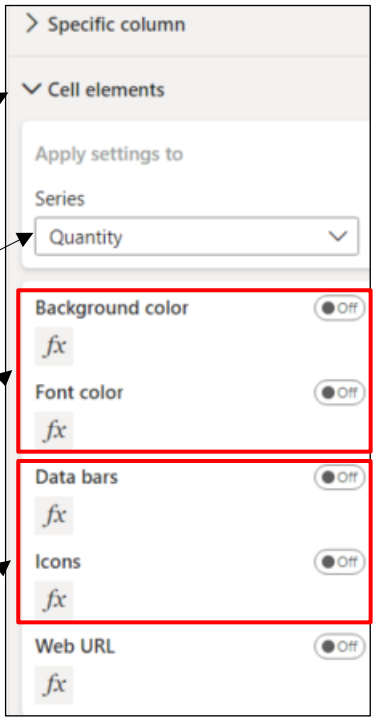
This is probably the more intuitive method (after all, you are changing formatting!):

a) Select the **Cell elements** card in the formatting pane for a visual.

b) Select the values to which you want to apply conditional formatting (here we'll format the figures giving the quantity sold).

c) Choose whether you want to set conditional formatting for the background or foreground colour for this column's cells using gradient scaling, rules or field values …

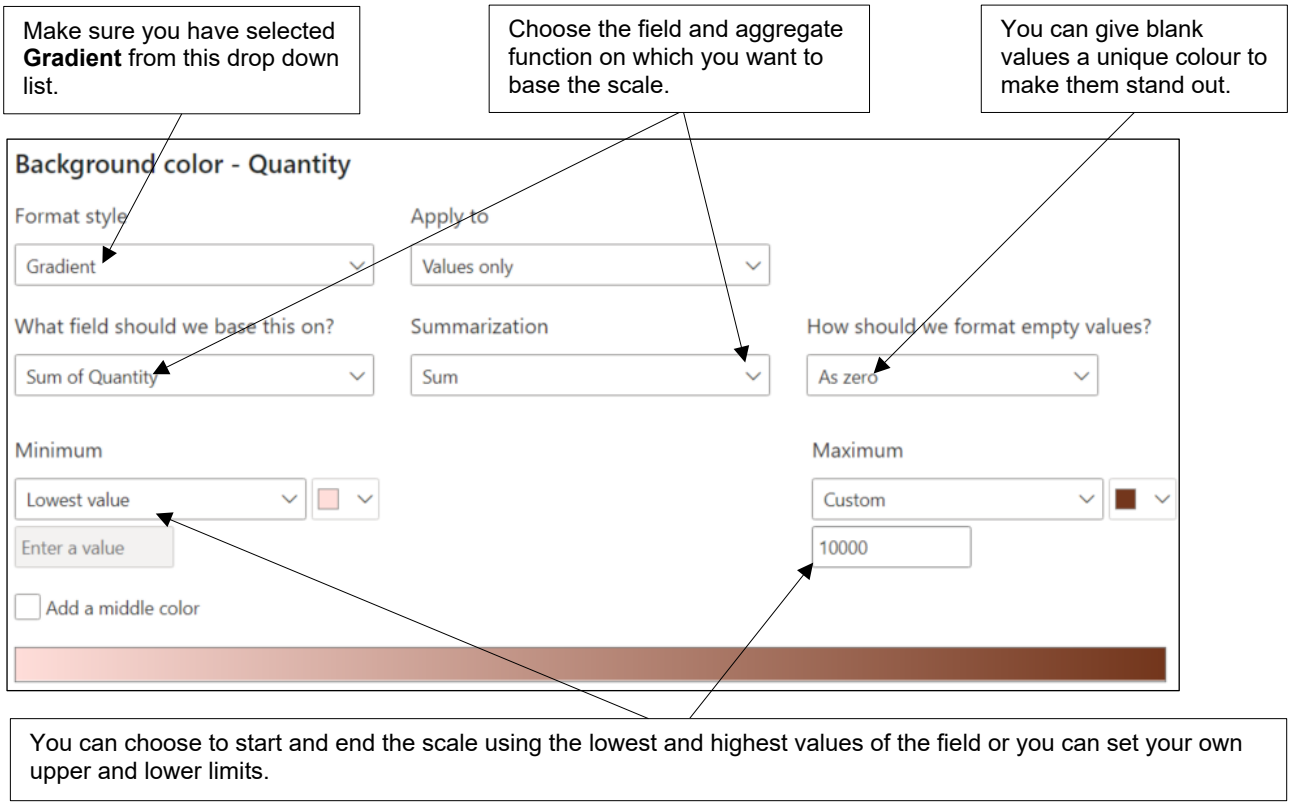
d) … or display data bars on top of each number or icons next to each number.



Note that if you've already applied conditional formatting and then want to change it you will need to click on the fx tool to do so.

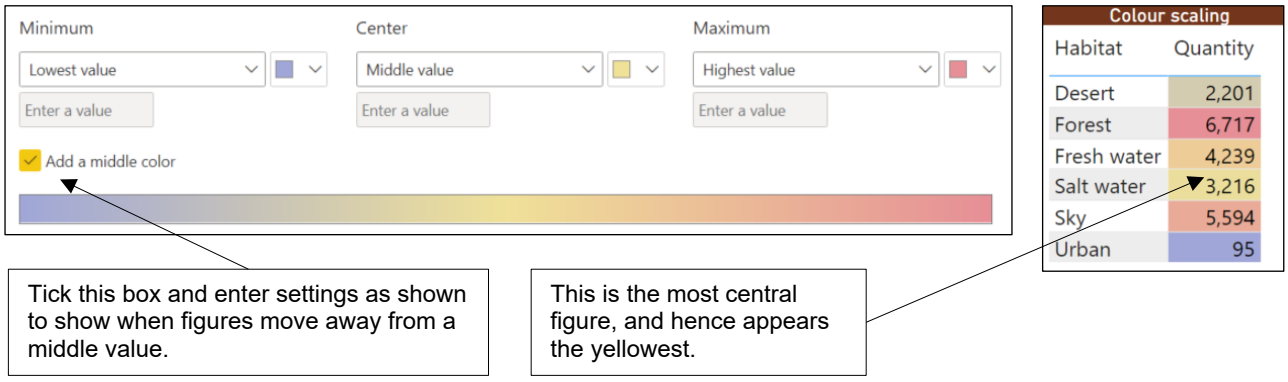
2.3 Gradient Effects

If you choose to apply a font colour or background colour conditional format you'll see the dialog box shown below when you click **Advanced controls**:



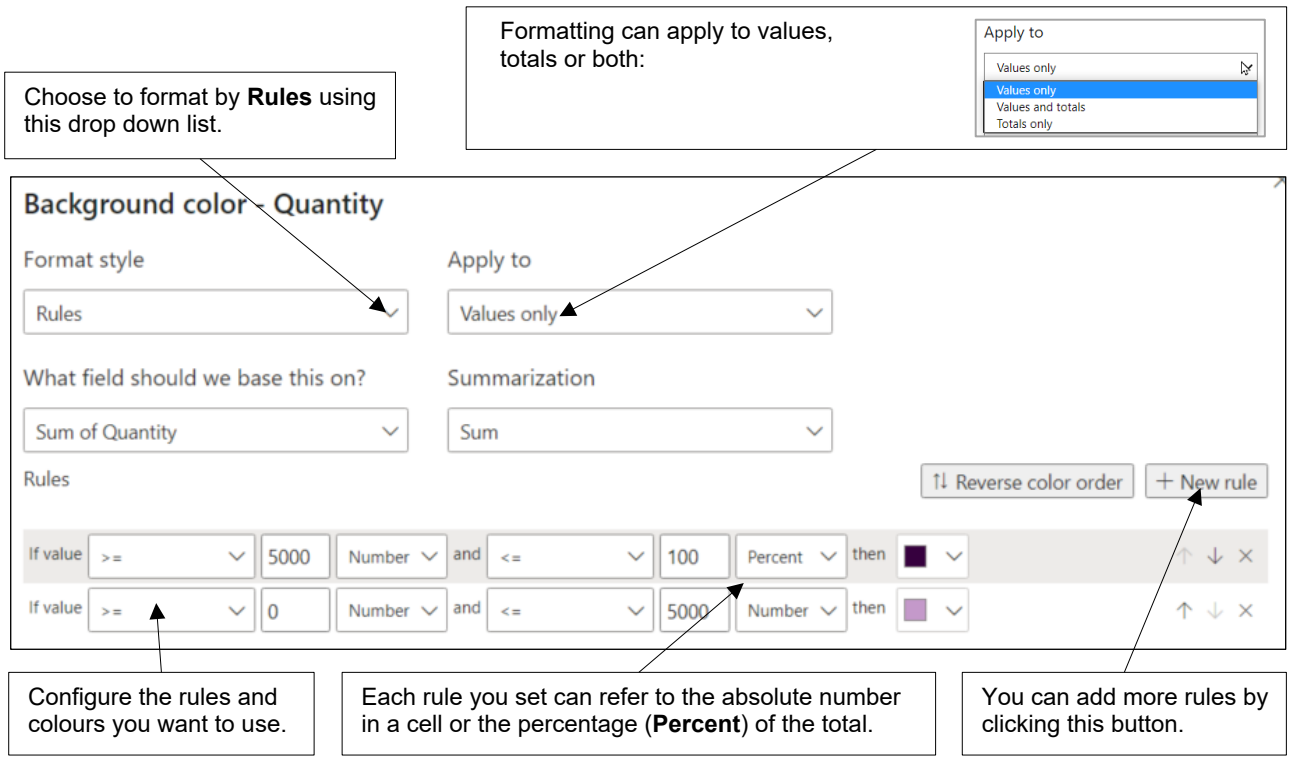
Adding a Middle Colour

If you want to show how much figures vary from a central point, tick the **Add a middle colour** box:



2.4 Rules-Based Conditional Formatting

You can get more control over conditional formatting by choosing to format using **Rules**:

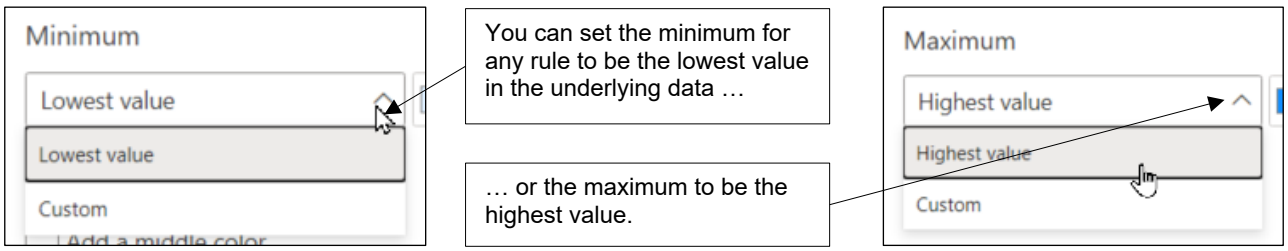


The settings above would produce purple gradients, with the highest sales having the darkest background colour:

You would also separately have to set conditional formatting for the font colour to make this light when the background is dark, and vice versa.

Rules	
Habitat	Quantity
Desert	2,201
Forest	6,717
Fresh water	4,239
Salt water	3,216
Sky	5,594
Urban	95

Note that you can also reset the lowest/highest threshold in any rule to the minimum or maximum value in the underlying data:

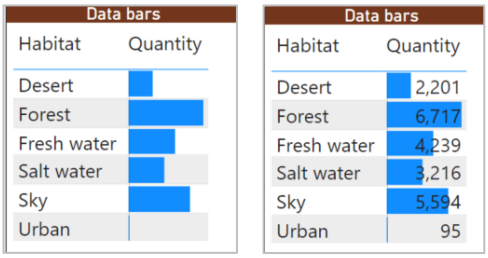


2.5 Data Bars

If you choose data bars instead of colour scales when applying conditional formatting, you'll be able to set options in this dialog box:

a) Choose whether you want to show the data bars only, or the data bars and the underlying numbers.

b) Configure your data bars (if you set a value for the minimum you won't see data bars for values which fall below this limit). You should now see your data bars - the wider the bar, the bigger the number it represents (for the ones on the left, we've ticked **Show bar only**):

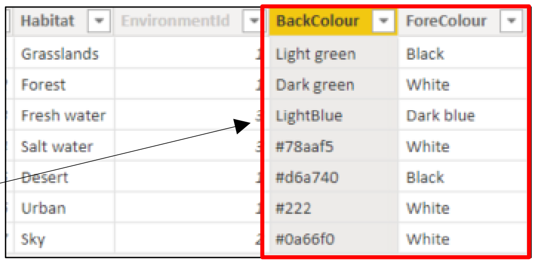


Data bars	
Habitat	Quantity
Desert	
Forest	
Fresh water	
Salt water	
Sky	
Urban	

Data bars	
Habitat	Quantity
Desert	2,201
Forest	6,717
Fresh water	4,239
Salt water	3,216
Sky	5,594
Urban	95

2.6 Formatting Using Field Values

You can use the value of a field to set the colour used in a conditional format.



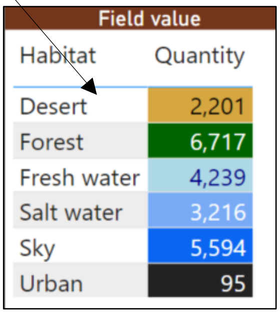
We'll set the background and foreground colour for each habitat from these fields in the table (notice that you can use either colour names or hex colour codes).

Having created the relevant colour fields in the underlying table, here's how to apply them:

We're applying a format to the **Quantity** field using a **Field value**.

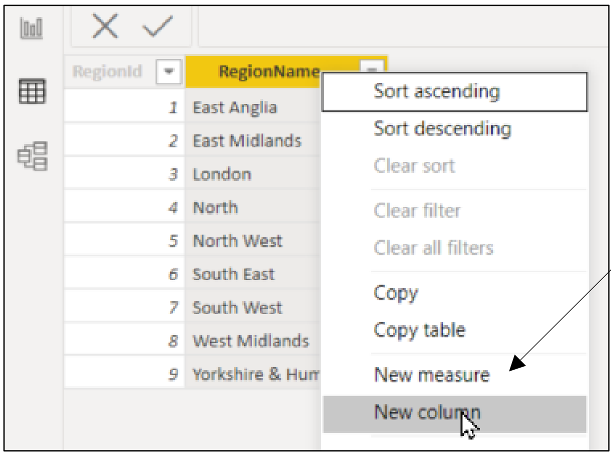
Pick the field holding the colour name from this drop down list.

The end result is this somewhat ugly-looking table (we've set conditional formatting for the foreground colour to use the **ForeColour** field).



Using SWITCH to Generate Colours

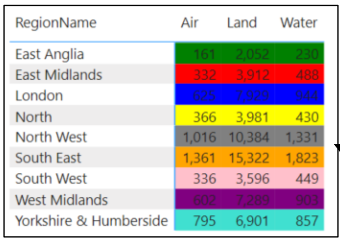
If you haven't got access to the underlying data tables, you can add calculated columns to set colours – here's an example:



Create a calculated column with an expression like this:

```
Colour = SWITCH(
  // test the region number, say
  Region[RegionId],

  1,"Green",
  2,"Red",
  3,"Blue",
  4,"Yellow",
  5,"Grey",
  6,"Orange",
  7,"Pink",
  8,"Purple",
  9,"Turquoise",
  "White"
)
```

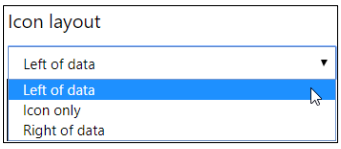


Figures for the **North** region, for example, appear in yellow because we've used **Field value** conditional formatting to set the background colour of the **Quantity** field in this matrix to be the value of the **Colour** calculated column shown above. Because the **North** is region 4, this evaluates to **Yellow**.

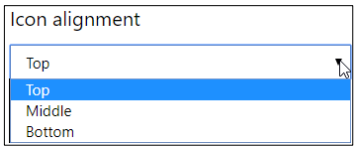
2.7 Displaying Icons

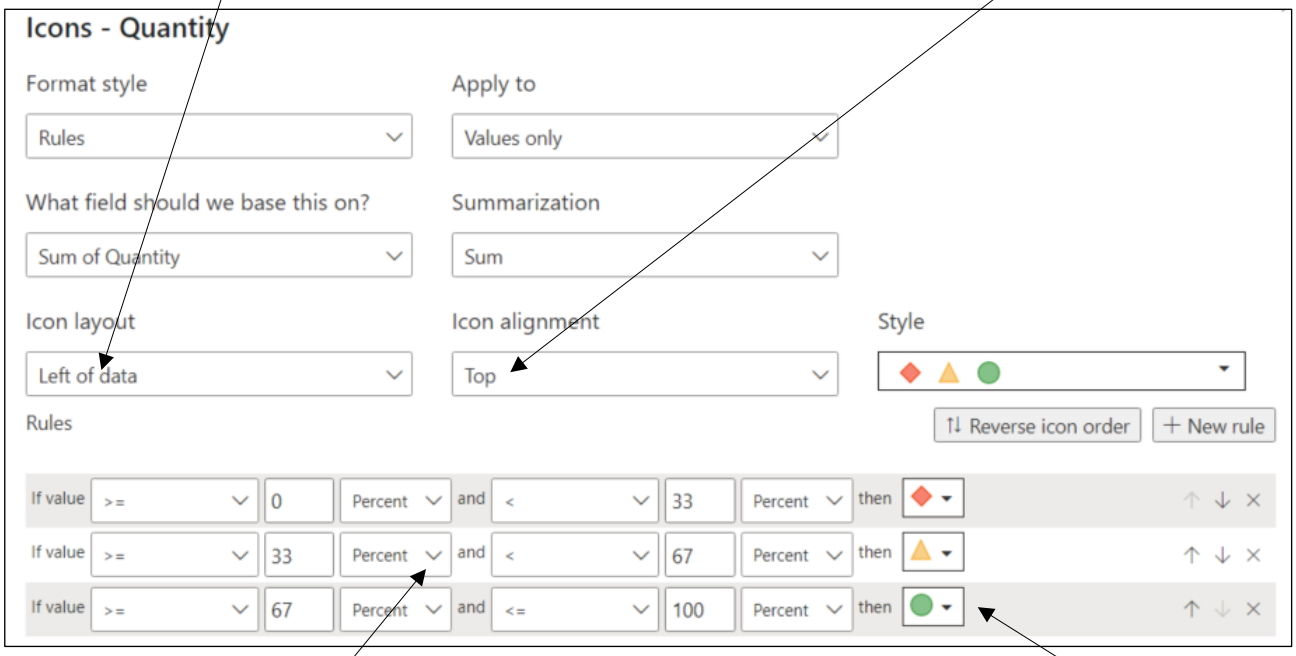
You can choose to display *icons* instead of, or alongside, the value of a field:

You can choose the layout of the icon using the options in this drop down list:



Choose the alignment of the icon using this drop down list:

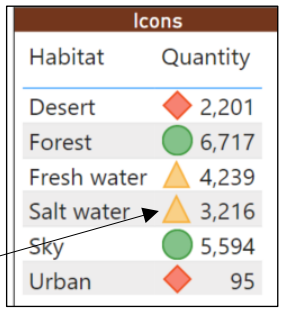




Configure the rules for the ranges of values in this section of the dialog box. You can set ranges using either absolute numeric values or percentages.

Choose which icon you want to display for each range of values using the drop down list.

The choices shown above would give this chart of sales by habitat:



The top third of values get a green circle, while the bottom third get a red diamond.

What we do!

		Basic training	Advanced training	Systems / consultancy
Office	Microsoft Excel	✓	✓	✓
	VBA macros	✓	✓	✓
	Office Scripts	✓		
	Microsoft Access			✓
Power BI, etc	Power BI and DAX	✓	✓	✓
	Power Apps	✓		
	Power Automate (both)	✓	✓	
SQL Server	SQL	✓	✓	✓
	Reporting Services	✓	✓	✓
	Report Builder	✓	✓	✓
	Integration Services	✓	✓	✓
	Analysis Services	✓		
Coding	Visual C#	✓	✓	✓
	VB programming			✓
	MySQL	✓		
	Python	✓	✓	✓

Wise Owl Training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