Fast-track Power BI & DAX

Sample manual - first two chapters

Wise Owl Training

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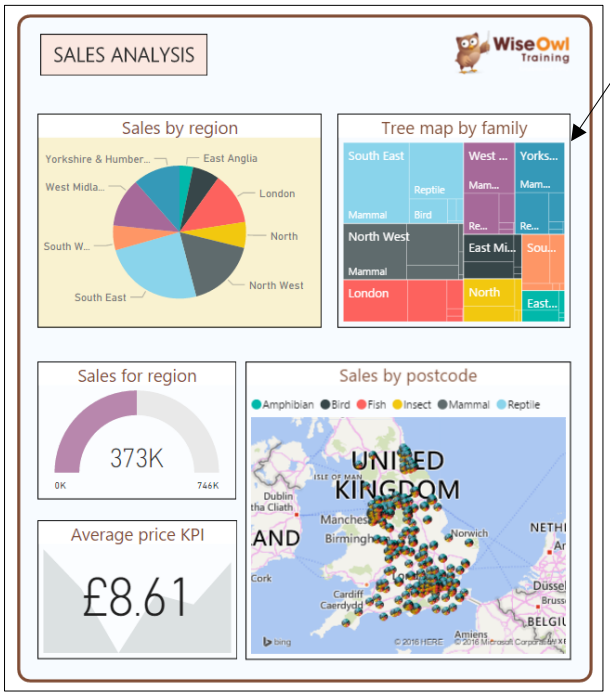
CHAPTER 1 - POWER BI BASICS

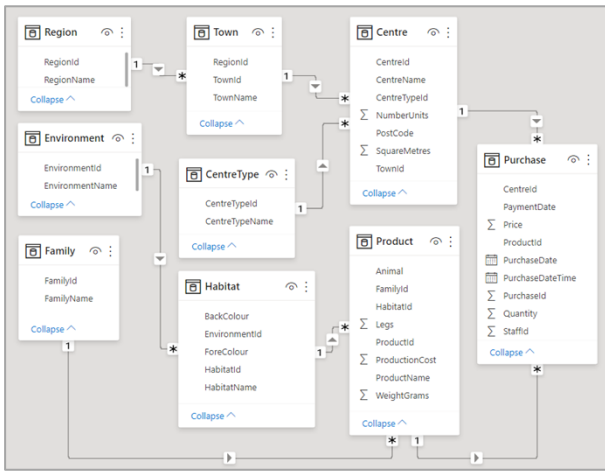
1.1 What is Power BI Desktop?

Power BI Desktop is a standalone software application from Microsoft which allows you to load data into a model, and then create pretty reports like this:



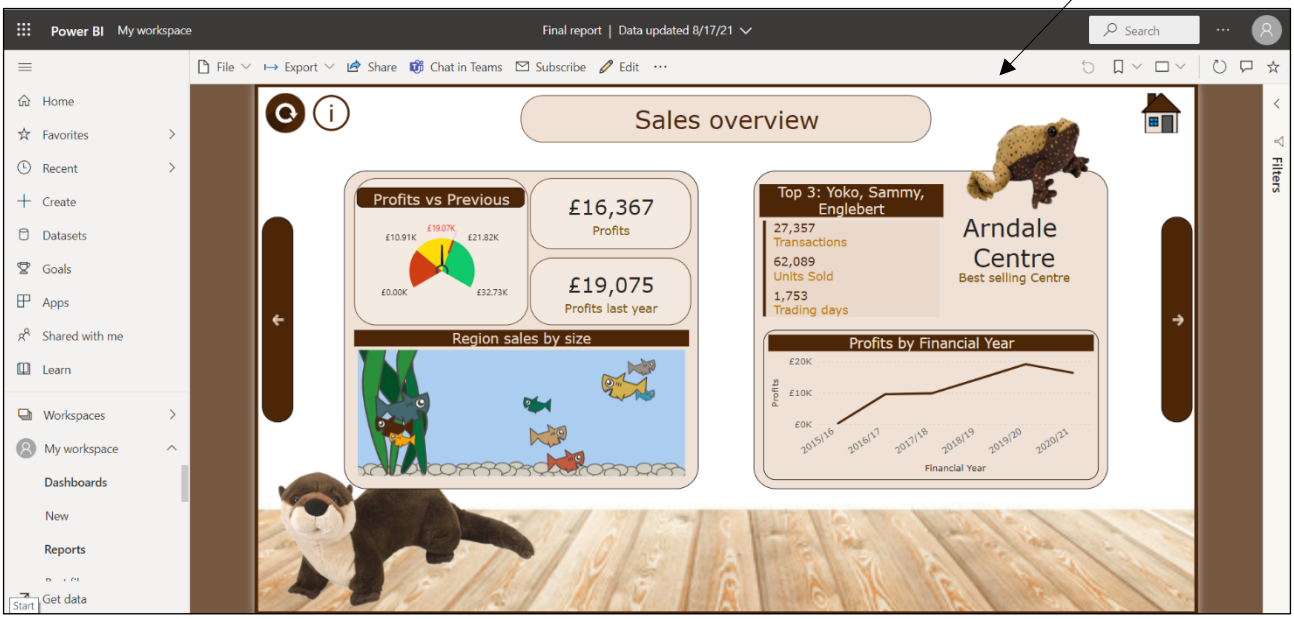
This report contains five *visualisations* (a pie chart, a tree map, a gauge, a map and a KPI).

The report is based on tables which we've imported into a *model*:



You can then publish these reports to the Power BI Service, allowing anyone who has a paid Power BI account to view them:

Another report as seen in Power BI Service through a browser.



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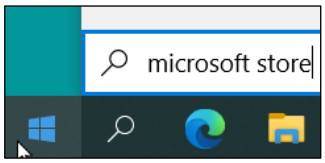
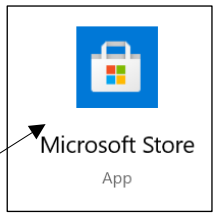
1.2 Installing and Updating Power BI

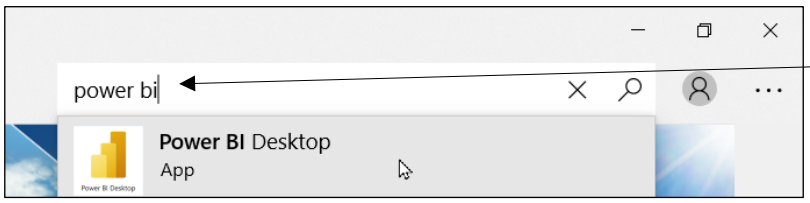
The easiest way to install Power BI is from the Microsoft Store:



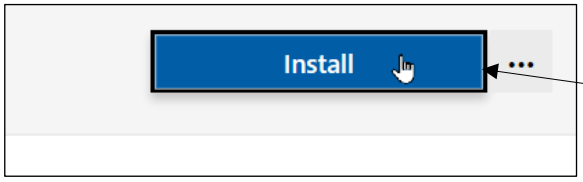
a) Type in **Microsoft Store** into the Cortana search bar.

b) Run the Windows program to go to the MS Store.

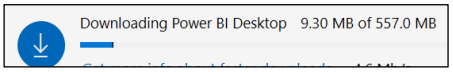




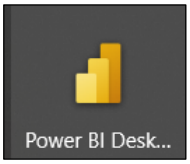
c) Type in **power bi** in the search box at the top of Microsoft Store, and choose Power BI Desktop.



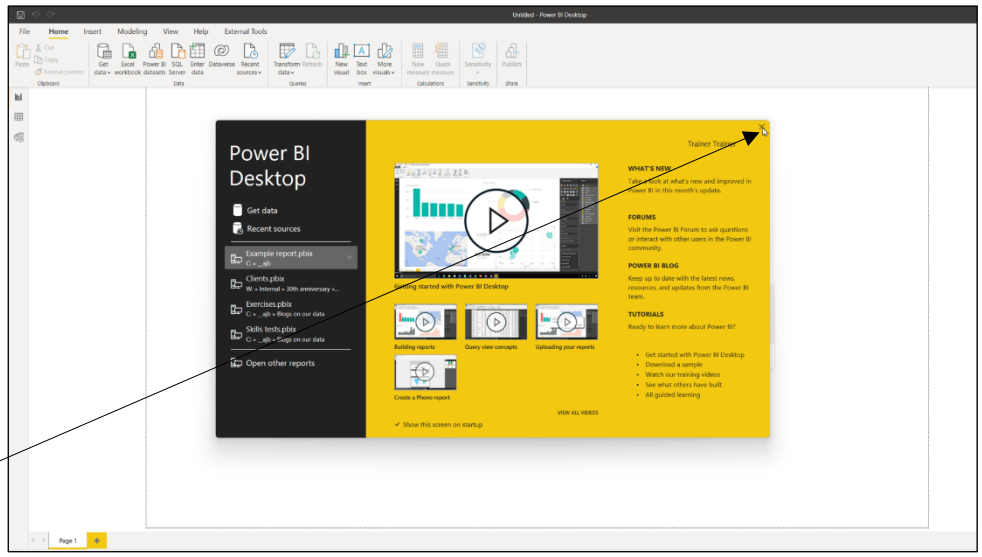
d) Click on this button to install Power BI Desktop. You'll see something like this:



You'll then be able to run Power BI Desktop like any other Windows program:



The icon you'll grow to know and love!



Click on this cross to close the start screen.

Every month Power BI will update automatically as Microsoft release new features. The best way to keep track of what these new features entail is to subscribe to the Wise Owl newsletter. This goes out at the start of each month and (among other things) summarises and explains any new updates to Power BI.

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CHAPTER 2 - GETTING STARTED

2.1 Getting Started in Power BI Desktop

This chapter describes the basic workflow you'll use to build a report in Power BI Desktop. You'll find much more detail on the ideas mentioned in this chapter in later parts of this courseware.

Example for this Chapter

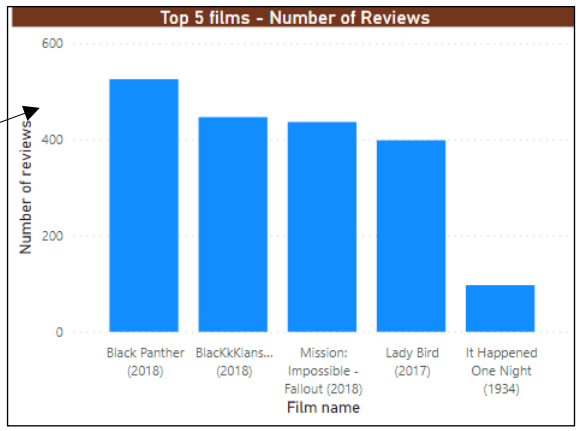
To demonstrate the basic process of building a report, we'll import a table of data from a webpage:

Rank	Rating	Title	No. of Reviews
1.	99%	It Happened One Night (1934)	97
2.	96%	Black Panther (2018)	525
3.	99%	Lady Bird (2017)	398
4	97%	Mission: Impossible - Fallout (2018)	436

At the time of writing, this is the start of the list of the top 100 films from the *Rotten Tomatoes* website at http://bit.ly/29IiGk9. We'll *transform* the data to tidy it up (for example, we can remove columns we don't need).

We'll then present this data using *visualisations* such as this chart:

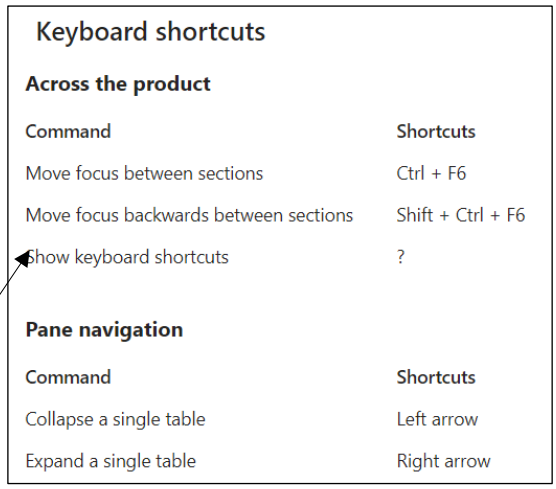
We can use the imported, cleaned data to create a variety of visualisations.



Showing Keyboard Shortcuts

If you want to know what keyboard short-cuts are available to you in Power BI Desktop, press Shift + ? to see this dialog box appear!

You can use this pop-up window to see what short-cut keys are available. Wise Owl are normally advocates of learning and using short-cut keys, but Power BI is a very mouse-intensive application.



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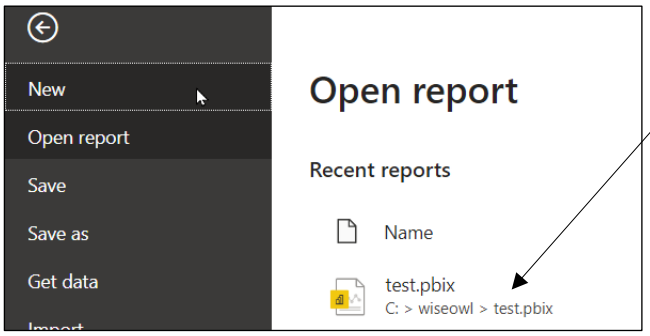
2.2 Working with Files

Creating New Files

When you open Power BI Desktop you are automatically provided with a blank report to work with. You can choose to create a new file or open an existing one from the **File** menu:

Choose **File | New** to create a new blank report.

Choose **File | Open report** to pick an existing file to open.

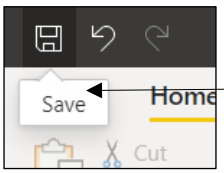


You can open a recently-used file by clicking its name in the list.

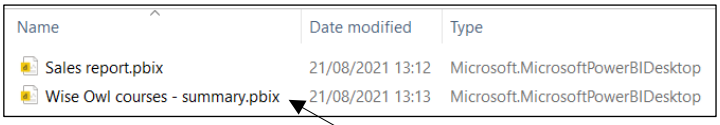
Every time you create or open a Power BI file from within Power BI Desktop*, the application will launch a new instance of the* Power BI Desktop *application and switch to it, leaving the current one you're working with unaffected.*

Saving and Closing Files

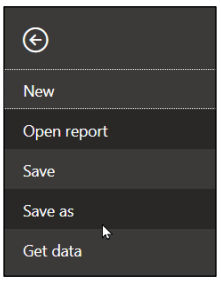
You can save files using options in the **File** menu:



You can save a file with its current name and location by clicking the floppy disk tool ...



Files that you save in Power BI Desktop will have a **pbix** extension and a file type of **Microsoft Power BI Desktop Document**.



... or by choosing **File | Save**.

You can save a file with a new name and location by choosing **File | Save As** and then using the dialog box which appears.

There is currently no option to close a file that you're working on, while still leaving the Power BI Desktop application running.

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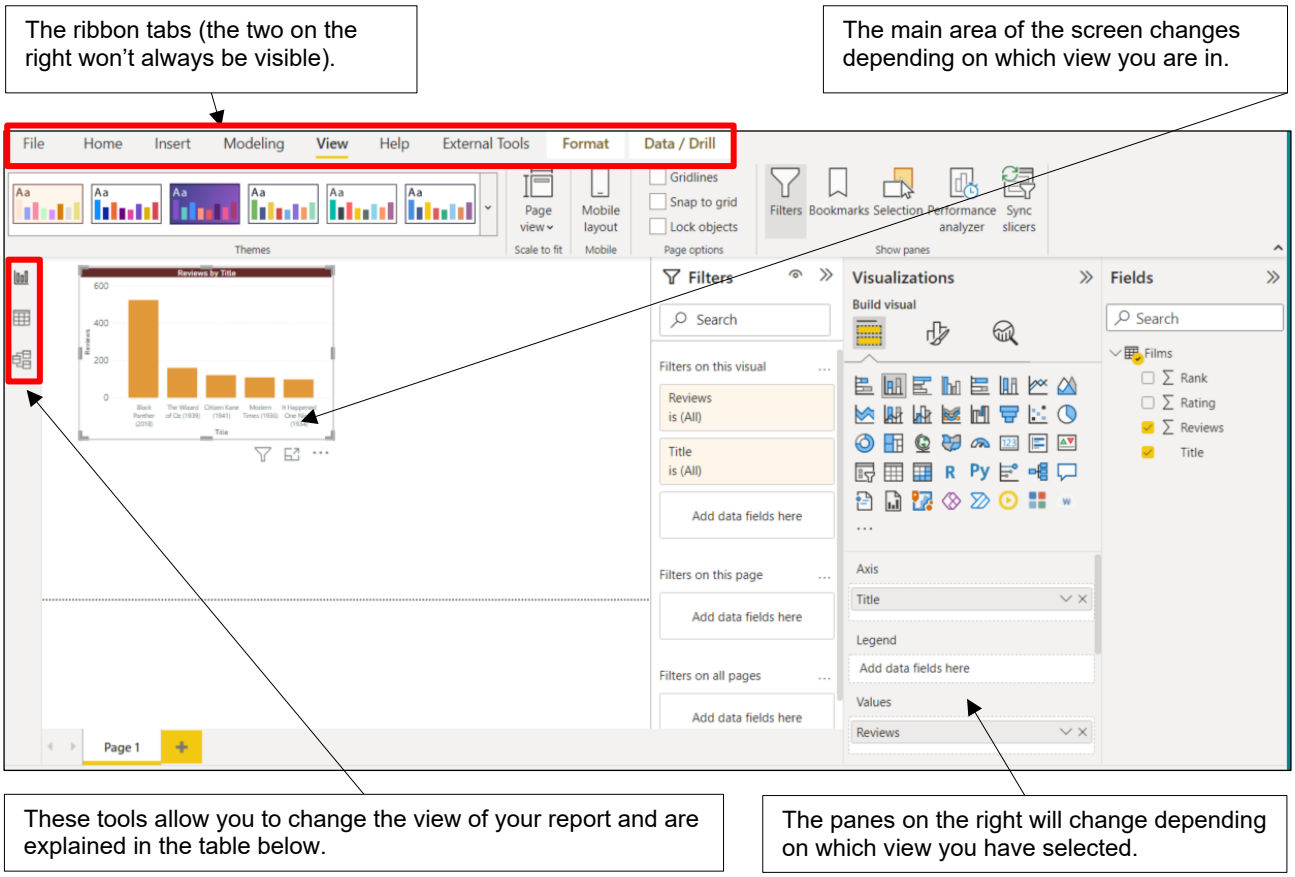
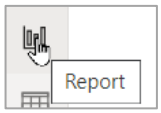
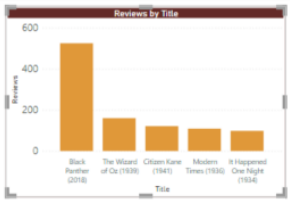
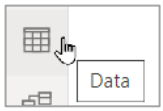
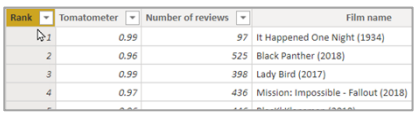
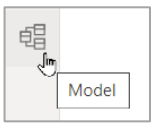
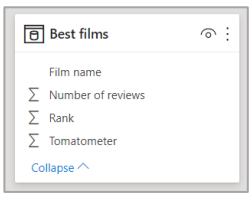
2.3 The Power BI Desktop Screen

The most important components of the *Power BI Desktop* screen are as follows:

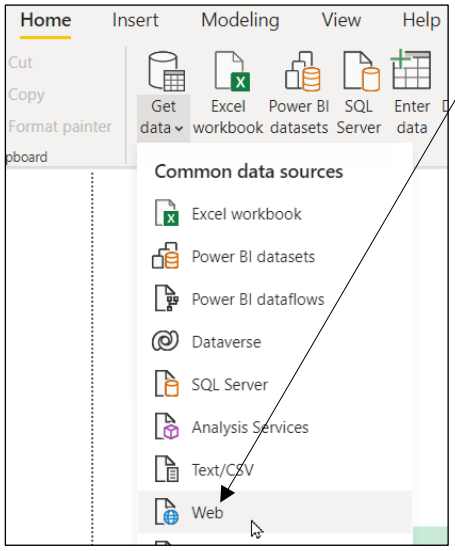


You can switch between the three views of a report using the tools on the left of the screen:

View	Icon	What it shows	Example view
Report		The report that you're creating, consisting of visualisations and shapes.	
Data		The tables of data that you've loaded into your model (you can see one table at a time in this view).	
Model		The links between the tables in your model, called *relationships* in *Power BI Desktop*.	

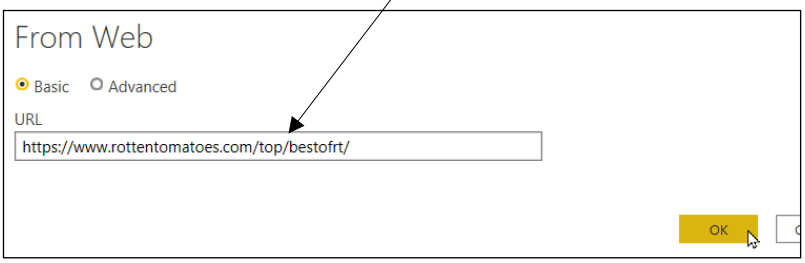
2.4 Getting Data

The first stage in building a report is to find some data!

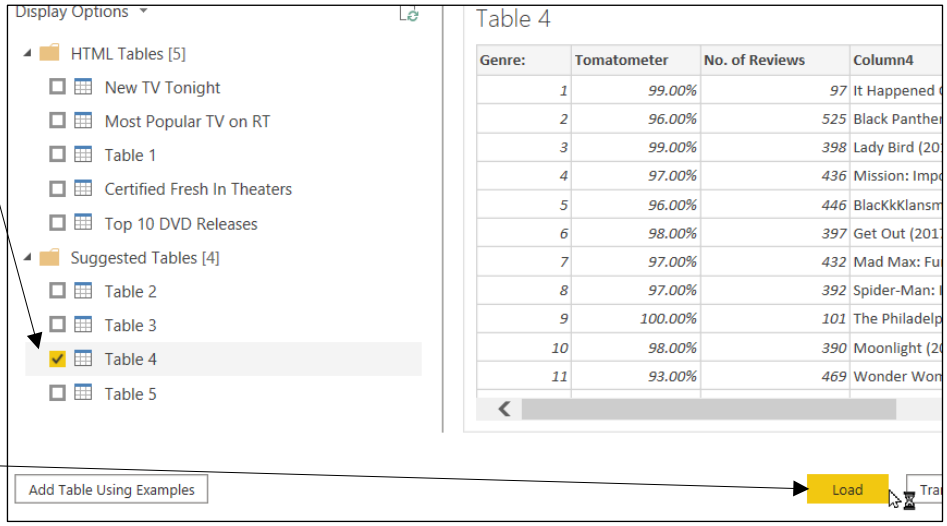


a) From the ribbon, choose **Home | Get Data** then choose a type of data source. Here we're choosing a **Web** source.

b) Each type of data source requires different information to allow your report to connect to it. For a web source you need to enter the URL of the page and then click **OK**. You may also be asked to enter credentials if the website requires some.

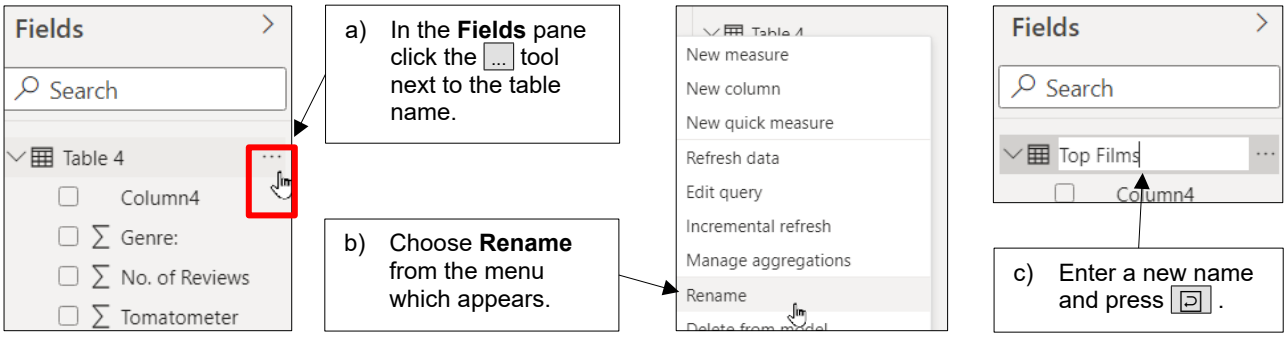


c) Tick which table you want to import from this page (the best way to see what each looks like is to click on it).



d) Click on this button to load the data into your model.

You can optionally rename a table after importing it into the report:



a) In the **Fields** pane click the ... tool next to the table name.

b) Choose **Rename** from the menu which appears.

c) Enter a new name and press ↵.

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2.5 Transforming Data

You'll often need to make changes to the data you have imported so that it can be presented easily in the Report view. This process is known as *transforming* data.

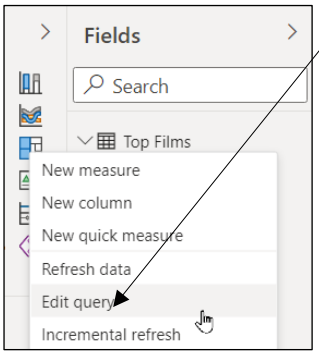
Genre:	Tomatometer	No. of Reviews	Column4
1	0.99	97	It Happened One Night (1934)
2	0.96	525	Black Panther (2018)
3	0.99	398	Lady Bird (2017)
4	0.97	436	Mission: Impossible - Fallout (2018

We don't need the **Tomatometer** column, so we'll delete it …

… and we'll give all the other columns more sensible names.

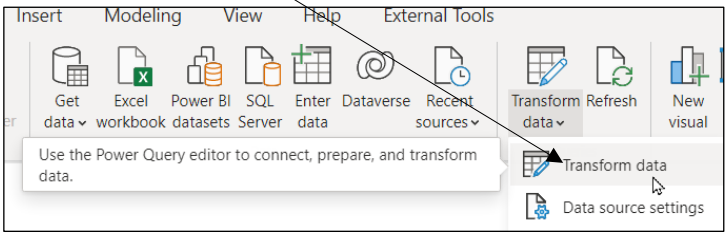
Editing a Query

Each table that you import into a report generates a *query* which tells Power BI Desktop which data to get. You can edit any query you have created as shown in the diagram below:



You can right-click on a table in the **Fields** pane and choose **Edit query**…

…or you can choose this option from the **Home** tab of the ribbon (although it says it's doing something different, transforming data and editing a query are the same thing).

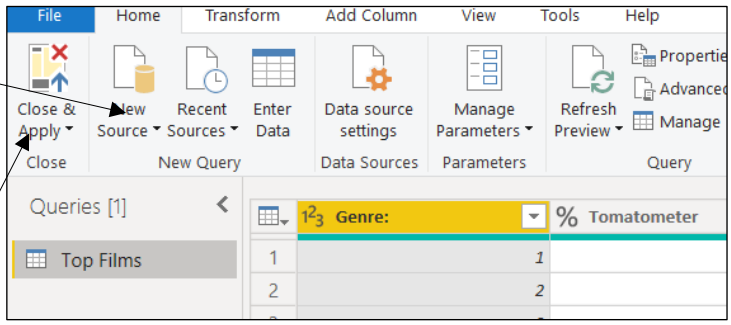


The Power Query Editor

Choosing to edit a query as described above opens the *Power Query Editor* tool within Power BI Desktop.

Although you're still working in the same Power BI Desktop file, the Power Query Editor has a different ribbon with options related to modifying data.

When you have finished cleaning your data click **Close & Apply** to close the Power Query Editor.



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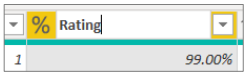
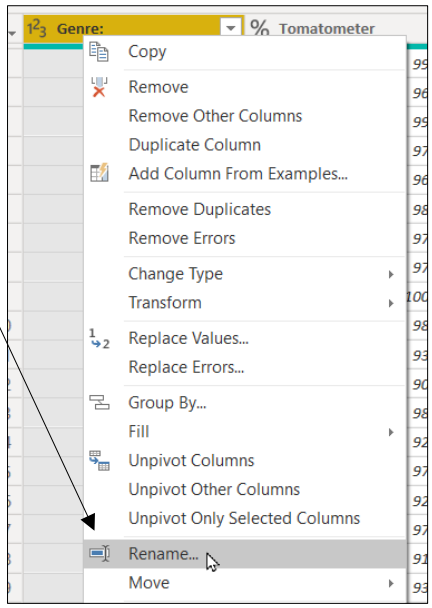
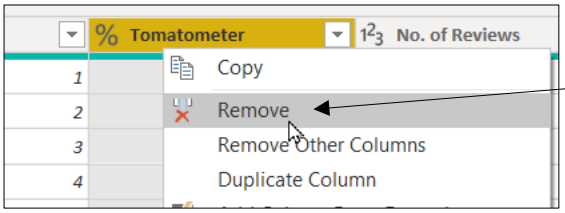
Removing and Renaming Columns

You can remove and rename columns in Power Query by right-clicking:

Right-click on a column you want to rename and choose this option. You can then type in a new name for the column (as below) and press ↵ .



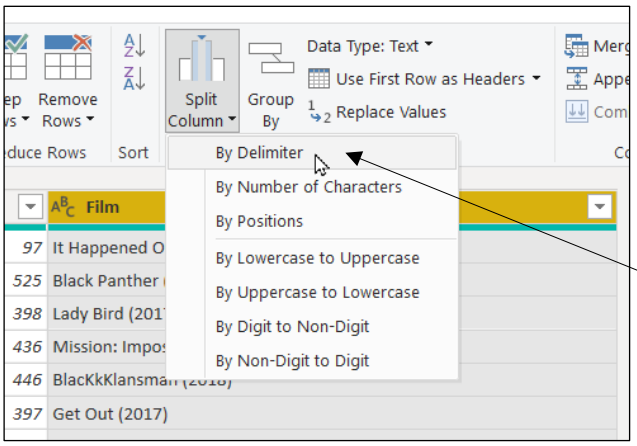




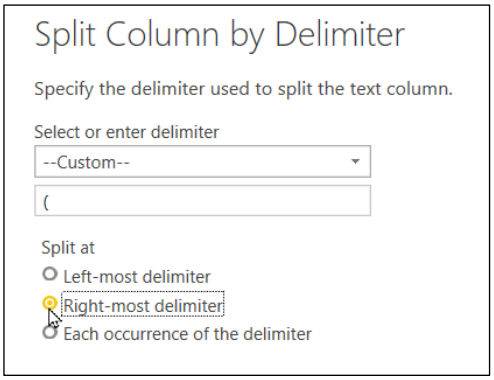
Right-click on the column that you want to delete and choose to remove it.

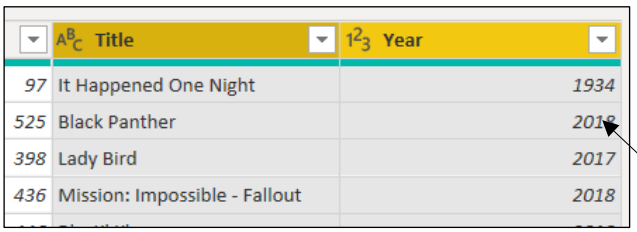
Splitting Columns

We'll cover this in more detail in the Query Editor chapter of this courseware, but here's a quick guide to how you can split the film column into the title and year of release:



Click on the column you want to split and choose this option. Remarkably, Power BI intuits what you want to do, although you'll need to choose **Right-most delimiter** to make sure you pick out the last open bracket:





	Title	Year
97	It Happened One Night	1934
525	Black Panther	2018
398	Lady Bird	2017
436	Mission: Impossible - Fallout	2018

By repeating splitting, removing and renaming columns you should be able to get the information required!

There's no official Undo *tool in Query Editor, but you can delete the last steps that you created in the right-hand side of the window.*

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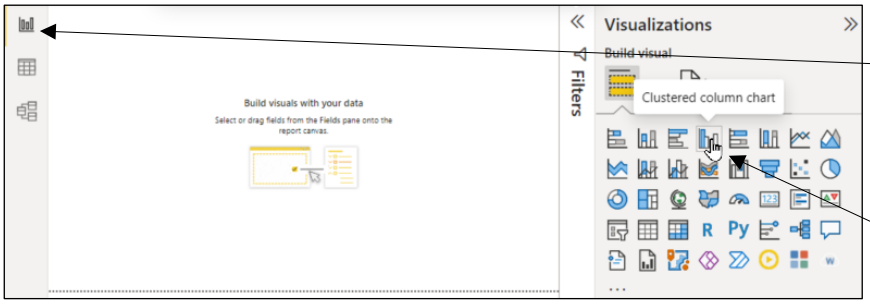
2.6 Creating Visualisations

Visualisations, or *visuals* for short, are the things which display the data in your report. There are many types of visual (you'll learn a lot more about them in later chapters of this courseware).

Inserting a Visualisation

A simple way to insert a visualisation is to click on the one you want in the **Visualizations** pane on the right of the screen. Make sure that you're in the **Report** view or you won't see this pane!

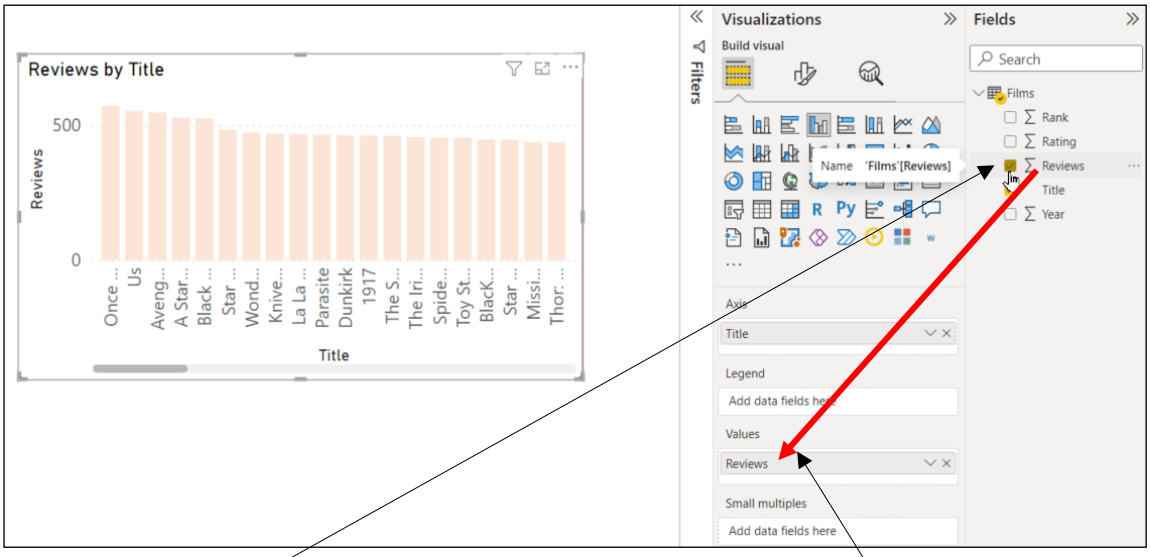


Go to the **Report** view and look for the **Visualizations** pane on the right of the screen.

You can click any icon to insert a visual into the report. Here we are adding a clustered column chart.

Assigning Fields to a Visualisation

Once you have inserted a visual you can begin assigning fields to it.



You can either tick a field to ask Power BI to add it to the most sensible card in the *field well* …

… or drag it onto the right card. Here we're choosing to show the total number of reviews for each film.

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2.7 Formatting Visuals

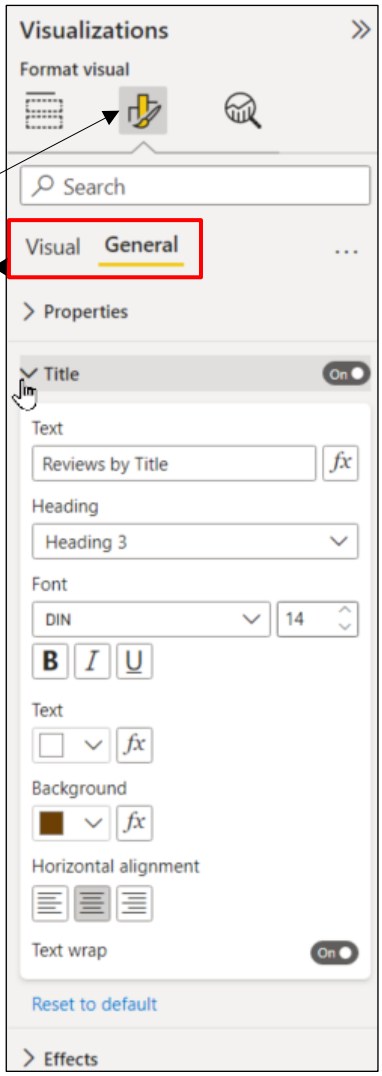
Each visual has a large range of formatting options and, again, this is covered in much more detail later. Here's a taster to set the title of the chart.

a) Click on the formatting tool above the palette of visuals to show the formatting options for the visual that you have selected.

b) Decide whether this is something which is common to all visuals (as here, so we choose **General**), or specific only to some visuals. After a short while you'll become familiar with which properties are general to all visuals and which are specific.

c) Click the ^ symbol next to a category to see the formatting options in that category (here we've expanded the **Title** card).

d) Here we've changed the title text, font colour, background colour, alignment and text size to get this:

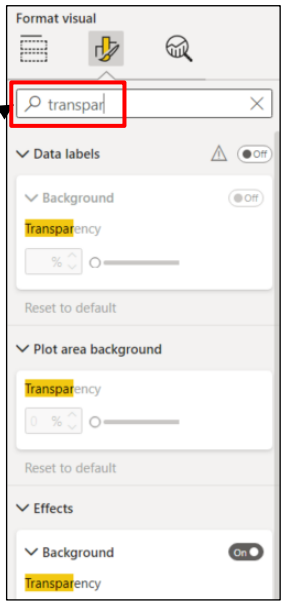


Searching for Format Properties

Often the easiest way to find a property is to search for it:

a) Type a search phrase into the box at the top of the formatting pane.

b) Power BI will filter the formatting properties to show only those whose names contain the text you've typed in (this list combines properties from the **Visual** and **General** tabs).



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2.8 Filtering Visuals

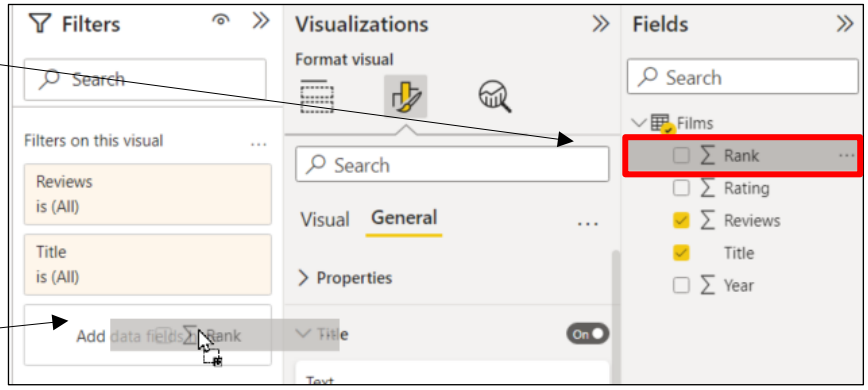
Our chart currently displays a column for each of the one hundred rows in the **Top films** table. We can *filter* the data for our visual to show only the top five rated films.

Adding Fields to the Filters List

The **Filters** pane appears to the left of the field well and shows any fields you have added to the visual. We need to add the **Rank** field to the **Filters** list manually, as shown in the diagram below:

a) Click and drag the **Rank** field from the **Fields** list on the right of the screen.

b) Drop the **Rank** field into the **Filters on this visual** box in the **Filters** pane.



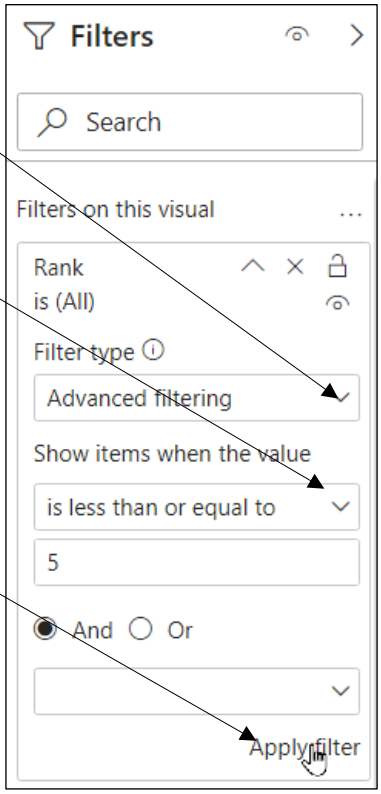
Applying a Filter

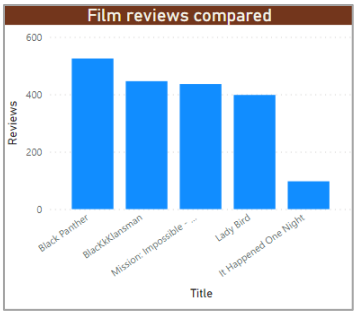
You can apply a filter to the visual using any field in the **Filters** list:

a) For the **Rank** field that you added to the visual level filters box in the previous stage, choose **Advanced filtering** from this drop down list.

b) Choose **is less than or equal to** and then enter a value of **5** in the box below.

c) Click **Apply filter** to apply your changes and filter the selected visual.





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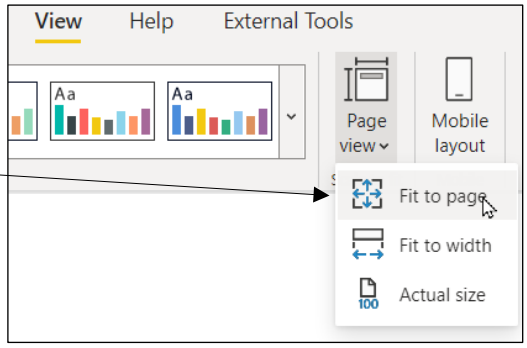
2.9 Working with Report Pages

Changing the Page View

You can use the following menu on the **View** tab of the ribbon to change how a report page appears:

The settings are as follows:

Setting	What it means
Fit to Page	Contents are scaled to best fit the page (this is the default, and preserves the best aspect ratio).
Fit to Width	Contents are scaled to fit within the width of the page.
Actual Size	Contents are displayed at full size.



Power BI Desktop will always open a report using the current view setting you had in place at the time you last saved it.

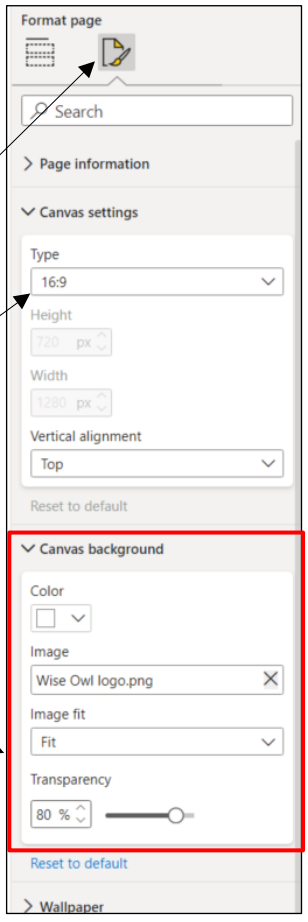
Page Settings

The diagram below shows how you can change the page background and size:

a) Make sure that you don't have any visualisations selected, then click on the formatting tool to see your page properties.

b) Choose from one of the standard page sizes, or choose **Custom** from the list to create your own.

c) Set a background colour and/or (as here) an image, including any transparency settings. This choice would look as follows:

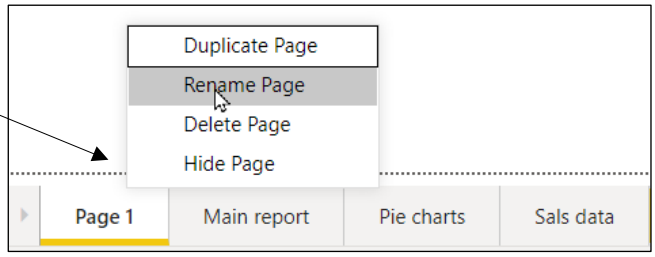


Renaming Pages

You can right-click on any page to rename it:

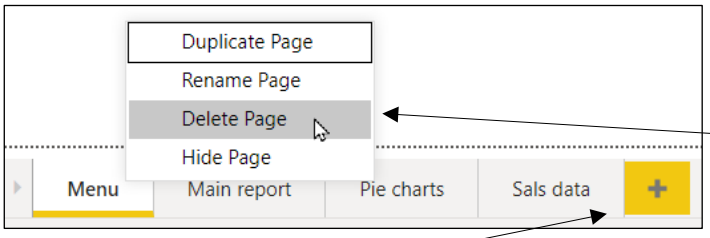
Right-click on any page to change its name …

… making a report much easier to understand and to use.

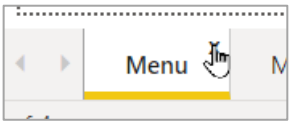


Adding and Deleting Pages

You can add and remove pages as follows:



Right-click on any page and choose this option to delete it. You can also click on the cross at the top right of the page name:

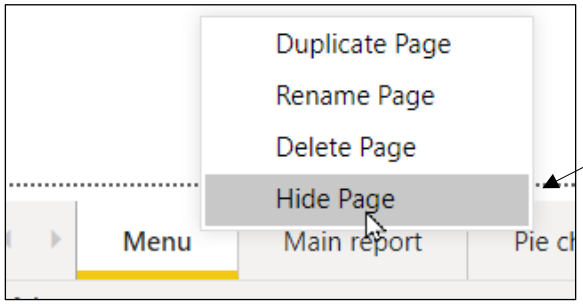


Click on this button to add a new page at the end of your current ones.

You can drag pages to right or left to change their position in the report.

Hiding Pages

A hidden page will still appear in Power BI Desktop, but won't be visible in your published report:



Right-click on a page and choose this option to hide it. This allows you to work on the page, without it being visible to viewers of your published report. A hidden page is indicated with a difficult-to-see, eye icon (eye-con?) to the left of its name.

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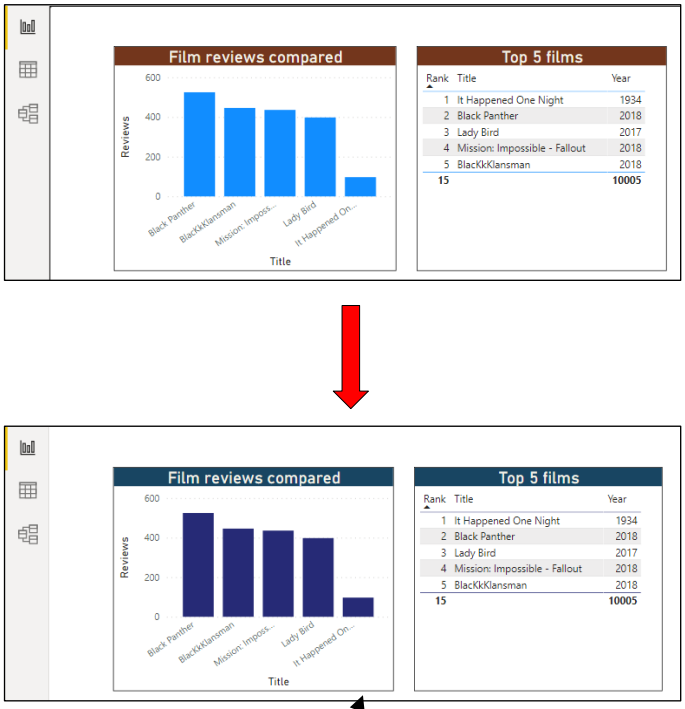
2.10 Themes

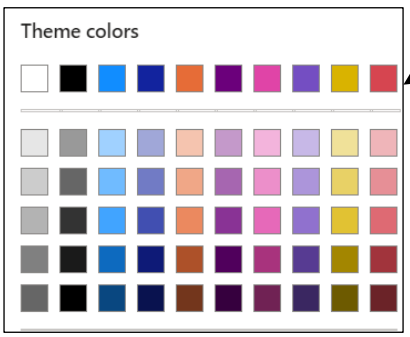
You can apply a *theme* to a report to change the colour scheme it uses:

Choose a theme on the **View** tab of the Power BI ribbon …



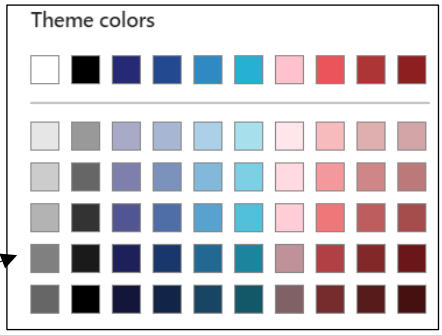
... to apply the colours of the theme to all the visuals on all pages of your report.

Once you've applied a theme, all the colour palettes you see will be influenced by it:

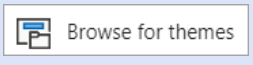


A typical colour palette using the **Default** theme ...

... and what it looks like if you choose the **Temperature** theme as above.



If your organisation has a custom theme you can click on the following option to search for and apply it (and if it doesn't, why not create your own theme?).



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Office	Microsoft Excel			
	VBA macros			
	Office Scripts			
	Microsoft Access			
Power BI, etc	Power BI and DAX			
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	Reporting Services			
	Report Builder			
	Integration Services			
	Analysis Services			
Coding	Visual C#			
	VB programming			
	MySQL			
	Python			

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