Introduction to Graphs and Visualizations(Visuals)

Power BI has various default data visualization components that include simple bar charts to pie charts to maps, clustered columns, trend charts and also complex models such as waterfalls, funnels, gauges, and many other components.

Graphical user interface, diagram, application

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**Demo –** Demo Directory/**Graphs and Visuals.pbix** for brief demonstrations and examples of other visuals

## Clustered Column Charts

Graphical user interface, Word, PowerPoint

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Drag **Region** onto the Legend

Graphical user interface, chart

Description automatically generated

Using Small multiples: Drag Region from Legend to Small multiples

Chart, waterfall chart

Description automatically generated

Demo: Analytics

These lines are dynamic and so will change with any slicers/filters applied

Graphical user interface, application

Description automatically generated Chart, bar chart

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## Stacked and 100% Charts

Graphical user interface, application

Description automatically generated

Chart, bar chart, waterfall chart

Description automatically generated

**Practice –** Create a new page in **Graphs and Visuals.pbix** rename it **Practice Clusters and Columns** In this challenge you are going to experiment with different types of column graphs.  The graphs should look similar to the example below. Please experiment with different types of options

* A **100% Stacked Column** graph displaying **Sales** by **Manufacturer** with **Channel** in the Legend
* A **Profit by Region** Bar graph
* Edit the **100% Stacked Column** graph so that it is filtered when an item on the Bar graph is selected

Chart, bar chart

Description automatically generated

## Graph Options

Export Data | Show as Table | Spotlight

**Spotlight**

Chart

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**Export Data**

Graphical user interface, application

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**Show as Table**

Chart

Description automatically generated

Adding additional data to the Tool Tips can also be viewed and exported:

Graphical user interface, table

Description automatically generated with medium confidence

## Trend Analysis Graph

Line Charts are useful when looking at how values change over time i.e. the trend.

**Demo –** See **Graphs and Visuals.pbix** page **Trend Graph Analysis**

Demo Trend Analysis across YY/MM/QTR/DAY for Sales and demo **‘Drill Up’** and **‘hierarchy’**

Graphical user interface, application

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Demo Trend Analysis across YY/MM/QTR/DAY for Sales and demo ‘**Lock Drill Down**’ and ‘one-level hierarchy’

Graphical user interface, application

Description automatically generated

**Adding a Legend** e.g. Region

Graphical user interface, chart

Description automatically generated

**Adding Secondary Values** e.g. Profit

Graphical user interface

Description automatically generated

**Adding Analytical Forecast Values**

Switch back to single value : Sales – Demo analytics : Trend Line and Forecast

Graphical user interface

Description automatically generated with medium confidence

## Area Graphs

**Area & Stacked Area**

Graphical user interface, diagram

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**Demo –** See **Graphs and Visuals.pbix** page **Area Graphs**

**Slicer on several filtered Graphs**

Graphical user interface, application

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## Ribbon Charts

Ribbon Chart is a stacked chart **similar to stacked column chart** with one big difference. In stacked column chart values shown in the order of items in legend. However, in Ribbon chart items ordered based on which item has the majority of that measure in that particular axis value.

You can create ribbon charts to visualize data, and quickly discover which data category has the highest rank (largest value). Ribbon charts are effective at showing changes, e.g. *rank change*, as well as *sales change* etc with the highest range (value) always displayed on top for each time period.

Graphical user interface, application

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**Demo –** See **Graphs and Visuals.pbix** page **Ribbon Graphs**

Chart

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Text

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## Additional Graphs

**Line and Stacked Graphs & Line and Clustered Graphs**



The Line and Stacked/Clustered Column Chart is a combo charts that combines the Line chart and Column chart together in one visual. By combining these two visuals together, you can make a very quick comparison between two sets of measures.

Graphical user interface

Description automatically generated with medium confidence

**Pie & Donut Charts**



A pie chart shows the relationship of parts to a whole. A doughnut chart is similar to a pie chart. The only difference is that the centre is blank and allows space for a label or icon.

(Best not to have too many values, 6 or less, & always show percentages on a pie chart)

Graphical user interface, application

Description automatically generated

**Treemap**



Treemaps display hierarchical data as a set of nested rectangles. Each level of the hierarchy is represented by a colored rectangle (branch) containing smaller rectangles (leaves).

Power BI bases the size of the space inside each rectangle on the measured value. The rectangles are **arranged in size from top left (largest) to bottom right (smallest).**

Chart, treemap chart

Description automatically generated

**Map**



Power BI integrates with Bing Maps to provide default map coordinates (a process called geo-coding) so you can create maps. Together they use algorithms to identify the correct location, but sometimes it's a best guess. If Power BI tries, but can't create the map visualization on its own, it enlists the help of Bing Maps.

[Read more](https://docs.microsoft.com/en-us/power-bi/visuals/power-bi-map-tips-and-tricks)

Uses Bing mapping – not 100% correct

Graphical user interface, application, map

Description automatically generated

## Scatter/Bubble Chart



Scatter Plot and Bubble Plot are essentially the same, however, a **Scatter chart/plot** shows the relationship between two numerical values whilst a **Bubble chart/plot** *replaces* data points with bubbles, with the bubble size representing an additional third data dimension.

Chart, scatter chart

Description automatically generated

**Animating with the Play Axis**

Graphical user interface, application, Word

Description automatically generated

## Decomposition Tree



The Decomposition tree visual in Power BI lets you visualize data across multiple dimensions. It automatically aggregates data and enables drilling down into your dimensions in any order. It is also an artificial intelligence (AI) visualization, so you can ask it to find the next dimension to drill down into based on certain criteria. This makes it a valuable tool for ad hoc exploration and conducting root cause analysis.

[Read More](https://docs.microsoft.com/en-us/power-bi/visuals/power-bi-visualization-decomposition-tree)

A screenshot of a computer

Description automatically generated with medium confidence

**AI splits**

You can use “AI Splits” to figure out where you should look next in the data. These splits appear at the top of the list and are marked with a lightbulb. The splits are there to help you find high and low values in the data, automatically.

AI splits can be switched On or Off

Graphical user interface, application, Word, Teams

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Description automatically generated

The analysis can work in two ways depending on your preferences. The default behaviour is as follows:

**High Value**: Considers all available fields and determines which one to drill into to get the highest value of the measure being analyzed.

**Low Value**: Considers all available fields and determines which one to drill into to get the lowest value of the measure being analyzed.

**Relative vs Absolute**

You can configure the visual to find **Relative** AI splits as opposed to **Absolute** ones.

**Relative mode** looks for high values that stand out (compared to the rest of the data in the Tree)

Diagram

Description automatically generated

**Absolute mode** looks for high values that stand out (compared to the next level of the data in the Tree)

Diagram, text

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**Locking**

A content creator can lock levels for report consumers. When a level is locked, it cannot be removed or changed. A consumer can explore different paths within the locked level but they cannot change the level itself.

A picture containing timeline

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