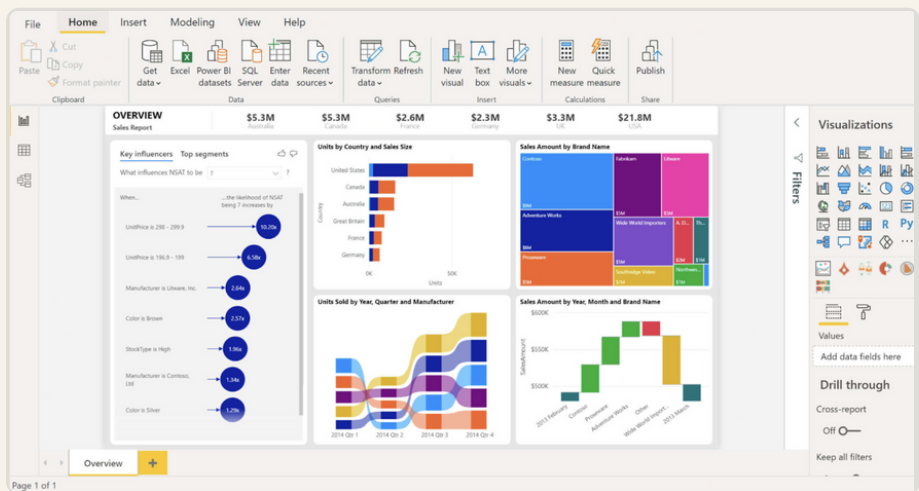




What is Power BI?

Power BI is a business intelligence tool that allows you to effectively report insights through easy-to-use customizable visualizations and dashboards.



>Why use Power BI?

Easy to use—no coding integrates seamlessly with

involvedany data source



Fast and can handle large datasets

>Power BI Components

There are three components to Power BI—each of them serving different purposes

Power BI DesktopPower BI service

Free desktop application that Cloud-based version of Power BI provides data analysis and with report editing and publishing creation tools.features.

Power BI mobile

A mobile app of Power BI, which allows you to author, view, and share reports on the go.

>Getting started with Power BI

There are three main views in Power BI

report view

This view is the default view, where you can visualize data and create reports



data view

This view lets you examine datasets associated with your reports



model view

This view helps you establish different relationships between datasets

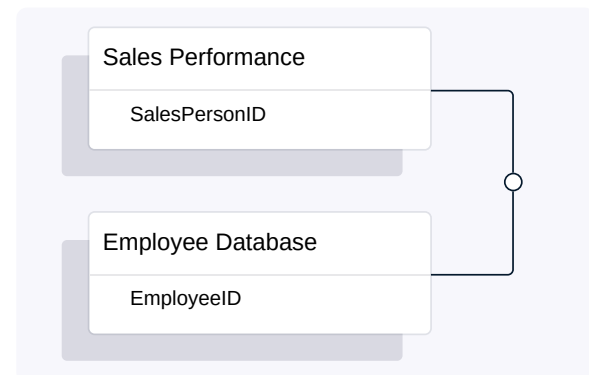
> Visualizing your first dataset

Upload datasets into Power BI

Underneath the tab, click on Get Data

- Choose any of your datasets and double-click
- Click on Load if no prior data needs processing
- Click on Transform if you need to transform data, which will launch Power Query. Keep reading this cheat sheet for how to apply transformations in Power Query
- Inspect your data by clicking on the Data View

Create relationships in Power BI



If you have different datasets you want to connect. First, upload them into Power B

Click on the Model View from the left-hand pan

Connect key columns from different datasets by dragging one to another (e.g., EmployeeID to e.g., SalespersonID)

Create your first visualization

Visualizations

Click on the Report View and go to the pane on the right-hand sid

Select the type of visualization you would like to plot your data on. Keep reading this cheat to learn different visualizations available in Power BI

Under the Field pane on the right-hand side, drag the variables of your choice into Values or Axis.

Values let you visualize aggregate measures (e.g. Total Revenue)

Axis let you visualize categories (e.g. Sales Person)

Aggregating data

Power BI sums numerical fields when visualizing them under Values. However, you can choose different aggregation

Select the visualization you just create

Go to the Visualizations section on the right-hand sid

Go to Values—the visualized column should be there

On the selected column—click on the dropdown arrow and change the aggregation (i.e., AVERAGE, MAX, COUNT, etc..)

>Data Visualizations in Power BI

Power BI provides a wide range of data visualizations. Here is a list of the most useful visualizations you have in Power BI

Bar Charts: Horizontal bars used for comparing specific values across categories (e.g. sales by region)

Column Charts: Vertical columns for comparing specific values across categories

Line Charts: Used for looking at a numeric value over time (e.g. revenue over time)

Area Chart: Based on the line chart with the difference that the area between the axis and line is filled in (e.g. sales by month)

Scatter: Displays one set of numerical data along the horizontal axis and another set along the vertical axis (e.g. relation age and loan)

Combo Chart: Combines a column chart and a line chart (e.g. actual sales performance vs target)

Treemaps: Used to visualize categories with colored rectangles, sized with respect to their value (e.g. product category based on sales)

Pie Chart: Circle divided into slices representing a category's proportion of the whole (e.g. market share)

Donut Chart: Similar to pie charts; used to show the proportion of sectors to a whole (e.g. market share)

Maps: Used to map categorical and quantitative information to spatial locations (e.g. sales per state)

Cards: Used for displaying a single fact or single data point (e.g. total sales)

Table: Grid used to display data in a logical series of rows and columns (e.g. all products with sold items)

> Power Query Editor in Power BI

Power Query is Microsoft's data transformation and data preparation engine. It is part of Power BI Desktop, and lets you connect to one or many data sources, shape and transform data to meet your needs, and load it into Power BI.

Open the Power Query Editor

While loading data

Underneath the Home tab, click on Get Data

Choose any of your datasets and double-click

Click on Transform Data

When data is already loaded

Go to the Data View

- Under Queries in the left-hand pane, click on Transform Data or drop-down, then on the Transform Data button

Using the Power Query Editor

Removing rows

You can remove rows based on the condition and properties

Click on the Home tab in the Query Editor ribbon

Click on Remove Rows in the Remove Rows group

- Choose which option to remove, whether Remove Top Rows, Remove Bottom Rows, etc..

Choose the number of rows to remove

- You can use the vertical sign on the right-hand side to adjust the number of rows to remove

Adding a new column

You can create new columns based on existing open data

Click on the Add Column tab in the Query Editor ribbon

Click on Custom Column in the Get New Column group

Name your new column and use the Column Name option

- Define the new column formula using the best available formula assigning the available data

Replace values

You can replace one value with another value where the value is found in a column

In the Power Query Editor, click on Replace Values in the Home tab

Click on the tab on the ribbon, and click on Replace Values under the Home tab, located under the Transform group

Fill the Value to Find and Replace with fields to be replaced and the operation

Appending datasets

You can append one dataset to another

Click on Append Queries under the Home tab under the Combine group

Select to append either Two tables or Three or more tables

Add tables to append under the provided section in the same window

Merge Queries

You can use merge tables based on a related column

Click on Merge Queries under the Home tab under the Combine group

Select the first table and the second table you would like to merge

Select the columns you would like to join the tables on by clicking on the column from the first dataset, and from the second dataset

Select the Join Kind that suits your operation:



Left outer



Right outer



Full outer



Inner



Left anti



Right anti

Click on Ok—new columns will be added to your current table

Data profiling

Data Profiling is a feature in Power Query that provides intuitive information about your data

Click on the View tab in the Query ribbon

In the Data Preview tab—tick the options you want to visualize

Tick Column Quality to see the amount of missing data

Tick Column Distribution to see the statistical distribution under every column

Tick Column Profile to see summary statistics and more detailed frequency information of columns

>DAX Expressions

Data Analysis Expressions (DAX) is a calculation language used in Power BI that lets you create calculations and perform data analysis. It is used to create calculated columns, measures, and custom tables. DAX functions are predefined formulas that perform calculations on specific values called arguments.

Sample data

Throughout this section, we'll use the columns listed in this sample table of 'sales_data'

deal_size sales_person date customer_name

1,000Maria Shuttleworth30-03-2022Acme Inc.

3,000Nuno Rocha29-03-2022Spotify

2,300Terence Mickey13-04-2022DataChamp

Simple aggregation

SUM(<column>) adds all the numbers in a column

AVERAGE(<column>) returns the average (arithmetic mean) of all numbers in a column

MEDIAN(<column>) returns the median of numbers in a column

MIN/MAX(<column>) returns the smallest/biggest value in a column

COUNT(<column>) counts the number of cells in a column that contain non-blank values

DISTINCTCOUNT(<column>) counts the number of distinct values in a column.

EXAMPLE

Sum of all deals — SUM('sales_data'[deal_size])

Average deal size — AVERAGE('sales_data'[deal_size])

Distinct number of customers — DISTINCTCOUNT('sales_data'[customer_name])

Logical function

IF(<logical_test>, <value_if_true>[, <value_if_false>]) check the result of an expression and

create conditional results

EXAMPLE

Create a column called large_deal that returns "Yes" if deal_size is bigger than 2,000 and "No" otherwise

large_deal = IF('sales_data'[deal_size] > 2000, "Yes", "No")

Text Function

LEFT(<text>, <num_chars>) returns the specified number of characters from the start of a text

LOWER(<text>) converts a text string to all lowercase letters

UPPER(<text>) converts a text string to all uppercase letters

REPLACE(<old_text>, <start_num>, <num_chars>, <new_text>) replaces part of a text string with a

different text string.

EXAMPLE

Change column customer_name to be only lower case

customer_name = LOWER('sales_data'[customer_name])

Date and time function

CALENDAR(<start date>, <end date>) generates a column of continuous sets of dates

DATE(<year>, <month>, <day>) returns the specified date in the datetime format

WEEKDAY(<date>, <return_type>) returns 1-7 corresponding to the day of the week of a date (return_type

indicates week start and end (1: Sunday-Saturday, 2: Monday-Sunday)

EXAMPLE

Return the day of week of each deal

week_day = WEEKDAY('sales_data'[date], 2)