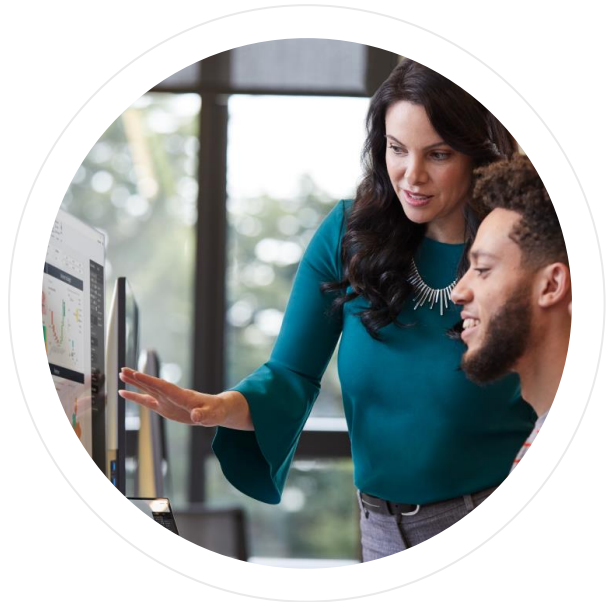




Microsoft Power BI for End User



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1

Course introduction



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About this Course: Course Outline

- 01: Get Started with Microsoft Data Analytics
- 02: Prepare Data in Power BI Desktop
- 03: Create Reports and Dashboards in Power BI Desktop
- 04: Clean, Transform, and Load Data in Power BI Desktop
- 05: Design a Data Model in Power BI Desktop

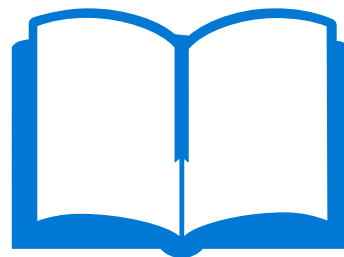
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References

- Get started with Microsoft data analytics

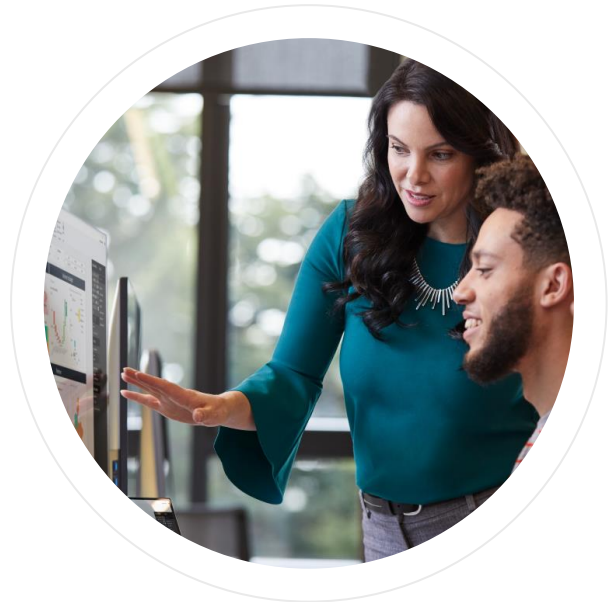
[Get started with Microsoft data analytics - Training | Microsoft Learn](#)



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Getting Started with Microsoft Data Analytics



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Data Analytics and Microsoft

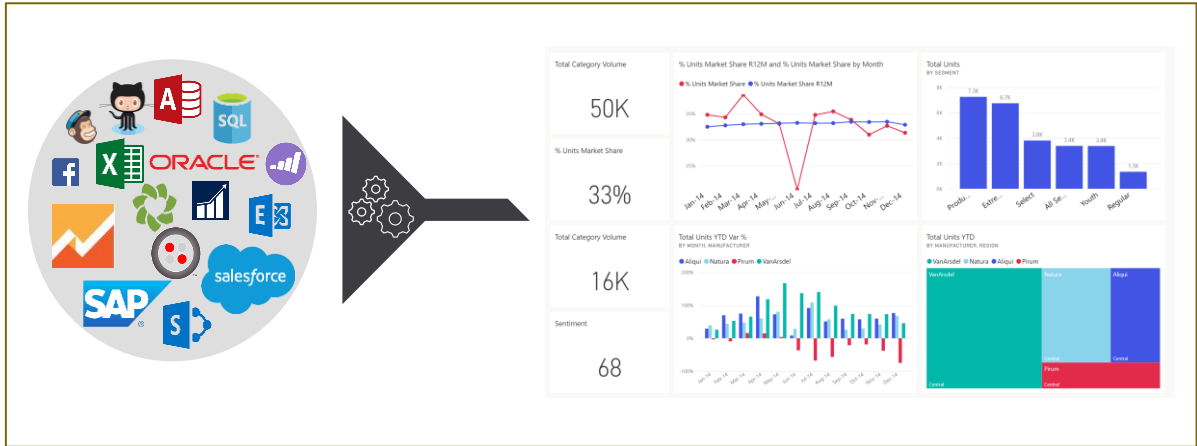


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Introduction

Data and information is the most strategic business asset.



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Overview of Data Analysis

Data Analysis is telling a story with data.

Five categories of analytics:

- Descriptive
- Diagnostic
- Predictive
- Prescriptive
- Cognitive



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Roles in Data

- Data Analyst (PL-300)
- Enterprise Data Analyst (DP-500)
- Data Engineer (DP-203)
- Data Scientist (DP-100)
- Database Administrator (DP-300)

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Tasks of a Data Analyst



Prepare



Model



Visualize



Analyze



Manage

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Getting Started with Power BI

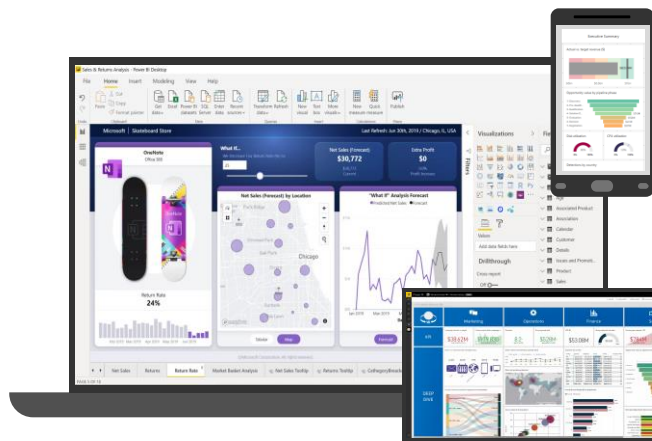


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Introduction to Power BI

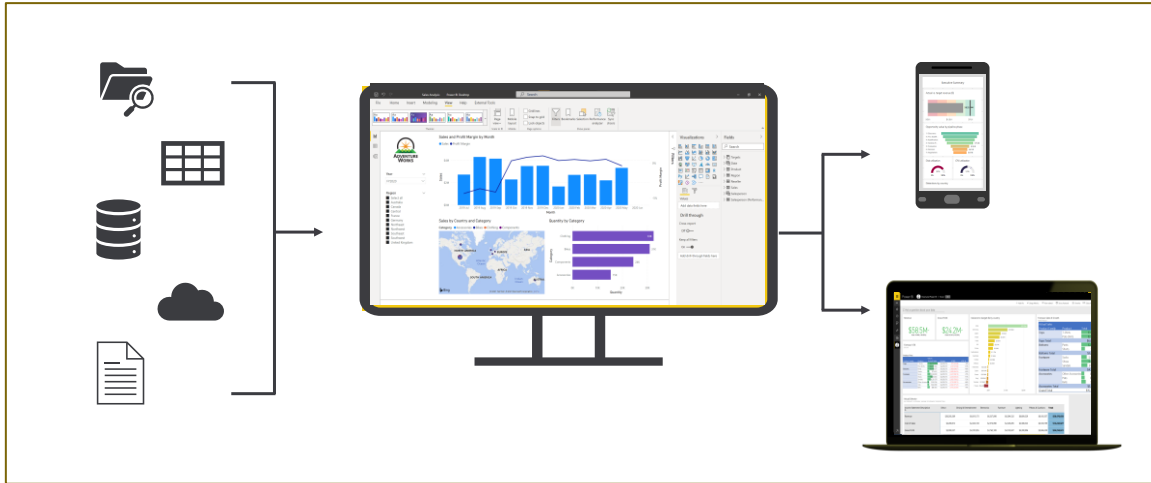
Power BI: A collection of software, services, apps, and connectors.



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Use Power BI



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 Microsoft Power Platform

Prepare Data in Power BI



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Get data

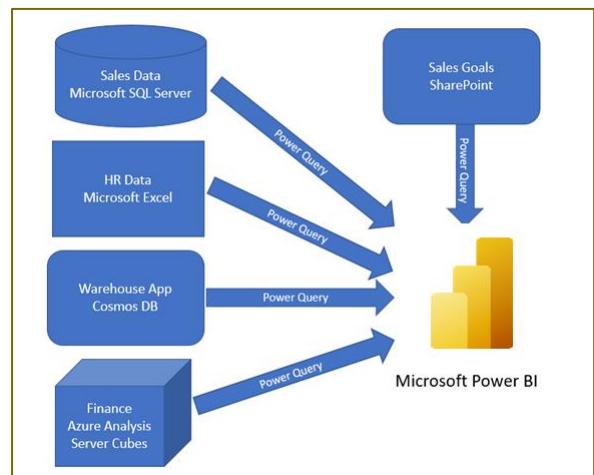


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Introduction to getting data

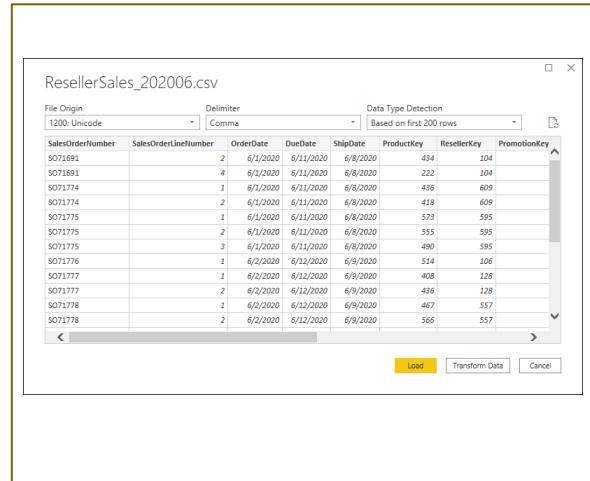
The first step in the data analysis process is identifying and getting data.



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Get data from flat files



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Get data from relational data sources



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Optimize performance

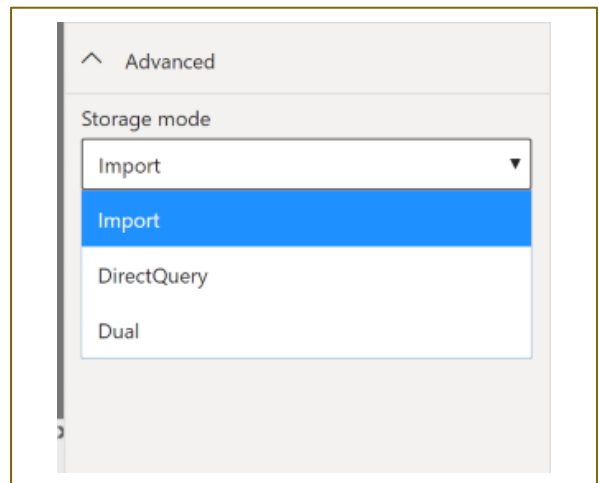


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Select a Storage Mode

- Specifies the storage mode of a table and lets Power BI determine how to cache data for reports.
- Set the storage mode for each table individually.



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Optimize Query Performance



Performance in Power Query depends heavily on the performance at the data source.



Follow performance tuning guidelines of the source product.



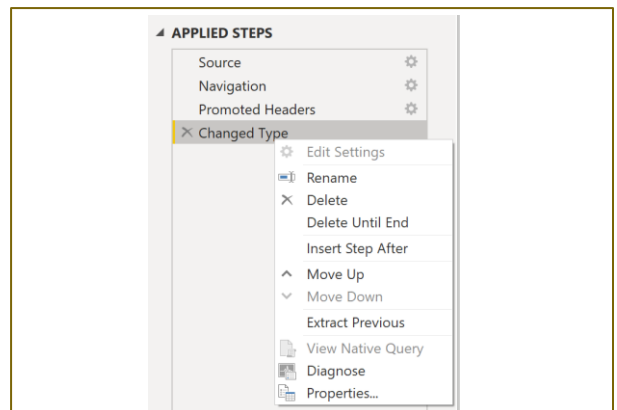
Some performance tuning can be done in Power BI.

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Query Folding

The process that lets Power Query generate a single query statement to retrieve and transform source data.



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Resolve data errors



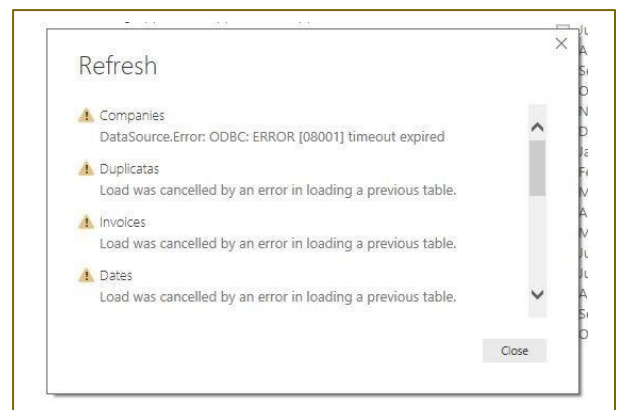
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Identify and Resolve Data Import Errors

You may encounter the following errors:

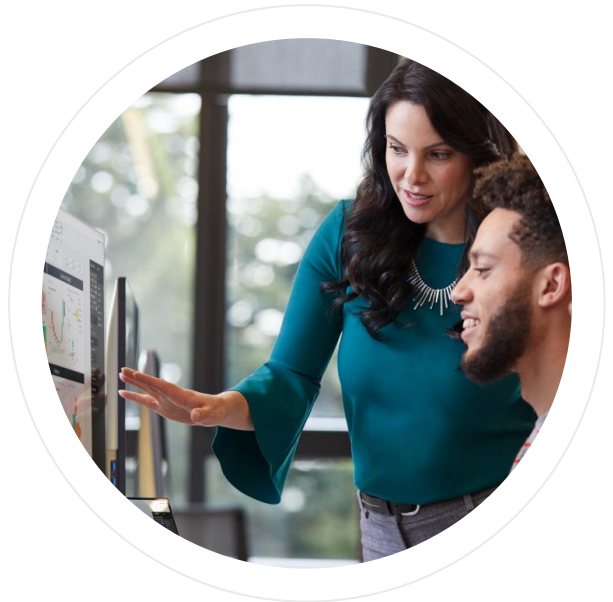
- Query Timeout.
- Couldn't find data formatted as a table.
- Could not find file.
- Data type errors.



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Create Reports



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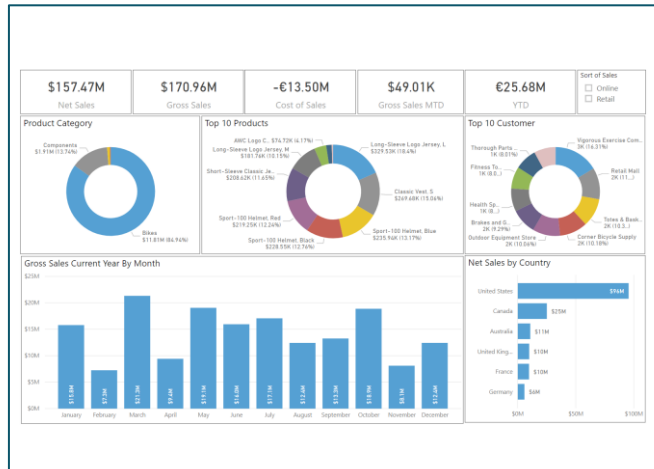
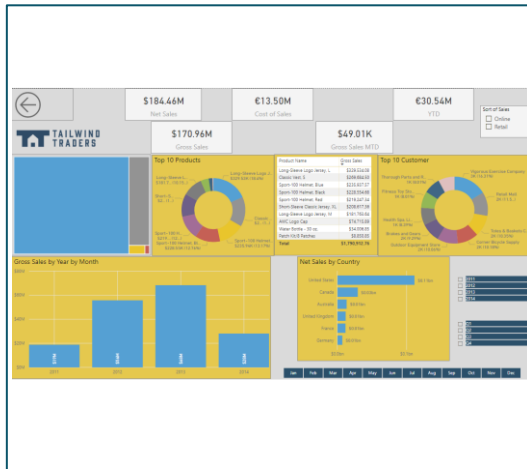
Introduction

- Visuals allow you to share data insights more effectively.
- Effective visualizations help your users connect and interact with the information.

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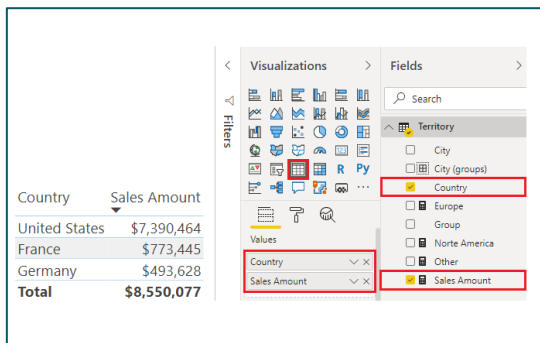
Design a Report Layout



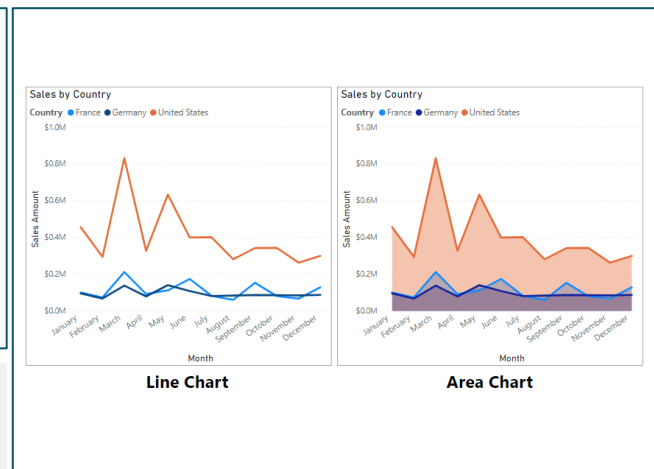
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Choosing Effective Visualizations



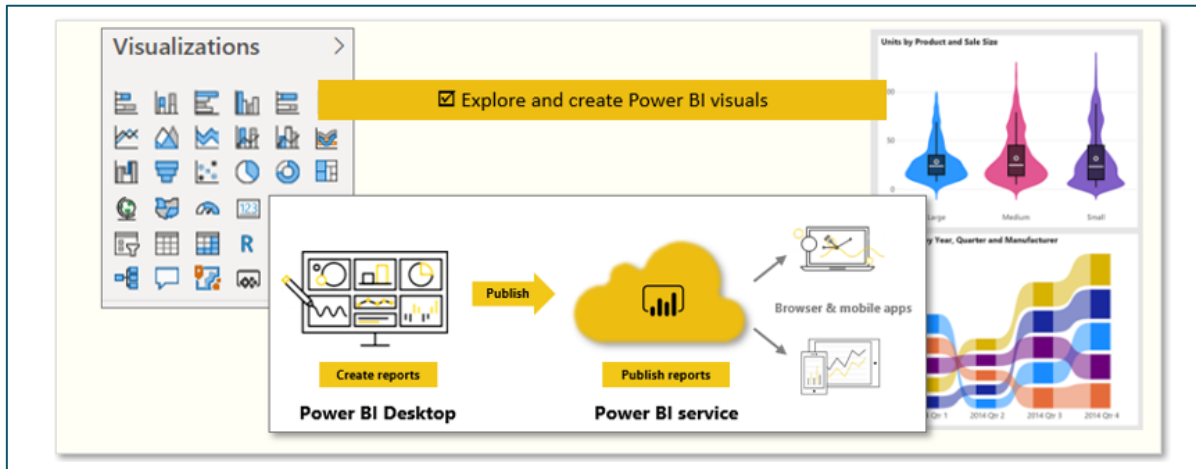
The right visual makes all the difference.



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Adding Visualizations to Reports

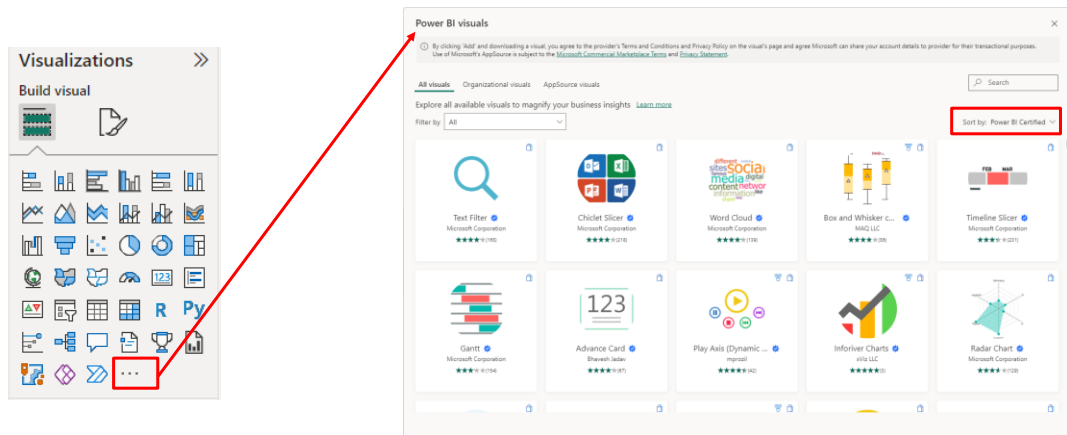


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Import a Custom Visual

Use visuals tailored for your needs.



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Format and Configure Visualizations

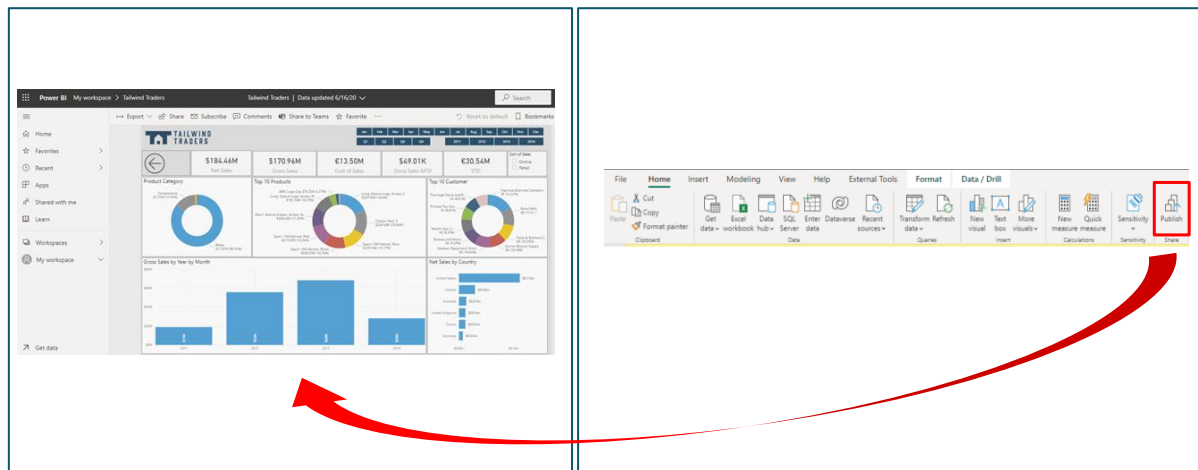


- Control the look and feel of each visual.
- Format options differ depending on the type of visual selected.

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Publish and Export Reports

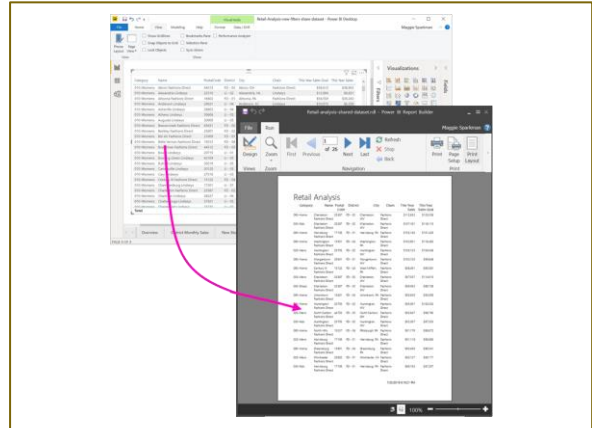


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Introduction to Paginated Reports

- Descendant of SQL Server Reporting Services.
- Created in Power BI Report Builder.
- Part of Power BI Premium.

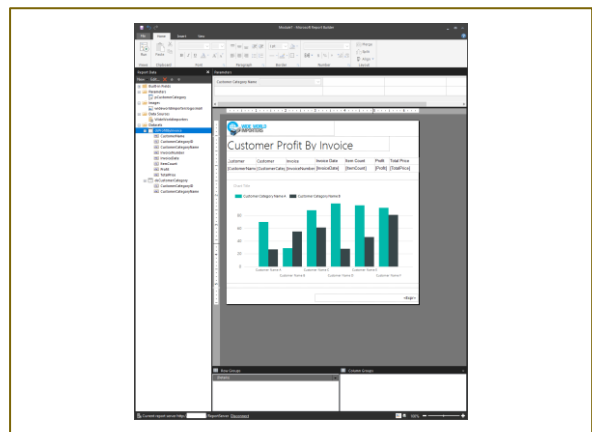


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When are they the right fit?

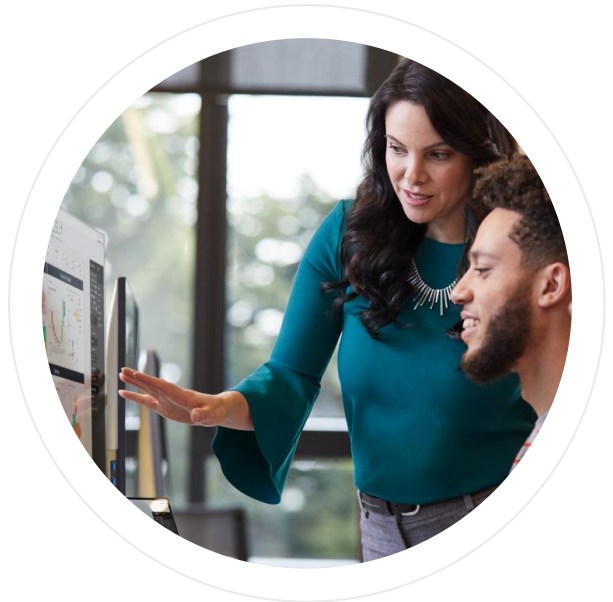
- Operational reports with tables of detail.
- Headers and footers are needed.
- Customized sort orders.
- Clickable headers.
- Rendering tabular data.



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Create Dashboards



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Introduction to Dashboards



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A dashboard:

Is a single-page canvas that tells a story through visualizations.

Can draw from multiple reports.

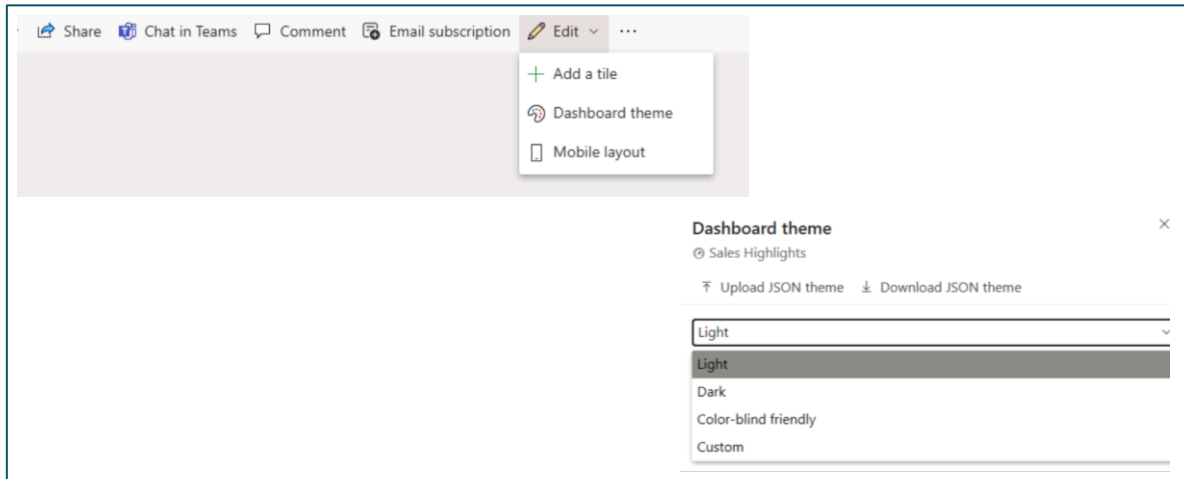
Contains no Filter,
Visualization, or Fields pane.

Does not display the underlying dataset.

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Add a Dashboard Theme

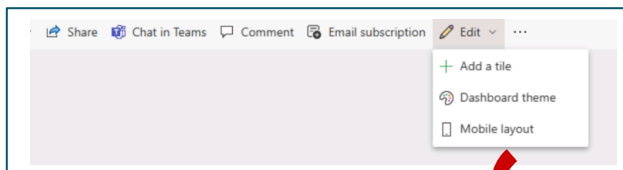
Create a cohesive picture across dashboards using themes.



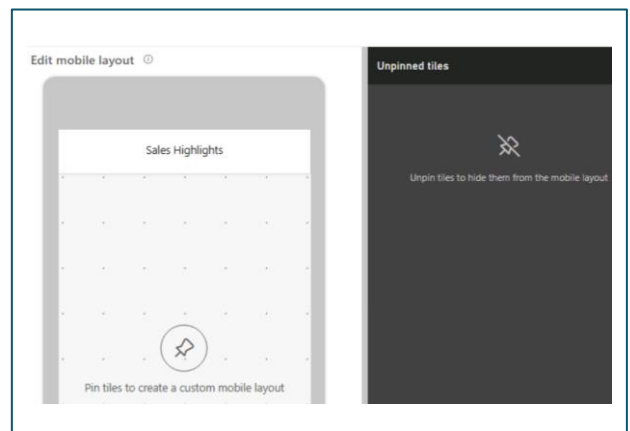
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Set Mobile View



Let your users stay connected wherever they are.



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Pin a Live Report Page to a Dashboard

Ensure the visuals on your dashboard reflect changes live.

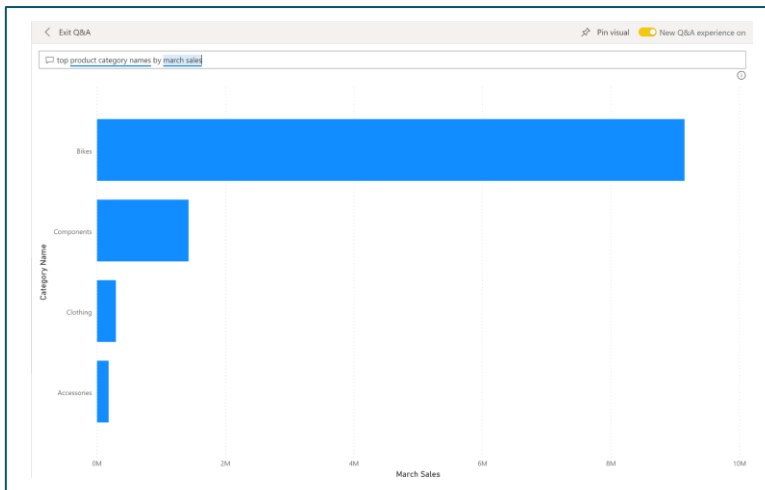
The screenshot shows the 'Pin to dashboard' dialog box on the left, which is part of the Power BI interface. The dialog has a sidebar with options: 'See related content', 'Open lineage view', 'Open usage metri...', 'Pin to a dashboard' (selected), and 'View dataset'. The main area of the dialog is titled 'Pin to dashboard' and contains the instruction 'Select an existing dashboard or create a new one.' Below this, there are two radio buttons: 'Existing dashboard' (selected) and 'New dashboard'. A dropdown menu labeled 'Select existing dashboard' shows 'Sales Highlights'. A note states: 'Pin live page enables changes to reports to appear in the dashboard tile when the page is refreshed.' At the bottom of the dialog are 'Pin live' and 'Cancel' buttons. A red arrow points from the 'Pin live' button to the 'Tailwind Sales' dashboard on the right.

The 'Tailwind Sales' dashboard on the right features a title 'Tailwind Sales' and a subtitle 'Sales Amount and March Sales'. It includes a 'Sales by Year' bar chart, a 'Sales by Category' pie chart, and a table of sales data. The table has columns for 'OrderID', 'OrderCity', '# TotalSales', 'Year', 'Quarter', 'Month', 'Amount', 'Sales YTD', and 'Employee'. The data is filtered for 'March Sales'.

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Explore Data by Asking Questions

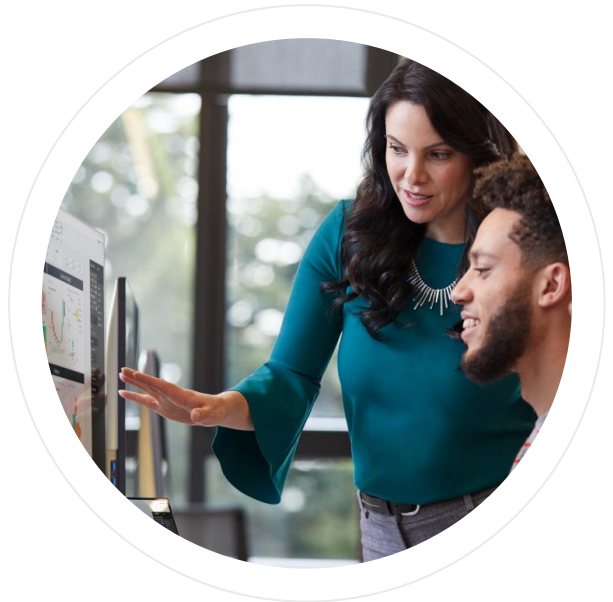


Sometimes the fastest way to get an answer from your data is to ask a question using natural language.

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Cleaning, Transforming, and Loading Data



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Shaping the Data

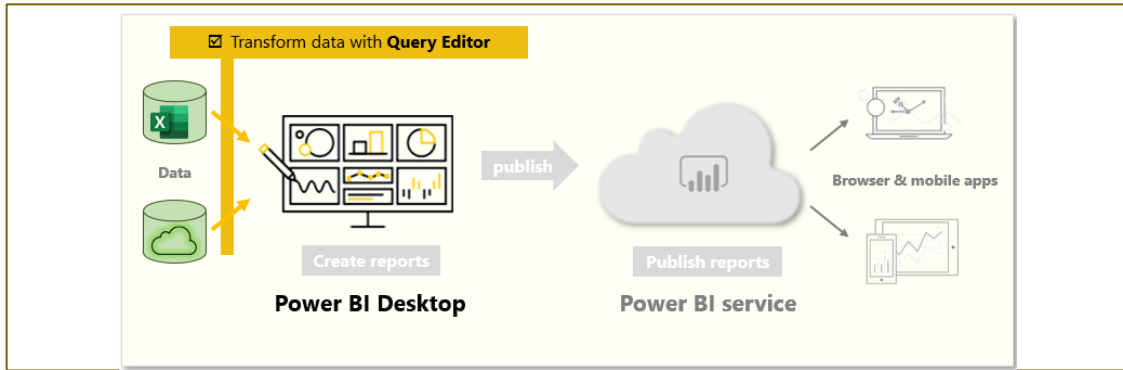


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Identify column headers and names

Use Power Query Editor to clean up and shape data.

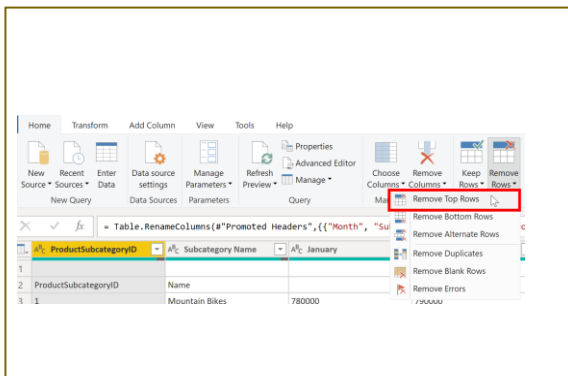


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Shaping Table Structure

Shape the data to meet reporting needs.



The screenshot shows the 'Remove' options in the Power Query Editor ribbon. The 'Remove Columns' button is highlighted with a red box. Below the ribbon, a table is visible with columns 'Column13' and 'Column14'. The table data is as follows:

Column13	Column14
November	December
880000	890000
9500	10000
511000	512000
2100	2200
2100	2200

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Profiling the Data

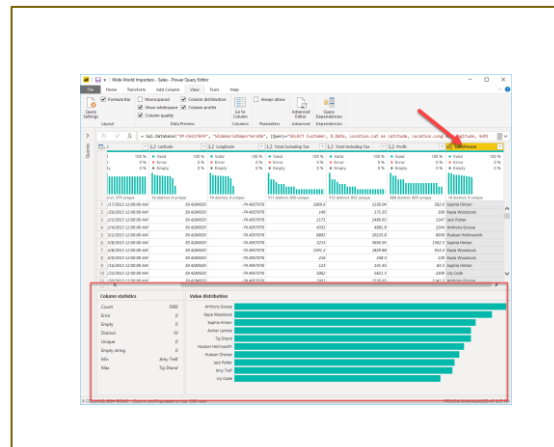
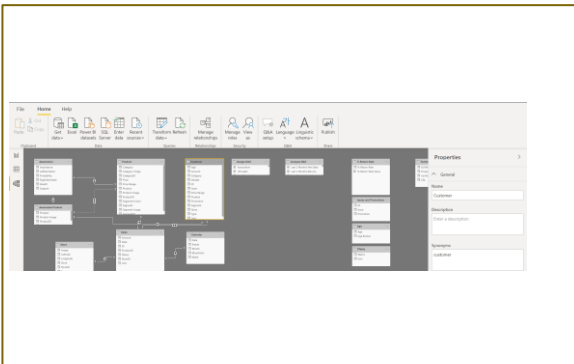


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Profiling Data and Examining Structures

Data profiling is understanding the state and structure of the data you are working with.



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Enhance the Data Structure

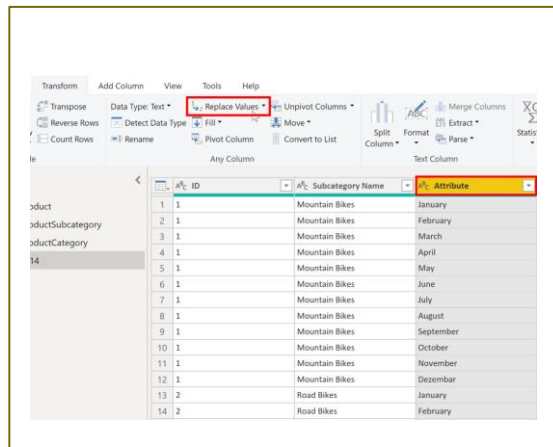
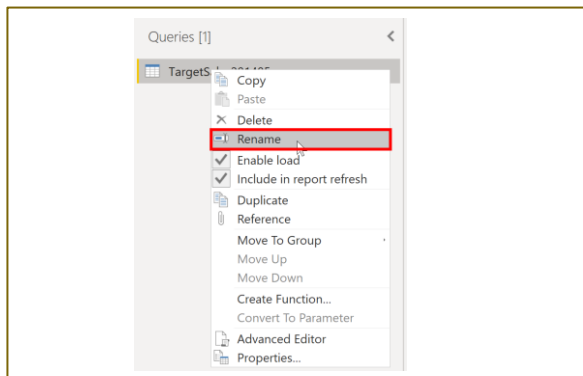


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Apply user-friendly value replacements

Make information user-friendly.



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Evaluate and Change Column Data Types

	SalesOrderID	OrderDate	Sort_of_Sales	ProductID	OrderQty
1	82242	07/07/2013	Internet	870	1
2	82692	14/07/2013	Internet	870	1
3	82694	16/07/2013	Internet	870	1
4	82799	18/07/2013	Internet	870	1
5	83799	03/08/2013	Internet	870	1
6	84059	08/08/2013	Internet	870	1
7	84059	08/08/2013	Internet	870	1
8	84063	08/08/2013	Internet	870	1
9	84159	10/08/2013	Internet	870	1
10	84281	12/08/2013	Internet	870	1

Couldn't load the data for this visual

MdxScript(Model) (19, 40) Calculation error in measure 'Sales'[Quantity of Orders YTD]: A column specified in the call to function 'TOTALYTD' is not of type DATE. This is not supported.

[Copy details](#)

Send a Frown
Close

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Combine Multiple Tables into a Single Table

Append

Concatenate rows from three or more tables into a single table.

☐ Two tables ☒ Three or more tables

Available tables

- Production Suppliers
- Sales Customers
- HR Employees

Tables to append

- Production Suppliers
- Sales Customers
- HR Employees

Add >>

OK Cancel

Merge

Select a table and matching columns to create a merged table.

Sales Orders

orderid	custid	empid	orderdate	requireddate	shippeddate	shipperid	freight	shipname
10248	85	5	7/6/2014	8/2/2014	7/16/2014	3	82.38	Ship to 85-B
10249	79	6	7/5/2014	8/16/2014	7/10/2014	1	11.61	Ship to 79-C
10250	34	4	7/6/2014	8/5/2014	7/12/2014	2	66.87	Destination RCD
10251	84	3	7/8/2014	8/5/2014	7/15/2014	2	42.34	Ship to 84-A

Sales OrderDetails

orderid	productid	unitprice	qty	discount
10248	22	14.00	12	0
10248	42	9.80	10	0
10248	72	34.80	5	0
10249	34	18.00	9	0
10249	52	42.40	40	0

Join Kind: Left Outer (all from first, matching from second)

☐ Use Fuzzy matching to perform the merge

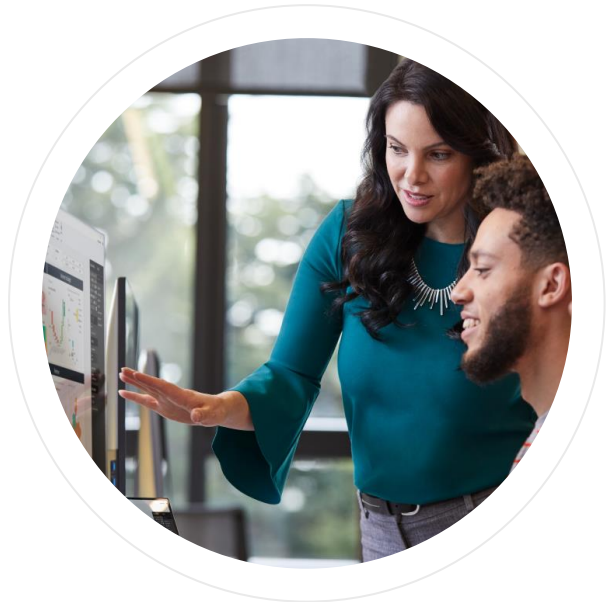
Fuzzy matching options: ☒ The selection matches 830 of 830 rows from the first table.

OK Cancel

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Design a Data Model In Power BI



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Introduction to Data Modeling



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Introduction to Data Models



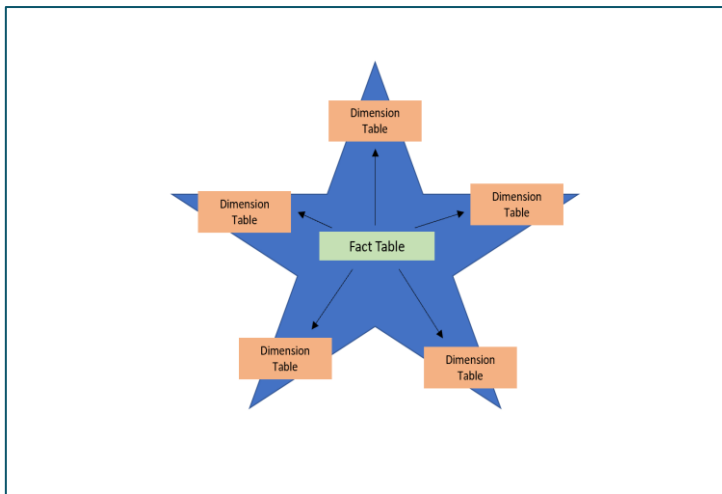
Benefits of a good data model:

- Accurate reports.
- Faster data exploration.
- Simpler aggregations.
- Easier to maintain.

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Star Schemas



Tables are classified as dimension or fact tables:

Dimension: Describes business entities.

Fact: Store observations or events.

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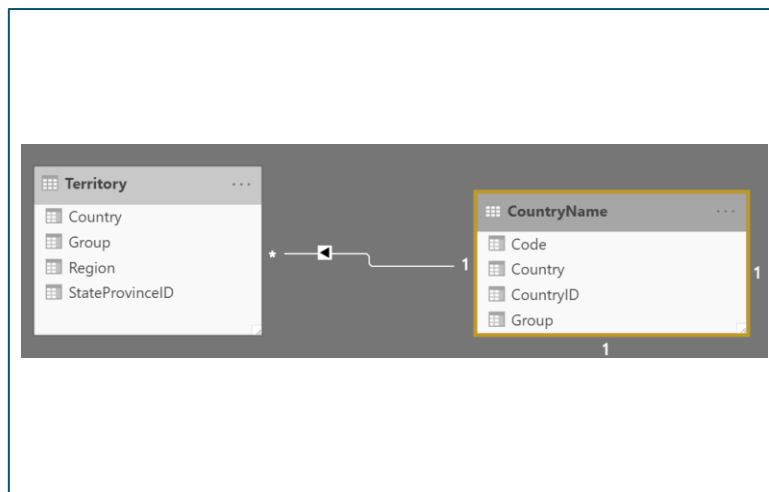
Working with Tables



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Relationships and Cardinality



Relationship: Formed by correlating rows belonging to different tables.

Cardinality: Uniqueness of data values in a column.

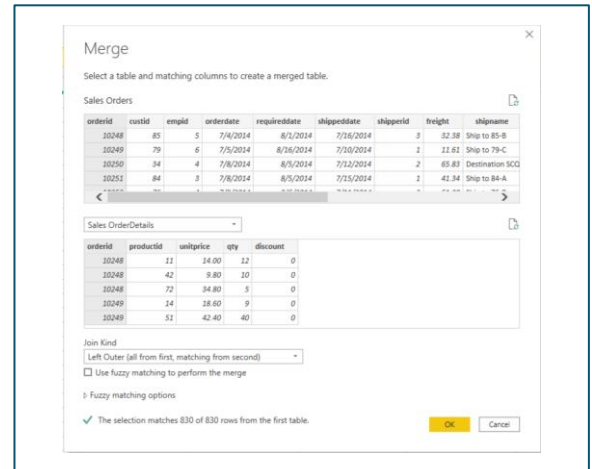
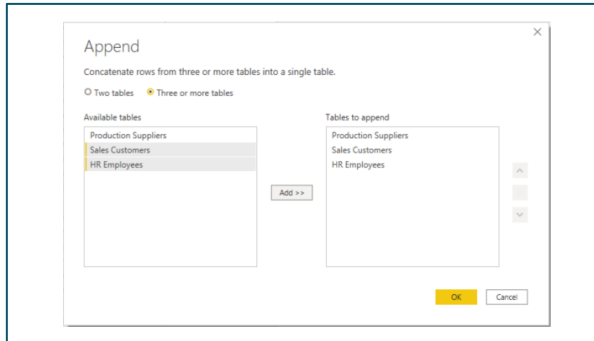
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Combine Queries

Two methods for combining queries:

- Append
- Merge



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