

2024 Indian Health Service Partnership Conference

Getting Started with Power BI

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What is Power BI ?

Collection of software services, apps, and connectors

Allows users ability to link data sources, create visualizations, and share the output

Converts data into visually immersive, and interactive insights



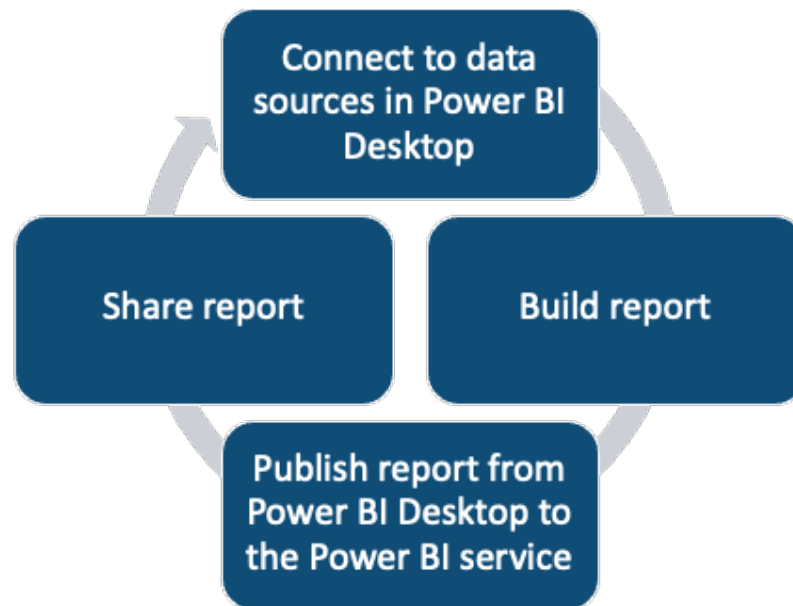
Major Parts of Power BI

A Windows desktop application called *Power BI Desktop*

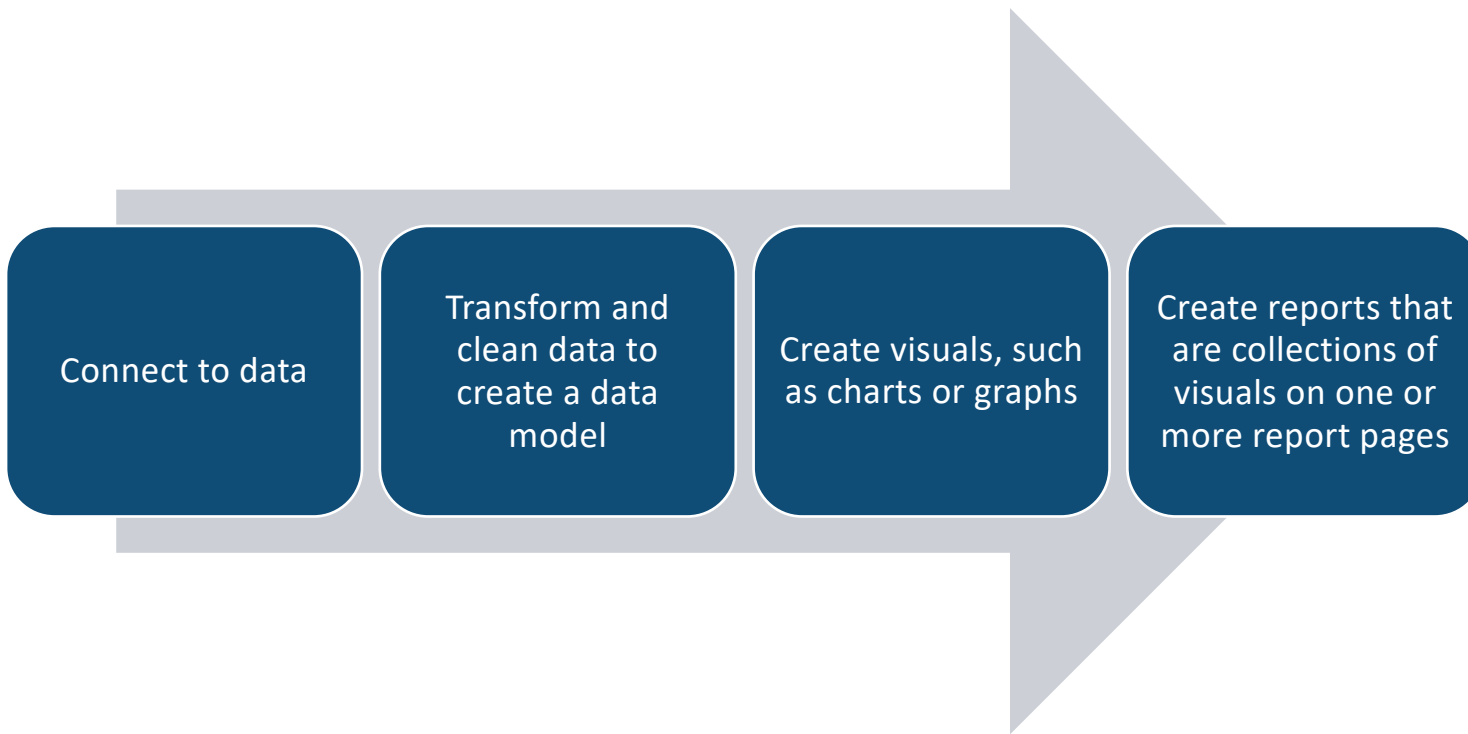
An online software as a service called the *Power BI service*.



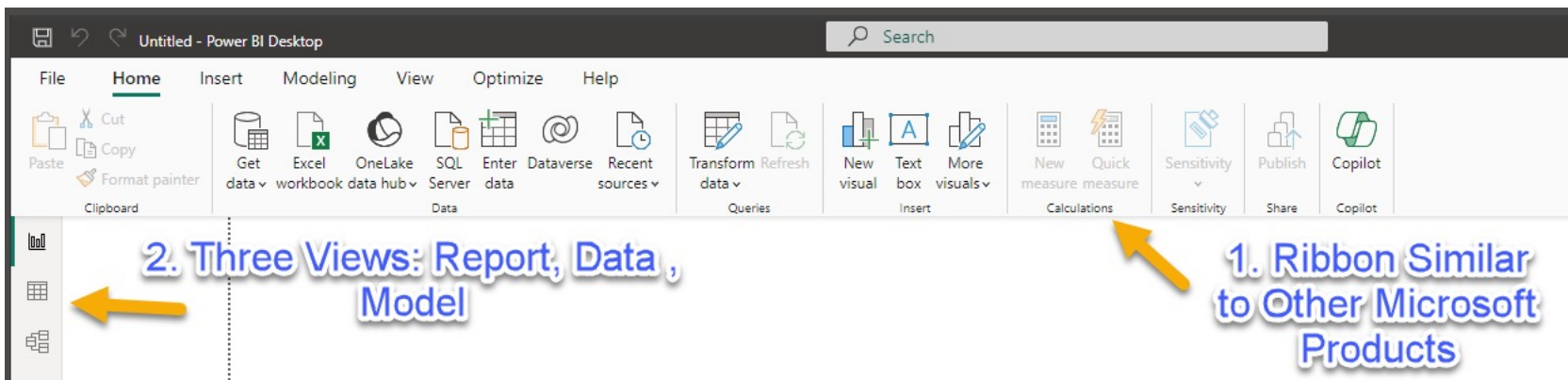
Common Workflow



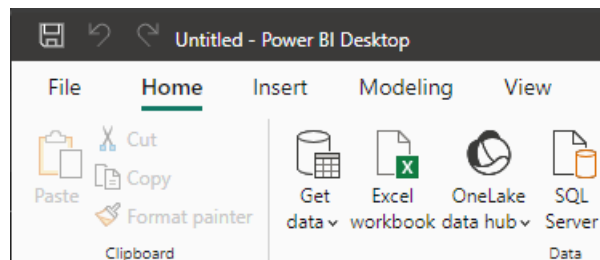
Power BI Desktop



Power BI Desktop Layout



Connecting to Data



Connect to data

To get started with Power BI Desktop, the first step is to connect to data. There are many different data sources you can connect to from Power BI Desktop.

To connect to data:

From the **Home** ribbon, select **Get Data**

Transform and Clean Data

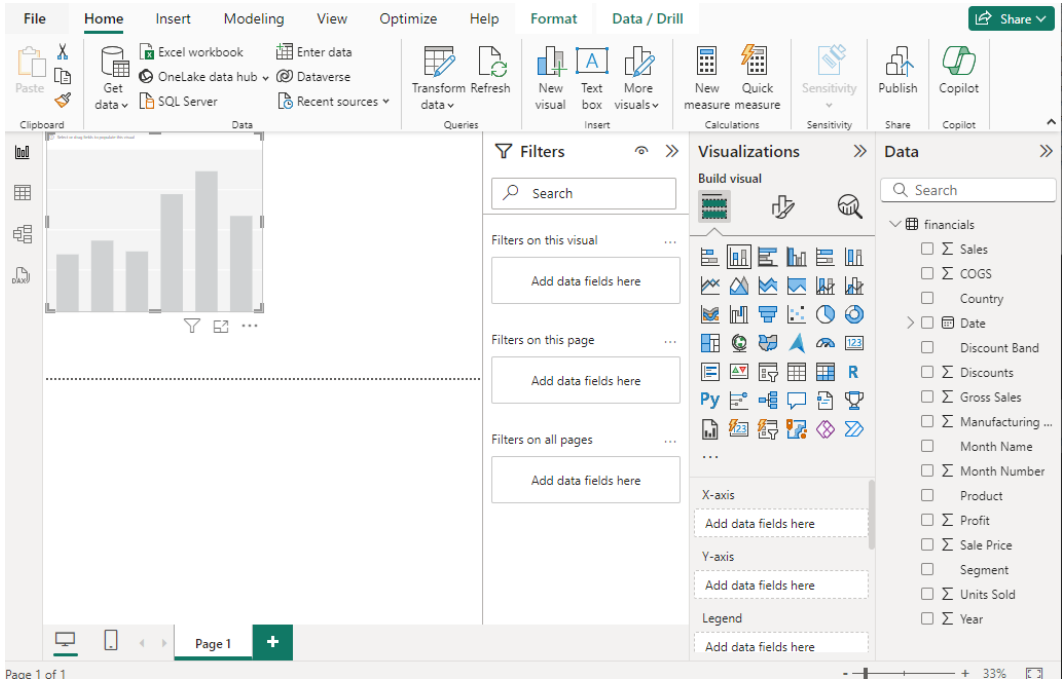
The screenshot displays the Microsoft Power Query Editor interface. The main window shows a data table with the following columns: State, Overall rank, Affordability, Crime, and Culture. The data is as follows:

State	Overall rank	Affordability	Crime	Culture
Nebraska	1	14	19	21
Iowa	2	8	15	20
Missouri	3	1	42	33
South Dakota	4	17	23	12
Florida	5	25	29	13
Kentucky	6	9	9	46
Kansas	7	7	39	37
North Carolina	7	13	28	28
Montana	9	16	31	2
Hawaii	10	45	24	9
Arkansas	11	4	46	39
Wisconsin	12	20	15	17
North Dakota	13	22	17	26

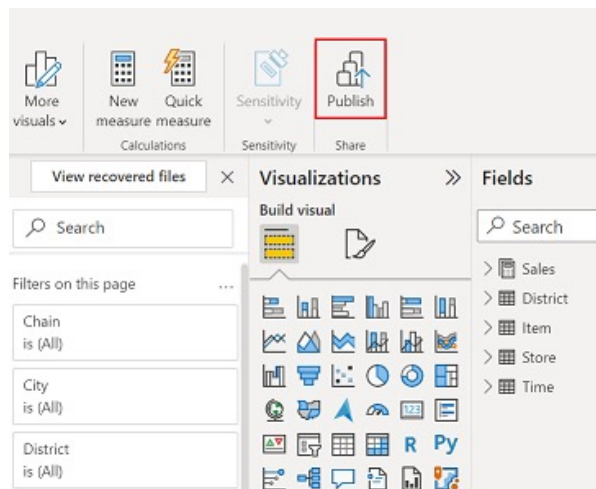
The interface includes a ribbon with various transformation options such as 'Close & Apply', 'New Source', 'Recent Sources', 'Enter Data', 'Data source settings', 'Manage Parameters', 'Refresh Preview', 'Advanced Editor', 'Choose Columns', 'Remove Columns', 'Reduce Rows', 'Sort', 'Split Column', 'Group By', 'Data Type: Text', 'Use First Row as Headers', 'Replace Values', 'Combine', 'Text Analytics', 'Vision', and 'Azure Machine Learning'. The right-hand pane shows 'Query Settings' with 'PROPERTIES' (Name: Ranking of best and worst states for retire) and 'APPLIED STEPS' (Source, Extracted Table From Html, Changed Type). The status bar at the bottom indicates '7 COLUMNS, 52 ROWS' and 'PREVIEW DOWNLOADED AT 12:22 PM'.



Create Visuals



Share Reports



After a report is ready to share with others, you can publish the report to the Power BI service, and make it available to anyone in your organization who has a Power BI license.



Demonstration

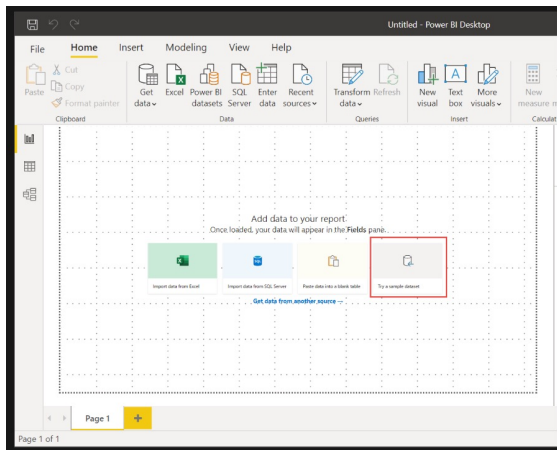
The following slides will walk through building a report and is loosely based on the tutorial provided by Microsoft :

“Tutorial: From Excel workbook to stunning report in Power BI Desktop”


<https://learn.microsoft.com/en-us/power-bi/create-reports/desktop-excel-stunning-report>




Load Data



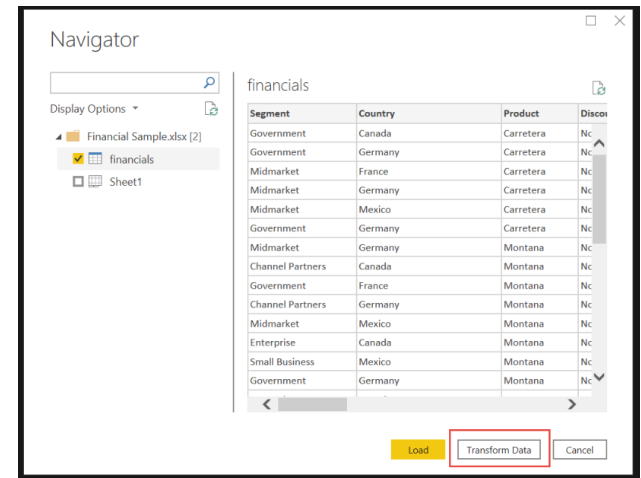
Two ways to use sample data



Take a tutorial online
Learn how to create a robust report, step-by-step.
[Launch tutorial](#)



Experiment on your own
To start creating visuals on your own, load sample data.
[Load sample data](#)



Power Query Editor

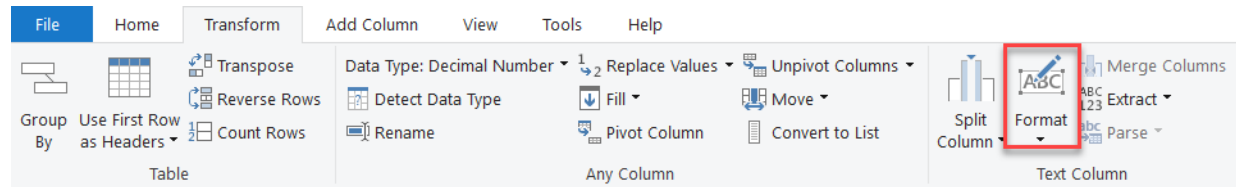
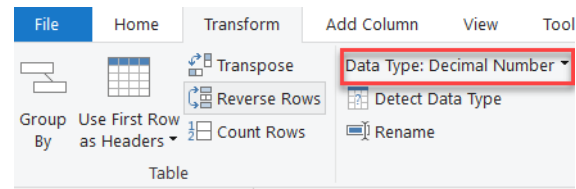
The screenshot displays the Power Query Editor interface. At the top, the ribbon includes tabs for File, Home, Transform, Add Column, View, Tools, and Help. The 'View' tab is active, showing options like 'Monospaced', 'Column distribution', 'Show whitespace', 'Column profile', 'Column quality', and 'Always allow'. The main area shows a data table with columns: Segment, Country, Product, Discount Band, Units Sold, Manufacturing Price, and Sale Price. Below the table are two panels: 'Column statistics' and 'Value distribution'. The 'Column statistics' panel shows counts for Valid (700), Error (0), Empty (0), Distinct (5), Unique (0), Empty string (0), and Min (Channel...). The 'Value distribution' panel shows a horizontal bar chart for the 'Segment' column with categories: Government, Midmarket, Channel Partners, Enterprise, and Small Business. On the right, the 'Query Settings' pane shows the query name 'financials' and a list of applied steps: Source, Navigation, and Changed Type.

Segment	Country	Product	Discount Band	Units Sold	Manufacturing Price	Sale Price
1 Government	Canada	Carretera	None	1618.5	3	
2 Government	Germany	Carretera	None	1321	3	
3 Midmarket	France	Carretera	None	2178	3	
4 Midmarket	Germany	Carretera	None	888	3	
5 Midmarket	Mexico	Carretera	None	2470	3	
6 Government	Germany	Carretera	None	1513	3	
7 Midmarket	Germany	Montana	None	921	5	
8 Channel Partners	Canada	Montana	None	2518	5	
9 Government	France	Montana	None	1899	5	
10 Channel Partners	Germany	Montana	None	1545	5	
11 Midmarket	Mexico	Montana	None	2470	5	

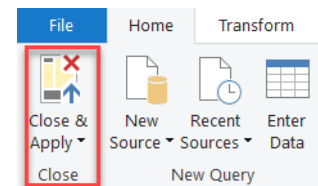
Clean Data

1. Transform Tab

- Change Units Sold to Whole Number
 - DataType: Whole Number
- Change Segment to UpperCase
 - Format :Uppercase
- Shorten Column Name
- Filter Product



2. Close and Apply



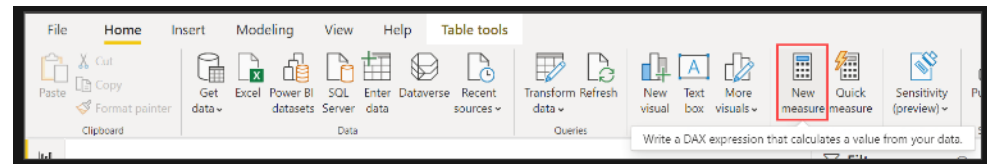
Creating Measures

In addition to transforming existing data, it is possible to create new measures.

Home → New Measure

```
Profit_Percentage = DIVIDE(  
    SUM(financials[Profit]),  
    SUM(financials[Gross Sales])  
)
```

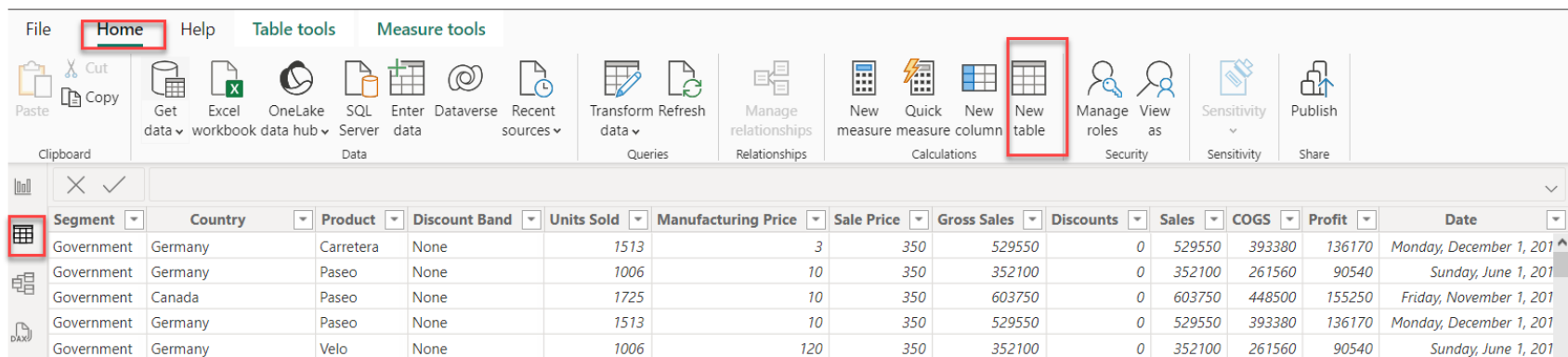
*Note this formula is different than the tutorial



Creating Tables

Data View → Home → New table

Calendar = CALENDAR(DATE(2013,01,01),Date(2014,12,31))



The screenshot shows the Microsoft Power BI ribbon with the 'Home' tab selected. The 'New table' button in the 'Calculations' group is highlighted with a red box. Below the ribbon, a data table is displayed with the following columns and rows:

Segment	Country	Product	Discount Band	Units Sold	Manufacturing Price	Sale Price	Gross Sales	Discounts	Sales	COGS	Profit	Date
Government	Germany	Carretera	None	1513	3	350	529550	0	529550	393380	136170	Monday, December 1, 201
Government	Germany	Paseo	None	1006	10	350	352100	0	352100	261560	90540	Sunday, June 1, 201
Government	Canada	Paseo	None	1725	10	350	603750	0	603750	448500	155250	Friday, November 1, 201
Government	Germany	Paseo	None	1513	10	350	529550	0	529550	393380	136170	Monday, December 1, 201
Government	Germany	Velo	None	1006	120	350	352100	0	352100	261560	90540	Sunday, June 1, 201

Why Create A Date Table If You Already Have A Date Column?

To work with Data Analysis Expressions (DAX) [time intelligence functions](#), there's a prerequisite model requirement: You must have at least one *date table* in your model. A date table is a table that meets the following requirements:

It must have a column of data type **date** (or **date/time**)—known as the *date column*.

The date column must contain unique values.

The date column must not contain BLANKs.

The date column must not have any missing dates.

The date column must span full years. A year isn't necessarily a calendar year (January-December).

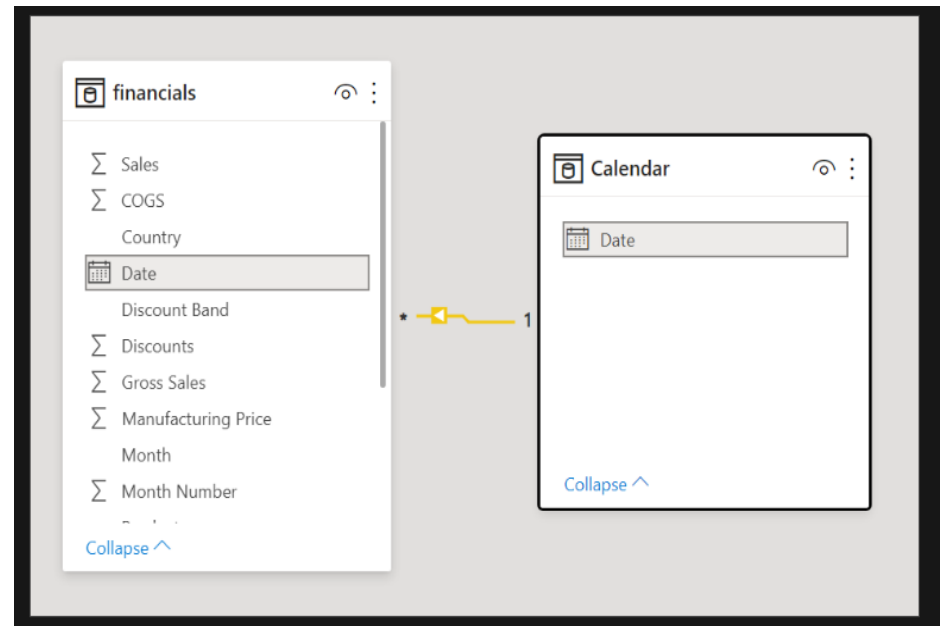
The date table must be [marked as a date table](#).



Linking Tables

Select Model View

Drag Date from Calendar to Date in financials



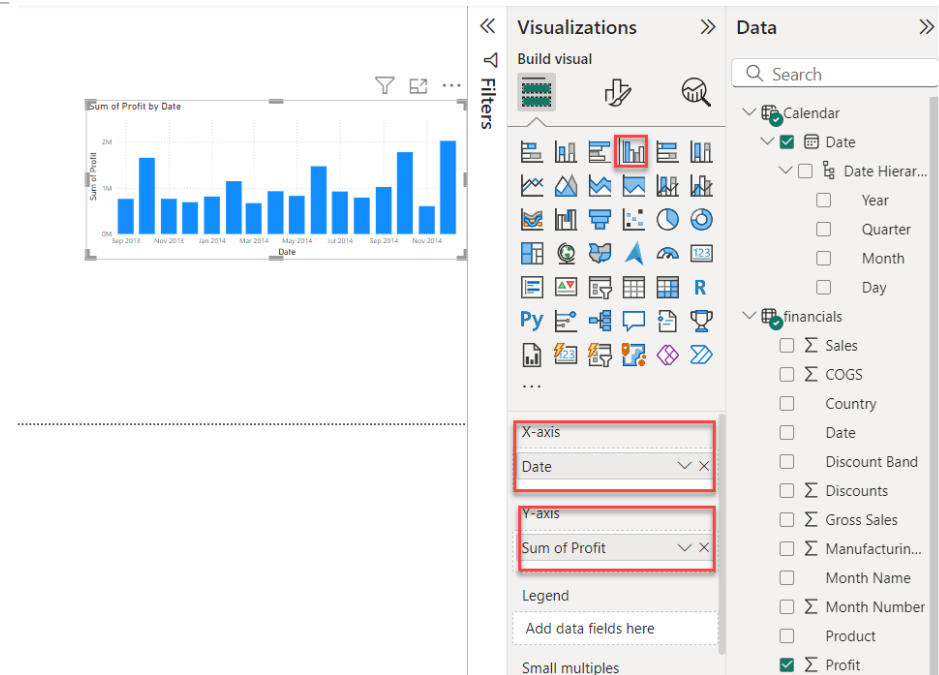
Build Report -1

1. Add Text Box with Title

- Insert Text Box

2. Profit by Date

- Add Clustered Column Chart
 - Date to X-Axis
 - Change Date Hierarchy to Date
 - Profit to Y-Axis



Build Report -2

1. Create Column Chart of Sales by Product and Segment

- In the Data pane, select the **Sales**, **Product**, and **Segment** fields.

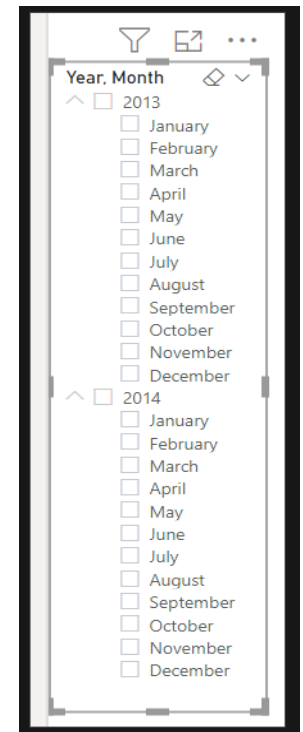
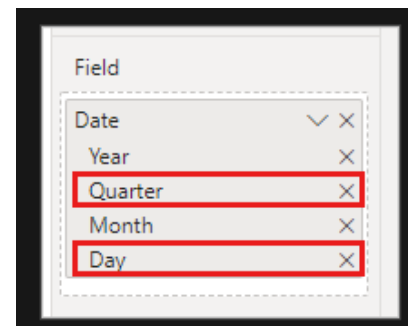
2. Add a Card Visual with Profit Percentage



Add a Slicer

1. Select Slicer

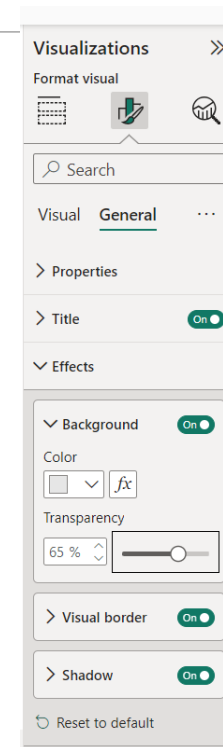
- Add Date Hierarchy to Field
- Remove Quarter and Day



Formatting Visuals

1. Add Borders and Shadows

- Visualizations Pane → Format Icon → General → Effects



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