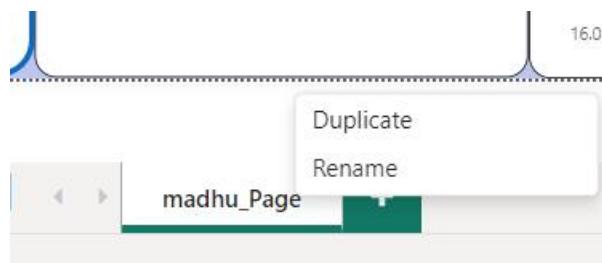


## Power BI (Extension .pbix)

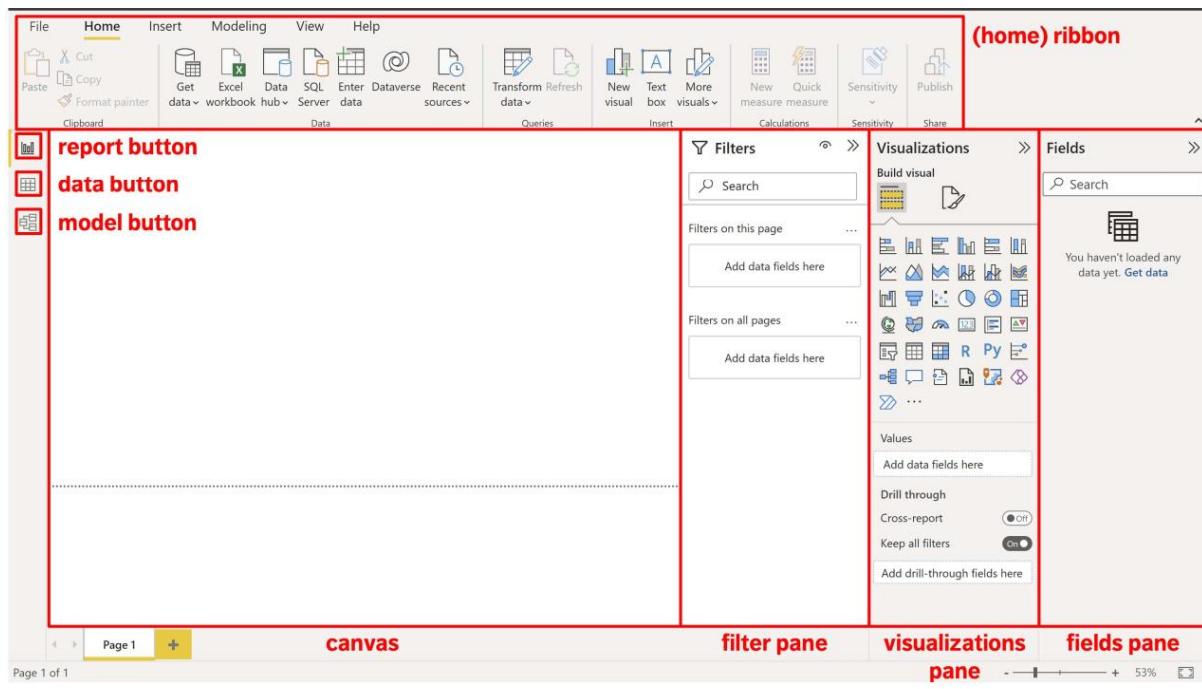
1. "Power BI is an end-to-end enterprise business intelligence tool. It supports various layouts and connects with many data sources, offering flexibility in data presentation and analysis."
2. "Power Query functions as an ETL (Extract, Transform, Load) engine, enabling filtering, sorting, and the addition of new columns, which are essential for data manipulation."
3. **Data Modelling in Power BI focuses on creating connections between tables, primarily involving two kinds of tables: Dimension (Primary) tables and Fact tables**
4. "DAX (Data Analysis Expressions) is the language used to create formulas in Power BI, while M-language is used for scripting in Power Query."
5. "Effective visuals, such as KPI cards and bar charts, combined with robust data modelling, are central to Power BI's capabilities in data analysis and reporting.

To make **duplicate page** and **Rename Page**

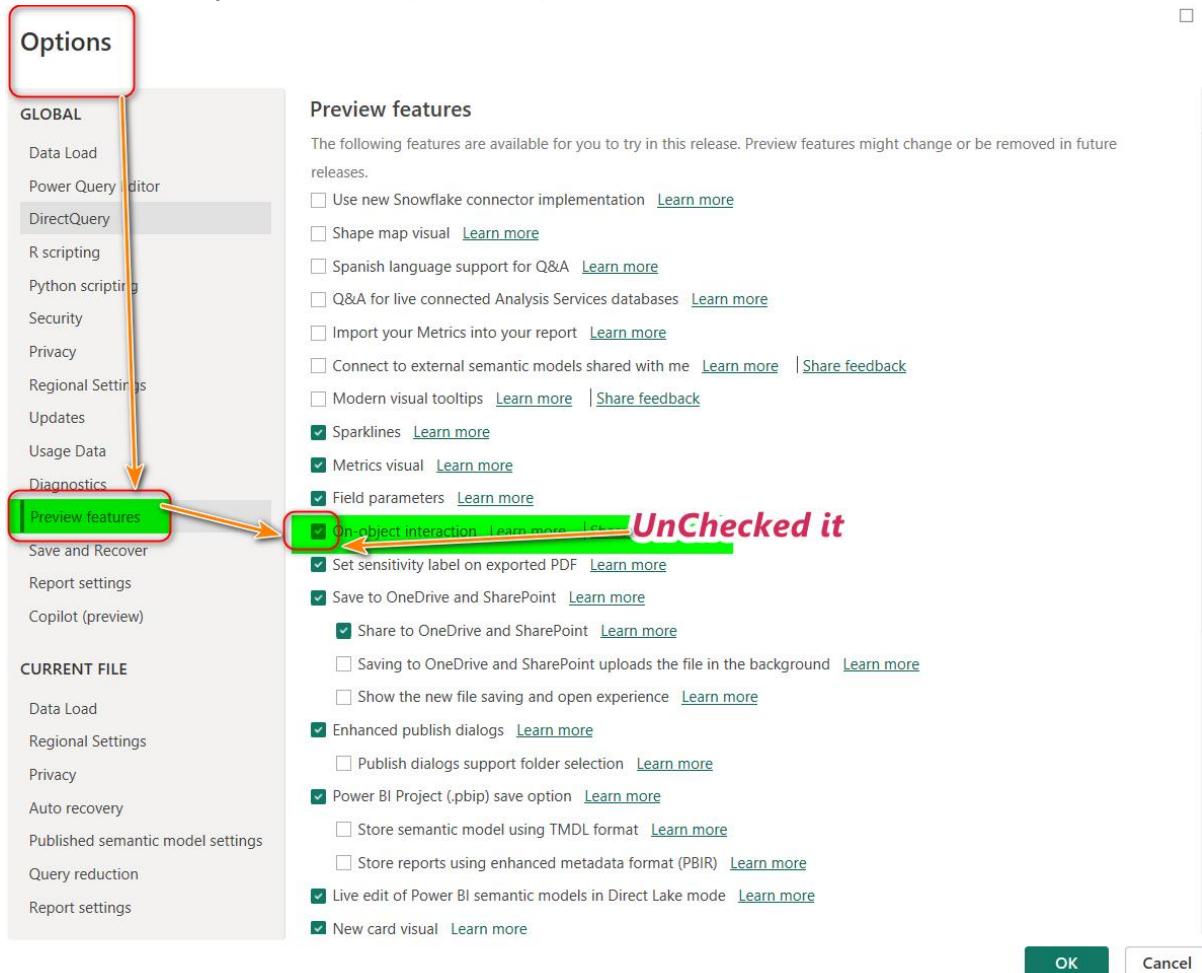
Right click on page then click on **duplicate** / **Rename Page**



- Power BI has options to work in **multiple layouts**.
- Power BI provides an option to connect with **multiple data sources**.
- **Report View** is the area to **create visuals**.
- **Table View** helps one to **check and modify the tables**.
- **Model View** helps one to **create the data model**



To change to different layout → GO to File → Options and Settings → Options → Preview Features → On Object Interaction (Uncheck it) this is new features



## POWER Query:

Power Query is a powerful data transformation and preparation tool in Power BI, Excel, and other Microsoft tools. It enables users to connect to, clean, and transform data from various sources before visualizing it or conducting further analysis

### It uses M Languages

#### Data Transform, Data Cleaning

- Filtering, Sorting, Replacing Values, and changing data types are the most commonly used operations.

#### Workflow in Power BI with Power Query

##### 1. Load Data:

- Open Power BI Desktop.
- Use the "Get Data" button to choose your data source.
- Launch Power Query Editor to prepare the data.

##### 2. Transform Data:

- Apply necessary transformations using the Query Editor.
- Steps are recorded in the "Applied Steps" pane, making them easy to edit or remove.

##### 3. Load Data to Model:

- After transformation, load the cleaned data into the Power BI data model.
- The transformed data can then be used for visualizations and relationships.

#### Understanding of Data and Cleaning the Data

Open the power Bi

Go to Home → Get Data → Excel workbook → Select the file → select the sheet as required → To clean the data click on transform

This is also called ETL tool (Extract, Transform & Load)

For Data Cleaning Always Do Transform

The screenshot shows the Power BI Navigator interface. On the left, the 'Common data sources' section is expanded, with 'Excel workbook' selected. A red box highlights 'Select the sheet', pointing to 'Sheet1'. Another red box highlights the 'Transform Data' button at the bottom right of the preview pane. The preview pane on the right shows a table titled 'Sheet1' with columns: Transaction ID, Day, Month, Year, Day Name, and Brand. The data is as follows:

Transaction ID	Day	Month	Year	Day Name	Brand
1	9	10	2021	Saturday	Xiaomi
2	9	10	2021	Saturdayurday	Vivo
3	9	10	2021	Saturdayurday	Vivo
4	10	10	2021	Sunday	Xiaomi
5	10	10	2021	Sunday	OnePlus
6	10	10	2021	Sunday	Samsung
7	10	10	2021	Sun	OnePlus
8	11	10	2021	Monday	Apple
9	11	10	2021	Mon	Vivo
10	11	10	2021	Monday	Samsung
11	12	10	2021	Tuesday	Samsung
12	12	10	2021	Tuesday	Apple
13	12	10	2021	Tuesday	Apple
14	13	10	2021	Wednesday	Xiaomi
15	13	10	2021	Wednesday	Vivo
16	13	10	2021	Wednesday	Vivo
17	14	10	2021	Thursday	OnePlus
18	14	10	2021	Thu	Xiaomi
19	14	10	2021	Thursday	Xiaomi
20	14	10	2021	Thursday	Xiaomi
21	15	10	2021	Fridayday	Xiaomi
22	15	10	2021	Fridayday	Vivo
23	15	10	2021	Friday	Vivo

## Applied Steps (Data Pipeline) in Power BI

The screenshot shows the Power BI Query Editor. The 'Queries [2]' pane on the left lists 'Custom\_Calander' and 'Sheet1'. A red box highlights 'Queries similar to table', pointing to 'Sheet1'. The main area shows a table with columns: Transaction ID, Day, Month, Year, Day Name, Brand, and Units Sold. The data is identical to the one shown in the Navigator. The 'Transform' ribbon tab is selected, showing various data manipulation tools. The 'Properties' pane on the right shows 'Name: Sheet1' and 'All Properties'. The 'Applied Steps' pane on the right shows steps like 'Source', 'Navigation', 'Promoted Headers', and 'Changed Type'. A red box highlights 'Operation Steps we do can do delete or undo the steps and also can rename'.

## Change DataType

→ Click on Any Colum on left side where ABC123 is shown

→ Change the dataType As per required (number, Date, Text, Binary, Percentage and So on)

Manage Columns Reduce Rows Sort Transform Combine AI Insights

e\_orders",Kind="Table"]}[Data]

ABC123 FoodItem	ABC123 Price	ABC123 Bill_amt
Butter Chicken	250	500
Pepperoni Pizza	300	300
Pepperoni Pizza	300	300
Double Cheeseburger	499	499
Cheeseburger	499	497
Chicken Biryani	260	500
Chicken Biryani	260	500
Pepperoni Pizza	260	299
Hawaiian Pizza	159	318
Hawaiian Pizza	250	500
Veggie Burger	200	200
Chicken Biryani		
Paneer Tikka		

Filtering (Sorting Ascending, Desc, any number greater than 200 and so on)

→ Click on Any Colum on Right side where symbol of dropdown is shown

→ Will see lots of option for data sorting ascending, descending,

Right side of colum

Quantity	Price	Bill_amt	Deliverypartner_Id	DeliveryStatus	payment_method
2	250	500			
1	300	300			
1	300	300			
1	499	499			
3	349	104			
2	250	500			
2	250	500			
1	300	300			
1	299	299			
1	299	299			
2	159	318			
2	250	500			
1	200	200			
2	250	500			
1	399	399			
1	200	200			

Merge Column

1 - Power Query Editor

**Step Two**: Add Column → Step Three: Merge Columns

**Step 1**: Select all 3 columns which need to merge.

**Step 4**: Choose how to merge the selected columns. Separator: --Custom-- → Select Custom → Enter, from keyboard to separate date → Can give name of column here also → OK

	Transaction ID	Day	Month	Year	Day Name
1	1	9	10	2021	Sat
2	2	9	10	2021	Saturday
3	3	9	10	2021	Saturday
4	4	10	10	2021	Sunday
5				2021	Sunday
6				2021	Sunday
7				2021	Sun
8				2021	Monday
9				2021	Mon
10				2021	Monday
11				2021	Tuesday
12				2021	Tuesday
13				2021	Tuesday
14				2021	Wednesday
15		13	10	2021	Wednesday
16		13	10	2021	Wednesday

Double click and rename to Date Column

Click and change the data type to "Date" from text

Our operation step, we can rename it also and can remove or undo as well

**Properties**: Name: Sheet1

**Applied Steps**: Inserted Merged Column

## Remove Column

After this we will see the new Column with merged name on last , We can rename the Column to Date and drag at front . That's all

And can delete the 3 unwanted column which we have merged

Select the 3 column → Right click → Remove Columns

Columns(#"Renamed Columns",{"Transaction ID", "Date", "Day", "Month", "Year", "Day Name", "Brand", "Units Sold", "Category", "Error Type", "Status"}))									
Date		Day		Month		Year		Day Name	
Valid	100%	● Valid	100%	● Valid				○ Valid	
Error	0%	● Error	0%	● Error				○ Error	
Empty	0%	● Empty	0%	● Empty				○ Empty	
09-10-2021			9					Sat	
09-10-2021			9					Saturday	
09-10-2021			9					Saturday	
10-10-2021			10					Sunday	
10-10-2021			10					Sunday	
10-10-2021			10					Sunday	
10-10-2021			10					Sunday	
11-10-2021			11					Sun	
11-10-2021			11					Monday	
11-10-2021			11					Mon	

## Null Values can solve by Replacing Values

To clean the problem like Sun, Sunday , Sat , Saturday in Day Coulmn can do by Two ways

Select the column name and **Right click** on it → **Replace Values**

**Step one : Select the column name and Right click on it ==> Replace Values**

The screenshot shows a Power BI desktop interface. A context menu is open over a column header labeled 'Day'. The menu options include: Copy, Remove, Remove Other Columns, Duplicate Column, Add Column From Examples..., Remove Duplicates, Remove Errors, Change Type, Transform, Replace Values..., Replace Errors..., Split Column, Group By..., Fill, Unpivot Columns, Unpivot Other Columns, Unpivot Only Selected Columns, Rename..., Move, and Drill Down. The 'Replace Values...' option is highlighted with a red box and a red arrow points from the main text to this option.

**Replace Values Step two**

Replace one value with another in the selected columns.

Value To Find: Sat  
Replace With: Saturday

Advanced options:

- Match entire cell contents **Always Select this for exact match**
- Replace using special characters

Insert special character ▾

**Similary Do for others days as well**

OK

As it is in Date another way is

Select the Data Column → Add Column Menu → Date → Day → Name Of Day → Then Rename that column and bring after date column by simply dragging the column

Untitled - Power Query Editor

The screenshot shows the Power Query Editor interface. The ribbon is active with the 'Add Column' tab selected. In the main area, there's a table with columns 'Transaction ID', 'Date', and 'Day Name'. The 'Date' column contains dates like '9/10/2021' and '10/10/2021'. The 'Day Name' column contains days like 'Saturday', 'Sunday', etc. To the right of the table, the 'Day' dropdown menu is open, showing options like 'Year', 'Month', 'Quarter', 'Week', 'Day', 'Subtract Days', 'Combine Date and Time', 'Earliest', 'Latest', and 'Name of Day'. The 'Name of Day' option is highlighted with a red box. A tooltip at the bottom right of the menu says: 'Create a new column containing the name of the day corresponding to each Date/Time value in the selected column.'

## Operation Applied Steps Pipeline in Queries / Table

The screenshot shows the Power Query Editor with the 'Query Settings' pane open. The 'Name' field is highlighted with a red box and contains the value 'sales\_data'. Below the name, the 'APPLIED STEPS' pane is highlighted with a red box and lists the following steps: Source, Navigation, Promoted Headers, Changed Type, Inserted Merged Column, Changed Type1, Renamed Columns, Reordered Columns, Removed Columns, Replaced Value, Inserted Day Name, and Reordered Columns1.

Merging (Number of row remain same we just added column )

Note We don't have customer name in the table\_orders but the customer name is in Table\_customers.

If we want to show customer name in table\_orders we need to join the table based on the common entity i.e Cust\_id which is primary key in Table\_customers

**In PowerQuery**

Go to Home → Merge Queries → Merge Queries / Merge Queries as New

Then following Screen will appear

Merge

Select tables and matching columns to create a merged table.

table\_orders *Step 1: left table*

Customer_Id	HotelName
2	Spice Paradise
3	Pizza Palace
2	Pizza Palace
1	Burger Bistro

table\_customers *Step 2 : Right table*

Cust_Id	Customer_name
1	Rajes Kumar
2	Priyati Sharma
3	Anjali Patel
4	Suresh Gupta

*Step 3: Select the common Colum to join*

Join Kind *Step 4: Join as per required, left,right, inner, outer*

Left Outer (all from first, matching from second)

Right Outer (all from second, matching from first)

Full Outer (all rows from both)

Inner (only matching rows)

Left Anti (rows only in first)

Right Anti (rows only in second)

Use fuzzy matching to perform the merge

▷ Fuzzy matching options

✓ The selection matches 4 of 4 rows from the first table.

OK Cancel

**Output**

Step 1: Click here to select Customer name

**Output**

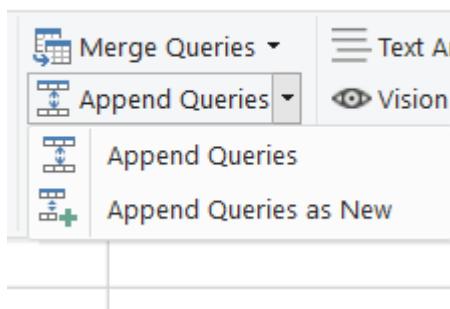
AB <sub>C</sub> payment_method	AB <sub>C</sub> table_customers.Customer_name
COD	Preeti Sharma
UPI	Preeti Sharma
Card	Rajesh Kumar
COD	Anjali Patel
UPI	Suresh Gupta
Card	Preeti Sharma
UPI	Anjali Patel
	Rajesh Kumar

This whole process is merge as the number of row remain the same only colum is added.

Append (when we have missing customer then we need to append the missing data of the customer, in such case we will do append two tables)

To Append (for missing values)

Go to Home → Append Queries → Append Queries/ Append Queries as New →



X

## Append

Concatenate rows from two tables into a single table.

Two tables    Three or more tables

Table to append

OK

Cancel

- 
- Merging combines tables vertically based on one or more common columns.
  - Appending combines tables horizontally based on the column names and type.

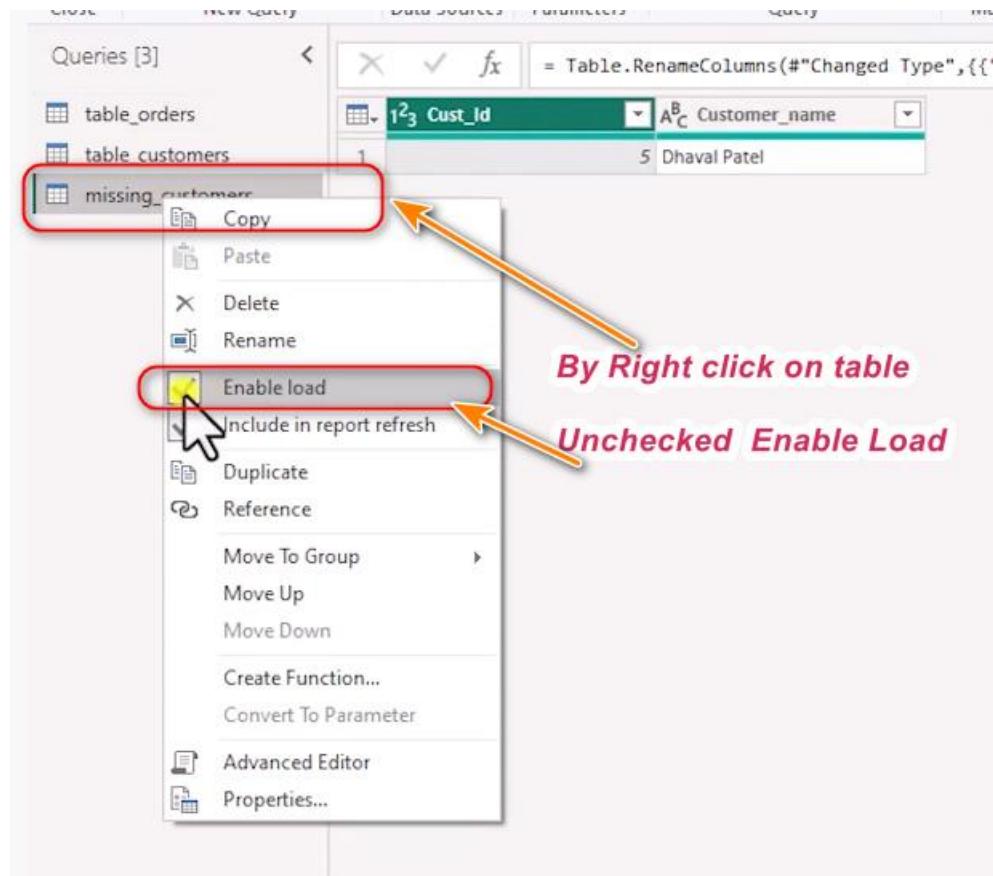
### Best Practice

Naming the applied operational steps properly

### Disabling the load for supporting table

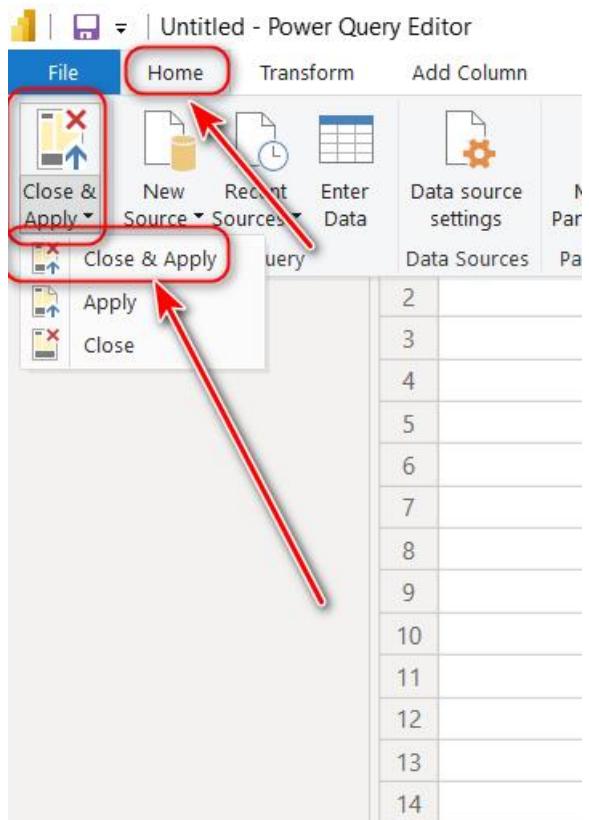
(if we don't need don't load that table ) while save and apply/exit. )

### By Right click on table and Uncheck Enable Load



## Final Step Close and Apply in Power Query

Finally Go to **Home Tab** ➔ **Close and Apply**



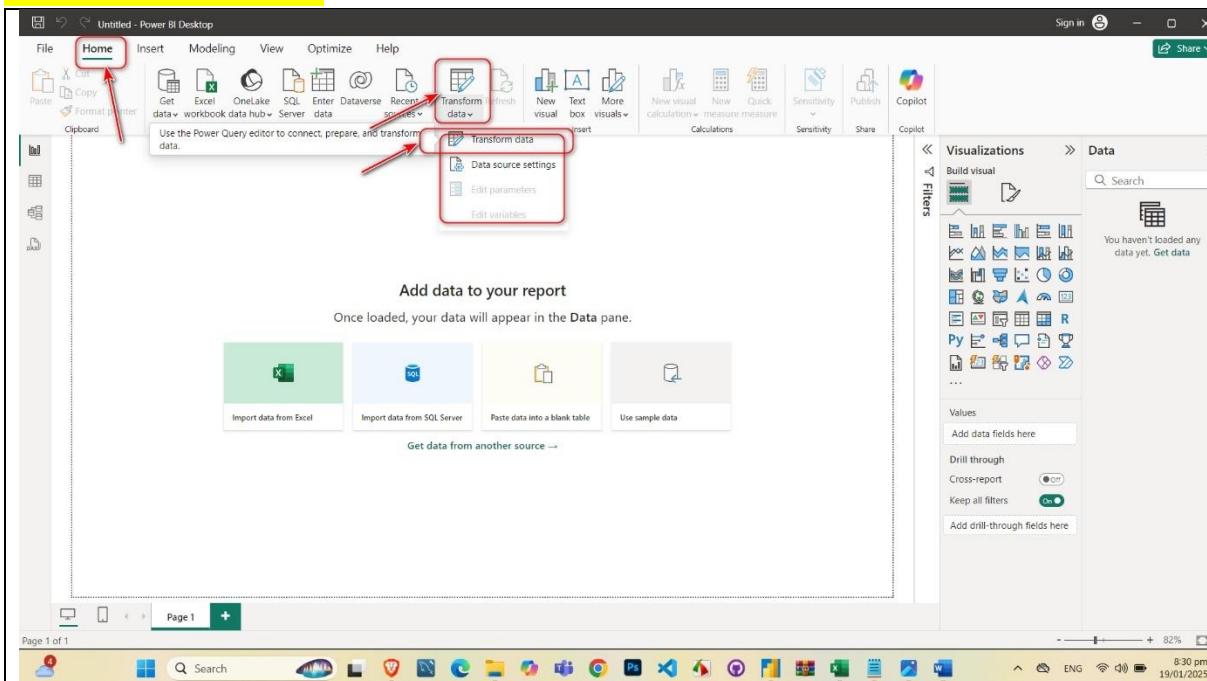
## Create a Custom Calendar

Steps are given below

To Go to **Power Query in BI**

**Open the BI**

## Home → Transform Data



## Then In Power Query

### Home → New Source → Blank Query

And Type formula in formula Section to generate calander

Transaction ID	Date	Brand	Units Sold	Price Per Unit
1	09-10-2021	Xiaomi	6	
2	09-10-2021	Vivo	6	
3	09-10-2021	Vivo	8	
4	10-10-2021	Xiaomi	5	
5	10-10-2021	OnePlus	3	
6	10-10-2021	Samsung	3	
7	10-10-2021	OnePlus	6	
8	11-10-2021	Apple	2	
9	11-10-2021	Vivo	6	
10	11-10-2021	Samsung	6	
11	12-10-2021	Samsung	8	
12	12-10-2021	Apple	7	
13	12-10-2021	Apple	8	
14	12-10-2021	Xiaomi	0	

=List

Parameters Parameters Query Columns Columns Rows Rows Column By

```
c = List.Dates()
```

n.Error: 0 arguments

```
=
ents=[List]
```

**List.Dates(start as date, count as number, step as duration)**

**date**

Generates a list of date values given an initial value, count, and incremental duration value.

= List.Dates(#date(2021,1,1),1461,#duration(1,0,0,0))

Then Click on new produced transform tab → To table → Ok

Then the data will be converted to table and

Double click and rename the column name to Date as shown in figure below

Also change the datatype to date from ABC Text

	Date	A <sup>B</sup> C
1	1.2 Decimal Number	
2	\$ Fixed decimal number	
3	1 <sup>2</sup> 3 Whole Number	
4	% Percentage	
5	>Date/Time	
6	Date	
7	Time	
8	Date/Time/Timezone	
9	Duration	
10	A <sup>B</sup> C Text	
11	True/False	
12	Binary	
13	Using Locale...	
14		

**Step two**

**Step 3. Click on to Table, Convert**

**Step one**

This is M language in PowerQuery, we use #,

1461 means number of day in 4 years ( $365 \times 4 + 1 = 1461$ );

1 added due to leap year; 366 days in every 4 years

#duration(1,0,0,0) means day-1, hour-0, min-0, sec-0

**Step 4. click on ok**

To Table

Create a table from a list of values.

Select or enter delimiter

None

How to handle extra columns

Show as errors

OK Cancel

1	1/01/2021
2	2/01/2021
3	3/01/2021
4	4/01/2021
5	5/01/2021
6	6/01/2021
7	7/01/2021
8	8/01/2021

To add days in next column of day select the date column

Go to Add Column Tab → Data → Day → Name of Day

The screenshot shows the Power Query Editor interface with the following steps highlighted:

- Step one Select the column**: A red box highlights the "Date" column in the "ABC 123" table.
- Three**: A red box highlights the "Date" button in the ribbon.
- Date**: A red box highlights the "Day" option in the Date dropdown menu.
- Four**: A red box highlights the "Name of Day" option in the submenu.
- Five output Result**: A red box highlights the "Result" text in the status bar.

The status bar at the bottom indicates "2 COLUMNS, 999+ ROWS Column profiling based on top 1000 rows".

Finally Give the name to query as shown in figure **Custom\_Calander**

We can also see the **list of Operation we have done** below the query name as shown in figure .

We can undo or remove as per requirement

The screenshot shows the Power BI Query Editor interface. On the left, there's a preview of a table with two columns: 'Date' and 'Day Name'. The 'Date' column contains dates from 1/01/2021 to 16/01/2021, and the 'Day Name' column contains corresponding days of the week. A red box highlights this table area. To the right, the 'Properties' pane is open, showing the 'Name' field set to 'Custom\_Calander'. Below it, the 'Applied Steps' pane is also highlighted with a red box, listing the following steps:

- Source
- Converted to Table
- Renamed Columns
- Inserted Day
- Inserted Day Name
- Removed Columns

Red arrows point from the text annotations 'Rename the query name to Custom\_Calander' and 'List of Operation we have done' to their respective locations in the Properties and Applied Steps panes.

Then Go to **Home Tab → Close & Apply**

## Data Modelling - Create Relationship

Data modelling is necessary when we have more than one table

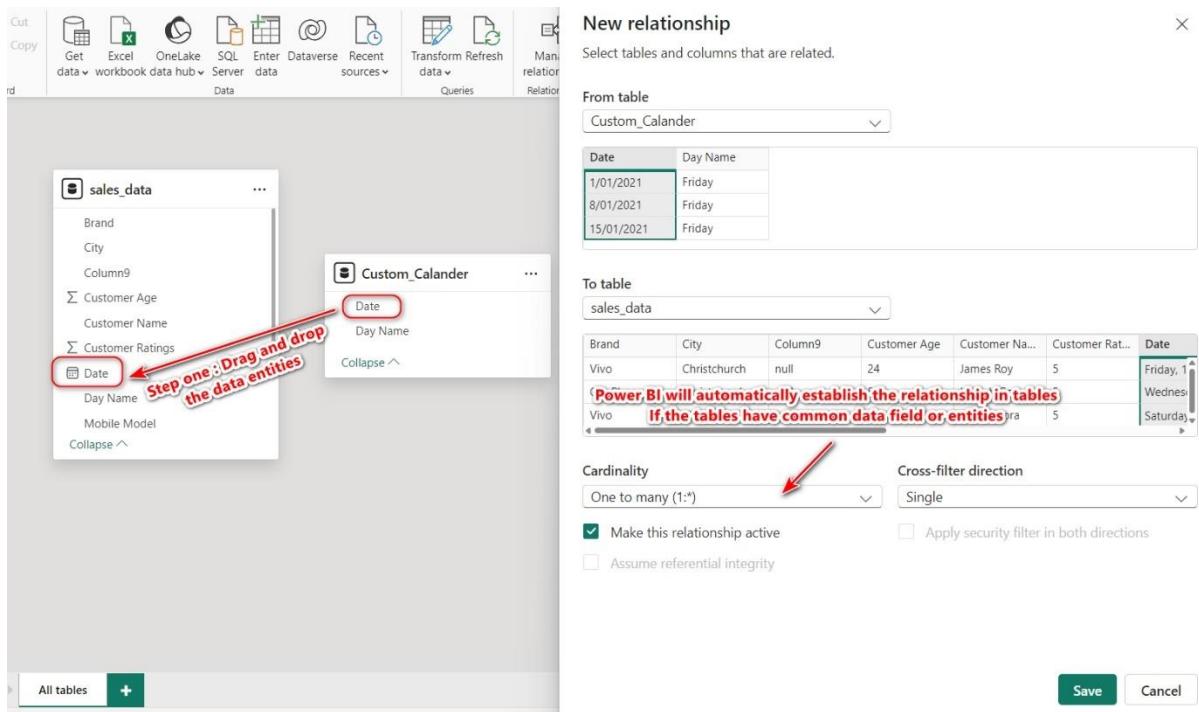
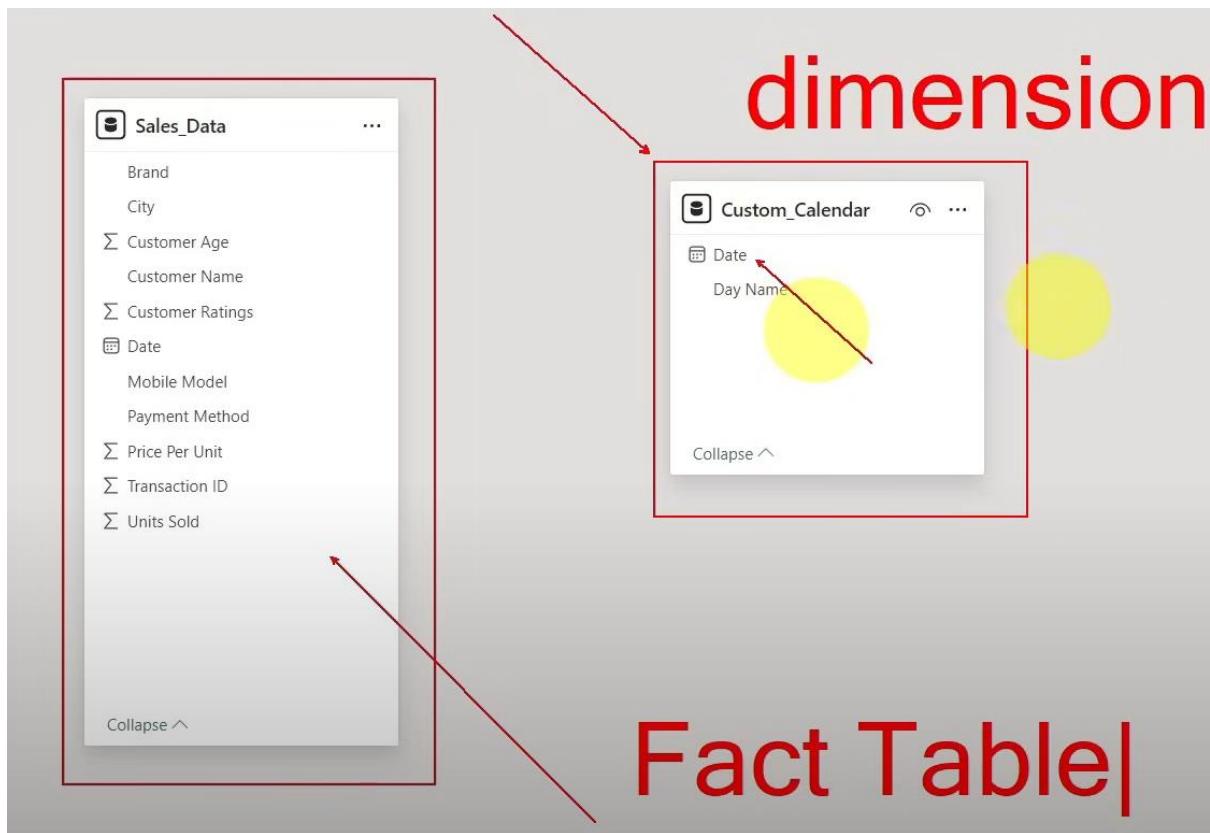
Dimension and Fact / Data Table [ Relationship one to many]

Dimension table have unique values and in fact/data tables values may be repeated

e.g Dimension table have unique data but in the fact table dates are repeated .i.e in the same ta 12 Dec 2024 there may be multiple sales of mobile [in one day lots of sales occur at shop]

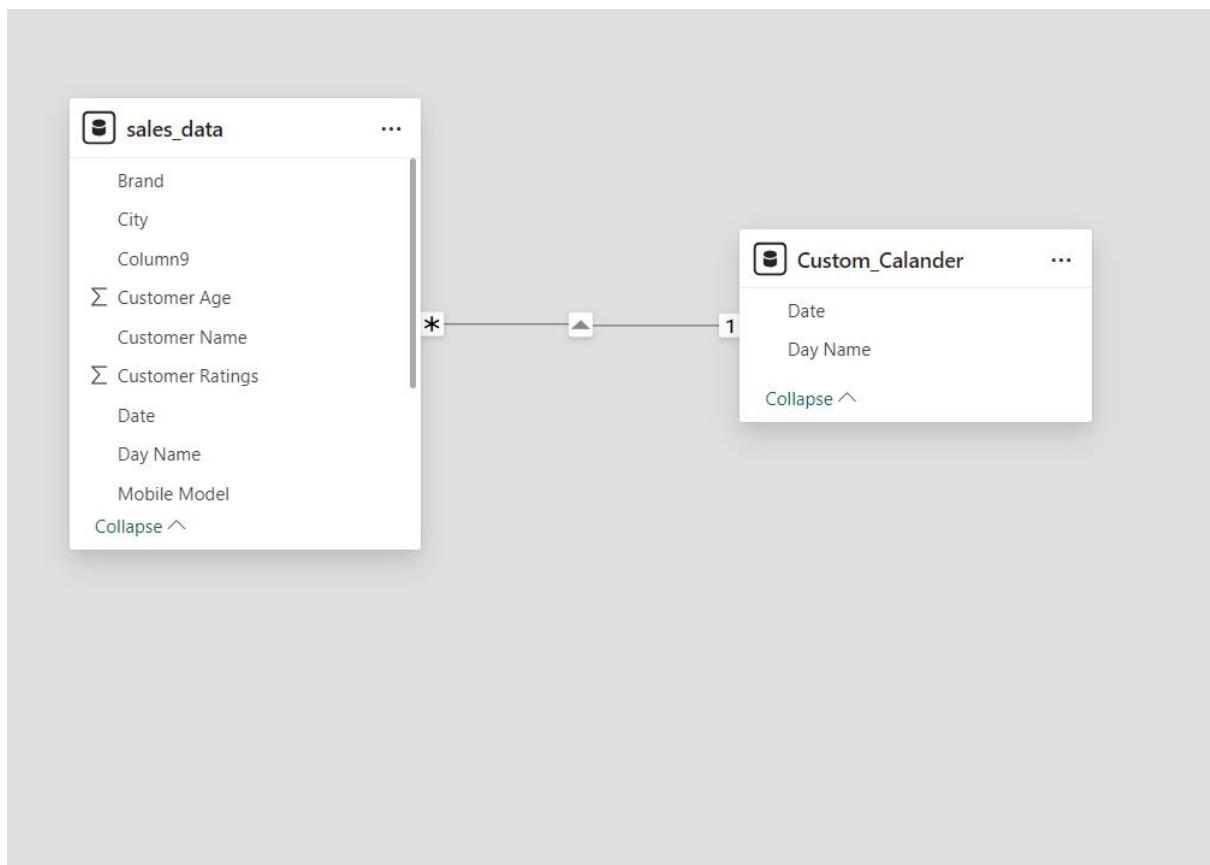
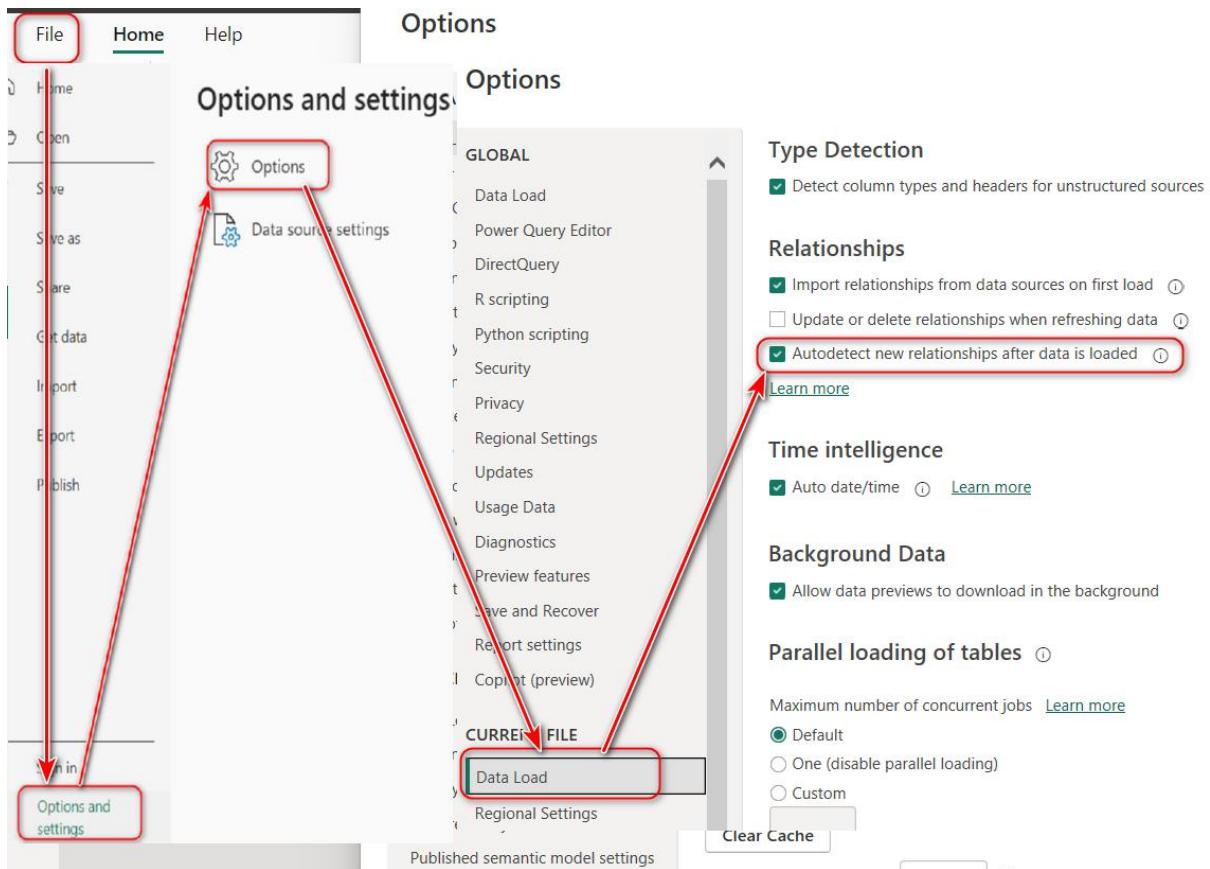
To establish the relationship drag and drop date filed from one table to another

Power BI will automatically establish the relationship in tables



To establish the relationship automatically

Go to file → Options and Settings → Options → Data Load → Checked on “**Autodetect new relationships after data is loaded**”



## Required DAX (Data Analysis Expressions) Calculations in Power BI

In Power BI, DAX (Data Analysis Expressions) is used to create custom calculations for your reports. Here are some common types of DAX calculations you might require:

How to use DAX formula in multiple line then use ➔ ALT + ENTER

---

### 1. Aggregations

These calculations summarize data. Examples:

- **Sum:**

```
Total Sales = SUM(Sales[Amount])
```

- **Average:**

```
Average Sales = AVERAGE(Sales[Amount])
```

- **Count:**

```
Count of Orders = COUNT(Sales[OrderID])
```

---

### 2. Filters

Apply conditions to your calculations:

- **Filtered Sum:**

```
Total Sales (2023) = CALCULATE(SUM(Sales[Amount]), Sales[Year] = 2023)
```

- **Exclude Values:**

```
Sales Excluding Returns = CALCULATE(SUM(Sales[Amount]), Sales[Status] <> "Returned")
```

---

### 3. Time Intelligence

Time-based calculations are common in reporting:

- **Year-to-Date (YTD):**

```
YTD Sales = TOTALYTD(SUM(Sales[Amount]), Calendar[Date])
```

- **Month-to-Date (MTD):**

```
MTD Sales = TOTALMTD(SUM(Sales[Amount]), Calendar[Date])
```

- **Year-over-Year Growth:**

```
YoY Growth = (SUM(Sales[Amount]) - CALCULATE(SUM(Sales[Amount]),  
SAMEPERIODLASTYEAR(Calendar[Date]))) / CALCULATE(SUM(Sales[Amount]),  
SAMEPERIODLASTYEAR(Calendar[Date]))
```

---

## 4. Calculated Columns

For row-level calculations:

- **Profit Margin:**

```
Profit Margin = (Sales[Profit] / Sales[Amount])
```

---

## 5. Ranking

Rank rows based on a measure:

- **Rank by Sales:**

```
Rank by Sales = RANKX(ALL(Sales[Customer]), SUM(Sales[Amount]),  
DESC, Dense)
```

---

## 6. Percentage of Total

Calculate the contribution of each item to the total:

- **% of Total Sales:**

```
% of Total Sales = DIVIDE(SUM(Sales[Amount]),  
CALCULATE(SUM(Sales[Amount]), ALL(Sales)))
```

---

## 7. Conditional Measures

Create measures based on conditions:

- **Dynamic Target Achievement:**

```
Target Achievement = IF(SUM(Sales[Amount]) >= Sales[Target],  
"Achieved", "Not Achieved")
```

---

## 8. Cumulative Totals

Track running totals over time:

- **Cumulative Sales:**

```
Cumulative Sales = CALCULATE(SUM(Sales[Amount]),  
    FILTER(ALL(Calendar[Date]), Calendar[Date] <= MAX(Calendar[Date])))
```

---

## 9. Key Performance Indicators (KPIs)

Track performance metrics:

- **Sales Variance:**

```
Sales Variance = SUM(Sales[Actual]) - SUM(Sales[Target])
```

---

## 10. Dynamic Measures

Measures that change based on slicer selection:

- **Dynamic Selection Measure:**

```
Selected Metric = SWITCH(SELECTEDVALUE(Metrics[Metric Name]),  
    "Total Sales", SUM(Sales[Amount]),  
    "Total Profit", SUM(Sales[Profit]),  
    "Profit Margin", DIVIDE(SUM(Sales[Profit]),  
    SUM(Sales[Amount])))
```

**This Summation represent Numeric value**

The screenshot shows the Power BI Data view. At the top, there are tabs for 'Tables' (which is selected) and 'Model'. Below the tabs is a search bar with the placeholder 'Search'. Under the search bar, there is a tree view of data sources: 'Custom\_Calander' (with a plus sign) and 'sales\_data' (with a minus sign). The 'sales\_data' node has several children listed below it: City, Column9, Customer Age, Customer Name, Customer Ratings, Date, Day Name, Mobile Model, Payment Method, Price Per Unit, Transaction ID, and Units Sold. Red arrows from the text 'This Summation represent Numeric value' point to the measures: Customer Age, Customer Ratings, Price Per Unit, Transaction ID, and Units Sold.

In Power BI, measures are categorized as **explicit** or **implicit**, depending on how they are created and used.

Implicit Measures	Explicit Measures
<ul style="list-style-type: none"> <li>Created automatically by Power BI when you drag a column (with numerical or aggregatable data) into a visualization.</li> <li>They perform a simple aggregation (e.g., SUM, AVERAGE, COUNT) based on the data type.</li> </ul>	<ul style="list-style-type: none"> <li>Created manually using DAX formulas in Power BI to define custom calculations.</li> <li>Explicitly saved in the model as standalone measures.</li> </ul>
<b>Reusability</b> Only in the visual where it's created	Reusable across the entire model
<b>Customization</b> Limited (e.g., aggregation type only)	Fully customizable using DAX formulas
<b>Recommended</b> Simple, quick aggregations	Advanced reporting and scalable models

Note We must be in report View then

### Example of Implicit Measures(Automatic Drag and Drop)

Drag Card from visualization section or just double click on card

and

drag and drop any **value shown with summation in card** from Data Section or just select in data section

Note : The selected value can be edited Sum (Average,Minimum,Maximum,Count (Distinct),Count,Standard deviation,Variance,Median and more as per required )

by just click in Field shown in visualization section

Report view/First select

Step 2: Double Click on card or drag and drop here

Step 3: Select any summation type value

Step 4: Click on "Sum of Units Sold" and can change to sum, average, sd, median, ....and so on

Visualizations

Filters

Fields

Sum of Units Sold

Drill through

Cross-report

Keep all filters

Add drill-through fields here

Data

Custom\_Calander

Brand

City

Column9

Customer Age

Customer Name

Customer Rating

Date

Day Name

Mobile Model

Payment Method

Price Per Unit

Transaction ID

Units Sold

Filters

Fields

Sum of Units Sold

Drill through

Cross-report

Keep all filters

Add drill-through fields here

Visualizations

Filters

Fields

Sum of Units Sold

Drill through

Cross-report

Keep all filters

Add drill-through fields here

Data

Remove field

Rename for this visual

Sum

Average

Minimum

Maximum

Count (Distinct)

Count

Standard deviation

Variance

Median

Show value as

New quick measure

Transaction ID

Units Sold

### Example of Explicit Measures (by making formula)

The screenshot shows the Power BI interface with the 'Measure' tab selected. A red box highlights the formula bar where the formula `1 Madhu_Total_Qty = SUM(Column name)` is entered. A red circle highlights the text "Column name". A tooltip below the formula states: "Adds all the numbers in a column." To the right of the formula bar, a dropdown menu lists several options, with "sales\_data" being the selected item. Below the formula bar, another dropdown menu shows "sales\_data[Price Per Unit]" and "sales\_data[Units Sold]". The bottom section of the screenshot shows the completed formula: `1 Madhu_Total_Qty = SUM(sales_data[Units Sold])`.

### As before then can drag and drop can be used Similar to Implicit Measures

This screenshot illustrates the comparison between explicit and implicit measures. It shows two cards, both labeled "23K". The left card is associated with "Sum of Units Sold" and is labeled "From Implicit Measures Drag and Drop". The right card is associated with "Madhu\_Total\_Qty" and is labeled "From Explicit Measures By making our own formula Then we drag card here and drag our calculated value "Madhu\_Total\_Qty" here can be reused later". A blue arrow points from the explicit measure formula in the top navigation bar to the right card. Another blue arrow points from the implicit measure formula in the top navigation bar to the left card. A third blue arrow points from the right card down to the "Values" section of the Power BI interface, which contains a list of data fields including "Madhu.Total.Qty".

Note : To find total sales we need to multiply unit by unit price

Total Sales == unit sold \* price per unit

To do that we need to create a new column , we we create a new column then automatically formula bar will be opened and we can type the formula there.

Add new colum by right click on any colum or right click on Sales\_data

The screenshot shows the Power BI Data view. A context menu is open over the 'Sales\_data' column header. The menu items are: New measure, New column (highlighted with a red box), New quick measure, Refresh data, Edit query, Manage relationships, Incremental refresh, and Manage aggregations. A yellow box highlights the 'New column' option. Another yellow box highlights the 'Sales\_data' column header. Text overlays say 'Right click on sales\_data ==> new Colum' and 'Right click on Any Colum and add ==> New Column'.

OR

The screenshot shows the Power BI Data view with a context menu open over a cell in the 'Price' column. The menu items are: Sort ascending, Sort descending, Clear sort, Clear filter, Copy, Copy table, New measure (highlighted with a red box), New column (highlighted with a red box), Refresh data, Edit query, Hide in report view, Unhide all, New group, 43832.02 Bina Siddiqui, 46160.2 Sunita Mehta, 14856.98 Yogesh Malhotra, and 66174.43 Sunil Verma. A yellow box highlights the 'New column' option. Another yellow box highlights the 'Price' column header. Text overlays say 'Right click on Any Colum and add ==> New Column'.

Type formula

```
madhu_total_Sales = sales_data[Units Sold]*sales_data[Price Per Unit]
```

### Note

→ When we use DAX formula by **New Column** it creates the column on table thus increases the size of data

→ But we create by **New Measure** the column will not be created so no increase the data

To do that we can use sumx formula we calculated the total sales without creating

**SUMX (table, expression) → SUMX( sales\_data\_table , unit \* unit price)**  
**Sumx will do sum of all column values**  
**Gives total**

Click on Sales\_data → New Measure → then type formula

```
madhu_total_sales =SUMX(sales_data, sales_data[Units Sold]*sales_data[Price Per Unit])
```

**Syntax popup**  
**SUMX(table,expression)**

returns the sum of an expression evaluated for each row in a table.

**1 madhu\_total\_sales =SUMX(sales\_data, sales\_data[Units Sold]\*sales\_data[Price Per Unit])**

**Give any name ==sales\_data\_table , unit \* unit price)**

**23K** Sum of Units Sold  
**23K** Madhu\_Total\_Qty  
**23M** madhu\_total\_sales

Lets Calculate

Total Transaction = COUNTROWS(table name )

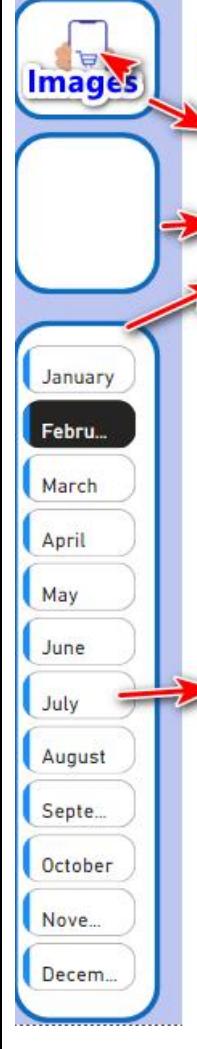
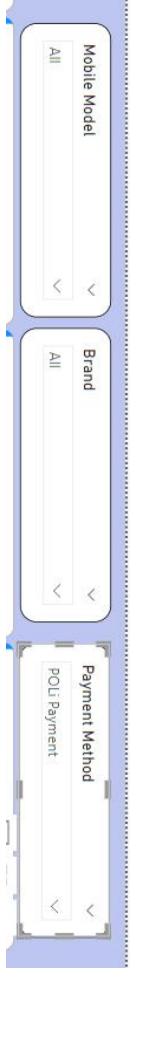
Right click on sales\_data → new measure → type formula

**Total Transaction = COUNTROWS(sales\_data)**

Average → Average(tablename with columnname )

**Average\_Price = AVERAGE(sales\_data[Price Per Unit])**

## Learn Dashboard Creation in Power BI

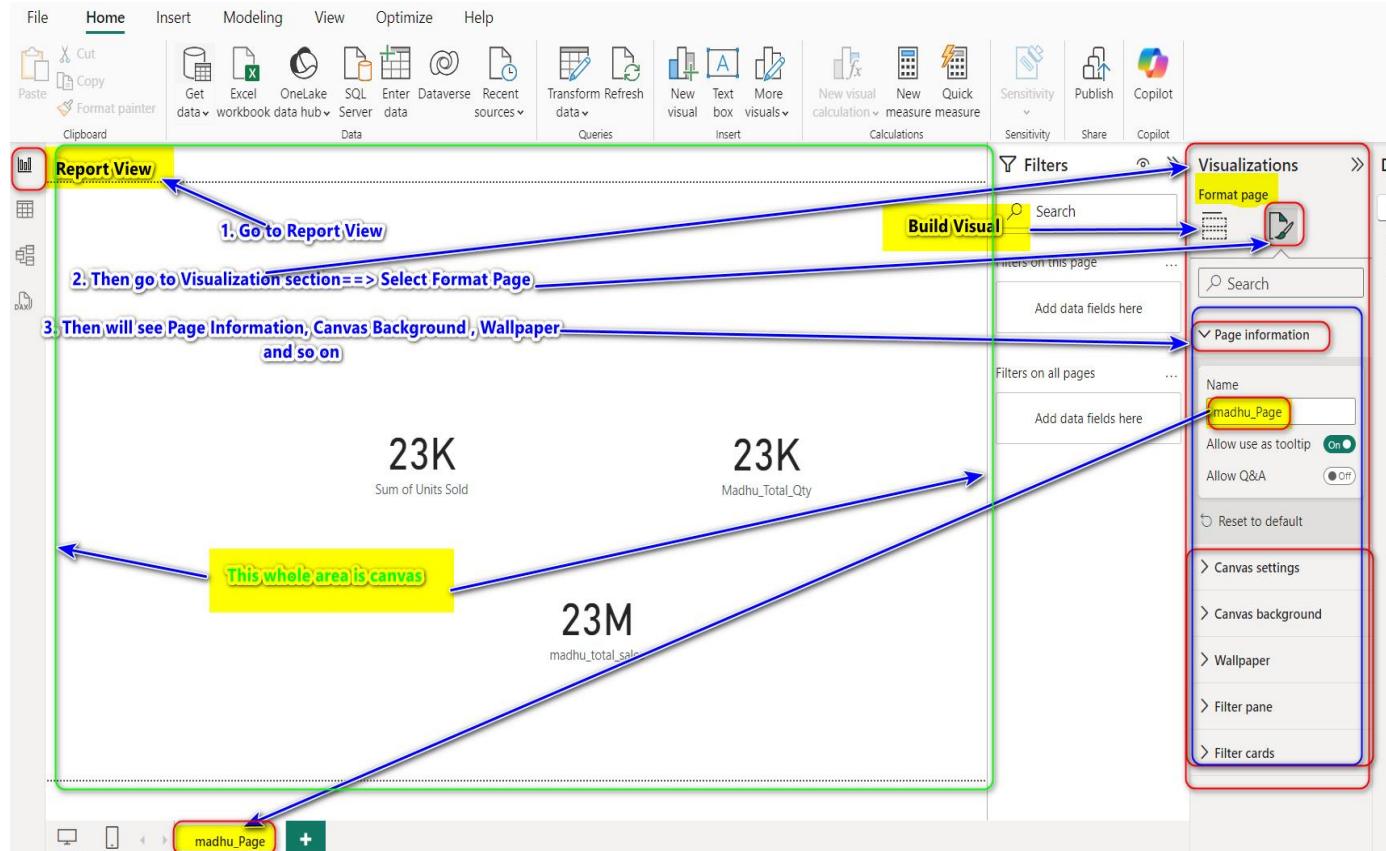
Add New Tile Slicer (for calender) and rectangular box from insert menu	New Data Card	old Slicer Now (filter) For mobile model, payment method, Brand
 <p>Insert Rectangular Shape</p> <p>New Tile Slicer for C</p>	 <p>Aver <b>New Data Card</b></p> <p>Total_Transaction</p> <p>Total_Qty</p>	 <p>Mobile Model</p> <p>Brand</p> <p>Payment Method</p> <p>POI/Payment</p>

Colour Combination as per the company profile / logo/ website

1. Go to **Report View**

2. Then go to **Visualization** section==> Select **Format Page**

3. Then will see Page Information, Canvas Background, Wallpaper, and so on



To insert anything in Canvas

Insert Rectangular Shape

Click on Insert→Elements (Shapes)



To Remove Background of any images

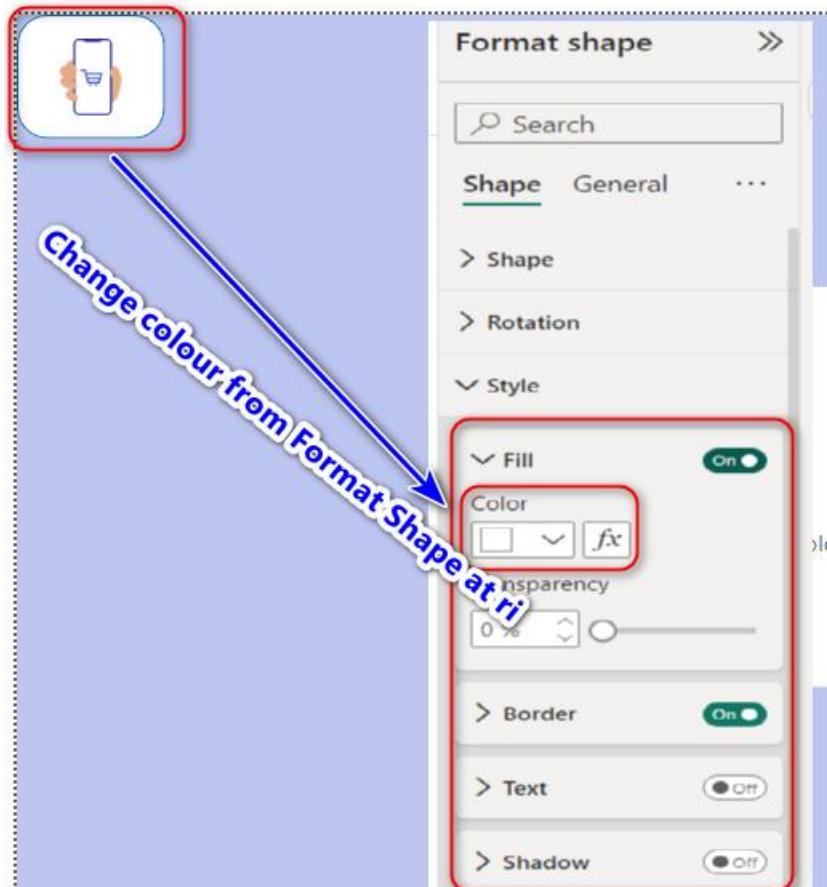
To remove the background and to convert to transparent images Go to [www.remove.bg](http://www.remove.bg) keep the photo in **png (Portable Network Graphic)** format

You can use colorPicker from Faststone Capture

To bring the shapes, images to front or back ,

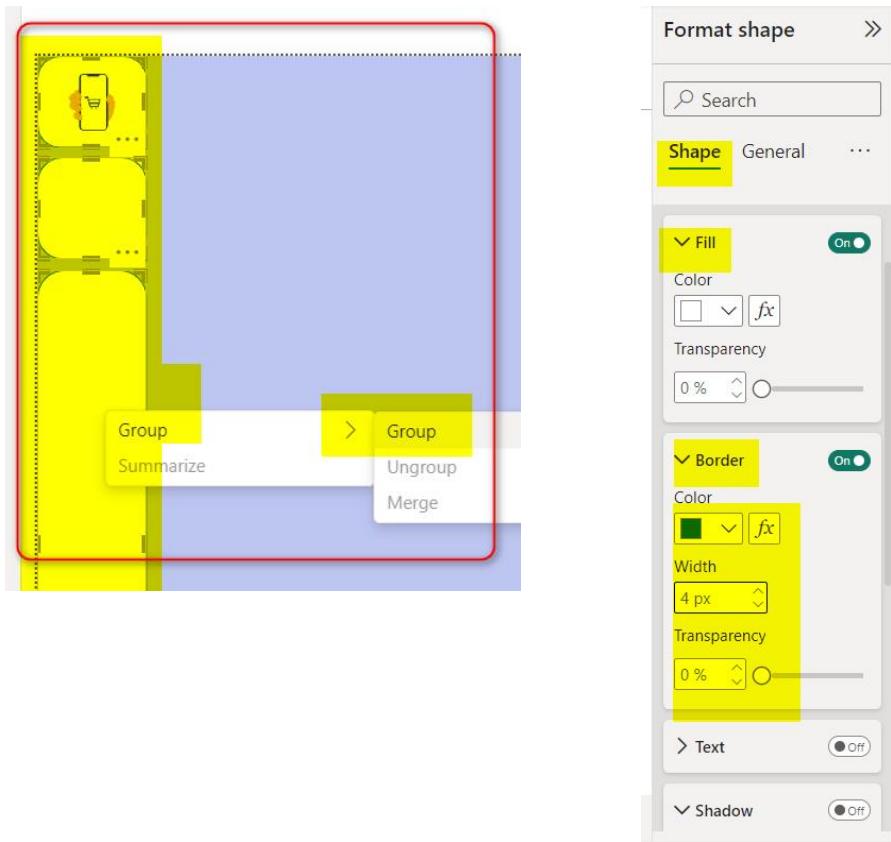
Simply select the images then go to Format → Bring Forward

Note we are inserting shapes rectangular and png transparent images

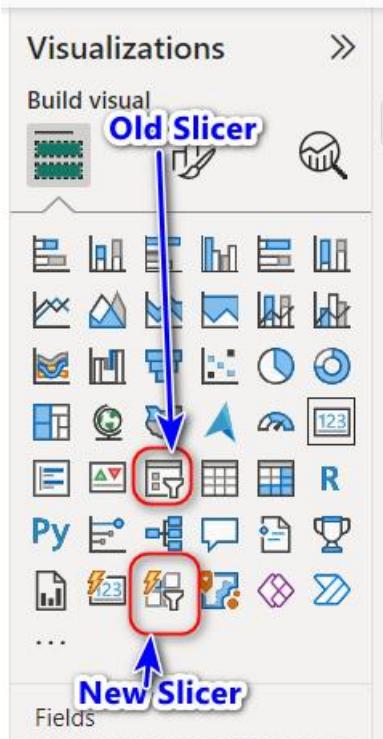


Simply do copy and paste the shapes

By selecting all the images / shapes we can also group them and give them border as well



## Slicer (old Slicer and New Tile Slicer)



Add New Slicer

Insert the new slicer drag and drop the custom\_calander → Date → Month on the slicer

The screenshot shows the Power BI Data view. On the left, there is a 'Tile Slicer' visual with a grid of 12 squares labeled with month abbreviations (J., F., M., A., M., J., J., A., S.). To the right is the 'Data' pane. In the 'Custom\_Calander' node, under the 'Date' category, the 'Month' checkbox is selected and highlighted with a red box. Other options like 'Year', 'Quarter', and 'Day' are also listed.

Select the slicer → Format Visual → layout → (Single Column, card, 12)

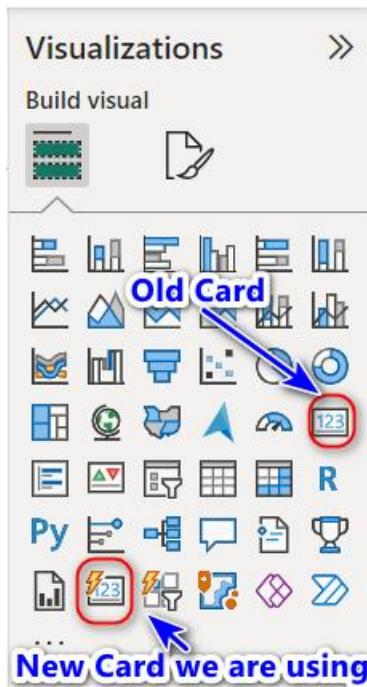
The screenshot shows the 'Format Visual' dialog for the slicer. The 'Layout' section is highlighted with a red box. It includes settings for 'Arrangement' (set to 'Single column'), 'Style' (set to 'Cards'), and 'Max buttons shown' (set to 12). A note 'There are 12 months so that' points to this setting. The 'Format your visual' button is also highlighted with a red box.

To remove the slicer title (i.e Month) → Go to visual format → General → Turn Off the title, effect(turn off background → to remove background colour)

To add Accent Bar ::: go to visual → Buttons → Accent bar

## Card (New and Old)

We are now adding new card for KPI (Key Performance Indicator)



### If need to remove Decimal point in KPI

Step 1 : Select the entities where we don't need value after decimal

Step 2: Go to Measure Tool

Step 3: Select Auto to 0

The screenshot shows the Power BI interface with a 'Measure tools' tab selected. A red box highlights the 'Auto' dropdown in the 'Formatting' section, with a blue arrow pointing to it labeled 'Put Zero here'. Another red box highlights the 'Average\_Price' measure in the 'Data' pane, with a blue arrow pointing to it labeled 'step 1 : Select the entities where we don't need value after decimal'. Below these, a red box highlights the 'Total\_Sales' card, which displays the value '769.20M'. A blue arrow points from the card to the text 'Step 2: Go to Measure Tool'. At the bottom, a blue arrow points from the text 'Step 2: Go to Measure Tool' to the text 'Step 3: Select Auto to 0'.

## Options available for New Data Card in Visual

Lets do setting one by one

Layout → single row, 4(as we want to keep 4 data)

Card → Rounded Rectangle, 10px, Accent bar give color, keep 6px

The screenshot shows the 'Visualizations' pane in Power BI. On the left, under 'Format visual', there are icons for grid, style, and search. Below these are tabs: 'Visual' (selected), 'General', and '...'. A search bar is also present. The main area has a tree view with nodes: 'Layout', 'Small multiples layout', 'Small multiples header', 'Callout values', 'Reference labels', 'Images', and 'Cards'. The 'Cards' node is expanded, revealing sub-options for 'Layout' and 'Cards'. Under 'Layout', 'Arrangement' is set to 'Single row', 'Style' is 'Cards', 'Max cards shown' is 4, and 'Space between cards' is 4 px. Under 'Cards', 'Apply settings to' is set to 'All', 'Shape' is 'Rounded Rectangle', 'Rounded Corners' is 10 px, and 'Customize style' is off. An 'Accent bar' section is also visible, with 'On' selected, 'Position' set to 'Left', 'Color' set to blue, 'Transparency' at 0%, and 'Width' at 6 px.

To remove Background

Go to General → Effect → Remove Background

**Visualizations**

To decrease space between data and values  
Total\_Sales 80k

Go to **callOut value** → **Label**  
Change to 4px

**Visualizations**

Format visual

Visual General ...

> Properties

> Title (Off)

Effects

Background (Off)

Color (Color picker, fx)

Transparency (0 %, slider)

> Visual border (Off)

Visual General ...

Heading 4

Font

Segoe UI 12

B I U

Color (Color picker, fx)

Transparency (0 %, slider)

Position

Above Value

Space between label and ...

4 px

Text wrap (Off)

This screenshot shows the 'Format visual' pane for a callout label in Power BI. The 'General' tab is selected. The 'Font' section is highlighted with a yellow background, showing 'Segoe UI' as the font and '12' as the size. The 'Text wrap' option is turned off. The 'Position' dropdown is set to 'Above Value'. The 'Space between label and ...' dropdown is set to '4 px'.

To add images save the png images from the google related to sales  
Select the **new card** → **Format your Visul** → **Images**

The screenshot shows the Power BI desktop interface. At the top, there's a ribbon with various tabs like GET, Excel, Create, etc. Below the ribbon, there's a toolbar with icons for clipboard, data, queries, and other functions. The main area displays a card visual with four metrics: Total\_Sales (769M), Total\_Quantity (19K), Transactions (4K), and Average\_Price (40.11K). A red box highlights the 'Total\_Sales' card. To the right, the 'Visualizations' pane is open, showing sections for Format visual, Layout, Callout values, Reference labels, Images, and Cards. A red arrow points from the 'Images' section in the Visualizations pane to the 'Total\_Sales' field in the settings.

After selecting the images apply the setting for e.g for total sales

Series → Select Total\_sales, browse the images of total sales with transparent background, make size to 70 to 80px

Similarly do for other 3

The screenshot shows the 'Format visual' settings for the 'Total\_sales' series. The 'Image' section is selected, with 'total sales.png' chosen as the image file. The 'Size' field is set to 80 px. Other settings include Transparency (0 %) and Position (Right of text). The 'Vertical alignment' section shows three options: Top, Middle, and Bottom. The 'Space between image an...' field is set to 4 px. The 'Size' field is highlighted with a red box.

Add old Slicer Now (filter) For mobile model, payment method

The screenshot shows the Power BI visualization editor interface. On the left, there is a visual card titled "al\_Transcation" with a value of "91" and an icon of a document with an arrow. Next to it is another card titled "Total\_Qty" with a value of "2K" and an icon of a stack of coins.

The main area contains a yellow-highlighted list item with the text "① Select or drag fields to populate this visual". To the right of this list is a context menu with the following sections:

- Search
- Filters on this visual
- Add data fields here
- Filters on this page
- Add data fields here
- Filters on all pages
- Add data fields here
- Field
- Add data fields here
- Tooltip
- Keep all filters
- Drag tooltip fields here

A red arrow points from the "Filters on all pages" section towards the yellow-highlighted list item.

1. Select Mobile Model

2. Go to format Visual

3. Slicer Setting ==> Style change to DropDown

The screenshot shows the Power BI desktop interface with a visual on the left and the 'Format' pane on the right.

**Visual Area:** A visual displays a stack of coins with the text 'Qty' next to it. To its left is a 'Mobile Model' slicer with the value 'All' selected.

**Format Pane - General Tab:** The 'Mobile Model' slicer is highlighted with a yellow oval. A green arrow points from this oval to the 'Slicer settings' button in the 'Style' section of the pane.

**Format Pane - Style Tab:** The 'Style' section is highlighted with a yellow oval. A red arrow points from the 'Mobile Model' slicer in the visual area to the 'Style' tab in the pane. Inside the 'Style' tab, the 'Dropdown' option is selected, also highlighted with a yellow oval.

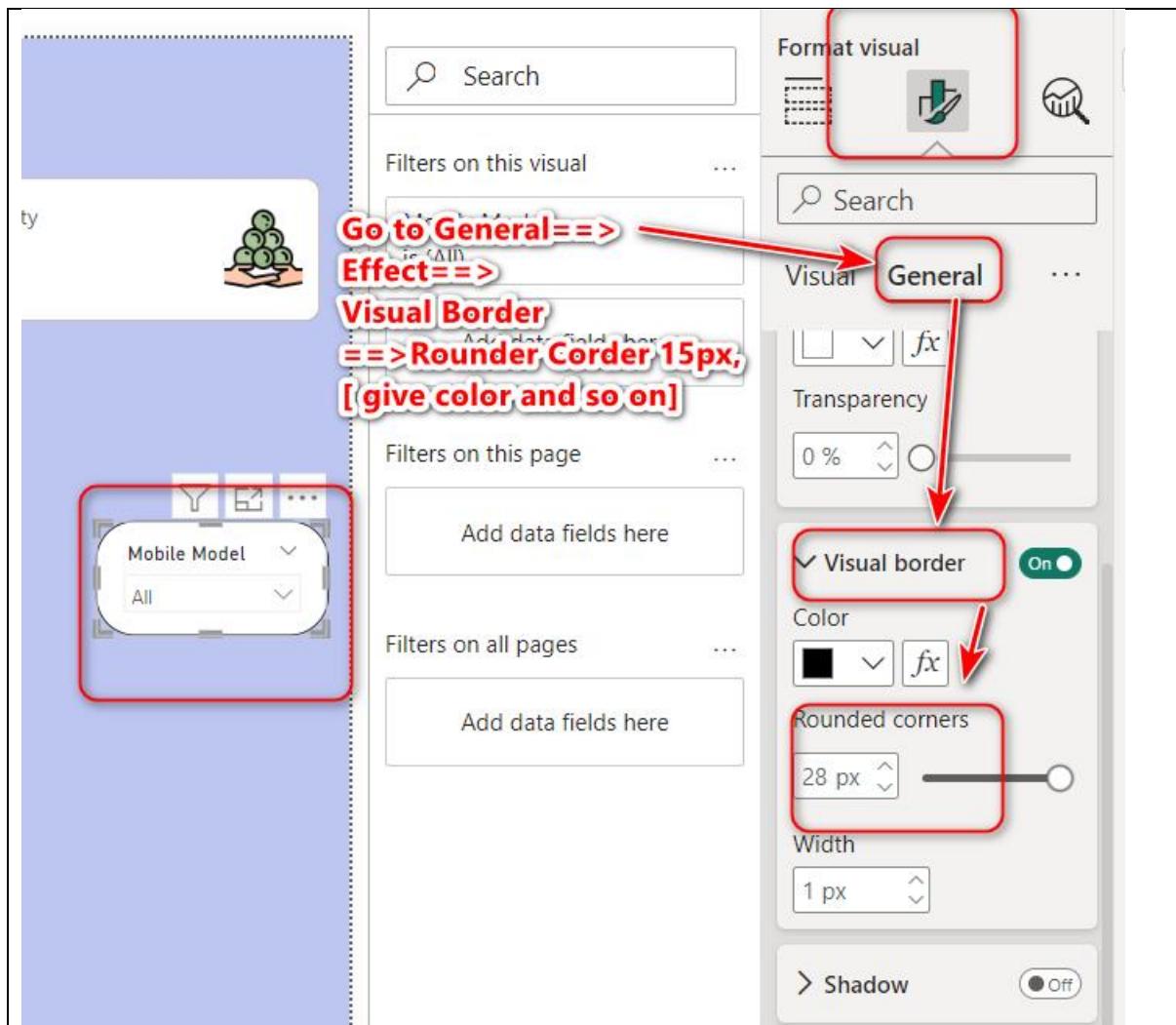
**Format Pane - Options Tab:** The 'Mobile Model' slicer is checked, indicated by a green checkmark. A red arrow points from this checkmark to the 'Mobile Model' slicer in the visual area.

**Right Panel:** The 'sales\_data' table is visible, showing various columns like Average\_Price, Brand, City, etc. The 'Mobile Model' column has a green checkmark next to it.

**Annotations:**

- 1. Select Mobile Model** (Red text, pointing to the slicer in the visual)
- 2. Go to format Visual** (Red text, pointing to the 'Format' pane)
- 3. Slicer Setting ==> Style change to DropDownList** (Red text, pointing to the 'Style' tab in the 'Format' pane)

To Give Rectangular shaper to rounded  
Go to General → Effect → Visual Border → Rounder Corder 15px, give color and so on



After making one slicer simply do copy paste to make another

Simply select the slicer then **do CTRL+C and CTRL +V**

The **remove** the field **mobile model** and add **brand, payment method** that's all

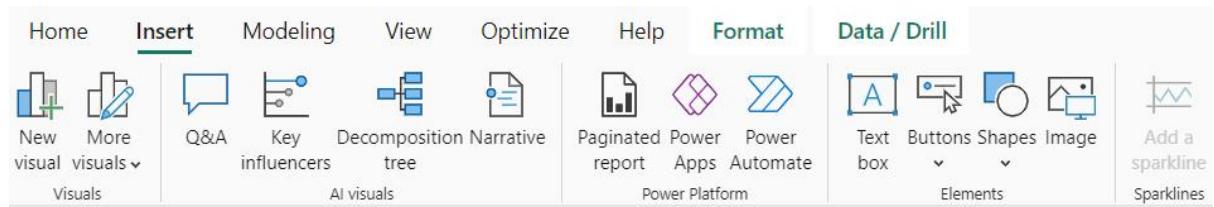


Similary Add the images of Filter and arrow icon at the top

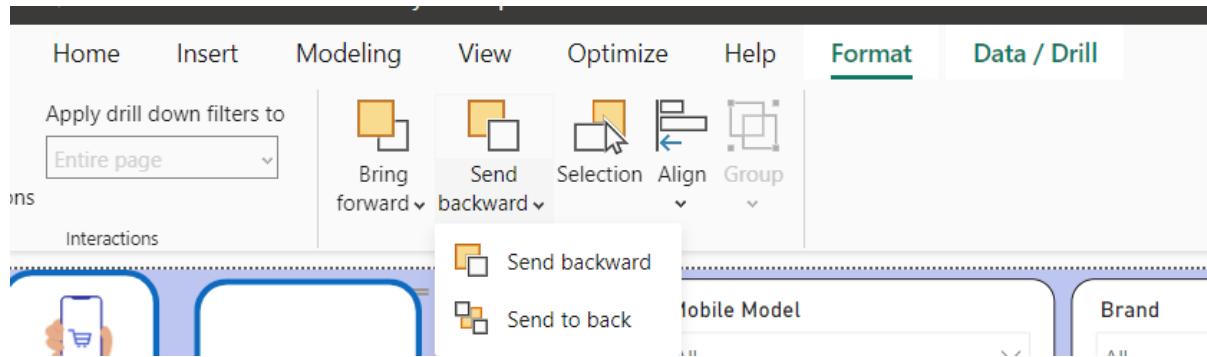
Infront of that just add textbox to write Mobile Dash Board

Steps:

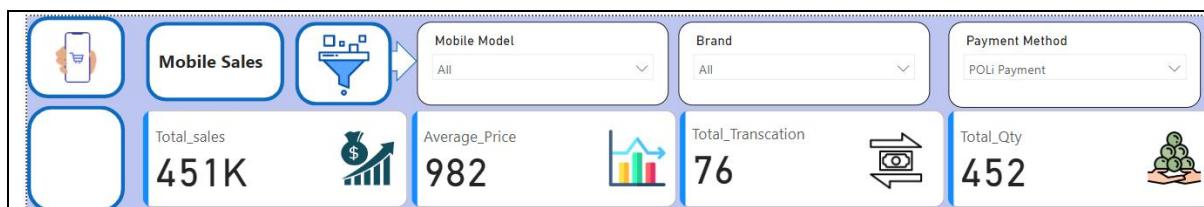
1. Just copy one **rectangular box**
2. Click on Insert (If TextBox, Images, shapes whatever we want)



3. To Bring the images Forward or Backward → Click on **Format** → Bring to **Forward / Backward**



Finally



## Map and Filled Map

	<p><b>Before Adding Map</b> Go to File → Options &amp; Settings → Options → Global(Security) → Checked the Use Map and Filled Map</p> <div style="background-color: #f0f0f0; padding: 5px;"> <p>Use Map and Filled Map visualizations</p> <input checked="" type="checkbox"/> None         <b>Security</b> <ul style="list-style-type: none"> <li><input checked="" type="radio"/> Python scripting</li> <li><input type="radio"/> Security</li> <li><input type="radio"/> Privacy</li> <li><input type="radio"/> Regional Settings</li> <li><input type="radio"/> Updates</li> <li><input type="radio"/> Usage Data</li> <li><input type="radio"/> Diagnostics</li> <li><input type="radio"/> Preview features</li> <li><input type="radio"/> Save and Recover</li> <li><input type="radio"/> Report settings</li> <li><input type="radio"/> Copilot (preview)</li> </ul> <p>Learn more about certificate revocation</p>   <p>Web Preview Warning Level</p> <input type="button" value="Moderate"/> </div> <p><b>Data Extensions</b></p> <p><input checked="" type="radio"/> (Recommended) Only allow Microsoft certified extensions</p> <p><input type="radio"/> (Not Recommended) Allow any extension to be used</p> <p><a href="#">Learn more about data extensions</a></p> <p><b>Custom visuals</b></p> <p><input checked="" type="checkbox"/> Show security warning when adding a custom visual</p> <p><b>ArcGIS for Power BI</b></p> <p><input type="checkbox"/> Use ArcGIS for Power BI</p> <p><b>Map and Filled Map visuals</b></p> <p><input checked="" type="checkbox"/> Use Map and Filled Map visuals</p>
--	--

**Just Add Map in Dashboard by clicking on Map**

[ Location, Legend, bubbleSize, latttute, Longitude]

After selecting Map → Go to Sales\_data and drag drop or just checked city, total sales whatever we like to show

The screenshot shows the Power BI interface with a dashboard containing a map visualization and a card visualization.

**Map Visualization:** The map shows New Zealand with four data points labeled Auckland, Wellington, Christchurch, and Dunedin. A callout box contains the text: "After selecting Map Go to Sales\_data and drag drop or just checked city, total sales, whatever we like to show".

**Card Visualization:** The card displays "Total\_Qty" with the value "452" and an icon of a stack of coins.

**Data Source:** The "Data" pane shows the "sales\_data" table with the following columns:

- Average\_Price
- Brand
- City** (selected)
- Total\_Qty** (selected)
- Total\_sales** (selected)
- Customer\_Age
- Customer\_Name
- Customer\_Rating
- Date
- Day\_Name
- Mobile\_Model
- Payment\_Method
- Price\_Per\_Unit
- Total\_Transactions
- Transaction\_ID
- Units\_Sold

**Map Settings:** In the "Bubble size" section of the map's settings, "Total\_sales" is selected.

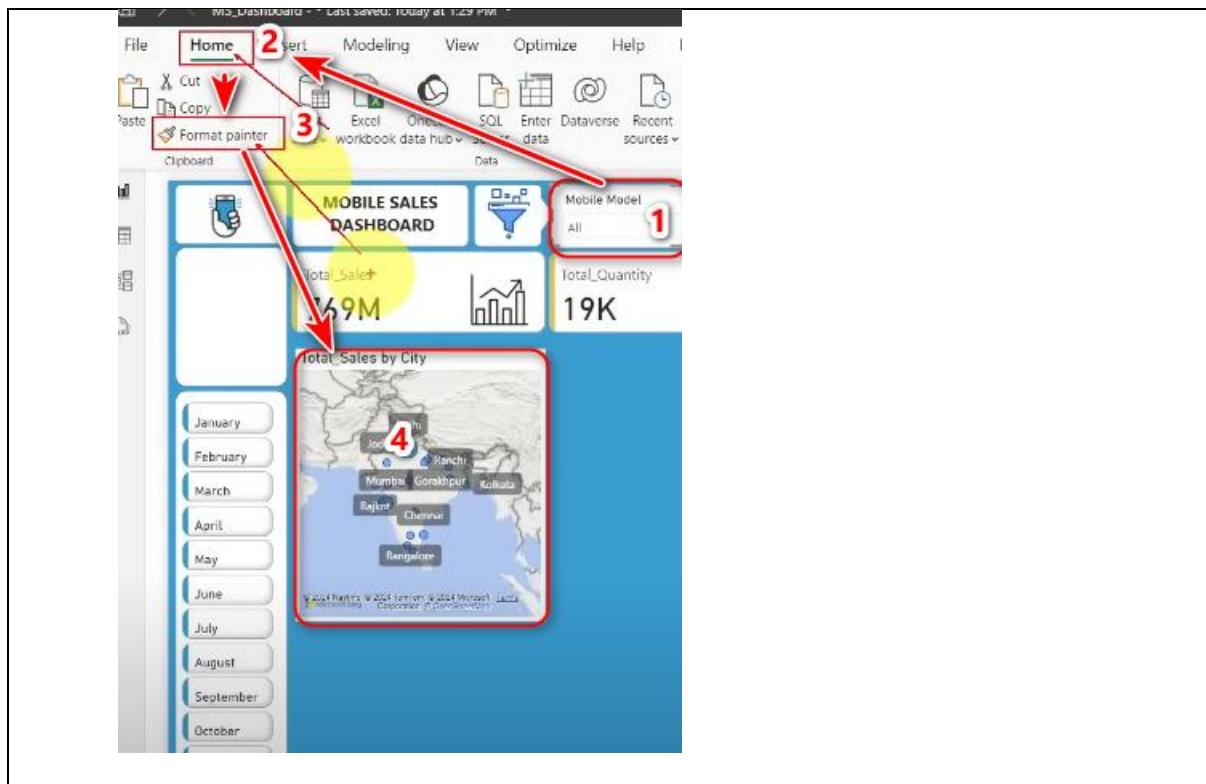
**More Settings for Map:**

- Turn OFF show labels
- Turn ON Category Labels

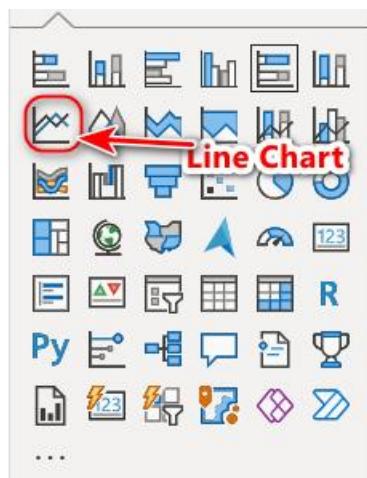
The screenshot shows a Power BI report interface. On the left, there is a map of New Zealand with cities labeled: Auckland, Wellington, Christchurch, and Dunedin. A summary card at the top displays "Total\_Qty" with the value "452" and a money icon. To the right is the "Visualizations" pane, which includes a "Format visual" ribbon tab (highlighted with a red box) and a search bar. Below the ribbon are two tabs: "Visual" (highlighted with a red box) and "General". The "Visual" tab is active, showing settings for "Map settings", "Style" (set to "Road"), "Show labels" (switched off), "Controls", "Legend", "Bubbles", and "Category labels" (switched on). The "General" tab shows settings for "Properties", "Title" (on), "Effects", "Data format", "Header icons" (on), "Toolips" (on), and "Alt text". Red arrows point from the "Visual" tab in the ribbon to the "Visual" tab in the pane, and from the "Visual" tab in the pane down to the "Category labels" setting.

To apply same format as that of filter / slicer “Mobile Model”

1. Select the slicer of “**Mobile Model**”
2. **Go to Home → Format Painter**
3. Then click on Map



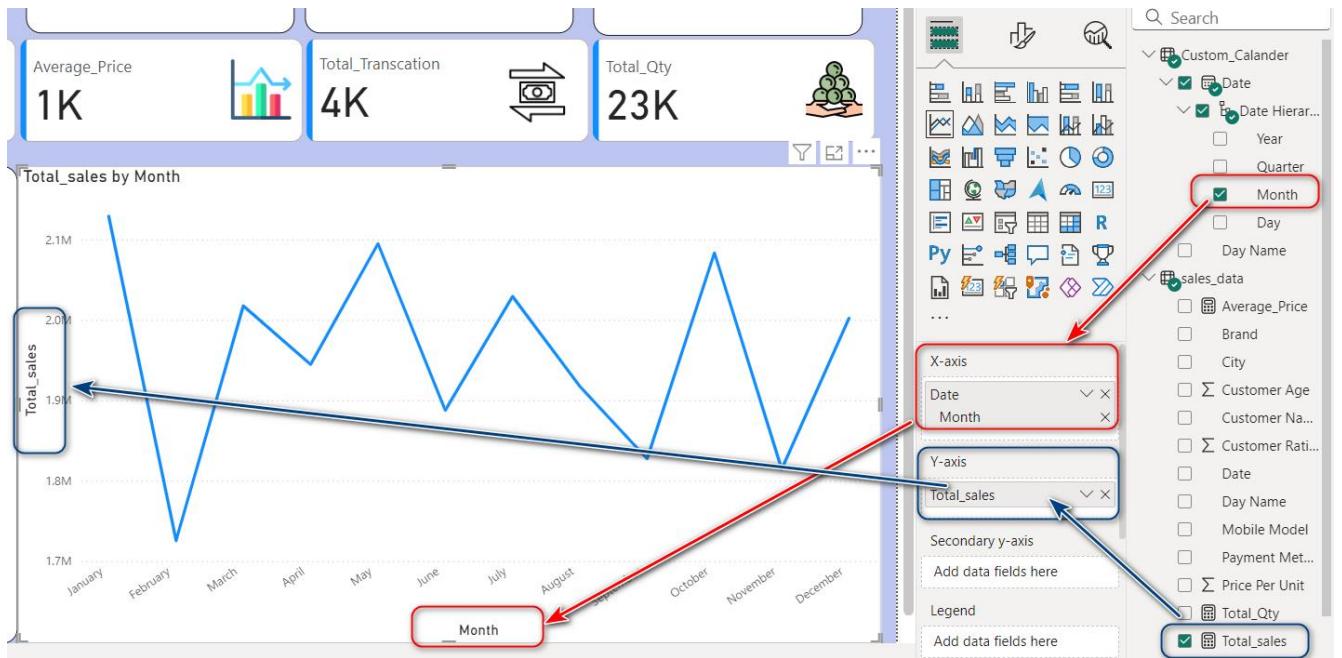
## Line Chart



Just click on Line Chart to Insert

→ add **Date** in x -axis from **Custom\_Calander** (Note you can keep only month remove other from data or as per require keep data),

→ add **Total\_Quantity** in y -axis from **Sales\_data**,



### More Setting in LineChart

Format your Visual → Visual →	<p>→ Data label on (Will show the values at line chart) Then Values ON, Background ON</p> <p>→ X-axis (month) → Can turn OFF values and Titles</p> <p>→ Y-axis(Total_Sales) → Can turn OFF values and Titles</p> <p>→ Markers → Show All Category ON</p> <p>→ Line → Line Style (solid, dash, dot) (Linear, Smooth)</p> <p>→ Color → color (change to any color)</p>
Format your Visual → General →	<p>→ Title ON (can Change Text, change Alignment, formatting)</p> <p>→ Effect → Visual Border → Rounder Corder 15px, give color and so on</p> <p>(To apply rounded formatting → Click on any formateed shape → Home/Format Painter → Click on Req . shape to format)</p>

## Funnel (Based on Customer Rating)

Just Click on Funnel that's all

**Visualizations**

**Build visual**

**Count of Customer Ratings by Customer Ratings**

Customer Ratings	Count
5	0.84K
4	0.65K
3	0.54K
2	0.31K
1	20.8%

**Category**: Customer Ratings

**Values**: Count of Customer Ra... (with a red arrow pointing to it)

**Toolips**: For values click And Chane to count As we don't need sum we need count

In Category → Drag and Drop Customer Rating

In Values also → Drag and Drop Customer Rating But it shows the sum so click on value downarrow and change it to count so we will get total number of counting.

Now we try to change rating into **3 category poor, average and best** by using DAX formula

Right Click in Sales\_data → Add new Column

Customer Rating = `IF(sales_data[Customer Ratings]>=4, "Best" )`

**ALT + Enter** to make area for DAX Formula larger

Using if condition inside if (nested if)

```
Customer_Rating_Status = IF(sales_data[Customer Ratings]>=4, "Best" ,  
IF(sales_data[Customer Ratings]>2, "Average", "Poor"))
```

Now in category → Drag and Drop Customer\_Rating\_Status

**Count of Customer Ratings by Customer\_Rating\_Status**

Customer_Rating_Status	Count
Best	2.33K
Poor	0.85K
Average	0.65K

**Category**: Customer\_Rating\_Status

**Values**: Count of Customer Ra... (with a red arrow pointing to it)

If don't like to keep values after decimal

Go to Format Your Visual → Visual → Values → Values Decimal places → 0

The dashboard displays three visualizations:

- Funnel Chart:** Titled "Customer Ratings Status". It shows the count of customer ratings for three categories: Best (2K), Poor (1K), and Average (1K). The total value is 28%.
- Line Chart:** Titled "Total\_Qty". It tracks the quantity over time from September to December, showing values of 1.16M, 1.09M, 1.28M, 1.30M, and 1.37M respectively.
- Payment Method Filter:** A dropdown filter for "Payment Method" set to "All".

### Format visual

Visual General ...

**Values**

Font: Segoe UI 10 **B** *I* U

Color:  **fx**

Display units: Auto

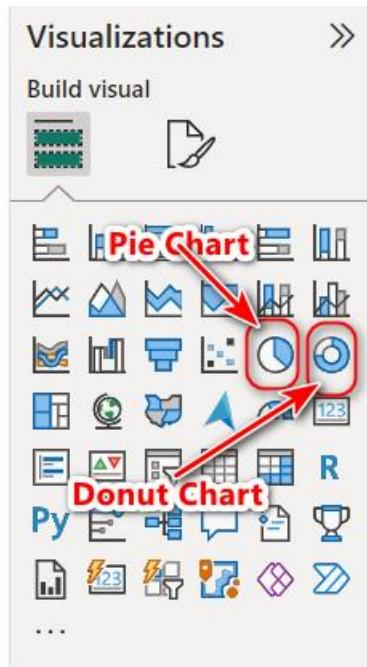
Value decimal places: 0

Percentage decimal places: Auto

Background: Off

To Edit the title of funnel  
Go to Format Your Visual → General → Title → text (Customer Ratings Status)

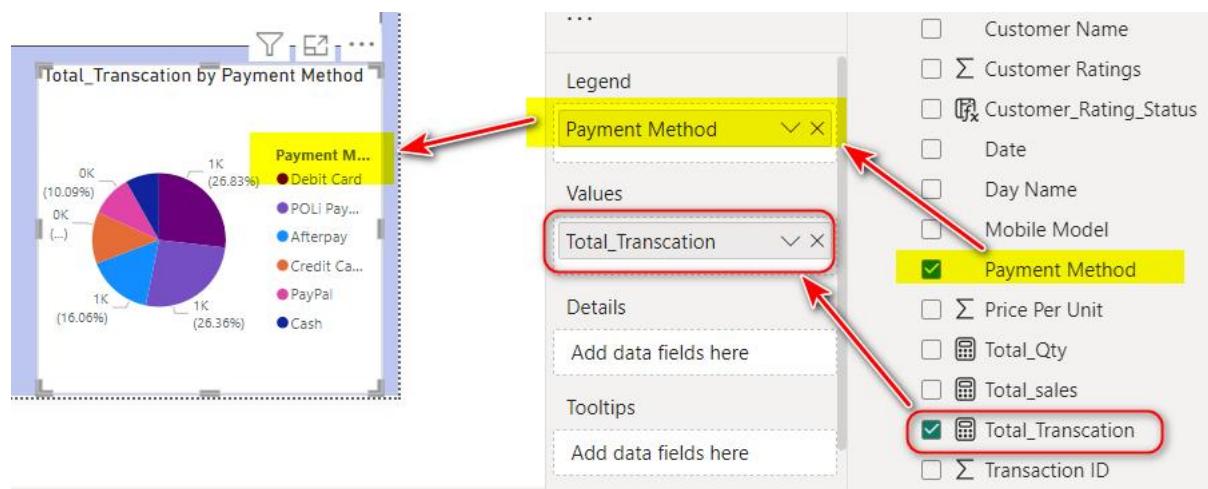
## Pie Chart / Donut Chart



We will show transaction by payment method in Pie-chart

Legend → Payment Method

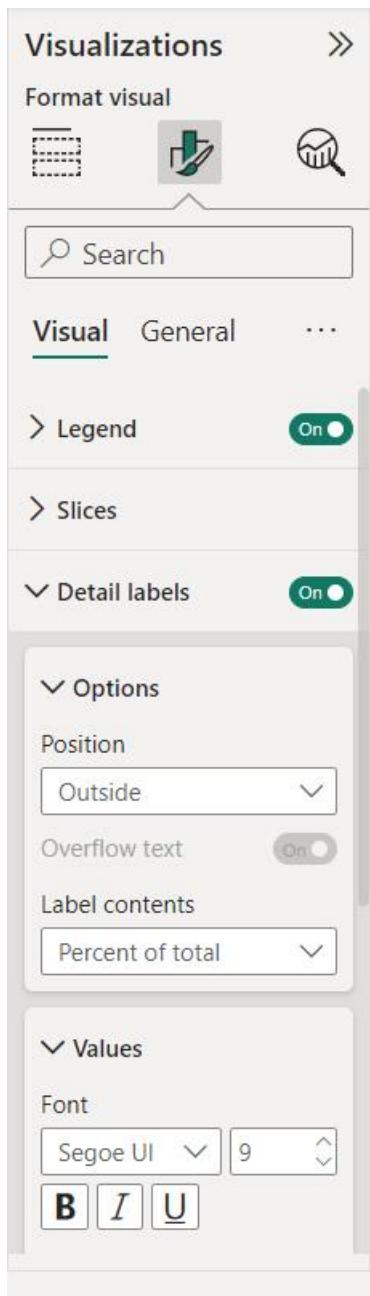
Values → Transaction



Click on format Printer and set it

To show percentage in pie chart

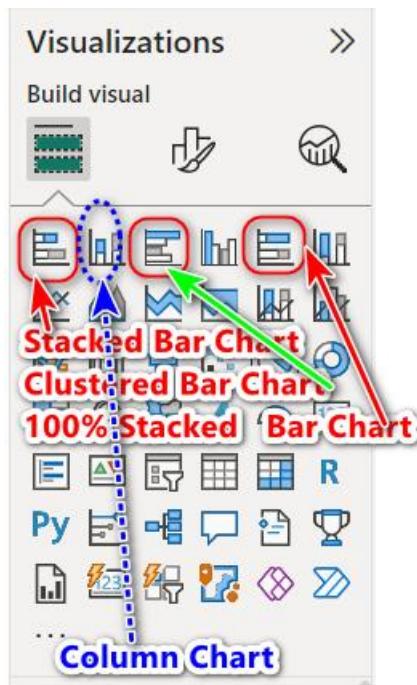
General → Details Labels → Label Contents → Percentage of Total



---

## Bar Chart

We will use the bar chart for Total Sales by Model

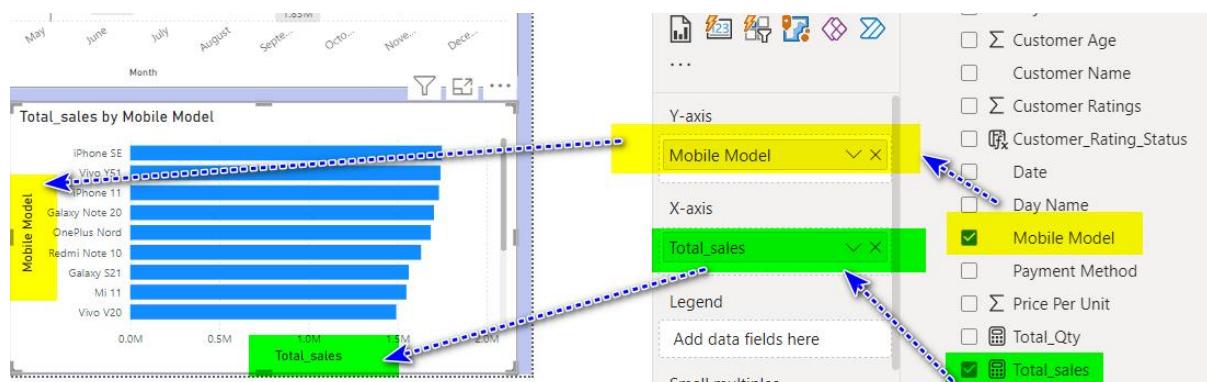


We used Clustered Bar chart here

X-axis → Total Sales

Y-axis → Mobile Model

Apply similar format by **Format Painter**



Just want to show top 5 How to apply filter?

Steps

1. Select the bar chart
2. Click on Filter ( If filter don't appear Click on View Menu Bar → Filter)
3. Select the Mobile Model and Expand it

Filter Type : **Top N**

Show Item : **Top 5**

**By Values** → Drag and Drop **Total\_Sales** Here and click on Apply

## Area Chart

We want to show total sales by Day in Area Chart

Copy and paste the same Bar Chart

→ Click on copied Bar chart → Go to Visualizations → Select Area Chart → That's All

X- Axis → Day Name

Y-Axis → Total Sales

The screenshot shows the Power BI desktop interface with the following steps highlighted:

- 1. Copy Paste chart here**: A red box highlights a bar chart titled "Total\_sales by Mobile Model" in the visual area.
- 2. Select the copied chart**: A red box highlights the copied bar chart in the visual area.
- 3. Select the Area Chart**: A red box highlights the "Area" icon in the "Visualizations" pane.
- 4. Drag and Drop Date Name and Total Sales**: Red arrows point from the "Day Name" field in the "X-axis" section and the "Total\_sales" field in the "Y-axis" section to the respective fields in the "Data" pane, indicating they are being selected for the new area chart.

The interface includes various filters, a performance monitor, and a data pane on the right containing fields like "Custom\_Calander", "Date", "Day Name", "Mobile Model", "Payment Method", etc.

## Table



We want to **Show Brand, Total Sales, Transaction, Total Quantity**

Select the table and drag and drop "**Show Brand, Total Sales, Transaction, Total Quantity**" from Sales\_data to table Column. That's all and Apply the format by **format Painter**

Brand	Total_sales	Total_Transcation	Total_Qt
Apple	4973480	783	487
OnePlus	4594082	768	460
Samsung	4617003	775	456
Vivo	4726120	766	471
Xiaomi	4561930	743	459
<b>Total</b>	<b>23472615</b>	<b>3835</b>	<b>2336</b>

Visualizations
»

Build visual

Columns

Brand	✓	X
Total_sales	✓	X
Total_Transcation	✓	X
Total_Qty	✓	X

Tooltip

Keep all filters

Drag tooltip fields here

Data

Search
🔍

Custom\_Calander

Date

Day Name

sales\_data

Brand

City

Customer Age

Customer Name

Customer Ratings

Customer\_Rating\_St

Date

Day Name

Mobile Model

Payment Method

Price Per Unit

Total\_Qty

Total\_sales

Total\_Transcation

Transaction ID

Units Sold

## Edit Interaction in Power BI

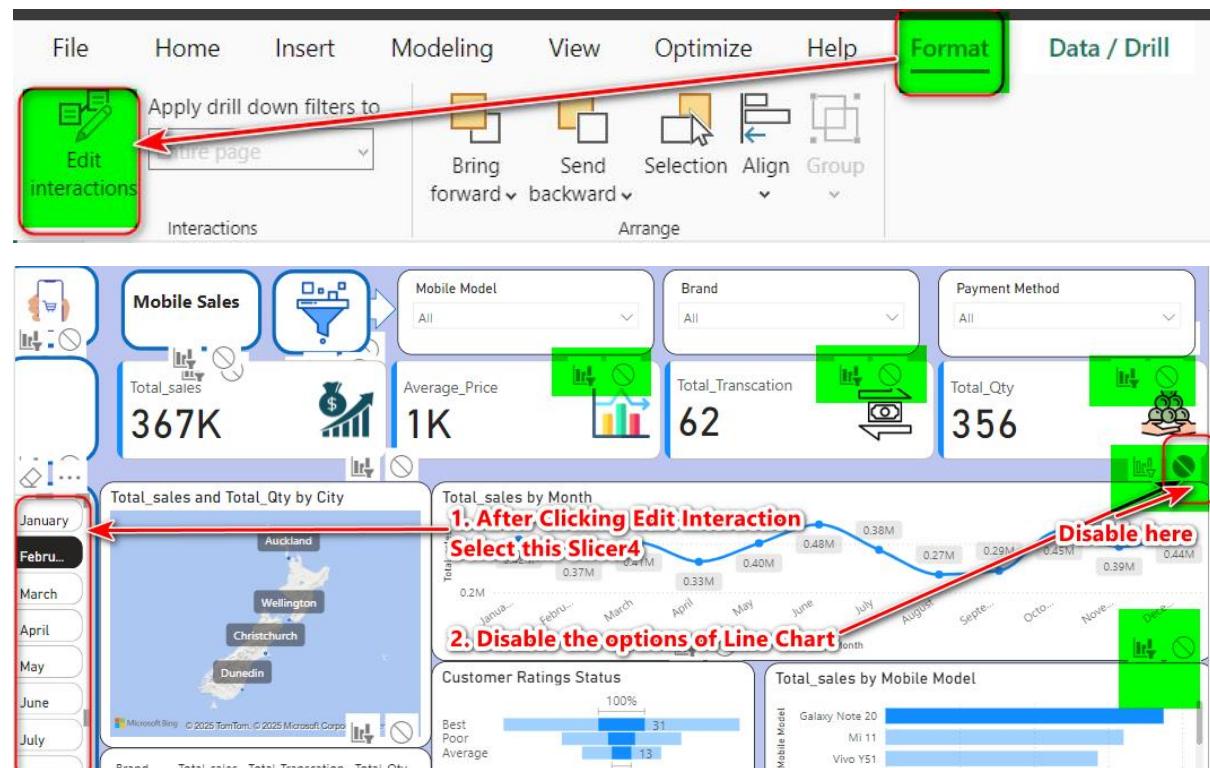
Note for Line chart every filter / slicer is working but the slicer on left hand side based on Month is not working . When we select the month e.g. Feb its just showing one dot in Feb only not a line chart.



So that we need **Edit Interaction** and when we select that month “there shouldn’t any effect on line Chart”

Go to **Format → Edit Interaction**

After selecting “Edit Inteaction” we will see 2 options (1. Filter ; 2. None) in every **Build Visual** line “Table, linechart, card “ and so on

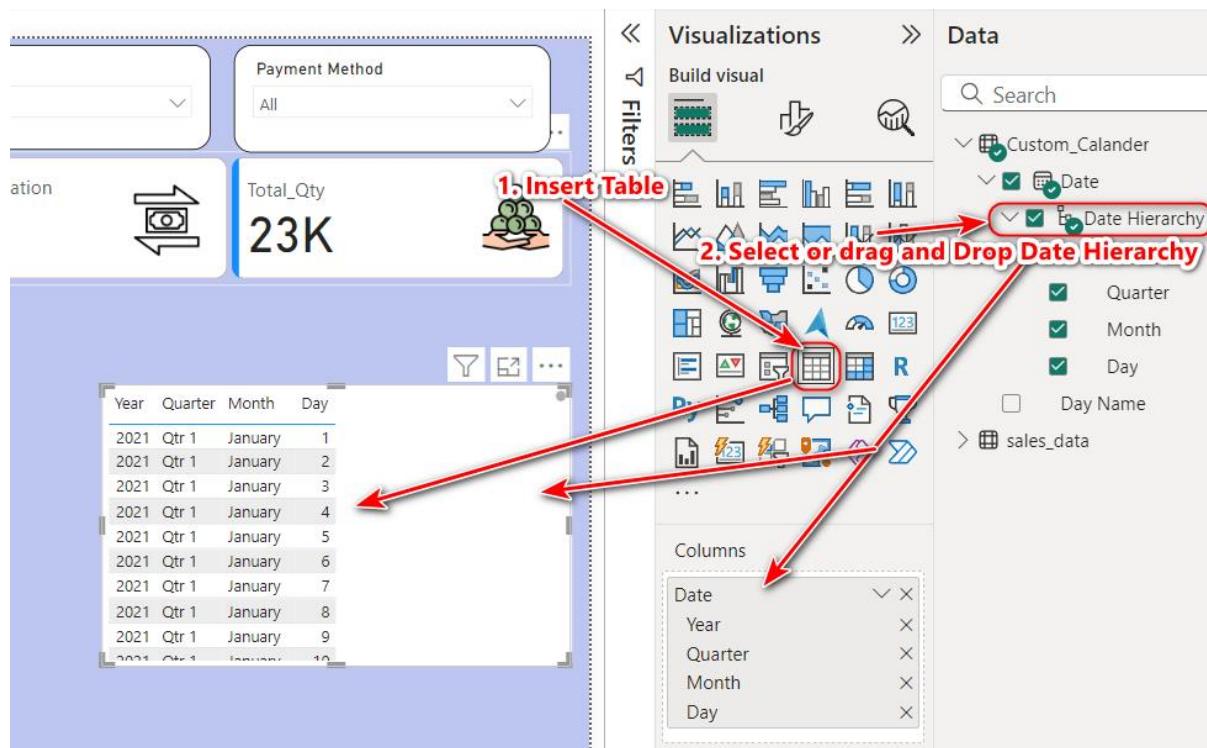


## MTD QTD and YTD DAX Functions

In Power BI, DAX (Data Analysis Expressions) provides functions to calculate Month-to-Date (MTD), Quarter-to-Date (QTD), and Year-to-Date (YTD) values. These calculations are **useful for analyzing cumulative performance over different periods.**

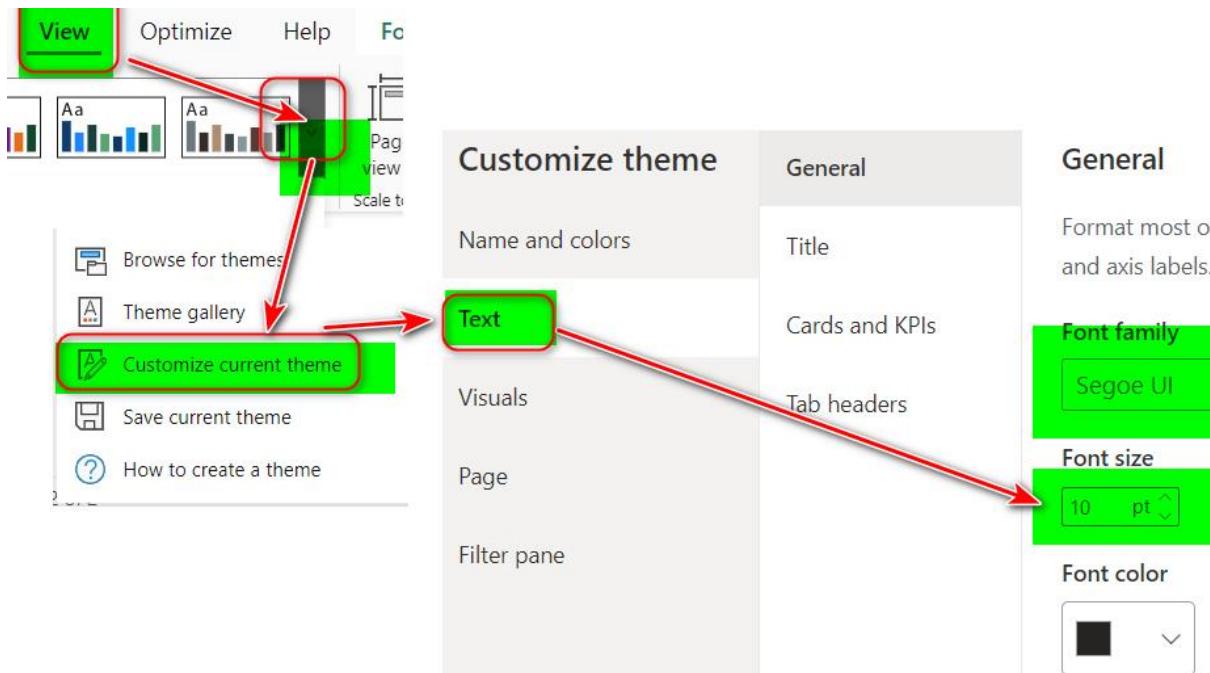
Note Formula for MTD, QTD and YTD is same just change name only in PowerBI

**First Insert table. Then Drag and drop all Date Hierarchy.**



**To Change Font Size**

**View → Expand Theme → Customize Current Theme → Text → General → Font Size → 14**



Just to change table value then **Visual** → **Values** → 14

The screenshot shows a Power BI report with a table visualization on the left and a visualizations pane on the right. The table visualization displays data for 'Total\_Qty' (23K) and a date range from January 1 to January 10, 2021. The visualizations pane on the right is open, showing the 'Format visual' settings for a selected visual. The 'Values' section is highlighted with a green box. In this section, the 'Font' is set to 'Segoe UI' and the 'Font size' is set to '14'. There are also options for bold (B), italic (I), and underline (U). The 'Text color' is set to black, and the 'Background color' is set to white.

Year	Quarter	Month	Day
2021	Qtr 1	January	1
2021	Qtr 1	January	2
2021	Qtr 1	January	3
2021	Qtr 1	January	4
2021	Qtr 1	January	5
2021	Qtr 1	January	6
2021	Qtr 1	January	7
2021	Qtr 1	January	8
2021	Qtr 1	January	9
2021	Qtr 1	January	10

## 1. MTD (Month-to-Date)

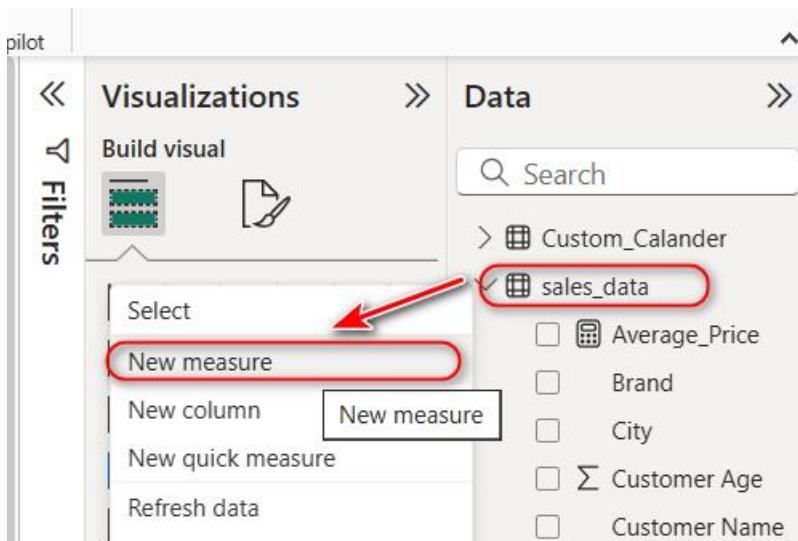
Calculates the cumulative value from the start of the current month to the current date.

### DAX Function:

```
MTD_Sales = TOTALMTD (
    [Total Sales],           -- Measure or expression to aggregate
    'Date'[Date]            -- Date column from your date table
)
```

- **TOTALMTD:** Computes the total from the start of the month to the current date.

Steps : Right Click on Sales\_data → New Measure



### Syntax



**Expression:** for what → Total sales ? or total order → or total transaction → and so on

Here we will calculate total sales

**Dates:** Take date from custom calender where we use date then type.[Date] .

**Filter:** is optional

```
MTD = TOTALMD([Total_sales],Custom_Calander[Date].[Date])
```

To give comma in any Data

Select the data → Go to Measure Tool → Select comma

→ Select Auto to 0 for no decimal value

MTD is cumulative Sum added based on each day

The screenshot shows the Power BI interface with the following annotations:

- To add comma Sign:** Points to the "Format" dropdown in the ribbon.
- To add dollar sign and percentage sign:** Points to the DAX formula bar where the measure is defined.
- no value after decimal:** Points to the decimal separator in the "Format" dropdown.
- To give comma to data:** Points to the table structure.
- Select the data:** Points to the table structure.
- Go to Measure Tool:** Points to the "Measure tools" ribbon tab.
- Select comma:** Points to the "Measure tools" ribbon tab.
- Cumulative SUM:** Points to the cumulative sum calculation in the table.

Year	Quarter	Month	Day	Total_sales	MTD
2021	Qtr 4	October	9	1299	12,994
2021	Qtr 4	October	10	23632	36,626
2021	Qtr 4	October	11	26597	63,223
2021	Qtr 4	October	12	1534	78,570
2021	Qtr 4	October	13	12842	91,412
2021	Qtr 4	October	14	28121	119,533
2021	Qtr 4	October	15	19713	139,246
2021	Qtr 4	October	16	9671	148,917
2021	Qtr 4	October	17	20691	169,608
2021	Qtr 4	October	18	16559	186,167
2021	Qtr 4	October	19	18960	205,127
2021	Qtr 4	October	20	17841	222,968
2021	Qtr 4	October	21	24443	247,411
2021	Qtr 4	October	22	14385	261,796
2021	Qtr 4	October	23	35134	296,930
2021	Qtr 4	October	24	30148	327,078
2021	Qtr 4	October	25	21038	348,116
2021	Qtr 4	October	26	15741	363,857
<b>Total</b>				<b>23472615</b>	

When new month start it will start summing from day 1 of that month doesn't add based on previous month

Year	Quarter	Month	Day	Total_Sales	MTD
2021	Qtr 4	October	21	837800	7925682
2021	Qtr 4	October	22	106493	8432174
2021	Qtr 4	October	23	773331	9205505
2021	Qtr 4	October	24	473861	9679366
2021	Qtr 4	October	25	10140977	
2021	Qtr 4	October	26	635027	10776004
2021	Qtr 4	October	27	887252	11663256
2021	Qtr 4	October	28	388130	12051386
2021	Qtr 4	October	29	907664	13059051
2021	Qtr 4	October	30	647361	13706412
2021	Qtr 4	October	31	71481	14420433
2021	Qtr 4	November	1	1380818	1380848
2021	Qtr 4	November	2	609335	1990183
2021	Qtr 4	November	3	433823	2424006
2021	Qtr 4	November	4	1074104	3498110
2021	Qtr 4	November	5	626875	4124984
2021	Qtr 4	November	6	633113	4758098

## 2. QTD (Quarter-to-Date)

Note Formula for MTD, QTD and YTD is same just change name only in PowerBI

Calculates the cumulative value from the start of the current quarter to the current date.

### DAX Function:

```
QTD_Sales = TOTALQTD(
    [Total Sales],           -- Measure or expression to aggregate
    'Date'[Date]            -- Date column from your date table
)
```

- **TOTALQTD:** Computes the total from the start of the quarter to the current date.

Just Change M to Q in formula to change MTD to QTD and remove days from filter and just keep month only

Similarly for YTD

MTD	<code>MTD = TOTALMD([Total_sales],Custom_Calander[Date].[Date])</code>
QTD	<code>QTD = TOTALQTD([Total_sales],Custom_Calander[Date].[Date])</code>
YTD	<code>YTD = TOTALYTD([Total_sales],Custom_Calander[Date].[Date])</code>

Home Insert Modeling View Optimize Help Format Data / Drill Table tools Measure tools

QTD \$% Format Whole number Data category Uncategorized New measure Quick measure Calculations

Structure Formatting Properties

Back to report

1 QTD = TOTAL(QTD([Total\_sales],Custom\_Calender([Date]),[Date]))

Year Quarter Month Day Total\_sales YTD QTD MTD

Year	Quarter	Month	Day	Total_sales	YTD	QTD	MTD
2021	Qtr 4	October	9	12994	12,994	12994	12994
2021	Qtr 4	October	10	23632	36,626	36626	36626
2021	Qtr 4	October	11	26597	63,223	63223	63223
2021	Qtr 4	October	12	15347	78,570	78570	78570
2021	Qtr 4	October	13	15347	119,533	119533	119533
2021	Qtr 4	October	14	28121	119,533	119533	119533
2021	Qtr 4	October	15	19713	139,246	139246	139246
2021	Qtr 4	October	16	9671	148,917	148917	148917
2021	Qtr 4	October	17	20691	169,608	169608	169608
2021	Qtr 4	October	18	16559	186,167	186167	186167
2021	Qtr 4	October	19	18960	205,127	205127	205127
2021	Qtr 4	October	20	17841	222,968	222968	222968
2021	Qtr 4	October	21	24443	247,411	247411	247411
2021	Qtr 4	October	22	14385	261,796	261796	261796
2021	Qtr 4	October	23	35134	296,930	296930	296930
2021	Qtr 4	October	24	30148	327,078	327078	327078
2021	Qtr 4	October	25	21038	348,116	348116	348116
2021	Qtr 4	October	26	15741	363,857	363857	363857
<b>Total</b>				<b>23472615</b>	<b>6,077,299</b>	<b>180458</b>	

Visualizations Build visual Filters

Columns Date Year Quarter Month Day Total\_sales YTD QTD MTD

Tooltip Keep all filters

QTD = TOTAL(QTD([Total\_sales],Custom\_Calender([Date]),[Date]))

For QTD  
Write Q instead of M and from filter remove Day just keep month only for easy calculation

For YTD  
Write Y instead of M and from filter remove Day, Month just keep year only for easy calculation

Day

**Note : It will add data only from one quarter**

**When next Quater comes**

**then it will start adding from**

### **stating day and month of that Quarter**

Year	Quarter	Month	Total_Sales	QTD
2021	Qtr 4	October	14420433	14420433
2021	Qtr 4	November	21883370	36303803
2021	Qtr 4	December	22511717	58815520
2022	Qtr 1	January	22774652	22774652
2022	Qtr 1	February	19564976	42339628
2022	Qtr 1	March	24606558	66946186
2022	Qtr 2	April	19316054	19316054
2022	Qtr 2	May	22951960	42268014
2022	Qtr 2	June	21681046	63949060
2022	Qtr 3	July	24729729	24729729
2022	Qtr 3	August	23118280	47848009
2022	Qtr 3	September	18746360	66594369
2022	Qtr 4	October	21973397	21973397
2022	Qtr 4	November	21976663	43950059
2022	Qtr 4	December	20550166	64500226
2023	Qtr 1	January	23581848	23581848
2023	Qtr 1	February	18857456	42439304
2023	Qtr 1	March	20449997	62889301

**Note : It will add data only from one quarter  
When next Quarter comes  
then it will start adding from  
stating day and month of that Quarter**

### 3. YTD (Year-to-Date)

Calculates the cumulative value from the start of the current year to the current date.

#### DAX Function:

```
YTD_Sales = TOTALYTD(  
    [Total Sales],  
    'Date'[Date],  
    "12/31"  
31)  
)
```

-- Measure or expression to aggregate  
-- Date column from your date table  
-- Optional fiscal year-end (default is December 31)

- **TOTALYTD:** Computes the total from the start of the year to the current date. You can specify the fiscal year-end if it's not December 31.

Year	Quarter	Total_Sales	YTD
2021	Qtr 4	58815520	58815520
2022	Qtr 1	66946186	66946186
2022	Qtr 2	63949060	130895246
2022	Qtr 3	66594369	197489615
2022	Qtr 4	64500226	261989840
2023	Qtr 1	62889301	62889301
2023	Qtr 2	64392563	127281863
2023	Qtr 3	62957202	190239065
2023	Qtr 4	63075154	253314219
2024	Qtr 1	66187436	66187436
2024	Qtr 2	64058249	130245686
2024	Qtr 3	58557474	188803159
2024	Qtr 4	6282249	195085408
<b>Total</b>		<b>769204988</b>	<b>195085408</b>

**Note in YTD**  
**Add from Q1 to Q4**  
**of particular year only**

**Add based on year**

**Same**

#### Additional Considerations:

- **Date Table Requirement:** These functions require a properly configured date table. Ensure the table:
  - Includes a continuous range of dates.
  - Is marked as a "Date Table" in Power BI.
  - Has a single column designated as the "Date" column.
- **Custom Time Periods:** If your organization follows custom fiscal periods (e.g., 4-4-5 calendar), you may need to use `DATESMTD`, `DATESQTD`, and `DATESYTD` to calculate cumulative totals with more flexibility.

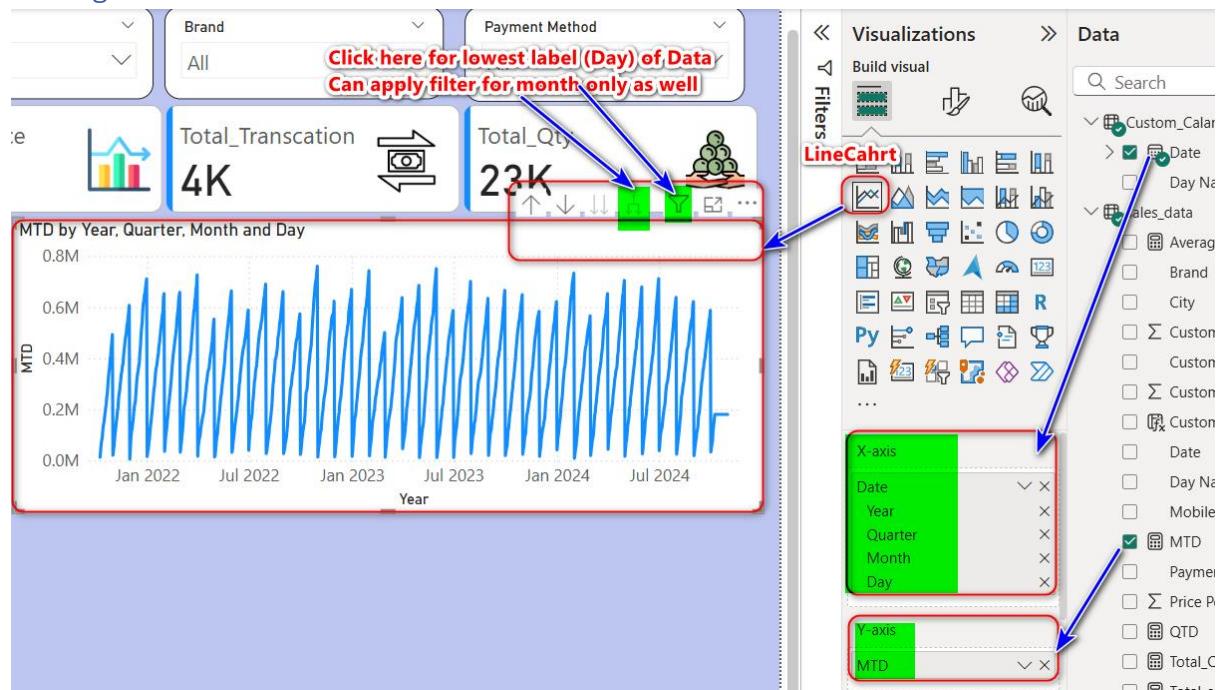
```
Custom_YTD_Sales = CALCULATE(  
    [Total Sales],
```

```

DATESYTD('Date'[Date], "06/30") -- Example: Fiscal year ends on
June 30
)

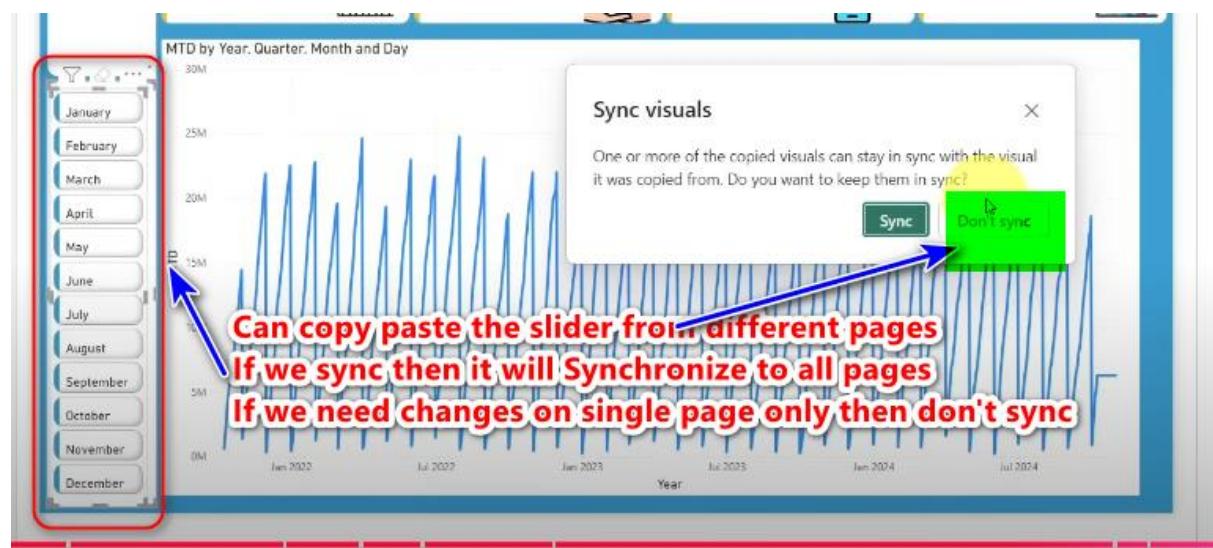
```

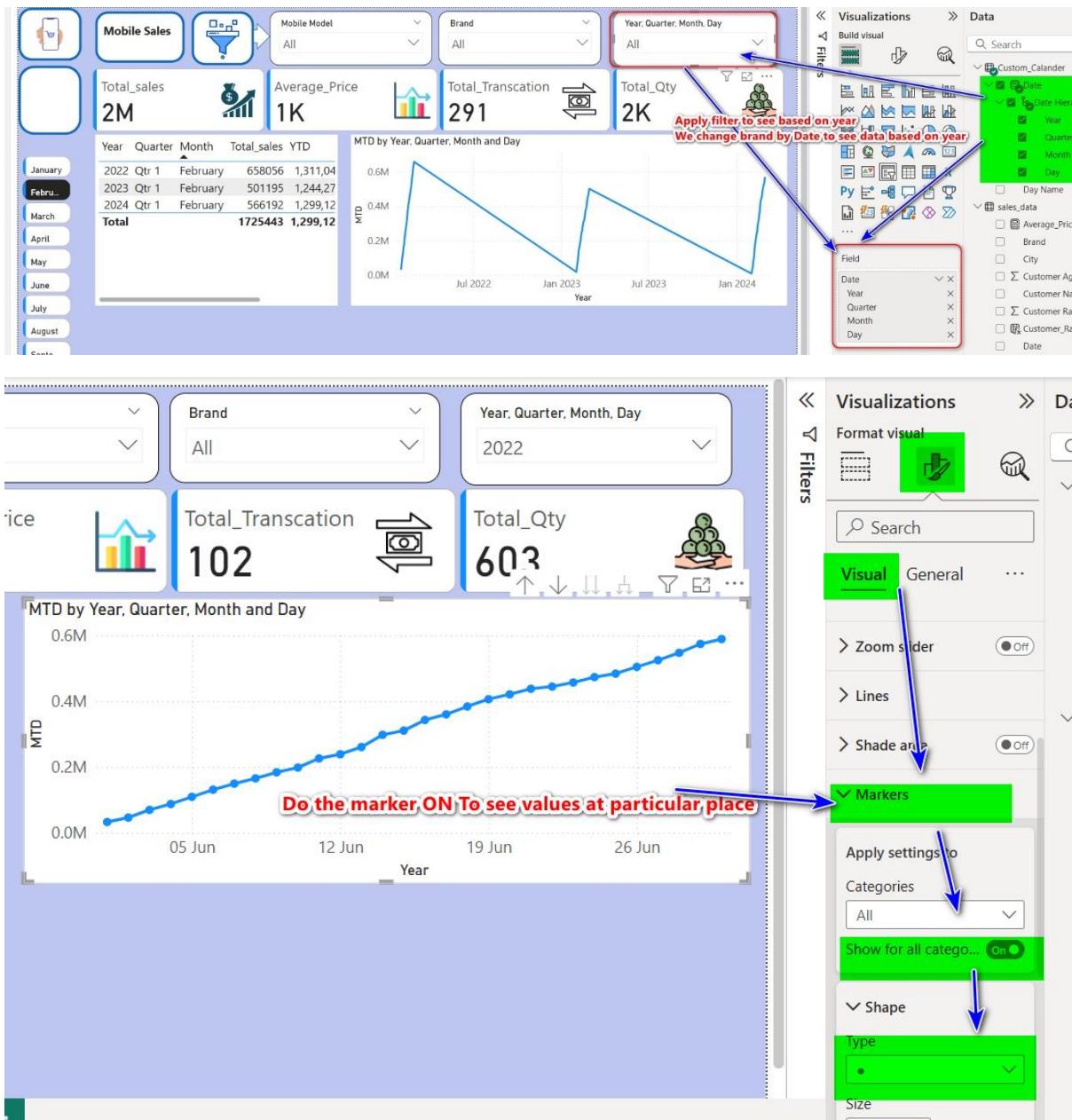
## Adding Line Chart for MTD



Can copy paste the slider from different pages → If we sync then it will Synchronize to all pages →

If we need changes on single page only then don't sync





## Same Period Last Page

**Copy and paste the details of MTD dash board in another page**

It is useful to compare the data of sales in last year and this year based on particular month . E.g The business is running very low in June, July at Cromwell. Lets compare the sales data of June, Junly from 2021, 2022, and 2023 and estimate about 2024 , 2025

To add new DAX formula

**Go to Sales\_data → RightClick → New Measure (And write the Dax formula for Same Period Last Year)**

```
Same Period Last Year = CALCULATE([Total_sales],
SAMEPERIODLASTYEAR(Custom_Calander[Date].[Date]))
```

**How to use DAX formula in multiple line then use → ALT + ENTER**

We use calculate formula

<b>Syntax of Calculate</b> Calculate (Expression, filter) Expression → Total_sales Filter we use <b>SAMEPERIODLASTYEAR</b>	<p>% CALCULATE(Expression, [Filter1], ...)  Evaluates an expression in a context modified by filters.  = CALCULATE(  Same Period Last Year = CALCULATE([Total_sales],  SAMEPERIODLASTYEAR(Dates))  Mobile Sales</p>	<b>SAMEPERIODLASTYEAR(Dates)</b> Return a set of dates in the current selection from the previous year. SAMEPERIODLASTYEAR( & ADDCOLUMNS
<b>Syntax of SAME_PERIOD_LAST_YEAR</b>  <b>SAMEPERIODLASTYEAR(date)</b>		

Same Period last year o December

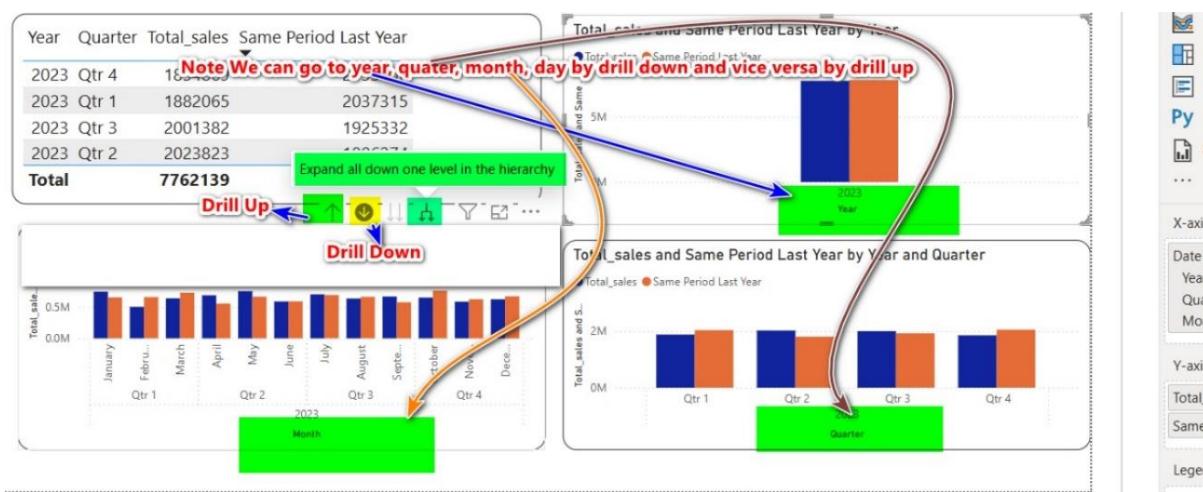
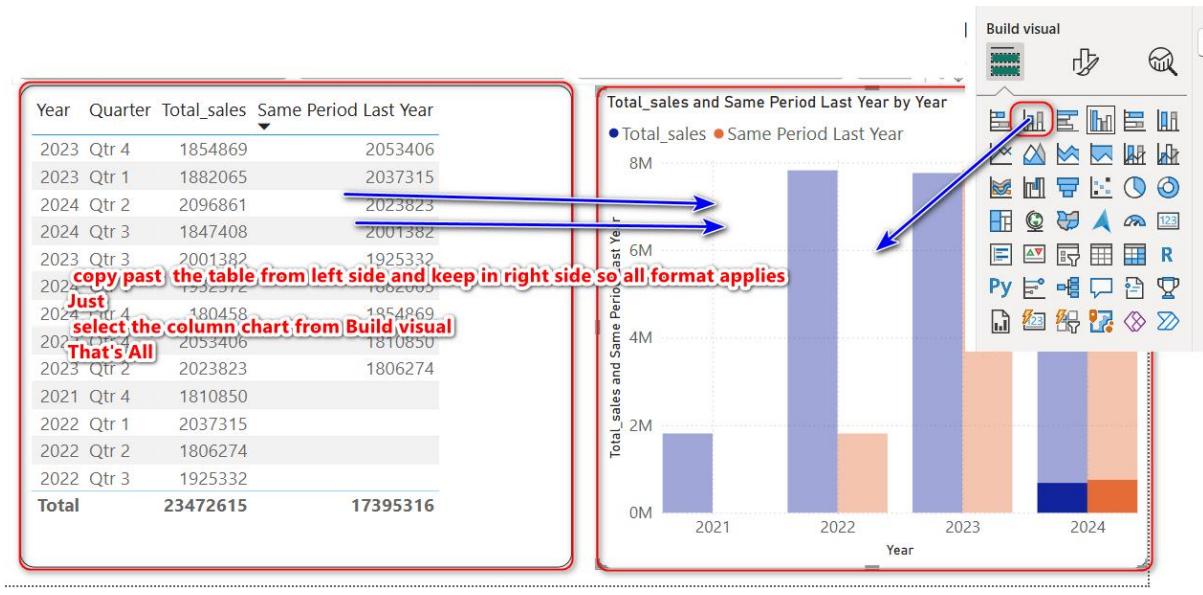
Year	Quarter	Month	Total_sales	Same Period Last Year
2022	Qtr 4	December	669630	710602
2023	Qtr 4	December	622021	669630
2024	Qtr 4	December		622021
2021	Qtr 4	December	710602	
<b>Total</b>			<b>2002253</b>	<b>2002253</b>

Year	Quarter	Total_sales	Same Period Last Year
2023	Qtr 4	1854869	2053406
2023	Qtr 1	1882065	2037315
2024	Qtr 2	2096861	2023823
2024	Qtr 3	1847408	2001382
2023	Qtr 3	2001382	1925332
2024	Qtr 1	1952572	1882065
2024	Qtr 4	180458	1854869
2022	Qtr 4	2053406	1810850
2023	Qtr 2	2023823	1806274
2021	Qtr 4	1810850	
2022	Qtr 1	2037315	
2022	Qtr 2	1806274	
2022	Qtr 3	1925332	
<b>Total</b>		<b>23472615</b>	<b>17395316</b>

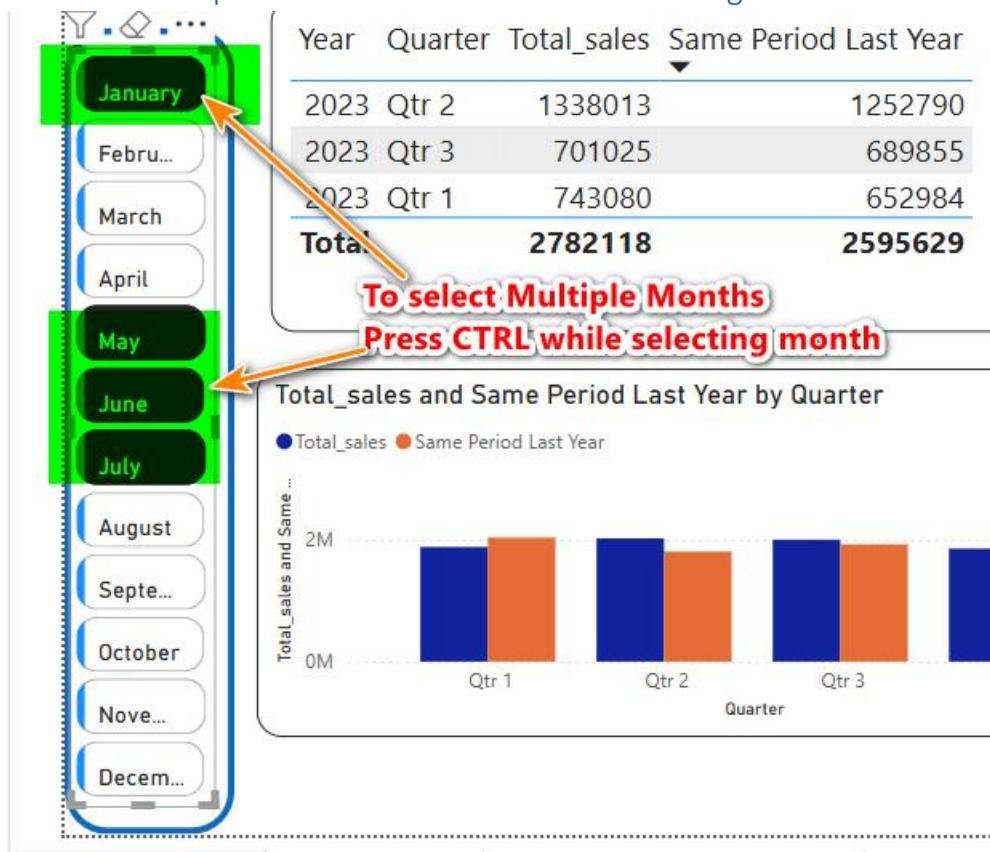
Compare the sale between last year and the current year

This means there is no sale in last year in that quarter, month, or day

Can compare that in any Column chart just copy past and select the column chart from Build visual

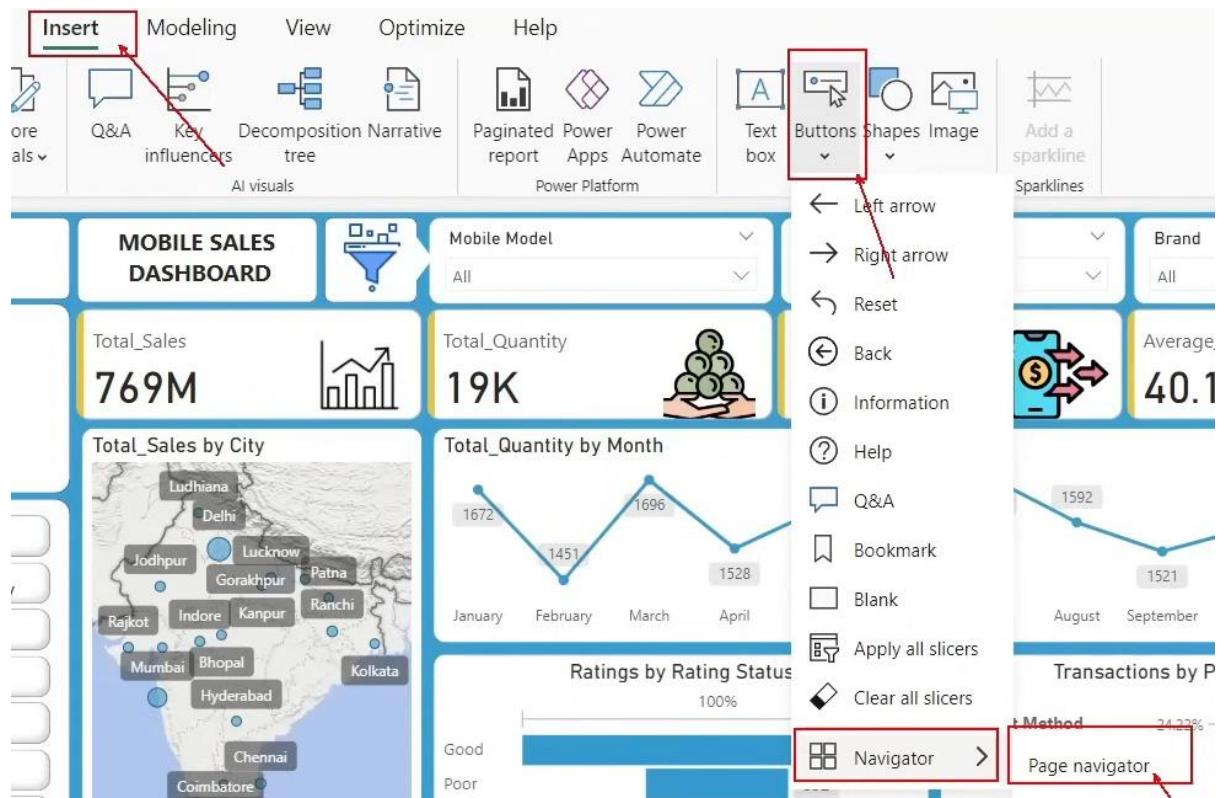


To select Multiple Months Press CTRL while selecting month



## To Add Navigator / Buttons

Go to Insert Menu → Buttons → Navigator → Page Navigator



Note Sometimes will only come **one page only** In that case

Go To Format Navigator → Pages → Options → Turn on all options Specially **Show ToolTip Pages**.  
Then **all the available pages will be shown**.

The screenshot shows a Tableau dashboard with several components:

- Top Left:** Two dropdown filters: "Brand" set to "Apple" and "Payment Method" set to "All".
- Top Right:** Two summary measures: "Total\_Transcation" (19) with a cash icon and "Total\_Qty" (118) with a stack of coins icon.
- Middle Top:** A horizontal navigation bar with three items: "Dashboard Page" (highlighted with a red box), "MTD Page", and "Same Period Last Page".
- Middle Center:** A horizontal bar chart titled "Total\_sales by Mobile Model" showing sales for "iPhone SE" across months from April to December. The Y-axis ranges from 0K to 100K.
- Middle Bottom:** A line chart titled "Total\_sales by Day Name" showing sales over the week. The Y-axis ranges from 0K to 50K.
- Left Sidebar:** A legend for "Payment Method" with items: Afterpay (pink dot) and Debit ... (blue dot).
- Right Sidebar:** The "Format navigator" panel with the following sections:
  - Visual:** Contains "Search" input, "Shape", "Rotation", and "Style" sections.
  - Pages:** Contains "Show hidden pages" (On), "Show tooltip pages" (On), and "Show all by default" (On) buttons, all highlighted with red boxes.
  - Options:** Contains "Show" and "Reset to default" buttons.
  - Grid layout:** Contains "Grid layout" button.

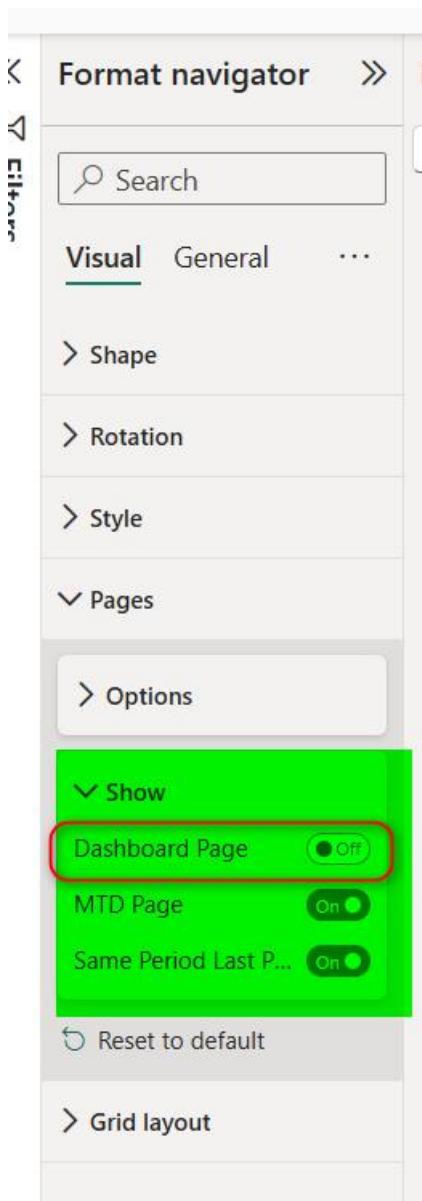
It comes by default in horizontal .

We can go to Format Navigator → Grid Layout → orientation → **Vertical**, horizontal, Grid (we can choose as per requirement )

The screenshot shows a Power BI dashboard with two main cards and a chart area. The top section includes filters for Brand (All) and Date (Year, Quarter, Month, Day, 2023). Below are two summary cards: "Total\_Transcation" (435) with a banknote icon and "Total\_Qty" (3K) with a stack of coins icon. A chart titled "Total\_sales and Same Period Last Year by Year" displays sales for January, May, June, and July across three years (2023, 2022, 2021). An annotation "By Default comes in Horizontal Change to Vertical" points to the chart area. The Format navigator on the right shows the "Grid layout" settings under "Visual", where the "Orientation" dropdown is set to "Vertical".

If we are in Dashboard then we son't need button for Dashboard, We need only buttons for MTD and Same Period Last Year so that .

[Go to Show ➔ Dashboard Page Turn Off](#)



To Give Rounded Shape Go to Shapes → Rounded Rectangle	To change Colour while hovering and accent bar	
<p>Shape</p> <p>Rounded Rectangle</p> <p>Rounded Corners</p> <p>25 %</p> <p>Reset to default</p>	<p>Style</p> <p>Apply settings to</p> <p>State Hover</p> <p>&gt; Text</p> <p>&gt; Fill</p> <p>Accent bar On</p> <p>Color</p> <p>Transparency</p>	

Similarly copy that button in different page MTD, and Same Period last year and Turn off pages as per requirement.

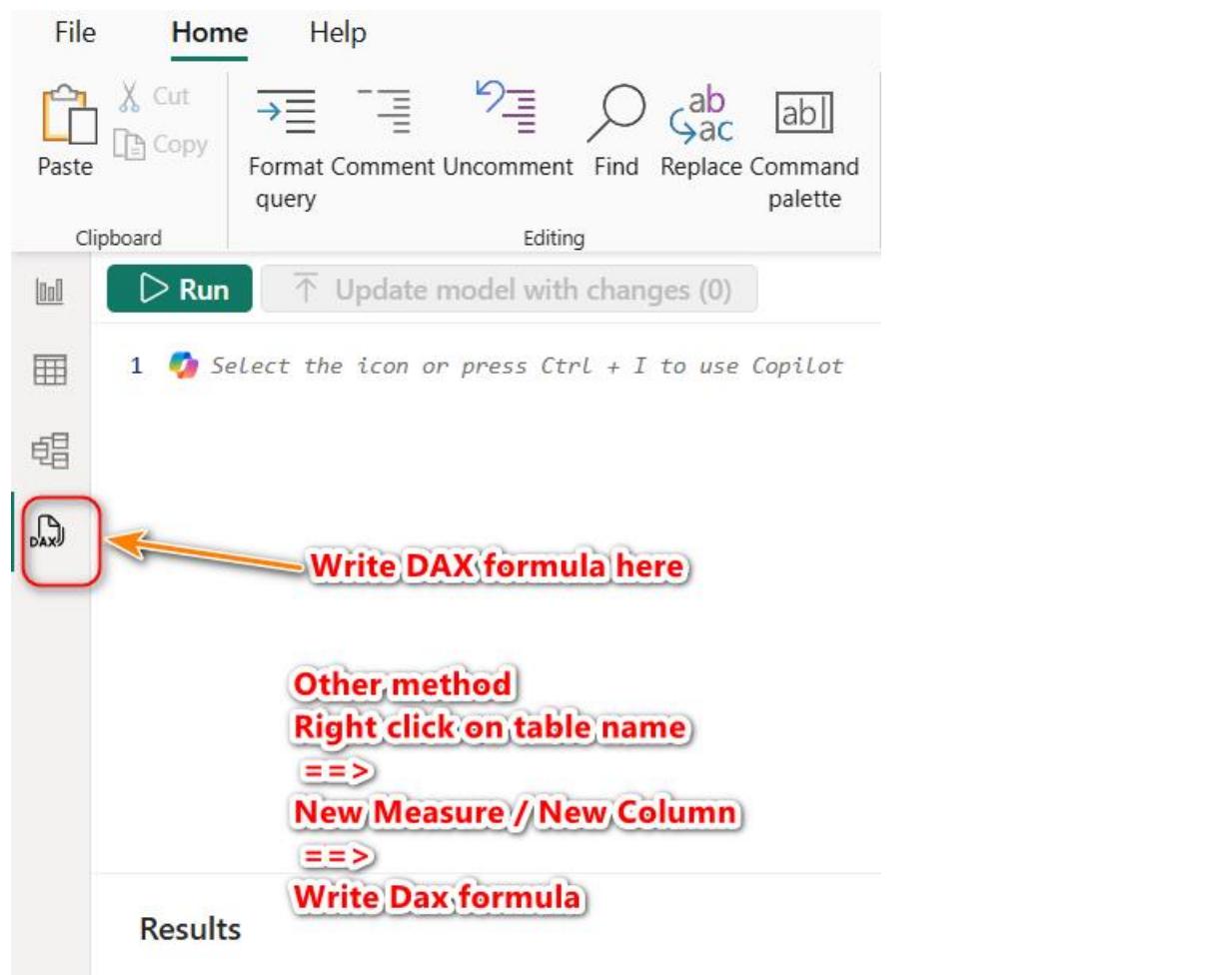
### How to click on buttons

To use these Pages while pressing **we need to press control button** but after uploading online it doesn't required.

## DAX Query

DAX (**Data Analysis Expressions**) is used to create custom calculations for your reports.

How to use DAX formula in multiple line then use ➔ **ALT + ENTER**



To Show top 100 data based on / certain criteria

Right Click on Sales\_Data ➔ Quick Queries ➔ Show top 100 rows ➔

Clipboard      Editing      Copilot

Run      Update model with changes (0)

```

10
11
12
13
14
15
16
17
18
19
20
21
22
23
) ORDER BY 'sales_data'[Transaction ID] ASC

```

**Right Click on Sales Data => Quick Queries => Show top 100 rows**

**Will show top 100 data**

Results      Result 1 of 1      Copy

	sales_data[Transaction ID]	sales_data[Date]	sales_data[Day Name]	sales_data[Brand]	sales_data[Units Sold]	sales_data[Price Per Unit]	sales...
1	1	10/9/2021 12:00:00 AM	Saturday	Xiaomi	3	254	Rober...
2	2	10/9/2021 12:00:00 AM	Saturday	Vivo	2	264	Sunitz...
3	3	10/9/2021 12:00:00 AM	Saturday	Vivo	8	1463	Charl...
4	4	10/10/2021 12:00:00 AM	Sunday	Xiaomi	3	639	Olivia...
5	5	10/10/2021 12:00:00 AM	Sunday	OnePlus	8	1204	Sunitz...
6	6	10/10/2021 12:00:00 AM	Sunday	Samsung	8	931	Mich...

Share feedback      Data

Tables      Model

Search

Show top 100 rows      Quick queries

Show column statistics      Define new measure      Define all measures in this table      Define all measures in this model

Refresher      Incremental refresh

Manage relationships      Manage aggregations

Σ Cust      Select columns      Date      Select measures

fx Cust      Day      Rename      Mot: Delete from model

MTC      Hide in report view      Payr      Mark as date table

Price      Unhide all

## EVALUATE

```

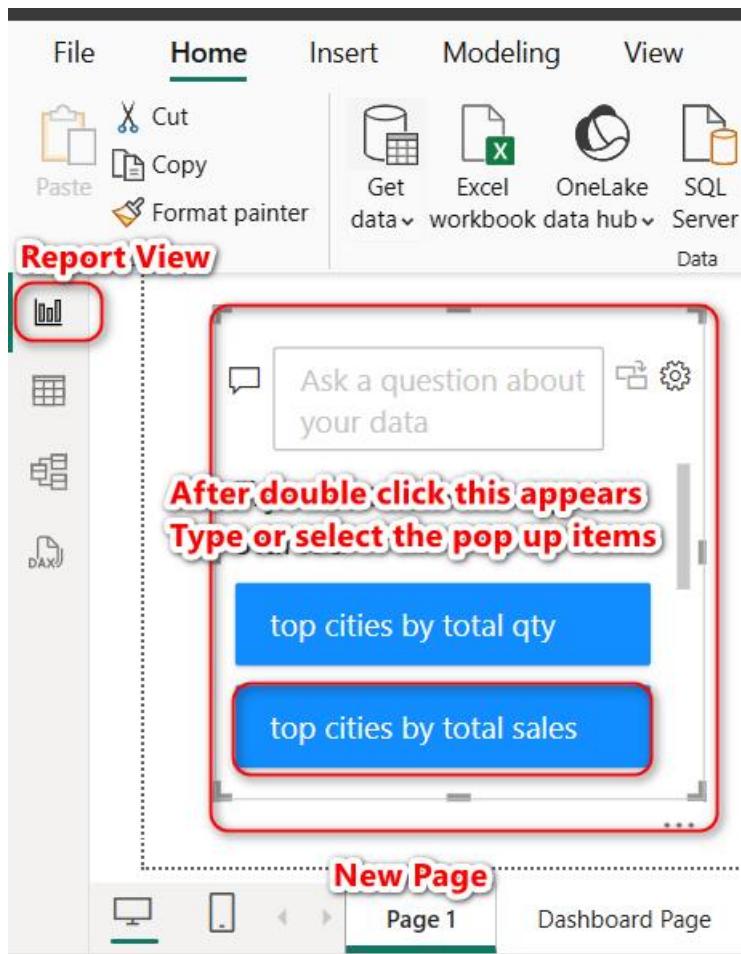
SELECTCOLUMNS(
    TOPN(
        100,
        'sales_data',
        'sales_data'[Transaction ID],
        ASC
    ),
    'sales_data'[Transaction ID],
    'sales_data'[Date],
    'sales_data'[Day Name],
    'sales_data'[Brand],
    'sales_data'[Units Sold],
    'sales_data'[Price Per Unit],
    'sales_data'[Customer Name],
    'sales_data'[Customer Age],
    'sales_data'[City],
    'sales_data'[Payment Method],
    'sales_data'[Customer Ratings],
    'sales_data'[Mobile Model],
    'sales_data'[Customer_Rating_Status]
)
ORDER BY 'sales_data'[Transaction ID] ASC

```

Similar to SQL practice more

## Search by BI Intelligence

Go to Report View → Create the new Page → On middle or anywhere else in page double click  
→ Then you can type of select the option available there.



Can change QA to standard visual



Upload your Dashboard on Power BI Service

[02:47:52 : Upload your Dashboard on Power BI Service](#)

[https://www.youtube.com/watch?v=znJGWMtk\\_EE&t=10072s](https://www.youtube.com/watch?v=znJGWMtk_EE&t=10072s)

## Certificate

<http://certificate.skillcourse.in/30-days-power-bi-micro-course/>

<https://certificate.skillcourse.in/wp-content/uploads/qsm-certificates/135-328-3152b6f54e92733f0b03c33bf2a5d20a-18-90.pdf>

## Exercise File

Chapter\_2\_ex\_solution.pbix

Chapter\_2\_inputs.zip Questions

## Steps to Follow

1. Import the data and open the Power Query
2. The expense type column has some spelling and punctuation errors, correct them

3. Project names are not uniform, make it uniform.
  4. The Currency column has some missing values, based on the amount, create a new custom column.
    - Condition: amount >= 1000, = INR; amount < 1000, = USD; else = EURO
    - Formula: (if [Currency] = null and [Amount] >= 1000 then "INR" else if [Currency] = null and [Amount] < 1000 then "USD" else [Currency] )
  5. Convert the "amount" column to INR based on the "currency" column. Use the USD and Euro to INR exchange rates. Assume blank and INR values remain unchanged.
  6. Create a measure to calculate the sum of reimbursed amount in INR.
  7. Use the calculate function and check the total reimbursed amount for Project\_B
  8. Create a measure to check the count of declined requests.
  9. Create a slicer visual for the Project and employee
  10. Create a column chart for employees and reimbursement amount.
  11. Create a pie chart for Project vs reimbursement amount
- 

## QUIZ

Q1.

BI stands for

Your Answer

- Business Intelligence

Q2.

Which type of visual in Power BI is suitable for comparing data across categories using bars of varying lengths?

Your Answer

- Bar Chart

Q3.

In Power BI, what is the main purpose of creating visuals?

Your Answer

- Presenting insights through graphical representations

Q4.

What does DAX stand for in the context of Power BI?

Your Answer

- Data Analysis Expressions

Q5.

What is a primary objective of data modeling in Power BI?

Your Answer

- Defining the structure of data tables

Q6.

Which of the following is not a type of relationship in data modelling?

Your Answer

- one to more

### 3: Project Planning & Scoping

#### Problem Statement

This is a project-based learning course. We will use an imaginary company called AtliQ Hardware and discuss its business model. It is a consumer goods electronics company having operations in various countries. Their business is growing rapidly and they still rely on excel files for data analytics. Excel files are hard to consume and not effective in generating insights. Also due to the lack of effective analytics the company faced a major loss in Latin America.

Senior executives of this company have decided to invest in a data analytics project and have assigned a team for this work.

#### The Email that Started this Project

The data analytics project starts with an email from a product owner roughly outlining the requirements of 5 different dashboards in Power BI

#### Project Kick-off Meeting

A project kick-off meeting is held between the product owner, senior data analyst, and a junior data analyst to discuss the project. The senior data analyst Tony Sharma asks some important questions during the meeting.

#### Learn how a 'Project Charter' is Used in Companies

A project charter is a short document describing the entire project. We will use a tool called Mural for this and cover few important dimensions of the project such as,

1. Project goals
2. Key stakeholders
3. Hopes and fears
4. Risks
5. Timeline

#### Project Kick-off: Session Debrief

In this session debrief we will talk about 3 skills that we need to learn out of the project kick-off meeting,

1. Being proactive

2. Expectation management
3. Project management skills

Simplified: Profit and Loss Statement

Video description

I will explain the profit and loss statement (P&L) using a very simple example. We will cover concepts such as,

1. Revenue
2. Net invoice sales
3. Pre-invoice deductions
4. Post invoice discounts
5. Net sales
6. COGS: Cost of goods sold
7. Gross margin

- Revenue** is total money earned from sales before deductions.
- Net Invoice Sales** is after applying any discounts to customers.
- Pre-Invoice Deductions** include promotions or free samples.
- Post-Invoice Discounts** include returns or additional discounts.
- Net Sales** is the real sales figure after all discounts.
- COGS** is the direct cost of making the product.
- Gross Margin** is the remaining profit after deducting COGS.

## 1. Revenue

**Revenue** is the **total amount of money the business earns** from selling goods or services **before any deductions**.

- Example: You sold 100 cups of lemonade at \$2 each.
  - **Revenue = 100 cups × 2=2=200**
- 

## 2. Net Invoice Sales

**Net invoice sale** is the **revenue after accounting for pre-invoice deductions** (like returns or allowances).

- Example: A customer returned 5 cups of lemonade because they didn't like the taste.
  - **Pre-invoice deductions = 5 cups × 2=2=10**
  - **Net Invoice Sales = Revenue - Pre-invoice deductions = 200-200-10 = \$190**
-

### **3. Pre-invoice Deductions**

These are **reductions in revenue before the invoice is finalized**, such as returns, discounts, or allowances.

- Example: The \$10 from returned lemonade cups is a pre-invoice deduction.
- 

### **4. Post-invoice Discounts**

These are **discounts given to customers after the invoice is issued, often for early payment or promotions**.

- Example: You offered a 10% discount to a customer who paid early.
  - **Post-invoice discount = 10% of 190=190=19**
- 

### **5. Net Sales**

**Net sale** is the **final amount of revenue** after subtracting both **pre-invoice deductions** and **post-invoice discounts**.

- **Net Sales = Net Invoice Sales - Post-invoice discounts = 190-190-19 = \$171**
- 

### **6. COGS: Cost of Goods Sold**

**COGS** is the **direct cost of producing the goods sold**, including materials and labour.

- Example: It costs \$0.50 to make each cup of lemonade (lemons, sugar, cups, etc.).
  - **COGS = 100 cups × 0.50=0.50=50**
- 

### **7. Gross Margin**

**Gross margin** is the profit left after subtracting **COGS** from **net sales**. It shows how efficiently you're producing and selling your product.

- **Gross Margin = Net Sales - COGS = 171-171-50 = \$121**
- 

### **Summary of the Lemonade Stand P&L:**

1. **Revenue: \$200**
2. **Pre-invoice deductions: \$10**

- |   |
|---|
| <ol style="list-style-type: none"> <li>3. <b>Net Invoice Sales:</b> \$190</li> <li>4. <b>Post-invoice discounts:</b> \$19</li> <li>5. <b>Net Sales:</b> \$171</li> <li>6. <b>COGS:</b> \$50</li> <li>7. <b>Gross Margin:</b> \$121</li> </ol> |
|---|

## Summary

1. Spending time to understand the problem, the end goal, and the bigger picture of the project is the very important first step of any project.
2. It is critical to constantly align your understanding of project scope, requirements, and timelines with the product owner / key stakeholder throughout the project.
3. The profit and loss statement is the most important piece of analysis any company will need.

## Quiz

Q1.

What is Gross Margin?

Your Answer

- Profit Margin earned after including the cost of goods and freight

Q2.

Which department would use the Profit & Loss statement the most in a company?

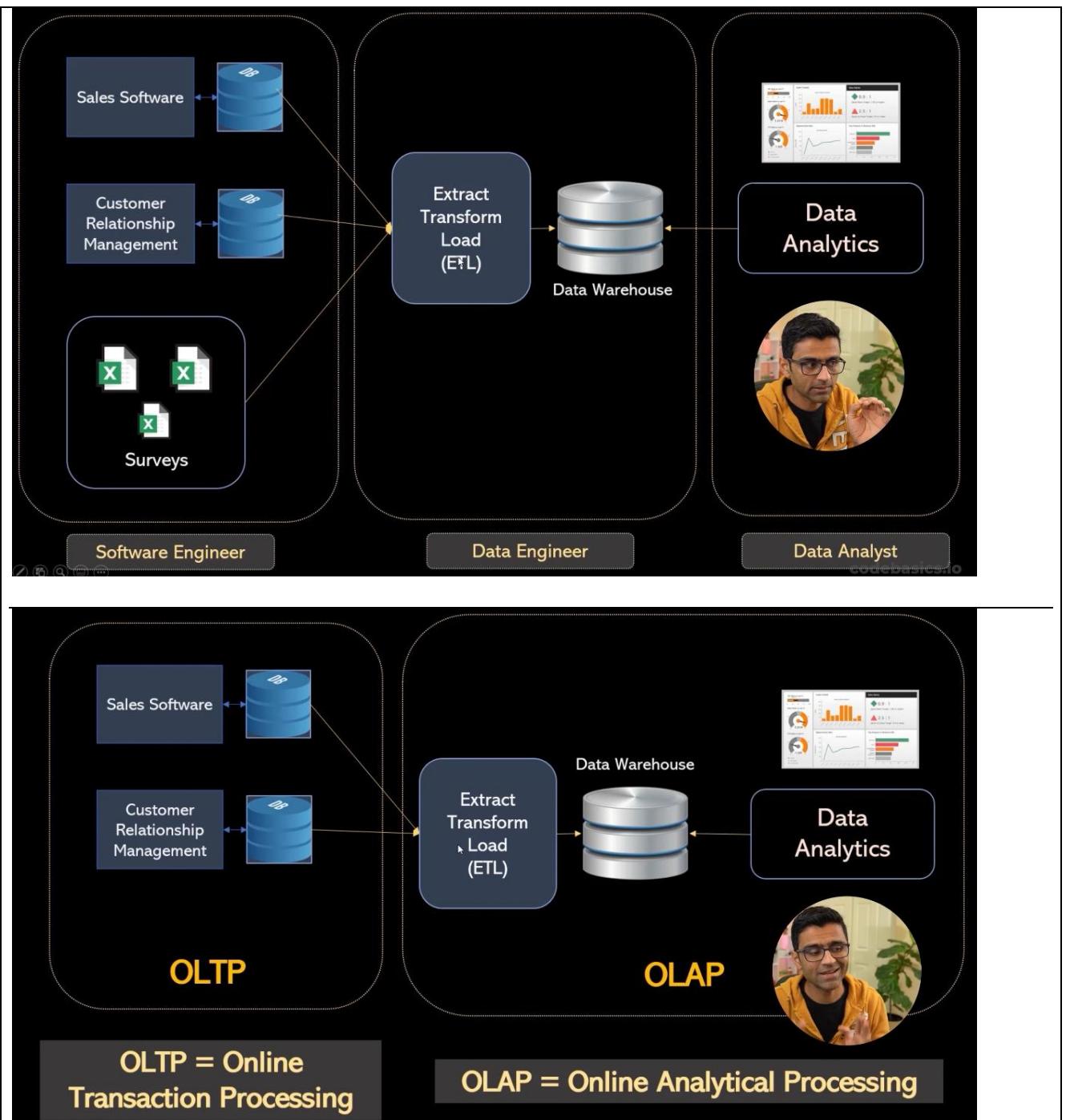
Your Answer

- Finance

## 4: Power BI Basics: Data collection, Exploration & Validation

Simplified: Data Warehouse, OLTP vs OLAP, Data Catalogue

1. Go over different tables in MySQL and explain the purpose of different columns in these individual tables
2. What is star schema?
3. Fact vs dimension table
4. Explain the concept of channel and platform for AtliQ's hardware business
5. Explain product category, division and segment



Using a very simple example, we will understand the following concepts,

What is a data warehouse?

OLTP (Online Transaction Processing) vs OLAP (Online Analytical Processing)?

What is data catalogue?

Atliq Data Catalog

Sales at different levels of granularity as per region

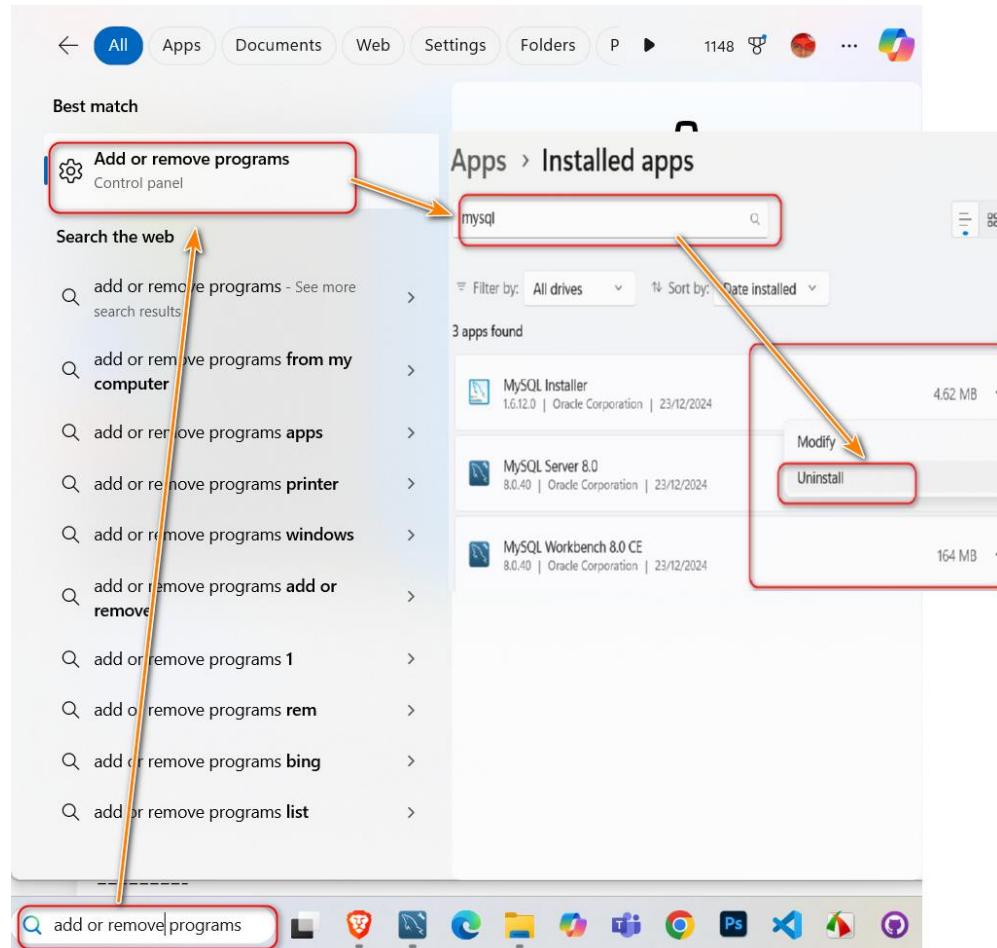
	A	B	C	D
1	DB Server	TableName	Description	Contact
2	GDB041	FactForecastMonthly	Contains historical forecast, current forecast at monthly level	Jarvis Singh
3	GDB041	FactSalesMonthly	Contains sales up to date at Monthly level	Jarvis Singh
4	GDB013	Regional Forecast	Forecast at different levels of granularity as per region	Loki Lal
5	GDB014	Regional Sales	Sales at different levels of granularity as per region	Loki Lal
6	GDB056	ManufacturingCost	Currency in USD, data at fiscal year level	Jarvis Singh
7	GDB056	PostInvoiceDeductions	Currency in USD, data at monthly level	Jarvis Singh
8	GDB017	Regional Cost & Deductions	Local Currency	Loki Lal
9	GDB056	PreInvoiceDeductions	Currency in USD, data at fiscal year level	Jarvis Singh
10	GDB019	RegionalMarkUpCost	Local Currency	Loki Lal
11	GDB020	RegionalOperatingExpenses	Local Currency	Loki Lal
12	GDB041	DimCustomer, DimProduct, DimMarket		Loki Lal
13	GDB022	Regional Freight	Local Currency	Loki Lal
14	GDB056	FreightCost	Freight' and 'other costs' is % of Net Sales	Jarvis Singh
15				
16	GDB024	DailySales	Contains sales at daily level	Loki Lal
17	GDB056	GrossPrice	Currency in USD, data at fiscal year level	Jarvis Singh

## Install MySQL and Import Data

First Install any MySQL from your computer

Go to Search in Window → Type “Add or Remove Program” → Search “MYSQL” → Then uninstall

Te6 fgrewa dc4gf3rq



Go to google and download MySQL

A screenshot of a Google search results page. The search query "Download Mysql" is entered in the search bar. Below the search bar, there are navigation links for All, Videos, Images, Shopping, Web, Forums, News, and More. The first result is a link to the MySQL Downloads page, which is highlighted with a blue box. The page title is "MySQL Downloads". A snippet of the page content reads: "MySQL NDB Cluster is a real-time open source transactional database designed for fast, always-on access to data under high throughput conditions. MySQL ...".

Download community version → Mysql Installer for Windows →  
<https://dev.mysql.com/downloads/installer/>

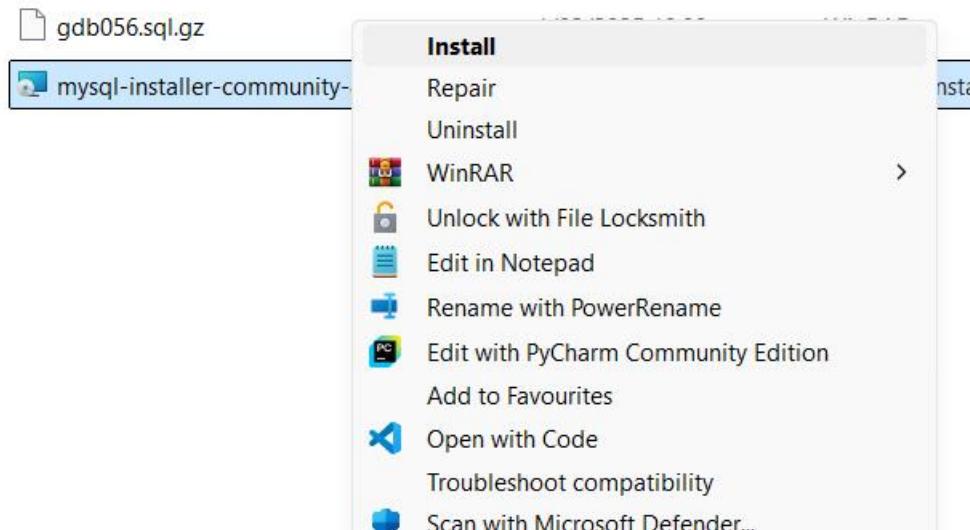
## ① MySQL Community Downloads

◀ MySQL Installer

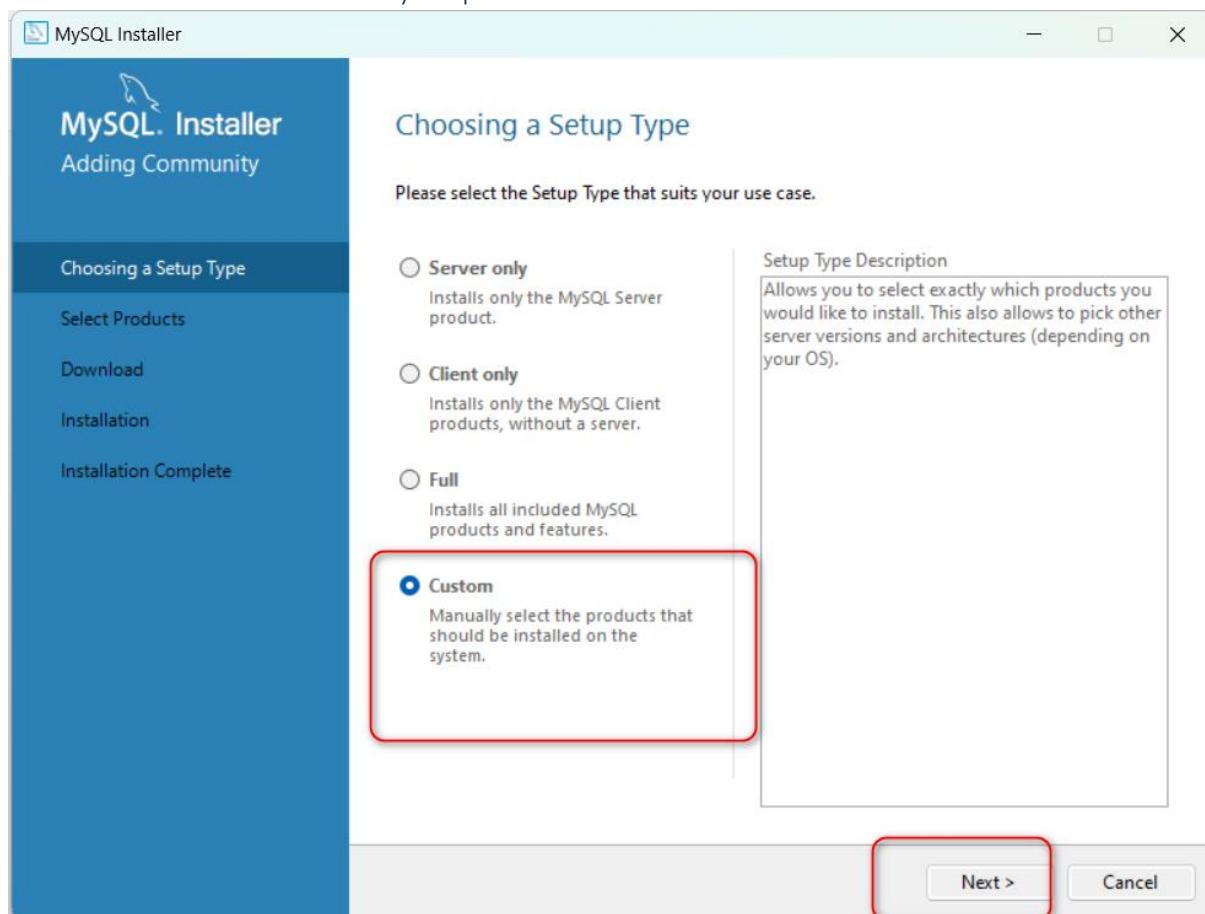
A screenshot of the MySQL Installer 8.0.41 download page. At the top, there are tabs for "General Availability (GA) Releases" (which is selected), "Archives", and a help icon. The main heading is "MySQL Installer 8.0.41". Below the heading, a note states: "Note: MySQL 8.0 is the final series with MySQL Installer. As of MySQL 8.1, use a MySQL product's MSI or Zip archive for installation. MySQL Server 8.1 and higher also bundle MySQL Configurator, a tool that helps configure MySQL Server." The page includes dropdown menus for "Select Version" (set to 8.0.41) and "Select Operating System" (set to Microsoft Windows). Two download options are listed:

Version	File Type	File Size	Action
8.0.41	Windows (x86, 32-bit), MSI Installer	2.1M	<a href="#">Download</a>
8.0.41	Windows (x86, 32-bit), MSI Installer	352.2M	<a href="#">Download</a>

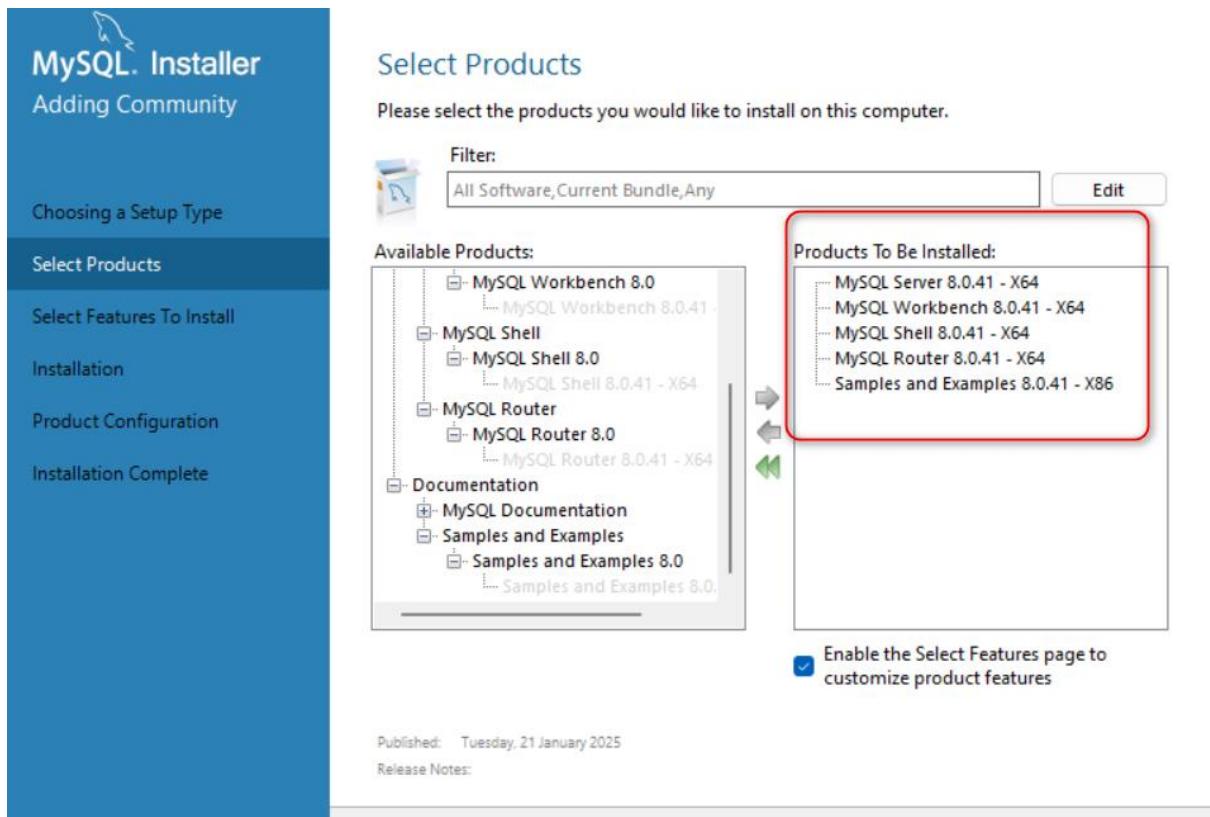
Then install in the computer as normal process



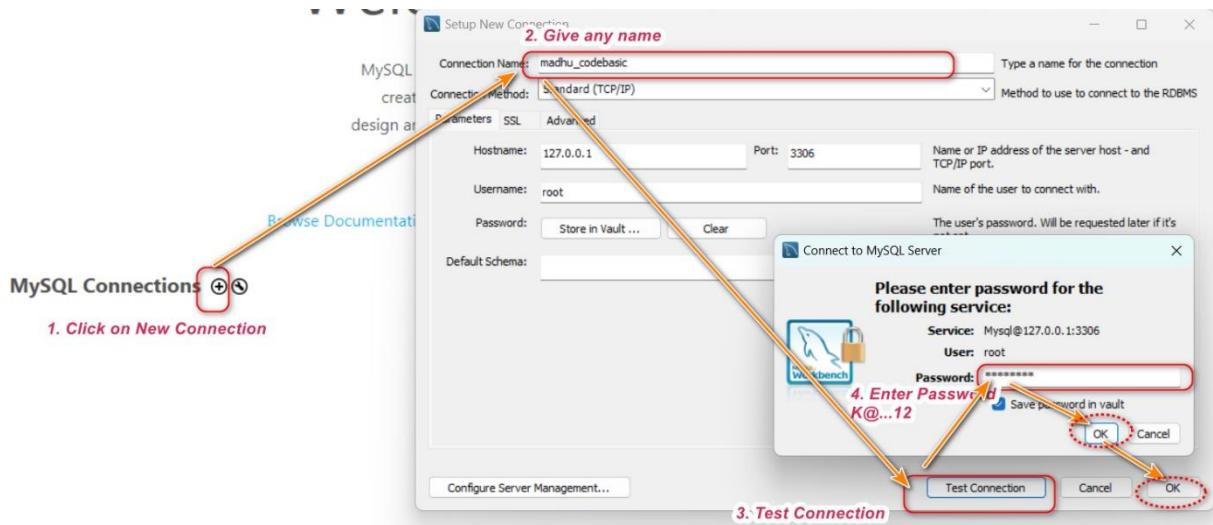
Go for Custom for minimal only Required Installation



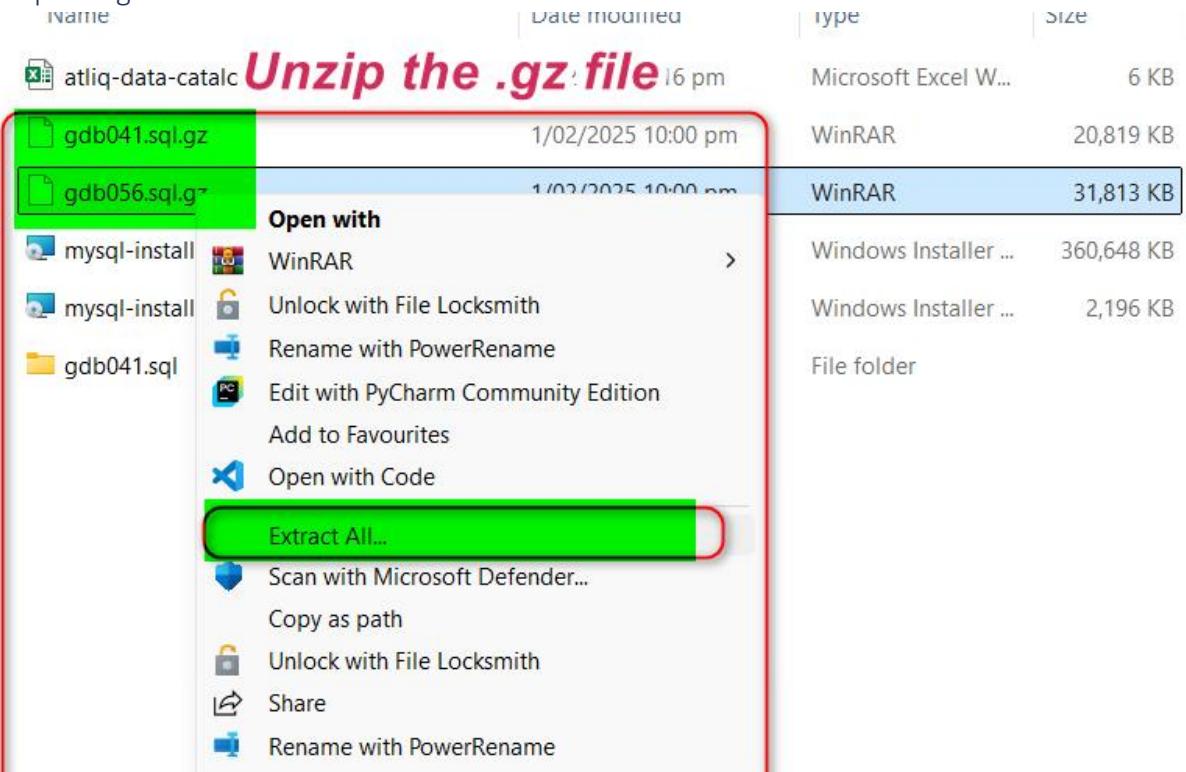
==



## Create a new Connection

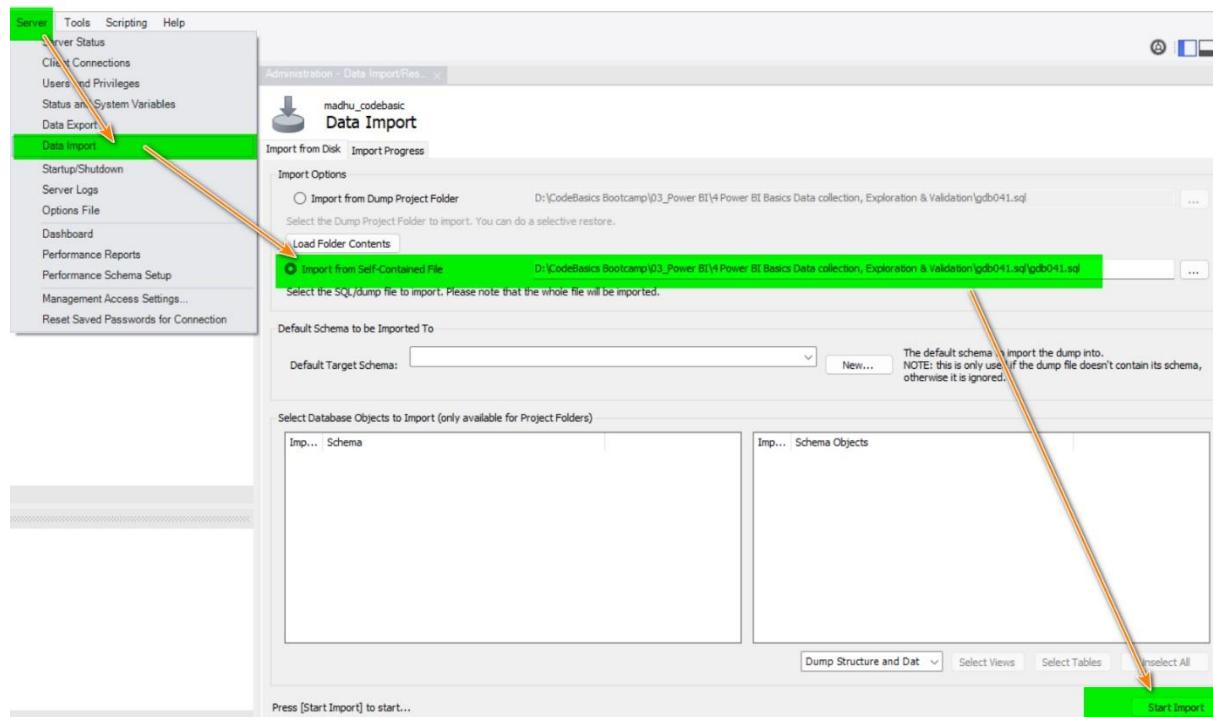


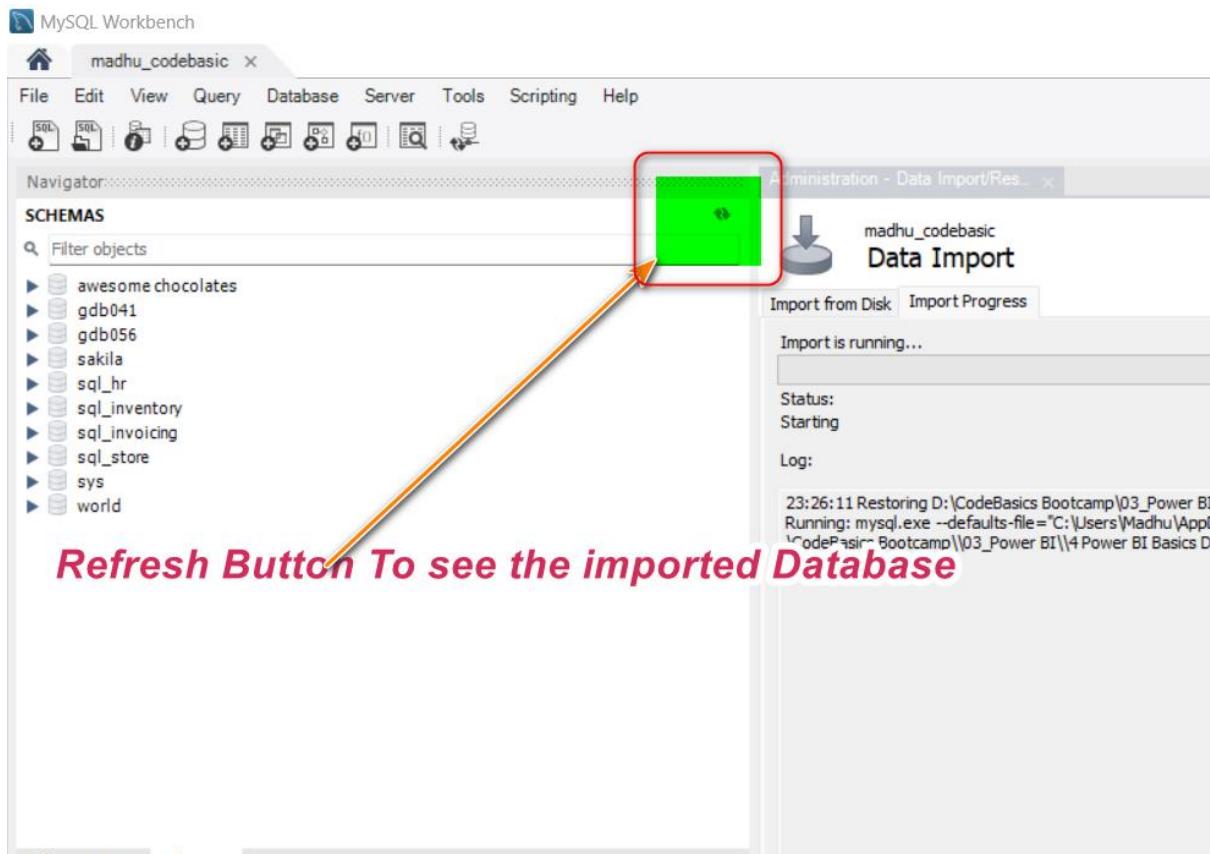
Uzip the .gz file



Import File .sql file to MYSQL work bench

→ Click on Server Menu → Data Import → Import from Self Contained File (Select the file) → Start Import





### Download Files

This video talks about installing MySQL database and then importing the AtliQ sales data into MySQL instance.

Go to the 'C' Directory, remove all these files related to MySQL and type these paths manually if it does not show the folders:

C:\Program Files\MySQL

C:\Program Files (x86)\MySQL

C:\ProgramData\MySQL

C:\Users[User-Name]\AppData\Roaming\MySQL

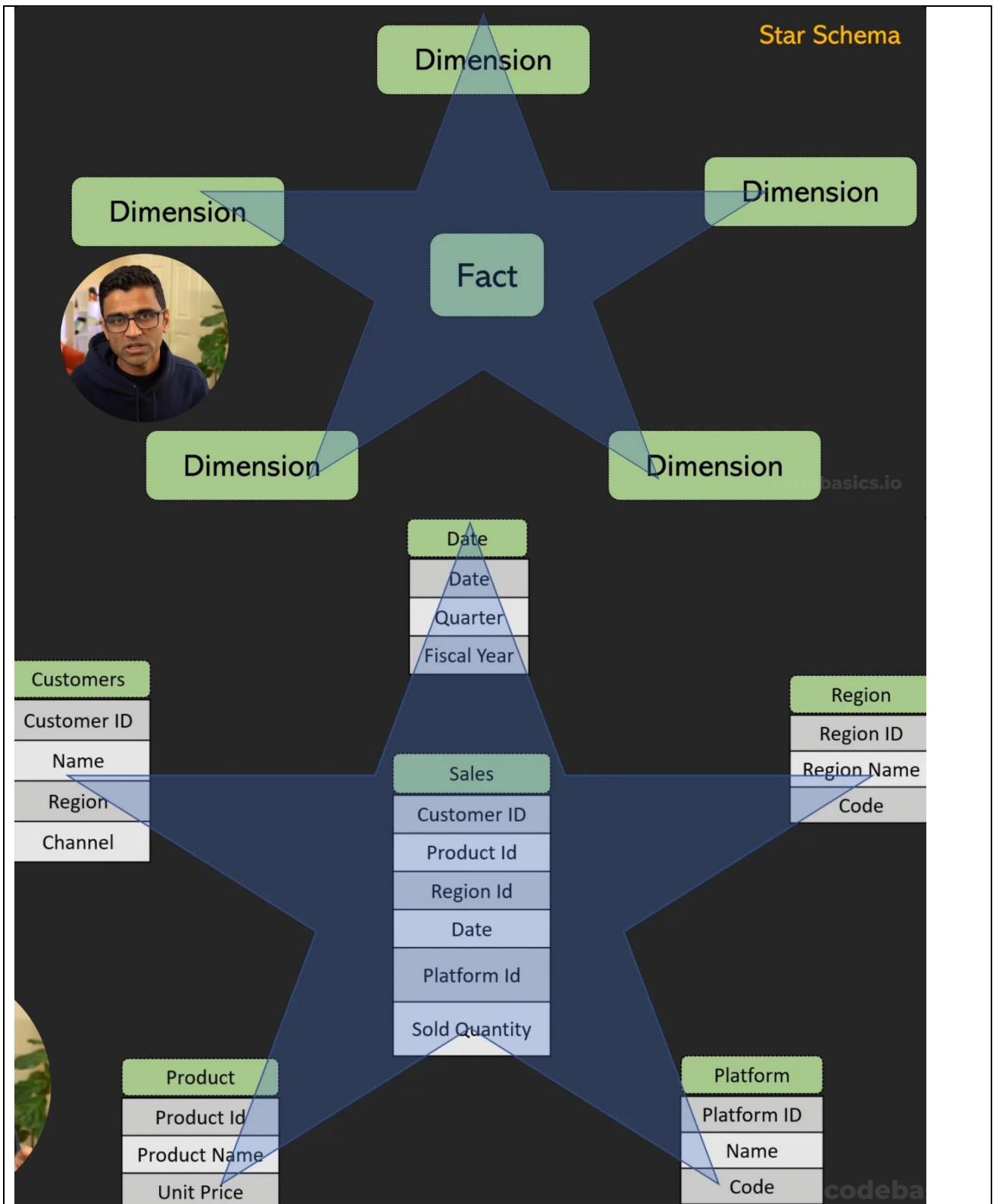
**Installer 8.0.28(mysql-installer-community-8.0.28.0.msi: 435.7M): [Download](#)**

### Instructions to download SQL dump files:

1. Click on Download Files button (at top right) and download both the SQL dump files: gdb041.sql.gz and gdb056.sql.bz

2. These are zipped files with .gz extension. You can unzip by installing WinZip software from this location: [<https://www.winzip.com/en/learn/file-formats/gz/>](<https://www.winzip.com/en/learn/file-formats/gz/>)
  3. Click on Download Winzip Now button, this will download the installation file
  4. Once the WinZip installation file is downloaded, double click on it to install WinZip on your computer
  5. After WinZip is installed run it. Click on “Use Evaluation Version” to run it
  6. You can go to a folder where you have downloaded both the .gz file.
  7. Right-click on the first file and select WinZip —> Unzip to here. This will unzip the first file, you will see a new file in that same folder called: gdb041.sql
  8. Right-click on the second file (the same way) and you will see a file called: gdb056.sql
  9. You now have unzipped versions of both the files which are ready to import into MySQL
- 
10. Follow the instructions in the video to import those two files in MySQL
-

## Simplified: Data Exploration Using SQL, Star Schema, Fact vs Dimension Tables



```

1 • SELECT * FROM gdb041.dim_product where division = 'N & S';
2 • select distinct segment from gdb041.dim_product;

```

I

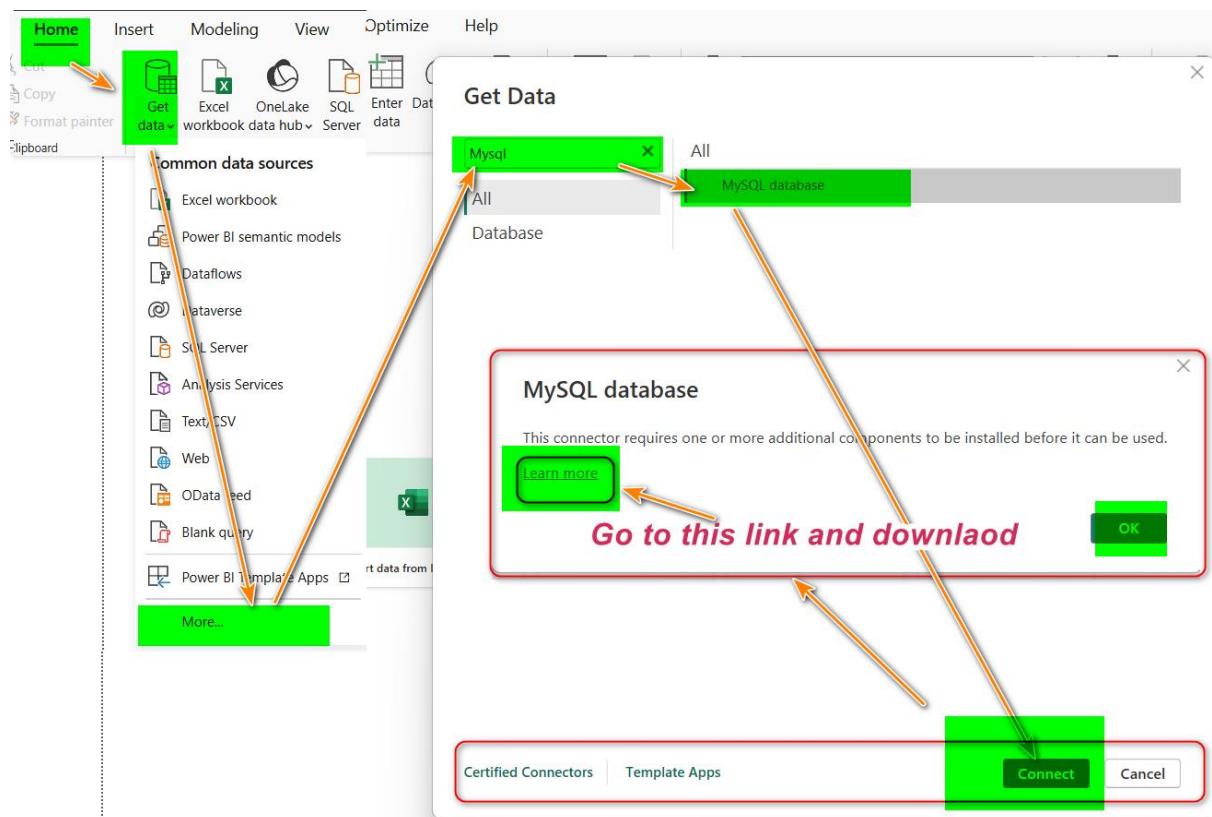
Connect [PowerBI](#) with [MYSQL Database](#)

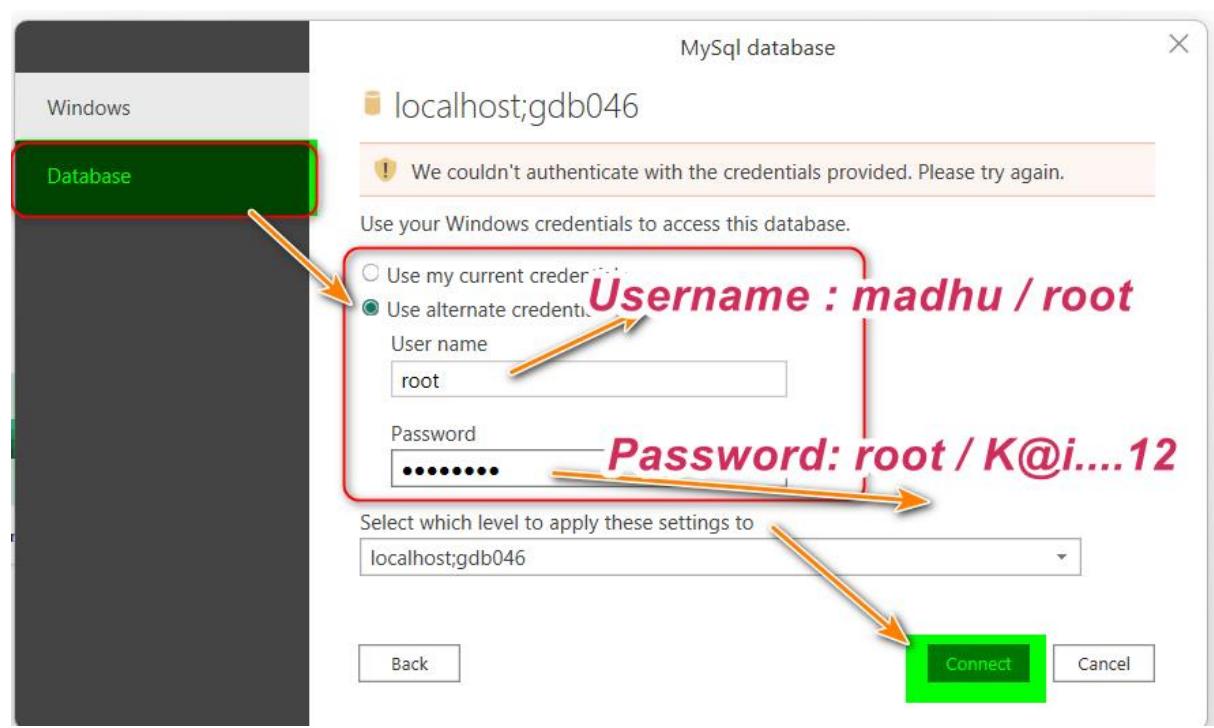
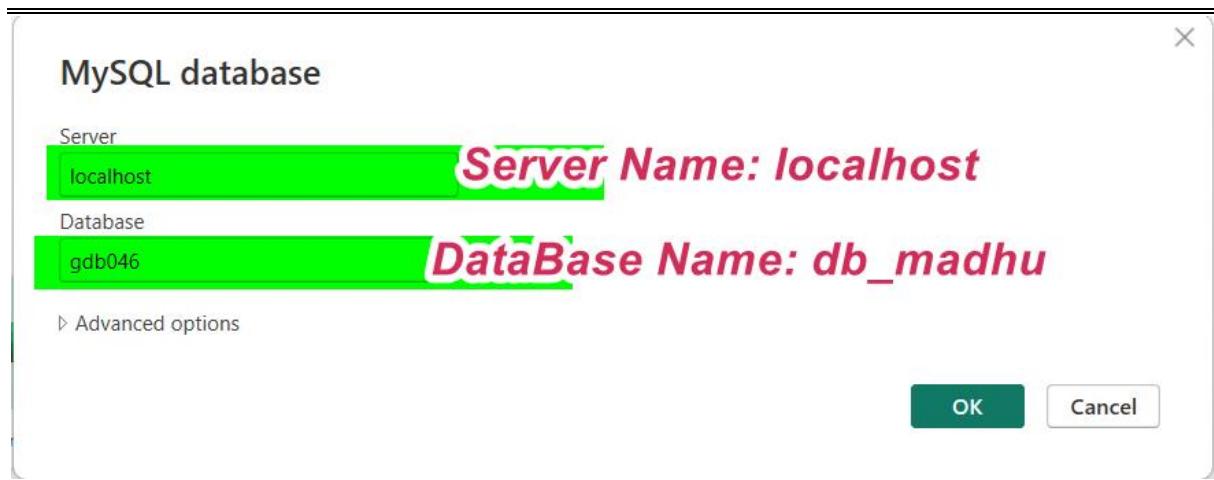
First Download and install **Connector/.NET** from [MySQL:: Download Connector/.NET](#)

<https://dev.mysql.com/downloads/connector/net/>

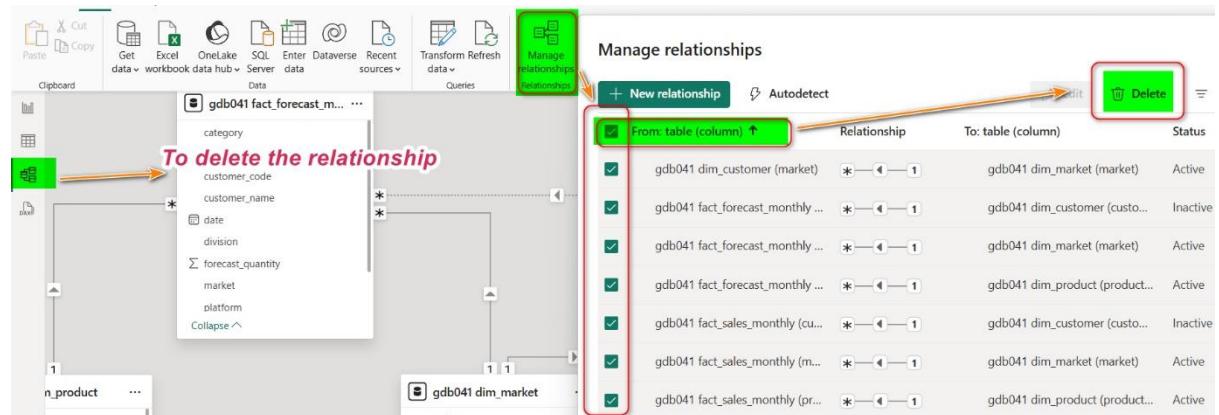
if "connector requires one or more additional components to be installed before it can be used." Is shown

In Power BI Go to **Home** → **Get Data** → **More** → Type MySQL and **Connect with MYSQL Data Base** →





### To Delete Relationship generated by Power Bi



Power Query can display the profiling for the entire dataset. Just click on the area where it says '**Column profiling based on top 1000 rows**' on left bottom and change it to '**Column Profiling based on entire dataset**' if you need it for the entire dataset but please be informed that this will impact the query load time.

1. Day-to-day software that organizations use for their business processes is called OLTP (Online Transaction Processing) systems.
2. For data analytics needs, we need sort of like a copy of OLTP databases. Some transformations are performed on OLTP databases such that a new set of data can be generated that is well suitable for analytical needs. This new data is stored in a different database also known as Data Warehouse. The new system that contains the data warehouses is also known as OLAP (Online Analytical Processing) systems.
3. Data catalog will enable a data analyst to browse through the list of databases available in the company.
4. Star schema contains fact and dimension tables. Facts are transaction tables whereas dimensions are entity tables. When we connect them to build a data model, it creates something called a STAR schema.
5. For quick data exploration, basic SQL queries are very useful.

### Quiz

Q1.

What is a brick and mortar store?

Your Answer

- A business which has a physical store

Q2.

What is a dimension table?

Your Answer

- A table that contains attributes with atleast one column containing non repeating values

Q3.

Which one of these is a product division in AtliQ?

Your Answer

- PC



## 5: Power BI Basics: Data Transformation in Power Query

## 6: Get Your DAX Fear Removed

### QUIZ

Q1.

What is the primary difference between the DAX functions ALL() and ALLEXCEPT() in Power BI?

Your Answer

- ALL() ignores the filters applied to the visual, while ALLEXCEPT() removes all filters except for those specified.

Q2.

What happens when you create a calculated column in Power BI using the DAX formula 'IF([Sales]>1000, "High", "Low")' based on the 'Sales' column, and then later filter the report by 'High' values from this calculated column?

Your Answer

- It displays only 'High' values in the Sales column

Q3.

Suppose we have 3 tables. fact\_Sales, dim\_products, dim\_customers. Lets say that we only have fact\_sales and dim\_products tables connected in data modeling. If we create a visual from either of fact\_sales and dim\_products tables, and drag a column as a filter slicer from the dim\_customer table, will it work?

Your Answer

- No, the tables are not connected

Q4.

What is the primary function of a filter slicer in Power BI?

Your Answer

- To dynamically filter visualizations based on user selections

Q5.

Which DAX function is primarily used to alter the natural filtering context within a Power BI report or dataset?

Your Answer

- CALCULATE

## 7: Power BI Advanced: Data Modelling & Calculated Columns

## 8: Power BI Advanced: Build Finance View

## 9: Power BI Advanced: Build Sales, Marketing & Supply Chain View

## 10: Power BI Advanced: Designing an Effective Dashboard

## 11: Power BI Advanced: Data Validation Set Up in PBI Service

## 12: Stakeholder review & Feedback implementation

## 13: Deploying the Solution: Power BI Service

## 14: Practice Exercise Solutions

## 15: More Practice

NEW

## 16: PBI Monthly Update Tasks

NEW

## 17: PL-300 Exam Question Bank

New

## 18: Course Completion Test

Mandatory

<https://chatgpt.com/c/67a5c748-1430-8001-b6ca-489c2d90db12>

Login By Madhu

Q1. What is the best way to append two data tables in Power BI? Use Calculated columns in DAX Create the new table using DAX measure Using both DAX and Power Query Using merge option in Power Query

**ChatGPT said:**

The best way to append two data tables in Power BI is:

**Using both DAX and Power Query**

**Explanation:**

- **Power Query:** The best and most efficient approach is to use the "**Append Queries**" option in Power Query. This method is ideal for combining tables with the same structure (same columns). It is efficient and performs well, especially for large datasets.
  - **DAX (Using UNION function):** If you need to append tables dynamically in DAX, you can use the UNION() function. However, this approach is less efficient compared to Power Query, especially for large datasets, since DAX operates in-memory.
- ◆ **Why not other options?**
- **Calculated columns in DAX:** This method does not append tables; it only adds new columns based on existing ones.
  - **DAX measure:** Measures cannot create new tables; they only perform calculations.

Thus, **Power Query is the best choice**, and DAX can be used when necessary.

4o

**You said:**

Q2. Which chart is better to show sales proportion of 10 countries? Pie Chart Bar Chart Line Chart Ribbon Chart

**ChatGPT said:**

The best chart to show the **sales proportion of 10 countries** is:

**Bar Chart**

**Explanation:**

- **Bar Chart** is the best choice because it allows for easy comparison of proportions across multiple categories (countries). A **stacked bar chart** or a **100% stacked bar chart** can also be used for better visualization of proportions.
- ◆ **Why not the other options?**
- **Pie Chart:** Not ideal for comparing more than a few categories (e.g., more than 3-5). With 10 countries, it becomes cluttered and hard to interpret.
  - **Line Chart:** Best suited for trends over time, not proportions.
  - **Ribbon Chart:** Used to show ranking changes over time, not for displaying proportions.

Thus, a **bar chart** (or stacked bar chart) is the best option for effectively showing the sales proportion of 10 countries. 

4o

**You said:**

Q3. A business user requests to enable a feature to dynamically filter countries based on user defined target. What will you do? Create a dynamic slicer and use the values selected in slicer as a visual level filter to filter the desired visual Create a function in Power BI Tell them not to spend too much time on screen and suggest they can take print out and use highlighter to mark the countries. Tell them politely that this feature is not available in Power BI

**ChatGPT said:**

**Correct Answer:**

Create a dynamic slicer and use the values selected in the slicer as a visual-level filter to filter the desired visual.

**Explanation:**

- Power BI allows **dynamic filtering** using slicers.
- You can create a **parameter slicer** where users define a target value (e.g., sales > \$10,000), and then use this as a filter in the report visuals.
- A **measure or calculated column** in DAX can be created to compare country sales against the target and filter the visuals accordingly.

◆ **Why not the other options?**

- **X Create a function in Power BI:** Power BI does not support user-defined functions in the same way as traditional programming.
- **X Tell them to use a printout and highlighter:** This is not a practical or scalable solution.
- **X Tell them the feature is not available:** Dynamic filtering is possible in Power BI using slicers and DAX measures.

Thus, **using a dynamic slicer** is the best approach to enable user-defined filtering.  

40

**You said:**

Q4. Based on your learning from this course, which of these statements is correct? Revenue growth and Market Share growth indicates the growth of the company but does not mean the company is making profit Gross Margin % helps one understand the real profit of the company Net Profit % helps one understand the real profit of the company Both A and C

**ChatGPT said:**

**Correct Answer:**

**Both A and C**

**Explanation:**

**1 Revenue growth and Market Share growth indicate the growth of the company but do not mean the company is making a profit.**

- A company can have **high revenue growth and increasing market share** but still **incur losses** due to high operational costs, low margins, or excessive debt.

**2 Gross Margin % helps one understand the real profit of the company.**  (Incorrect)

- **Gross Margin %** only shows how much profit is left **after deducting the cost of goods sold (COGS)** but **before deducting operating expenses, taxes, and interest.**
- It **does not reflect the final profitability** of the company.

**3 Net Profit % helps one understand the real profit of the company.**

- **Net Profit % (Net Profit Margin)** is the best measure of a company's true profitability because it **considers all expenses, taxes, and interest.**
- It shows **how much profit remains from total revenue after all costs are accounted for.**

Thus, the correct answer is:

**Both A and C** 

2/2

40

**You said:**

Q5. What is the most important skill of a data analyst? Understanding Profit and Loss Statement Problem Solving Mindset Design attractive dashboards Load and transform Million rows

**ChatGPT said:**

**Correct Answer:**

**Problem-Solving Mindset**

**Explanation:**

A data analyst's primary role is to extract insights from data to help businesses make informed decisions. The ability to **analyze problems, identify patterns, and derive actionable insights** is the **most critical skill** for success in this role.

◆ **Why not the other options?**

- ✗ **Understanding Profit and Loss Statement** – This is important for finance analysts but not the most critical skill for all data analysts.
- ✗ **Design attractive dashboards** – Visualization is useful, but without problem-solving, a beautiful dashboard is meaningless.
- ✗ **Load and transform million rows** – Technical skills (ETL, Power Query, SQL) are important, but they serve the purpose of analysis and problem-solving, not the other way around.

Thus, the **problem-solving mindset** is the foundation of a great data analyst.   

4o

**You said:**

Q6. A key business user keeps on requesting new features even after the support period and it is affecting your tasks. What will you do? Talk to your manager. Take help to prioritize the tasks and communicate to the business user accordingly Block them Ask them to create a new request form and 12 other forms to initiate a new project Work extra time and burn yourself out

**ChatGPT said:**

**Correct Answer:**

**Talk to your manager. Take help to prioritize the tasks and communicate to the business user accordingly.**

**Explanation:**

- If a key business user keeps requesting new features beyond the agreed support period, **escalating the issue to your manager** is the best approach.
- Your manager can help **prioritize tasks** based on business needs and allocate resources accordingly.
- Clear **communication** with the business user about **support limitations** and the **process for new requests** is essential.

◆ **Why not the other options?**

- ✗ **Block them** – Unprofessional and not a viable solution.
- ✗ **Ask them to create 12 other forms** – Creating unnecessary bureaucracy can frustrate the business user and harm collaboration.
- ✗ **Work extra time and burn yourself out** – Overworking is unsustainable and can reduce productivity and job satisfaction.

Thus, **involving your manager and setting clear priorities** is the most effective approach.   

4o

**You said:**

Q7. Which function can be used to ignore all filters in a specified table? ALL ALLNOBLANKROW ALLEXCEPT FILTER

**ChatGPT said:**

**Correct Answer:**

**ALL**

**Explanation:**

The ALL function in DAX is used to **remove all filters** from a specified table or column. It is often used in **calculations where you need to ignore filters**, such as calculating totals or percentages.

◆ **Syntax:**

DAX

CopyEdit

ALL(TableName)

ALL(ColumnName)

◆ **Why not the other options?**

- ✗ **ALLNOBLANKROW** – Similar to ALL, but it **removes filters while keeping the blank row** added for invalid relationships.
- ✗ **ALLEXCEPT** – Removes **all filters except** the ones on specified columns.
- ✗ **FILTER** – Used to return a filtered table based on a condition, **not to ignore all filters**.

Thus, **ALL** is the correct function to ignore all filters in a specified table.  🚀

4o

**You said:**

Q8. A business user requests you to create a slightly different variant of the same visual and keep them both. What will you do? Don't respond Create a variant of this visual and use bookmark / selection feature to create a toggle between these two variants Create this visual in new page Create this visual in same page and reduce the size of other visual to fit this one

**ChatGPT said:**

**Correct Answer:**

**Create a variant of this visual and use the bookmark/selection feature to create a toggle between these two variants.**

**Explanation:**

- **Bookmarks and selection pane** in Power BI allow users to **switch between different versions of a visual** without cluttering the report.
- This approach provides a **clean and interactive** experience without taking up too much space.
- ◆ **Why not the other options?**
  - ✗ **Don't respond** – Ignoring a business request is unprofessional.
  - ✗ **Create this visual on a new page** – This is an option, but it may not provide the best user experience if users need to compare visuals in the same view.
  - ✗ **Create this visual on the same page and shrink the size of other visuals** – This can lead to **poor readability** and cluttered reports.

Thus, using **bookmarks and the selection pane** is the best way to manage multiple visual variants **efficiently and interactively**.  🚀

4o

**You said:**

Q9. A business user requests you to refresh a Power BI report online which uses the excel file saved on their local computer. What will you do? Ask that user for their user name and password. Login to their computer and manually upload the file Ask them complicated questions so they won't request such things again Ask them to move the excel file to a common drive / sharepoint so that online refresh can be enabled Download the pbix file from cloud, run a manual refresh and upload to Power BI service again. Do this daily.

**ChatGPT said:**

**Correct Answer:**

**Ask them to move the Excel file to a common drive / SharePoint so that online refresh can be enabled.**

**Explanation:**

- Power BI **cannot refresh a dataset** if the source file is stored on a user's **local computer** because Power BI Service **cannot access local files directly**.
- **Solution:** Storing the file on **OneDrive, SharePoint, or a shared network drive** allows **automatic online refresh** in Power BI Service.
- ◆ **Why not the other options?**
  - ✗ **Ask for their username and password & log in to their computer** – This is a security risk and unethical.
  - ✗ **Ask complicated questions to discourage them** – Not a professional approach; business users rely on analysts for solutions.
  - ✗ **Download, refresh manually, and re-upload daily** – This is not a scalable or efficient solution.

Thus, **moving the file to SharePoint or a shared drive** is the best long-term solution for enabling **seamless auto-refresh** in Power BI Service.  🚀

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You said:

Q10. Which of the following option increase the size of Power BI file the most? Creating a calculated column using DAX Creating a measure using DAX Creating a calculated column in Power Query All

ChatGPT said:

Correct Answer:

**Creating a calculated column using DAX**

Explanation:

- **DAX Calculated Columns increase** the Power BI file size the

40

You said:

Q11. Which of these is an example of 1 to many relationship? Date column in date dimension table connected to date column in sales transaction table Sales date column connected to forecast date column Product column in discounts connected to product column in sales None of the above

ChatGPT said:

Correct Answer:

**Date column in date dimension table connected to date column in sales transaction table**

Explanation:

In a **1-to-many relationship**, one record in the "one" side table (Date dimension) can be associated with multiple records in the "many" side table (Sales transaction), which is a typical scenario in a **date dimension** table (which contains unique dates) and a **sales** table (which can have multiple transactions for each date).

◆ **Why not the other options?**

- **X Sales date column connected to forecast date column** – This is likely a **1-to-1 relationship** or could involve a different kind of matching, but it's not a classic 1-to-many relationship.
- **X Product column in discounts connected to product column in sales** – This could be a **many-to-many relationship**, depending on how discounts and sales are recorded.

Thus, the **date dimension to sales transaction** is a classic example of a **1-to-many relationship**.  

40 mini

You said:

Q12. Which view you need to be in to build the visualisation in Power BI? Report View Data View Model View Mountain View

ChatGPT said:

Correct Answer:

**Report View**

Explanation:

- In **Report View** in Power BI, you can build, design, and interact with **visualizations**. This is where you drag and drop fields onto a canvas to create charts, graphs, tables, etc.

◆ **Why not the other options?**

- **X Data View** – This is where you view and explore the data tables, but you can't build visualizations here.
- **X Model View** – This is used to manage relationships between tables and define model structures, but not for creating visuals.
- **X Mountain View** – This option doesn't exist in Power BI. 😊

Thus, to **build visualizations**, you need to be in **Report View**.  

40 mini

You said:

Q13. A key non tech business stakeholder asks you to provide a demo of this tool. What will you do?

Prepare a full documentation of how the tool works, the hardwork you have done, DAX complexities and walk them through it Tell them Power BI is not their cup of tea Tell them Power BI is not their cup of coffee

Prepare a deck to help them understand how they can consume insights from this tool by showing business user features such as slicing, filtering, drilling, navigating to pages etc.

**ChatGPT said:**

**Correct Answer:**

**Prepare a deck to help them understand how they can consume insights from this tool by showing business user features such as slicing, filtering, drilling, navigating to pages, etc.**

**Explanation:**

- **Non-technical business stakeholders** are more interested in **how they can use the tool to gain insights** and make decisions, rather than the technicalities behind the tool.
  - The focus should be on **user-friendly features** like filtering, drilling, and navigating, which are relevant to them in **gaining actionable insights**.
- ◆ **Why not the other options?**
- **✗ Prepare full documentation with DAX complexities** – This would be too detailed and technical for non-tech stakeholders.
  - **✗ Tell them Power BI is not their cup of tea or coffee** – This is unprofessional and dismissive.
  - **✗ Tell them Power BI is not their cup of coffee** – This is just a playful variant, but still not the correct response.

Thus, preparing a **user-friendly demo deck** that focuses on **how they can interact with and use the tool** effectively is the best approach.  

4o mini

**You said:**

Q14. What is the significance of a Project Charter? No major significance, it is a formality. To create a point of reference Both B and D To align with the goals, objectives, timeline, resources & other significant requirements to successfully implement the project with Product Owner / Stakeholders.

**ChatGPT said:**

**Correct Answer:**

**Both B and D**

**Explanation:**

A **Project Charter** is a key document that outlines the scope, objectives, timeline, and resources for a project. Its significance includes:

- **Creating a point of reference (B)** – The Project Charter serves as a foundational document that all stakeholders can refer to throughout the project, ensuring alignment and clarity.
  - **Aligning with the goals, objectives, timeline, resources & other significant requirements to successfully implement the project with the Product Owner/Stakeholders (D)** – It helps ensure that all parties involved have a shared understanding of the project's scope and requirements, which is critical for its success.
- ◆ **Why not the other options?**
- **✗ No major significance, it is a formality** – This underestimates the importance of the Project Charter, which is crucial for project alignment and success.

Thus, the **Project Charter** is significant for **alignment, reference, and successful implementation**.  

4o mini

**You said:**

Q15. A business user asks you to show the trend over years of a product but there is no space in the report page. What will you do? Reduce the size of existing visuals and create space Create a new page Use tool tip and show the trend when user hovers the mouse on product Apologize to the user

**ChatGPT said:**

**Correct Answer:**

**Create a new page**

**Explanation:**

- If there is no space on the current report page to show the trend, the best approach is to **create a new page** dedicated to showing the trend over the years. This keeps the report **organized** and **user-friendly**.
- A new page allows you to present the information without overcrowding the existing visuals, providing a **clean and focused view** on the requested data.
- ◆ **Why not the other options?**
  - ✗ **Reduce the size of existing visuals and create space** – This can lead to **poor readability** and might negatively impact the user experience.
  - ✗ **Use tooltip** – Tooltips are useful for additional details but might not be the best solution for showing a comprehensive trend, especially if it involves multiple years.
  - ✗ **Apologize to the user** – This is unprofessional and does not address the need for a solution.

Thus, **creating a new page** is the best way to present the trend clearly without cluttering the report.  

40 mini

**You said:**

Q16. What is Sales quantity? Number of forecasts made in a given time period Number of people involved in forecasting a quantity Quantity of products estimated to be sold over a given time period Quantity of items sold over a given time period

**ChatGPT said:**

**Correct Answer:**

**Quantity of items sold over a given time period**

**Explanation:**

- **Sales quantity** refers to the **actual number of items sold** during a specific time period. This is a key metric for understanding sales performance.
- ◆ **Why not the other options?**
  - ✗ **Number of forecasts made in a given time period** – This refers to the number of **sales forecasts**, not the actual quantity sold.
  - ✗ **Number of people involved in forecasting a quantity** – This is not related to sales quantity; it refers to the people involved in the forecasting process.
  - ✗ **Quantity of products estimated to be sold over a given time period** – This refers to **forecasted sales**, not actual sales quantity.

Thus, **sales quantity** is the **actual number of items sold** during a specific period.  

40 mini

**You said:**

Q17. Which is the best visual to show the ranking of entities over a period of years? Ribbon Chart Bar Chart Pie Chart Sankey diagram

**ChatGPT said:**

**Correct Answer:**

**Ribbon Chart**

**Explanation:**

- The **Ribbon Chart** is ideal for showing **ranking over time**, as it helps visualize **changes in rank** for entities over a period of years. The ribbons visually indicate **how each entity's rank shifts** over time, making it easy to track performance or compare entities across different periods.
- ◆ **Why not the other options?**
  - ✗ **Bar Chart** – Bar charts can show ranking at a specific point in time but are less effective for showing **rank changes over time**.
  - ✗ **Pie Chart** – Pie charts are better for showing **proportions** at a given time, not for showing changes or ranking.
  - ✗ **Sankey Diagram** – Sankey diagrams are typically used to show **flows or relationships** between categories, not ranking over time.

Thus, the **Ribbon Chart** is the best visual to show **ranking of entities** over a period of years.  

40 mini

**You said:**

Q18. What can you do as a data analyst to ensure what you are creating is not deviating from requirements? Tell them in advance that there can be some deviation Share regular updates with Product Owner / stakeholders and provide functional prototypes as it is available Just follow the project charter and do exactly as per the requirements Constantly review the output with your manager Q19. What is the best description for Power BI based on your learning? It is a data visualization tool An enterprise data analytics tool that helps one to derive insights from raw data to support decision making A data transformation tool Excel plugin

**ChatGPT said:**

**Q18**

**Correct Answer:**

**Share regular updates with Product Owner / stakeholders and provide functional prototypes as it is available**

**Explanation:**

- **Regular updates and prototypes** help ensure that the project is aligned with the business requirements, and it gives the stakeholders an opportunity to provide feedback early in the process. This **collaborative approach** reduces the risk of deviation and ensures that the final output meets expectations.
- ◆ **Why not the other options?**
  - **X Tell them in advance that there can be some deviation** – This approach may create unnecessary expectations of issues before they arise.
  - **X Just follow the project charter and do exactly as per the requirements** – While the project charter is important, constant engagement with stakeholders ensures the solution meets evolving needs.
  - **X Constantly review the output with your manager** – While reviewing with a manager is helpful, direct feedback from stakeholders ensures that requirements are being met.

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**Q19**

**Correct Answer:**

**An enterprise data analytics tool that helps one to derive insights from raw data to support decision making**

**Explanation:**

- **Power BI** is much more than just a data visualization tool; it is an **enterprise-level tool** that integrates data from multiple sources, allows transformation and modeling, and provides **insights** that aid in **decision making**.
- ◆ **Why not the other options?**
  - **X It is a data visualization tool** – While Power BI is excellent for visualization, it is more comprehensive, combining data transformation, modeling, and reporting.
  - **X A data transformation tool** – Power BI offers transformation capabilities, but it's also about visualization and analytics, making it broader.
  - **X Excel plugin** – Power BI can integrate with Excel, but it is a stand-alone tool with much more functionality.

Thus, **Power BI is an enterprise data analytics tool** designed for **insight generation** and **decision-making**.



40 mini

**You said:**

Q20. You need to validate the data immediately in Power BI and need to take help from business users. However, they are not familiar with Power BI and not comfortable learning to use it immediately. What is the best option you have? Tell them it's easy to do Create a live connection in excel from Power BI and

provide it to the users to validate. Parallelly, talk to concerned stakeholders to help improve data literacy in your company. Wait until they learn Power BI Just keep complaining about the low data literacy in organization Q21. Which insight can help the marketing team the most to make better decisions? Advertisement Spend YoY vs Market Share Growth Gross Margin % trend of a customer Net sales of customers over regions Super hero movies popularity index Q22. Check your report and answer: Which product segment has lowest GM % in FY 2021? Notebook, 34.2 % Accessories, 36.75 % Storage 23.4 % Desktop, 36.17% Q23. What is ABS error in supply chain? The difference between forecasted quantity and sold quantity of products Difference between Gross Margin and Net Margin Total supply errors reported in the given time period Absolute difference between forecasted quantity and sold quantity of products summed at defined dimension level

ChatGPT said:

## Q20

Correct Answer:

Create a live connection in Excel from Power BI and provide it to the users to validate. Parallelly, talk to concerned stakeholders to help improve data literacy in your company.

Explanation:

- Since the business users are not comfortable with Power BI, you can **export the data to Excel** (via a live connection) so they can review and validate it in a tool they are familiar with. This approach allows **immediate validation** without forcing users to learn Power BI on the spot.
  - **Improving data literacy** over time is also a valuable long-term goal.
- ◆ Why not the other options?
- ✗ **Tell them it's easy to do** – This may create frustration if they are not familiar with Power BI.
  - ✗ **Wait until they learn Power BI** – Delays the validation process.
  - ✗ **Just keep complaining about low data literacy** – Complaining doesn't solve the problem or facilitate progress.

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## Q21

Correct Answer:

Advertisement Spend YoY vs Market Share Growth

Explanation:

- For **marketing teams**, understanding the relationship between **advertising spend** and **market share growth** is crucial for making **strategic decisions** about how to allocate resources for maximum impact.
- ◆ Why not the other options?
- ✗ **Gross Margin % trend of a customer** – This is more relevant to finance teams, not marketing.
  - ✗ **Net sales of customers over regions** – While useful, this is more of a sales metric than a marketing insight.
  - ✗ **Superhero movies popularity index** – Irrelevant to marketing decisions for most businesses unless they're in that specific niche.

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## Q22

Correct Answer:

Storage, 23.4 %

Explanation:

The **Storage product segment** has the **lowest GM %** for FY 2021, according to the data provided.

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## Q23

Correct Answer:

Absolute difference between forecasted quantity and sold quantity of products summed at defined dimension level

**Explanation:**

- **ABS error** refers to the **absolute error** between the **forecasted quantity** and the **sold quantity** of products. It is summed at the level of a **defined dimension** (e.g., product, region, time). This helps identify discrepancies between forecasted and actual sales, crucial for improving demand planning and supply chain accuracy.
- ◆ **Why not the other options?**
  - ✗ **The difference between forecasted quantity and sold quantity of products** – This option misses the **summed at defined dimension level** part.
  - ✗ **Difference between Gross Margin and Net Margin** – This refers to financial metrics, not supply chain errors.
  - ✗ **Total supply errors reported in the given time period** – This is broader and not specific to **forecast vs. actual** quantities.

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Let me know if you need any further clarification! 😊

40 mini

**You said:**

Q24. Which DAX function is used to change the filter context in Power BI? SUMX FILTER SELECTEDVALUE CALCULATE Q25. Which external tool can help you optimize the report performance? Query performance checker Performance analyzer DAX Studio All of the above Q26. As a data analyst, what will be your topmost priority while creating a Power BI tool? Create an attractive dashboard Manage stakeholder expectations Finish the project on time The dashboard should contain all latest features of Power BI Q27. What is the usecase of SUMX function? To sum values and ignore row level filters To sum, iterate and store values as variable To aggregate values at defined row level None of the above Q28. Select the option which is not a use case to publish the report in Power BI service? Building advanced measures Sharing with users Scheduling automatic refreshes Bundling a suite of tools to create an app Q29. Select the correct sentence from below Online Transaction Processing (OLTP) uses complex queries to analyze aggregated historical data from OLAP systems Online analytical processing (OLAP) uses complex queries to analyze aggregated historical data from OLTP systems Both A and B are correct Both A nd B are incorrect Q30. Which of these is the most important KPI for any business looking to scale fast? Net Sales YoY % Gross Sales COGS GM %

**ChatGPT said:**

Q24

**Correct Answer:**

**CALCULATE**

**Explanation:**

- The **CALCULATE** function in DAX is used to **change the filter context** by modifying the current context for the evaluation of an expression. It can be used to apply different filters or conditions to the data when calculating a measure.

---

Q25

**Correct Answer:**

**All of the above**

**Explanation:**

- **Query performance checker, Performance analyzer, and DAX Studio** are all external tools that can help you **optimize report performance** by analyzing and improving query efficiency, detecting bottlenecks, and fine-tuning DAX expressions.

---

Q26

**Correct Answer:**

**Manage stakeholder expectations**

**Explanation:**

- As a data analyst, your topmost priority should be **managing stakeholder expectations**. This ensures that the delivered report aligns with what the stakeholders expect in terms of **insights, functionality, and usability**.
  - **On-time delivery** and **attractive dashboards** are also important, but clear communication and expectations management are crucial for long-term project success.
- 

**Q27**

**Correct Answer:**

**To aggregate values at defined row level**

**Explanation:**

- The **SUMX** function in DAX iterates over a table or expression and **calculates the sum** for each row. It's useful when you need to aggregate values at the row level and return the total sum based on expressions evaluated at each row.
- 

**Q28**

**Correct Answer:**

**Building advanced measures**

**Explanation:**

- **Building advanced measures** is something that is typically done **before publishing the report** in Power BI Service. The **Power BI Service** is more for **publishing, sharing, and scheduling refreshes** rather than doing advanced measure creation.
- 

**Q29**

**Correct Answer:**

**Online analytical processing (OLAP)** uses complex queries to analyze aggregated historical data from **OLTP systems**

**Explanation:**

- **OLAP (Online Analytical Processing)** systems are used for **complex queries and analysis** of aggregated historical data, which is typically sourced from **OLTP (Online Transaction Processing)** systems.
  - **OLTP systems** handle transactional data and are designed for day-to-day operations.
- 

**Q30**

**Correct Answer:**

**Net Sales YoY %**

**Explanation:**

- For a business looking to scale fast, **Net Sales YoY (Year over Year) %** is the most important KPI as it reflects the **growth rate** in sales compared to the previous year, indicating how well the company is expanding its business.



## 19: Actual Quiz

You can review your answer below

Q1.

What is the best way to append two data tables in Power BI?

Your Answer

- Using both DAX and Power Query

Q2.

Which chart is better to show sales proportion of 10 countries?

Your Answer

- Bar Chart

Q3.

A business user requests to enable a feature to dynamically filter countries based on user defined target. What will you do?

Your Answer

- Create a dynamic slicer and use the values selected in slicer as a visual level filter to filter the desired visual

Q4.

Based on your learning from this course, which of these statements is correct?

Your Answer

- Both A and C

Q5.

What is the most important skill of a data analyst?

Your Answer

- Problem Solving Mindset

Q6.

A key business user keeps on requesting new features even after the support period and it is affecting your tasks. What will you do?

Your Answer

- Talk to your manager. Take help to prioritize the tasks and communicate to the business user accordingly

Q7.

Which function can be used to ignore all filters in a specified table?

Your Answer

- ALL

Q8.

A business user requests you to create a slightly different variant of the same visual and keep them both. What will you do?

Your Answer

- Create a variant of this visual and use bookmark / selection feature to create a toggle between these two variants

Q9.

A business user requests you to refresh a Power BI report online which uses the excel file saved on their local computer. What will you do?

Your Answer

- Ask them to move the excel file to a common drive / sharepoint so that online refresh can be enabled

Q10.

Which of the following option increase the size of Power BI file the most?

Your Answer

- Creating a calculated column using DAX

Q11.

Which of these is an example of 1 to many relationship?

Your Answer

- Date column in date dimension table connected to date column in sales transaction table

Q12.

Which view you need to be in to build the visualisation in Power BI?

Your Answer

- Report View

Q13.

A key non tech business stakeholder asks you to provide a demo of this tool. What will you do?

Your Answer

- Prepare a deck to help them understand how they can consume insights from this tool by showing business user features such as slicing, filtering, drilling, navigating to pages etc.

Q14.

What is the significance of a Project Charter?

Your Answer

- Both B and D

Q15.

A business user asks you to show the trend over years of a product but there is no space in the report page.

What will you do?

Your Answer

- Create a new page

Q16.

What is Sales quantity?

Your Answer

- Quantity of items sold over a given time period

Q17.

Which is the best visual to show the ranking of entities over a period of years?

Your Answer

- Ribbon Chart

Q18.

What can you do as a data analyst to ensure what you are creating is not deviating from requirements?

Your Answer

- Share regular updates with Product Owner / stakeholders and provide functional prototypes as it is available

Q19.

What is the best description for Power BI based on your learning?

Your Answer

- An enterprise data analytics tool that helps one to derive insights from raw data to support decision making

Q20.

You need to validate the data immediately in Power BI and need to take help from business users. However, they are not familiar with Power BI and not comfortable learning to use it immediately. What is the best option you have?

Your Answer

- Create a live connection in excel from Power BI and provide it to the users to validate. Parallelly, talk to concerned stakeholders to help improve data literacy in your company.

Q21.

Which insight can help the marketing team the most to make better decisions?

Your Answer

- Advertisement Spend YoY vs Market Share Growth

Q22.

Check your report and answer: Which product segment has lowest GM % in FY 2021?

Your Answer

- Storage 23.4 %

Q23.

What is ABS error in supply chain?

Your Answer

- Absolute difference between forecasted quantity and sold quantity of products summed at defined dimension level

Q24.

Which DAX function is used to change the filter context in Power BI?

Your Answer

- CALCULATE

Q25.

Which external tool can help you optimize the report performance?

Your Answer

- All of the above

Q26.

As a data analyst, what will be your topmost priority while creating a Power BI tool?

Your Answer

- Manage stakeholder expectations

Q27.

What is the usecase of SUMX function?

Your Answer

- To aggregate values at defined row level

Q28.

Select the option which is not a use case to publish the report in Power BI service?

Your Answer

- Building advanced measures

Q29.

Select the correct sentence from below

Your Answer

- Online analytical processing (OLAP) uses complex queries to analyze aggregated historical data from OLTP systems

Q30.

Which of these is the most important KPI for any business looking to scale fast?

Your Answer

- Net Sales YoY %