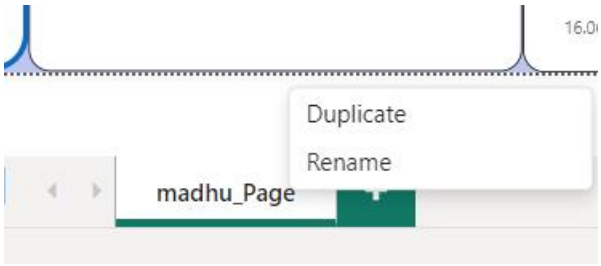
Power BI (Extension .pbix)

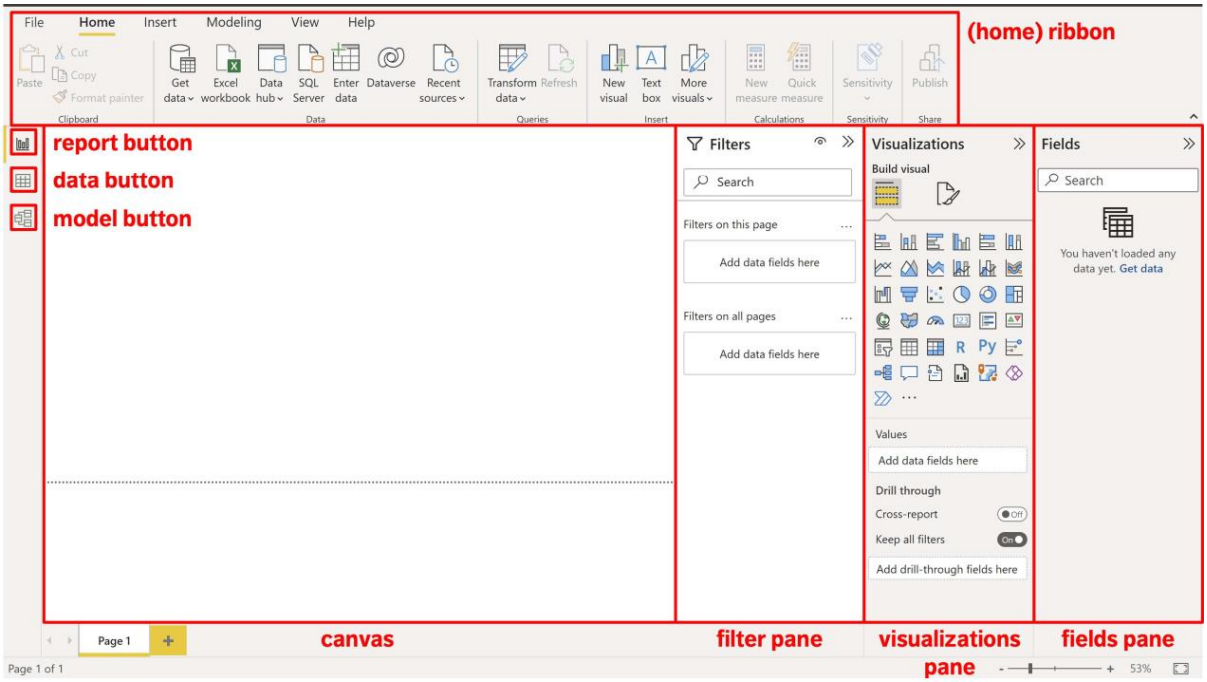
1. "**Power BI is an end-to-end enterprise business intelligence tool. It supports various layouts and connects with many data sources, offering flexibility in data presentation and analysis."**
2. "Power Query functions as an ETL (Extract, Transform, Load) engine, enabling filtering, sorting, and the 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

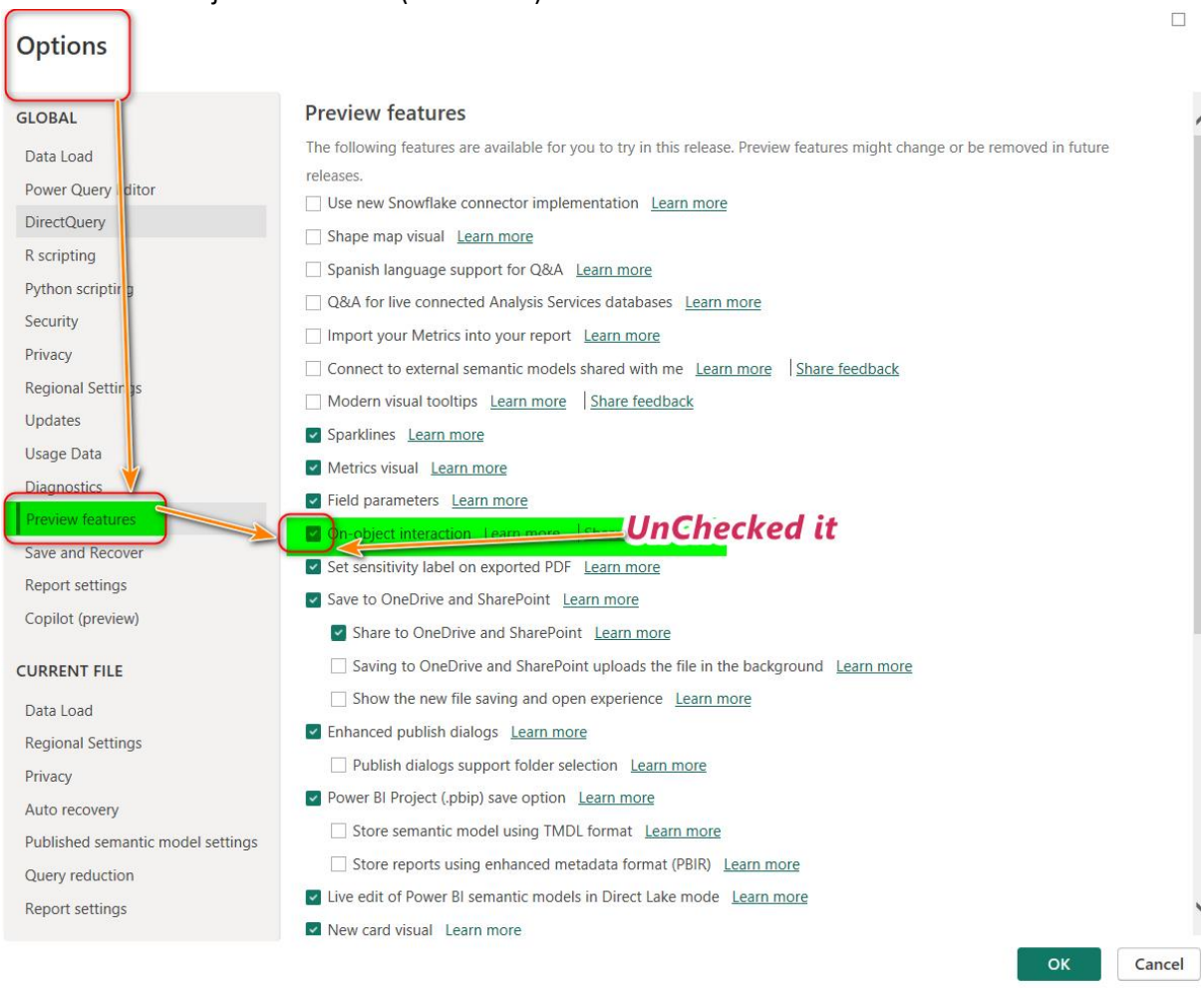
Right click on page then click on duplicate / Rename Page



- **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.

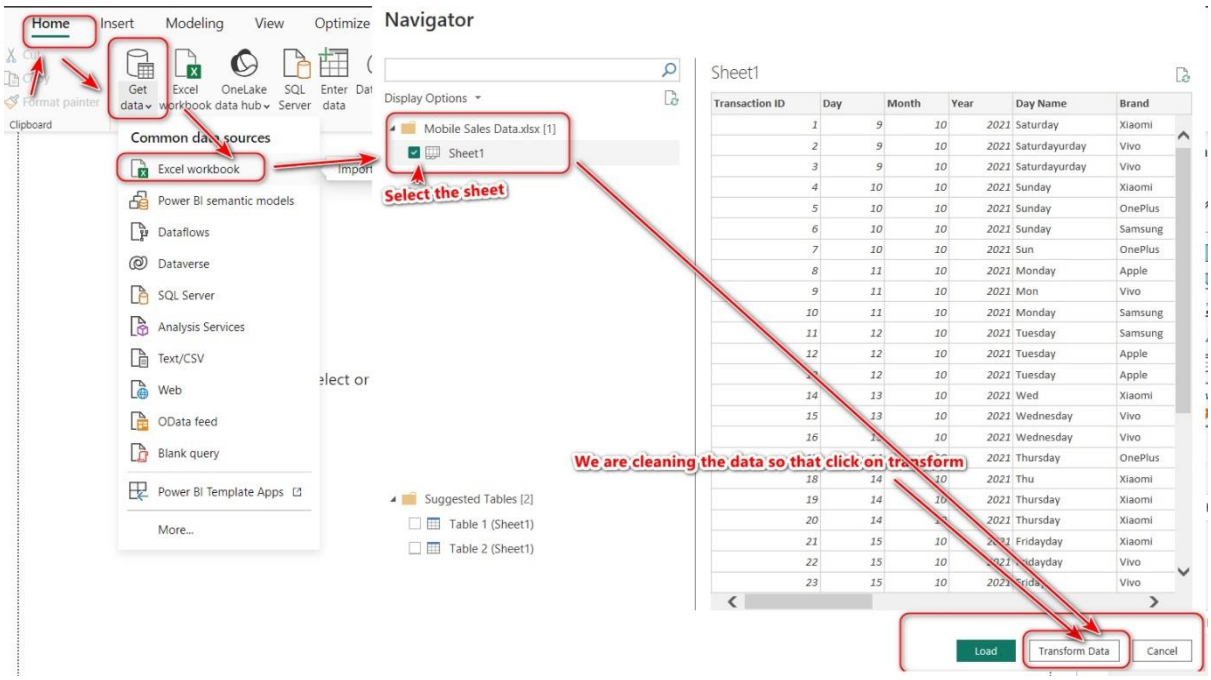
Understanding of Data and Cleaning the Data

Open the power Bi

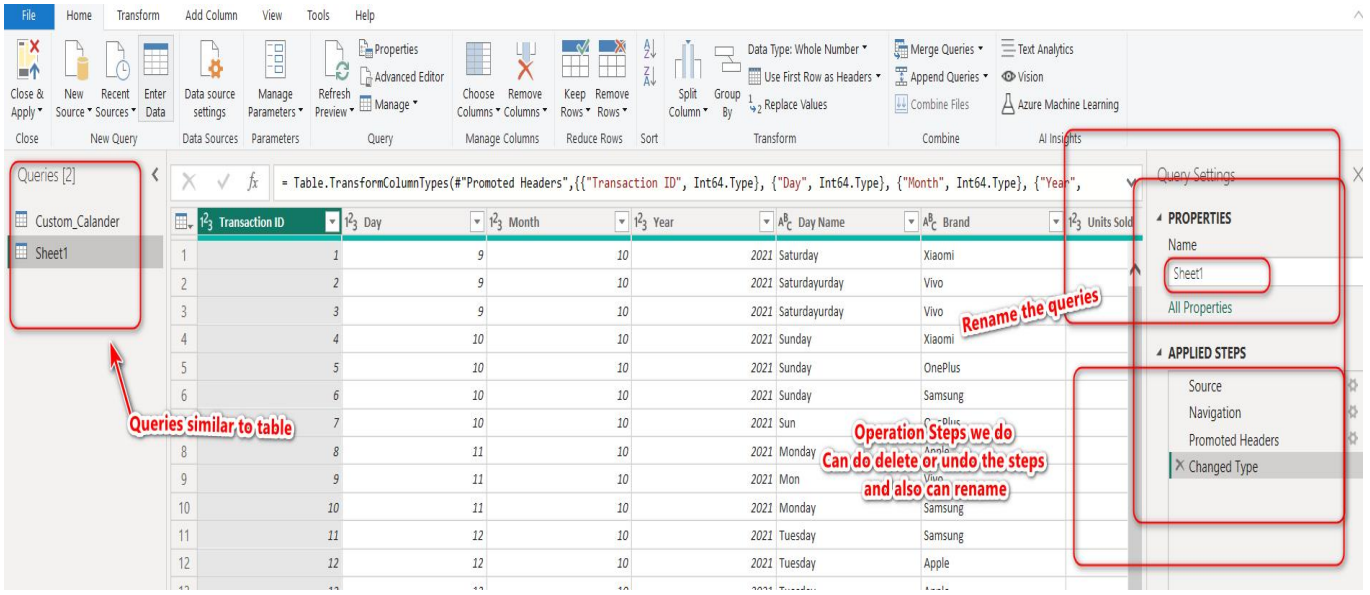
Go to Home ➔Get Data➔Excel workbook➔Select the file➔select the sheet as required➔To clean the data click on transform

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

For Data Cleaning Always **Do Transform**



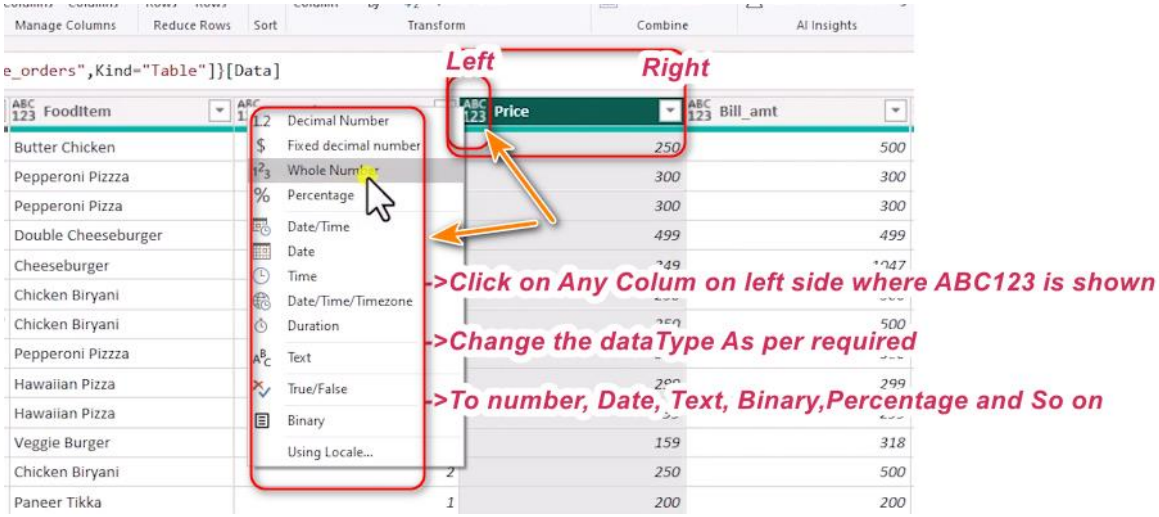
Applied Steps (Data Pipeline) in Power BI



Change DataType

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

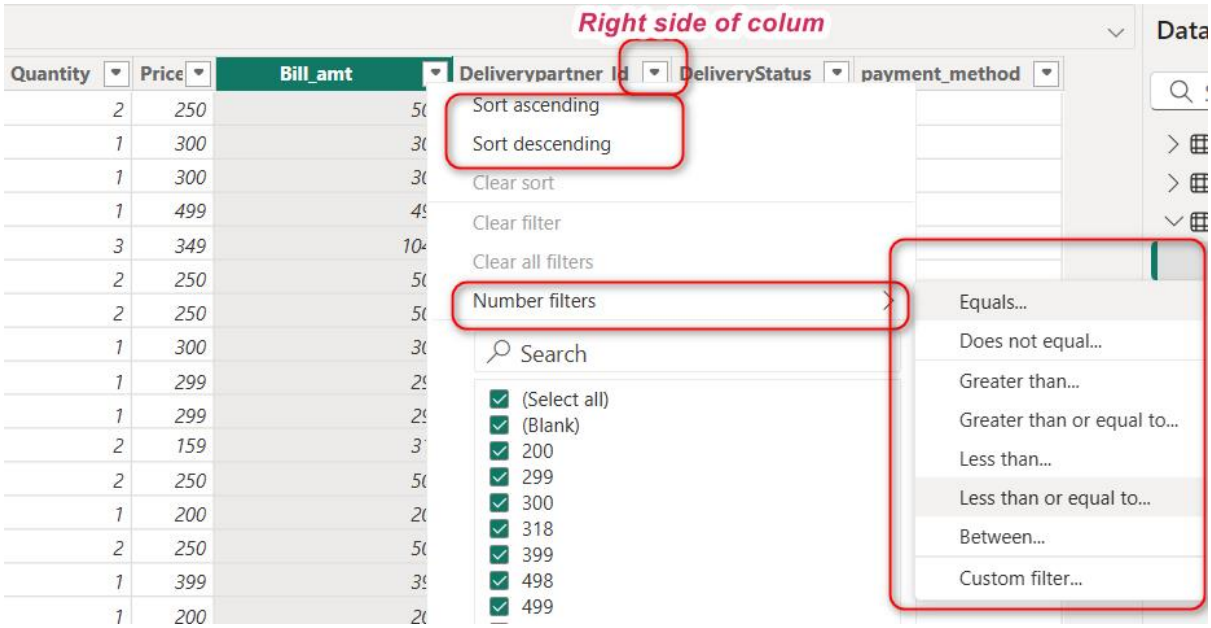
➔Change the dataType As per required (number, Date, Text, Binary, Percentage and So on)



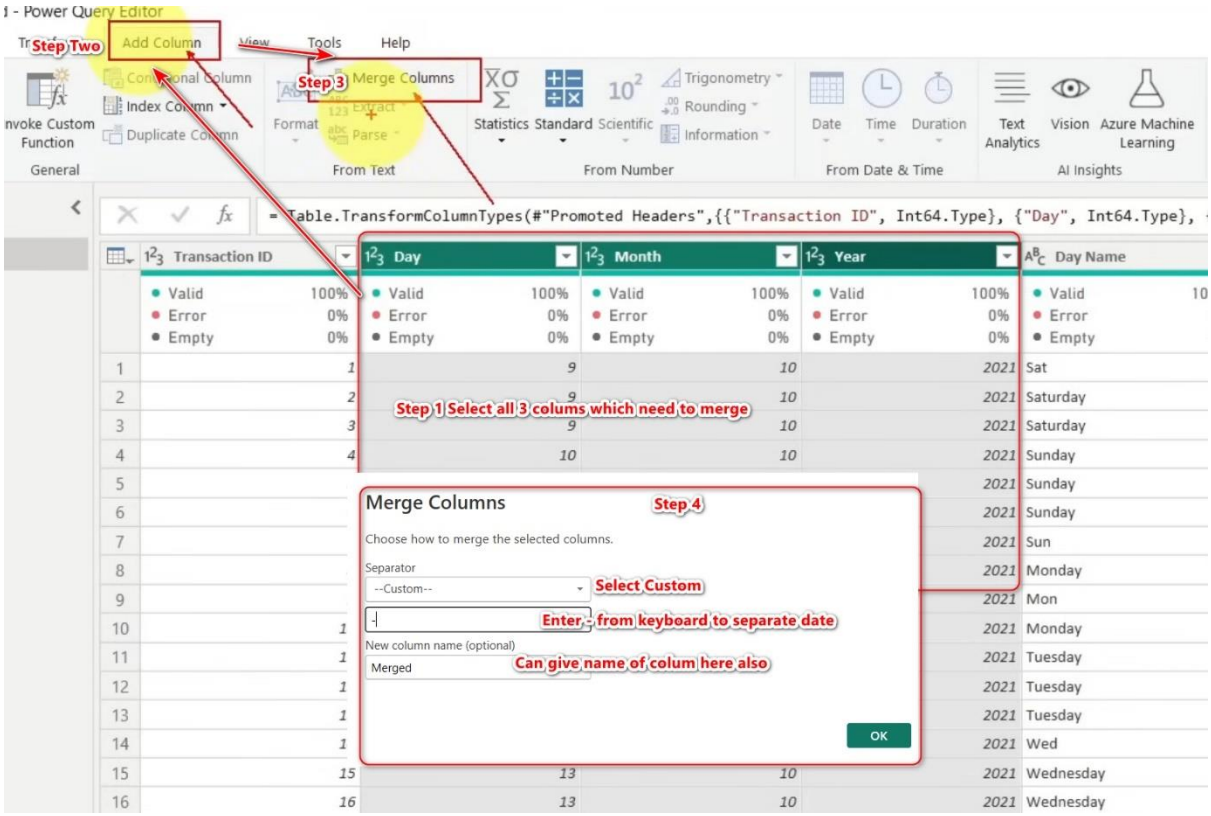
Filtering (Sorting Ascending, Desc, any number greater than 200 and so on)

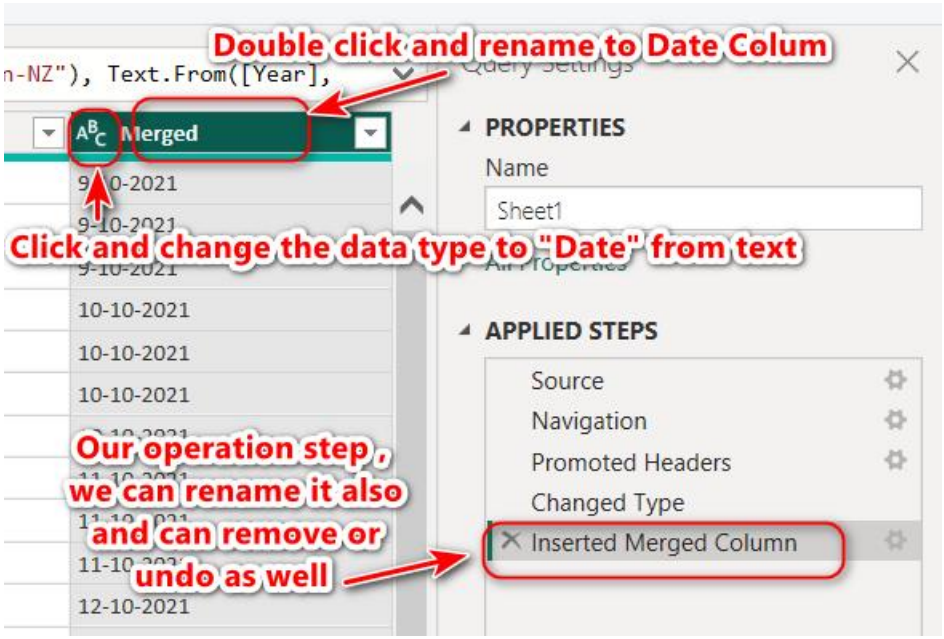
➔Click on Any Colum on Right side where symbol of dropdown is shown

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



Merge Column



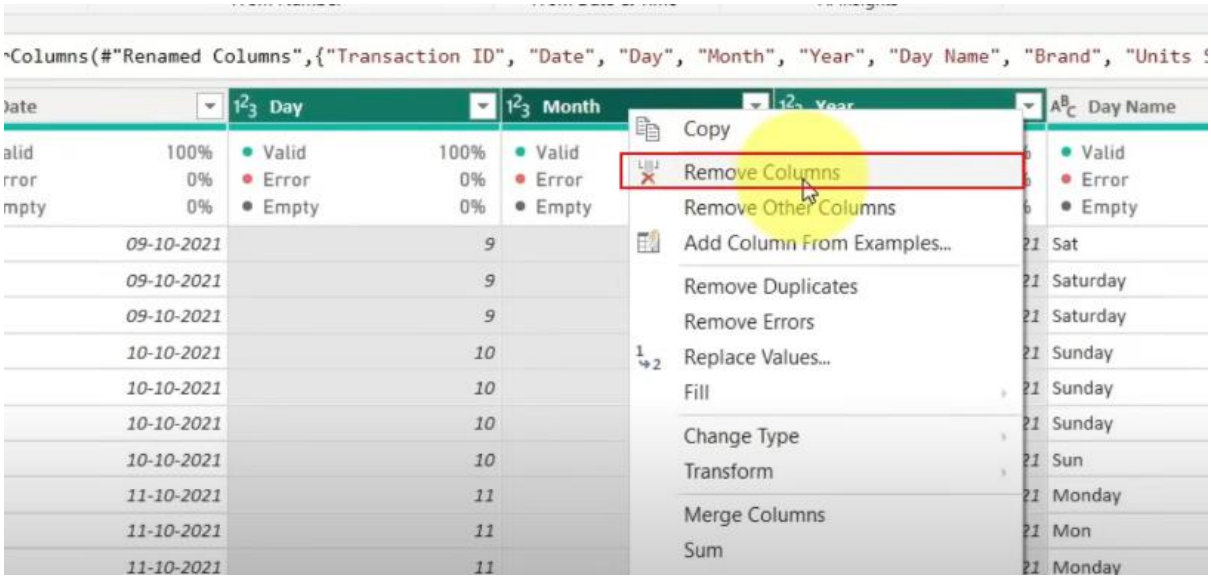


Remove Column

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

And can delete the 3 unwanted column which we have merged

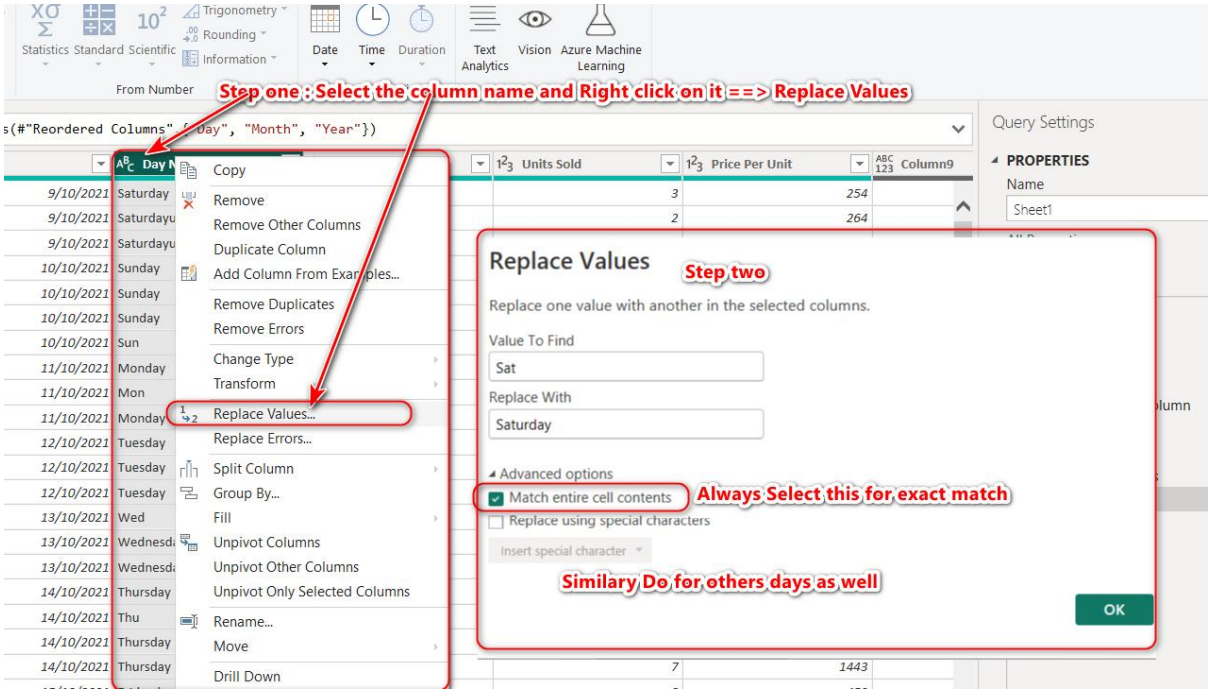
Select the 3 coumn ➔Right click ➔Remove Columns



Null Values can solve by Replacing Values

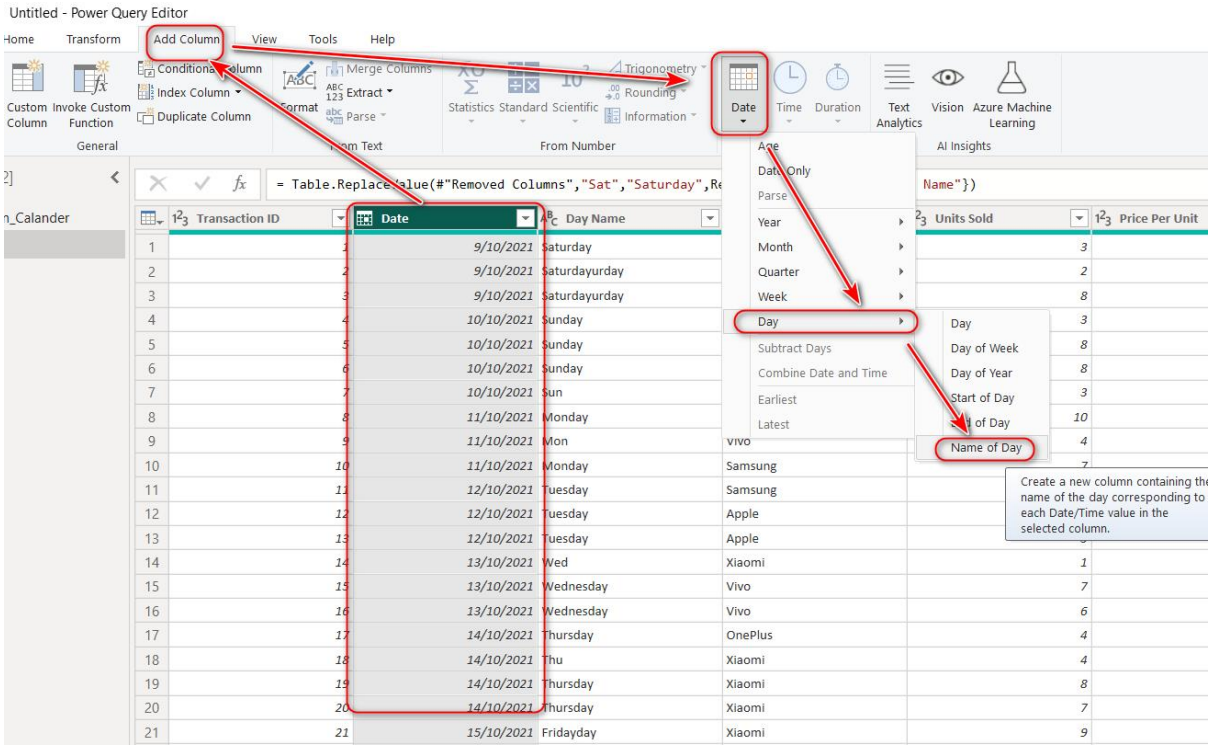
To clean the problem like Sun, Sunday , Sat , Saturday in Day Coulmn can do by Two ways

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

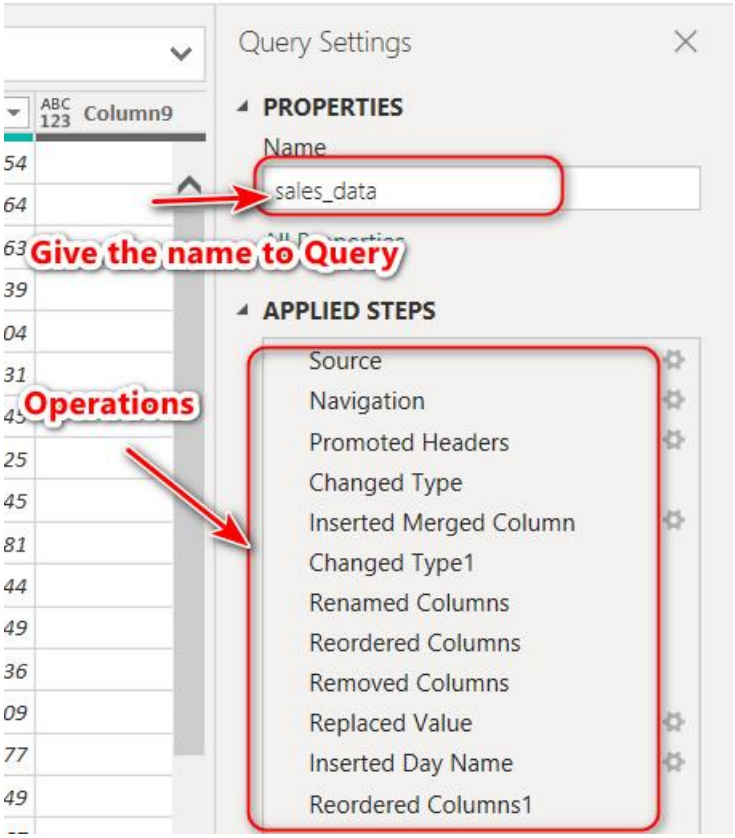


As it is in Date another way is

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



Operation Applied Steps Pipeline in Queries / Table



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

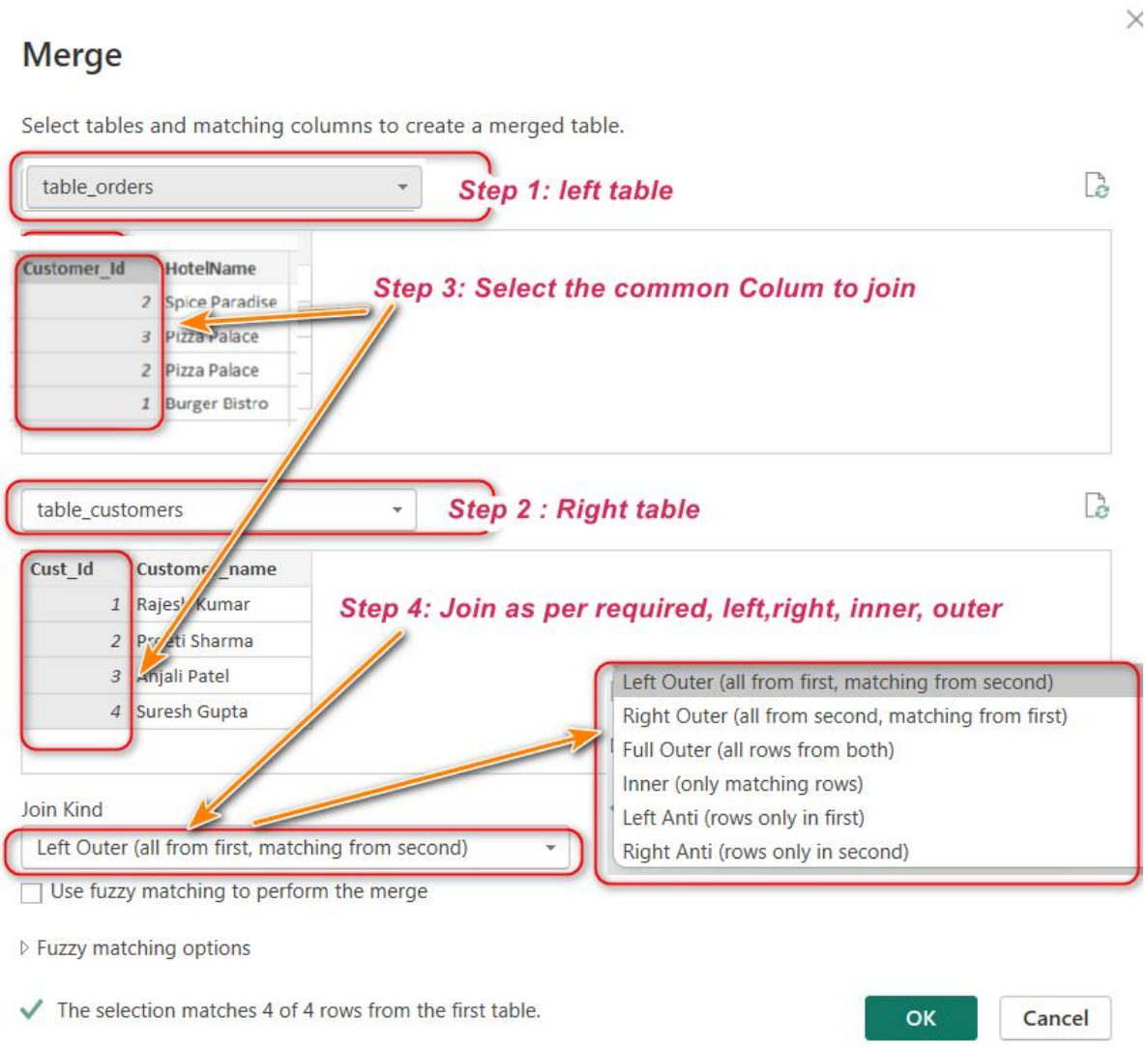
Note We don't have customer name in the table_orders but the customer name is in Table_customers.

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

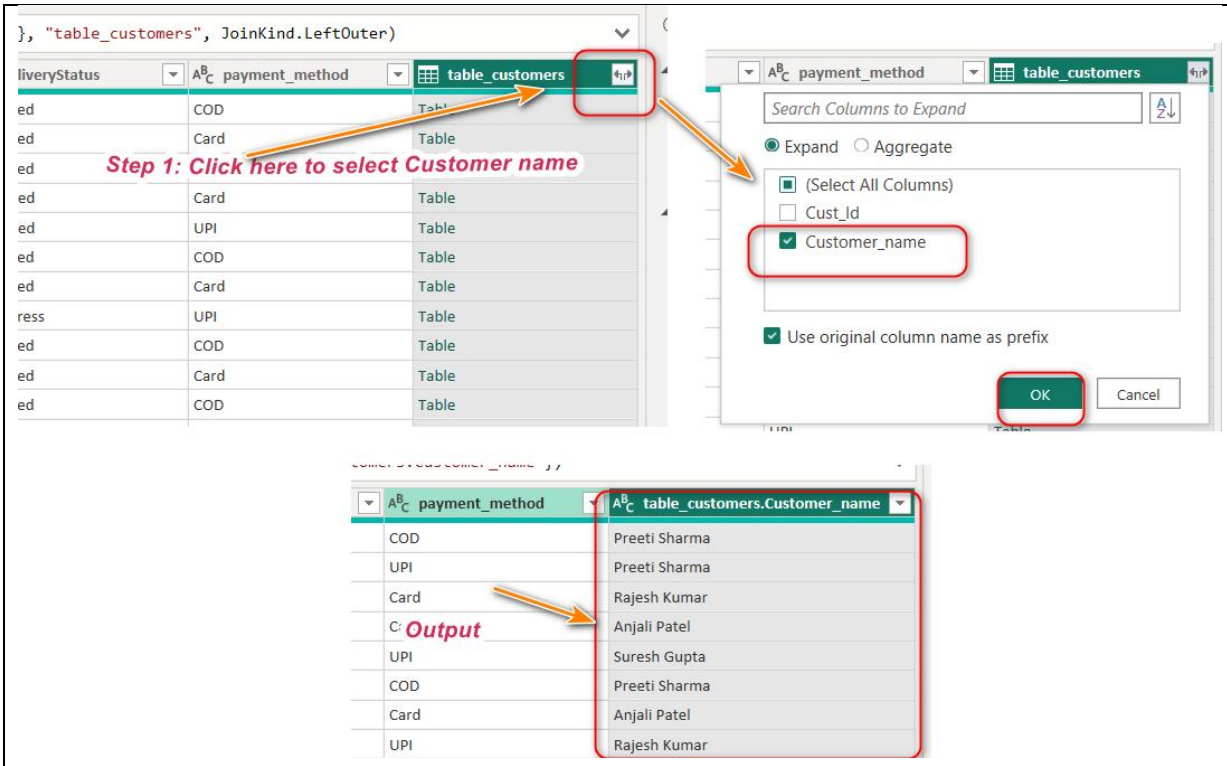
In PowerQuery

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

Then following Screen will appear



Output

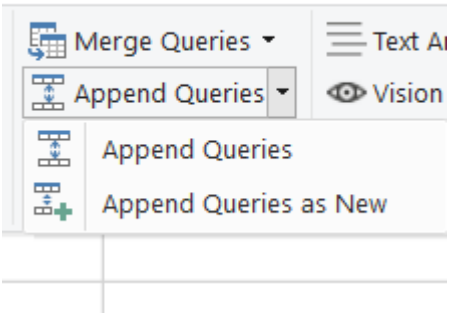


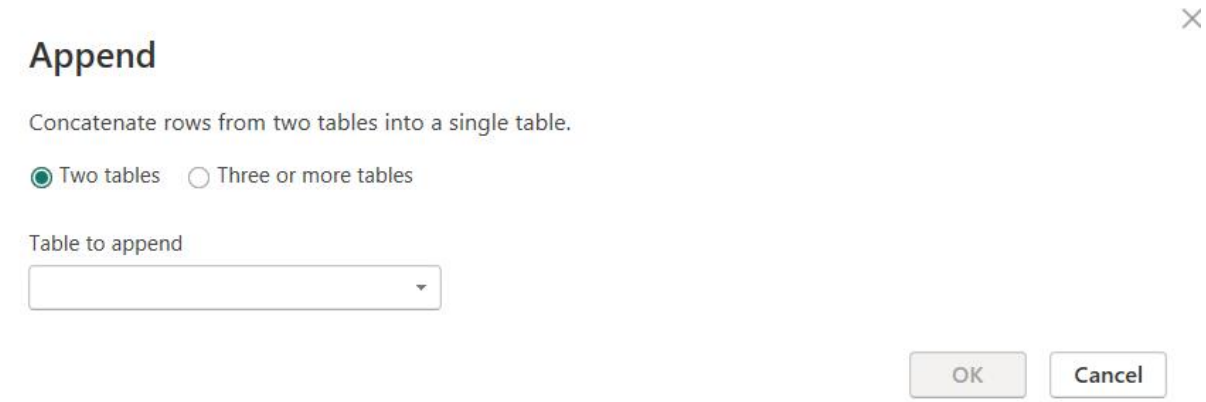
This whole process is merge as the number of row remain the same only colum is added.

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 ➔





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

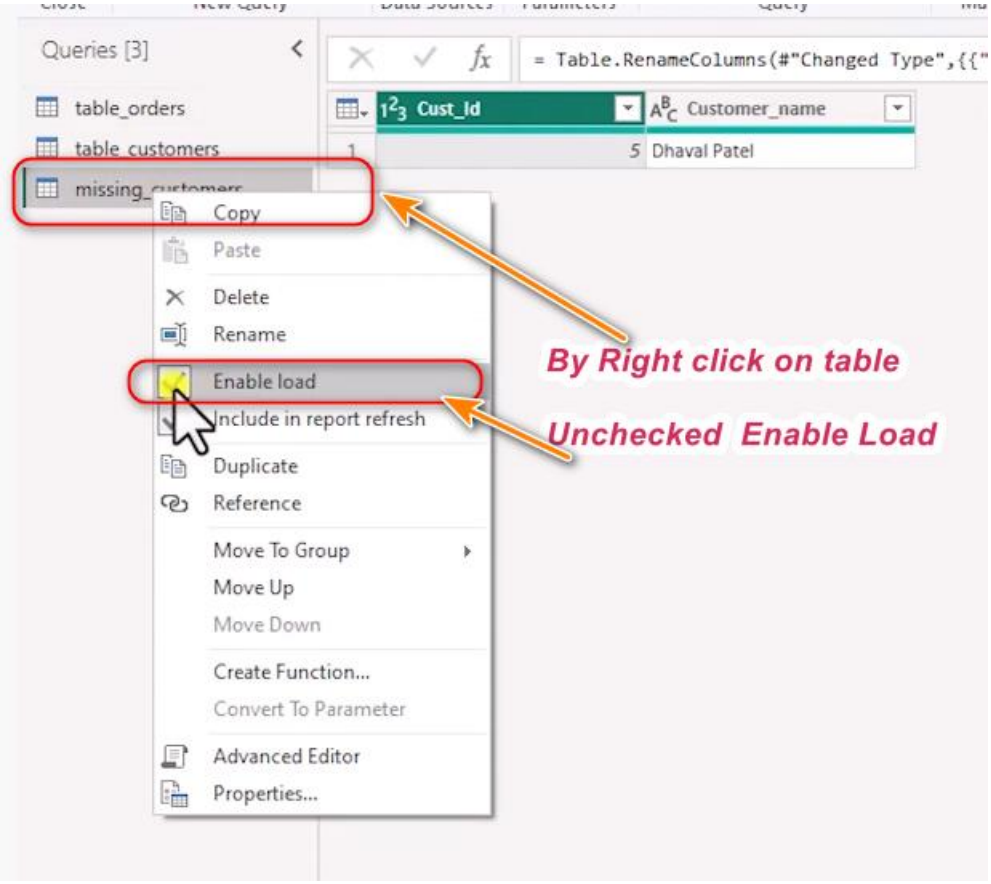
Best Practice

Naming the applied operational steps properly

Disabling the load for supporting table

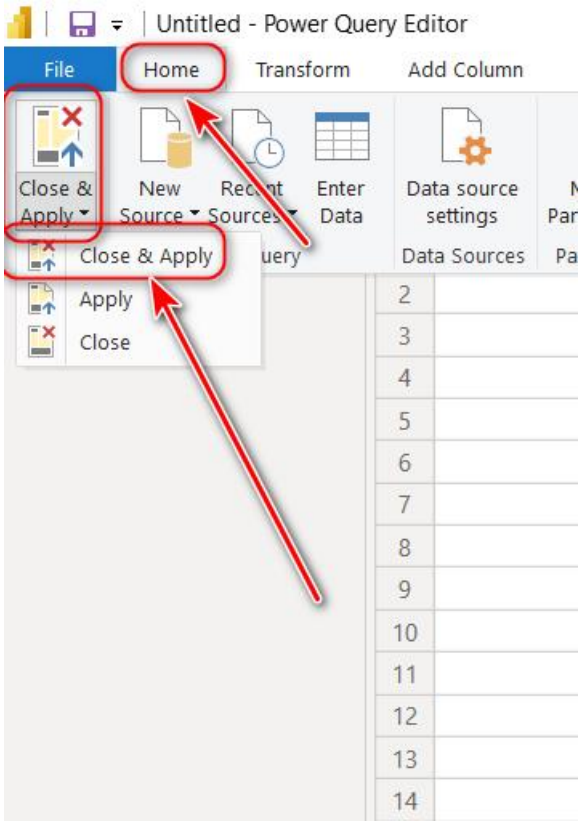
(if we don't need don't load that table) while save and apply/exit.)

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**



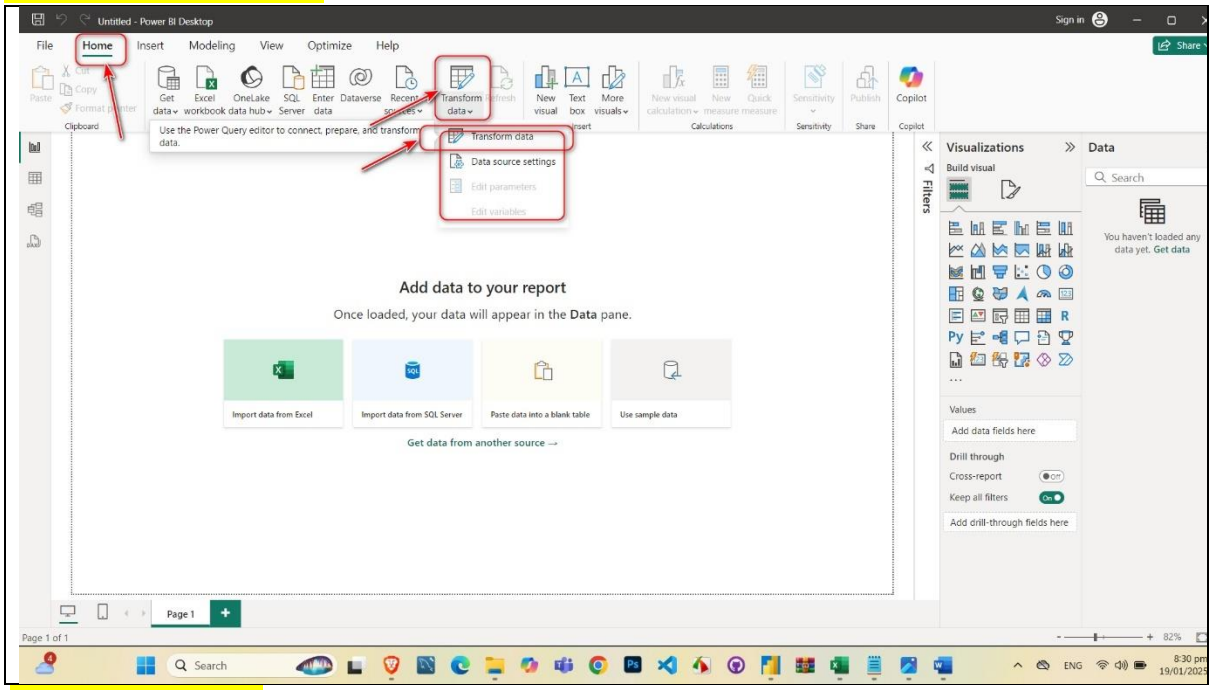
Create a Custom Calendar

Steps are given below

To Go to Power Query in BI

Open the BI

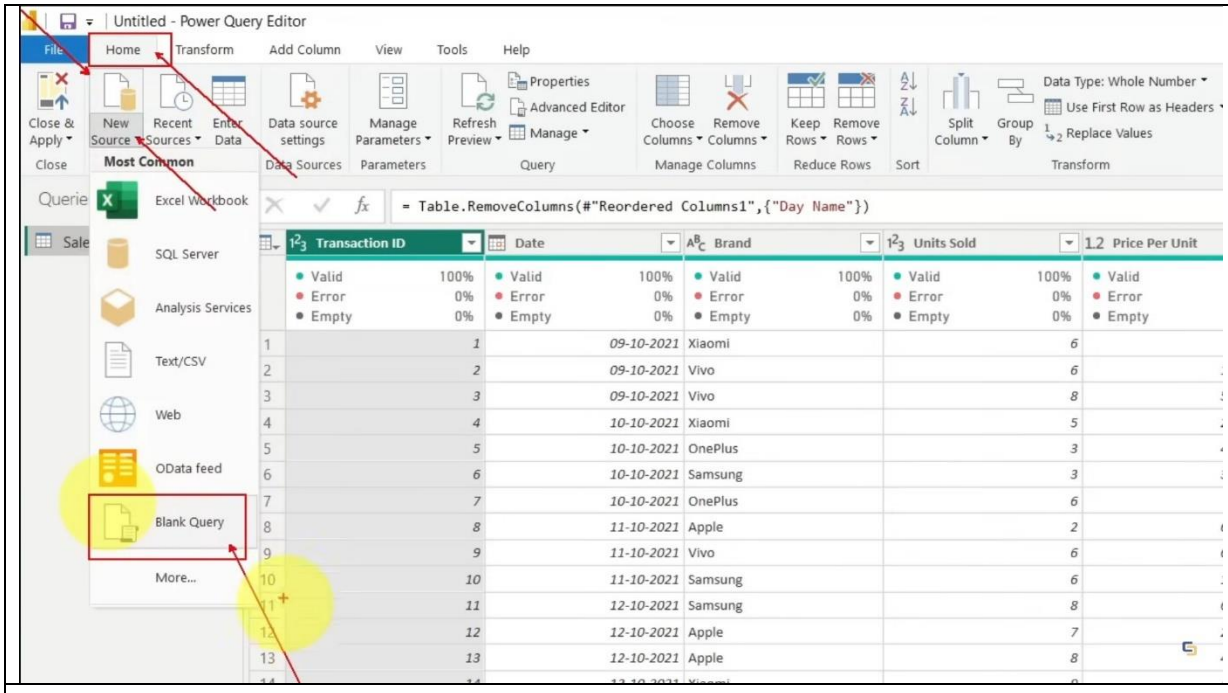
Home ➔Transform Data



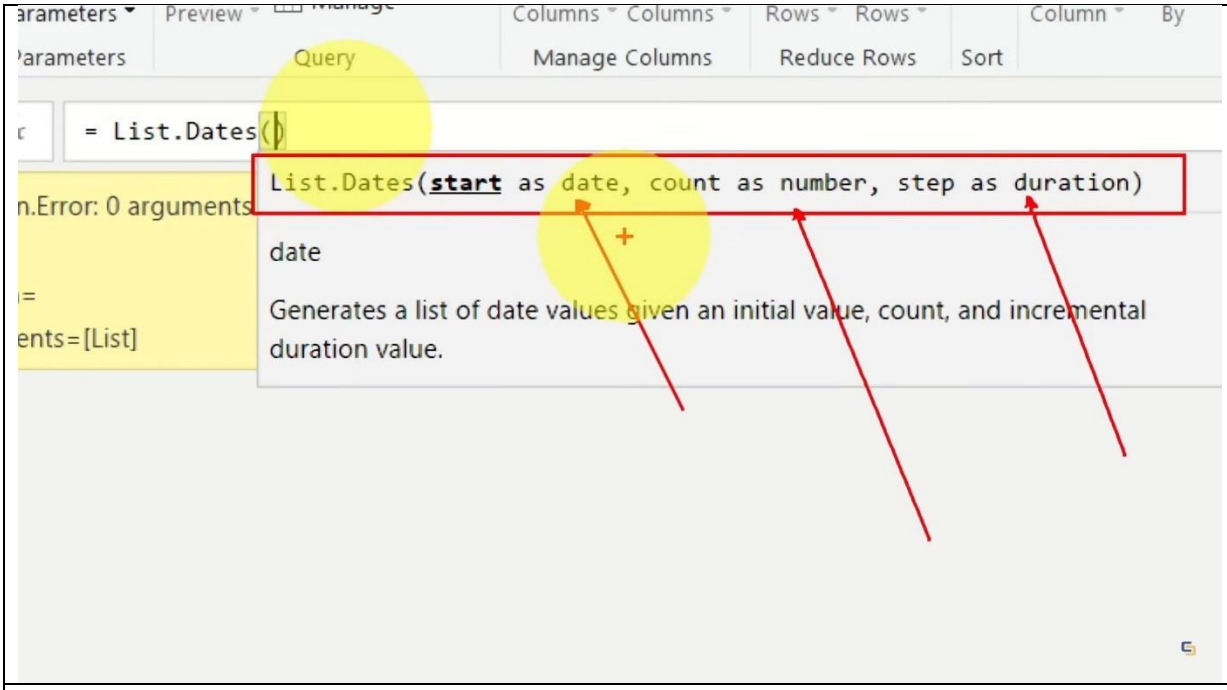
Then In Power Query

Home➔New Source➔Blank Query

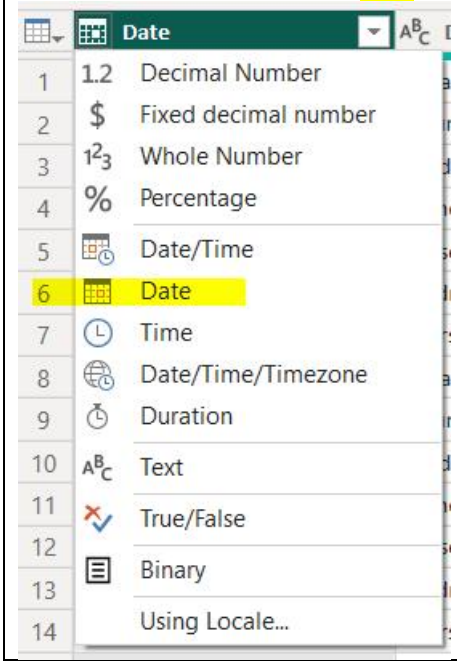
And Type formula in formula Section to generate calander

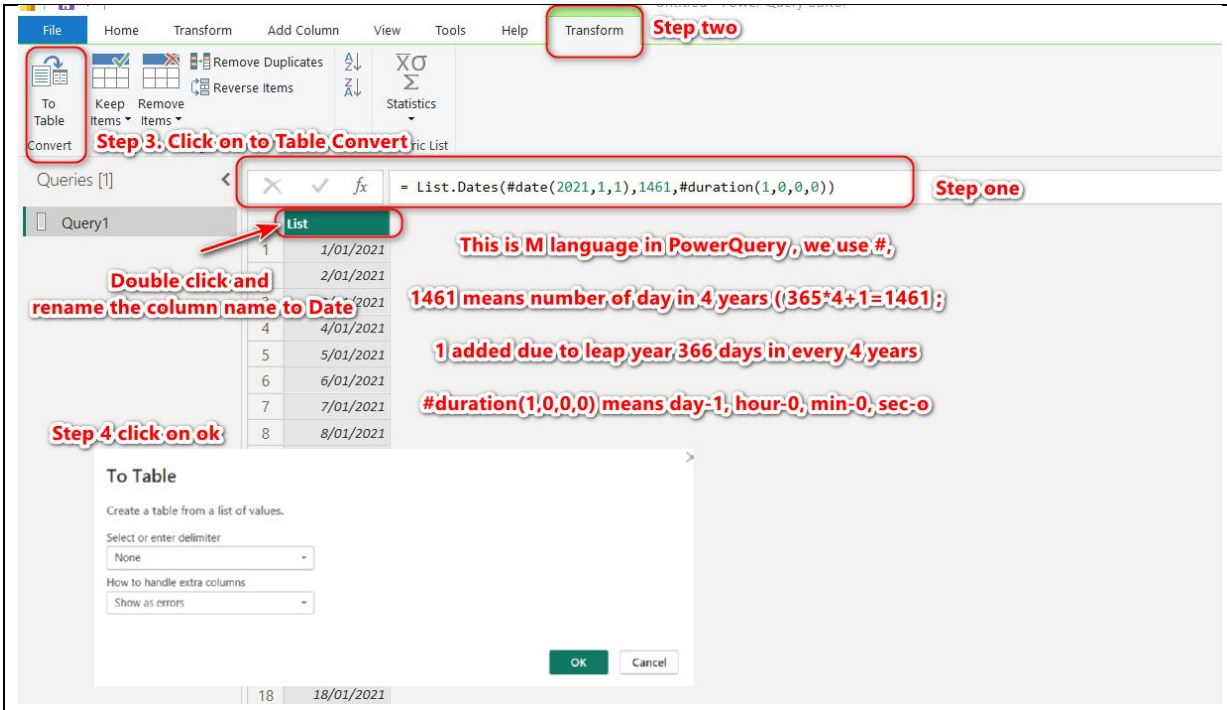


=List



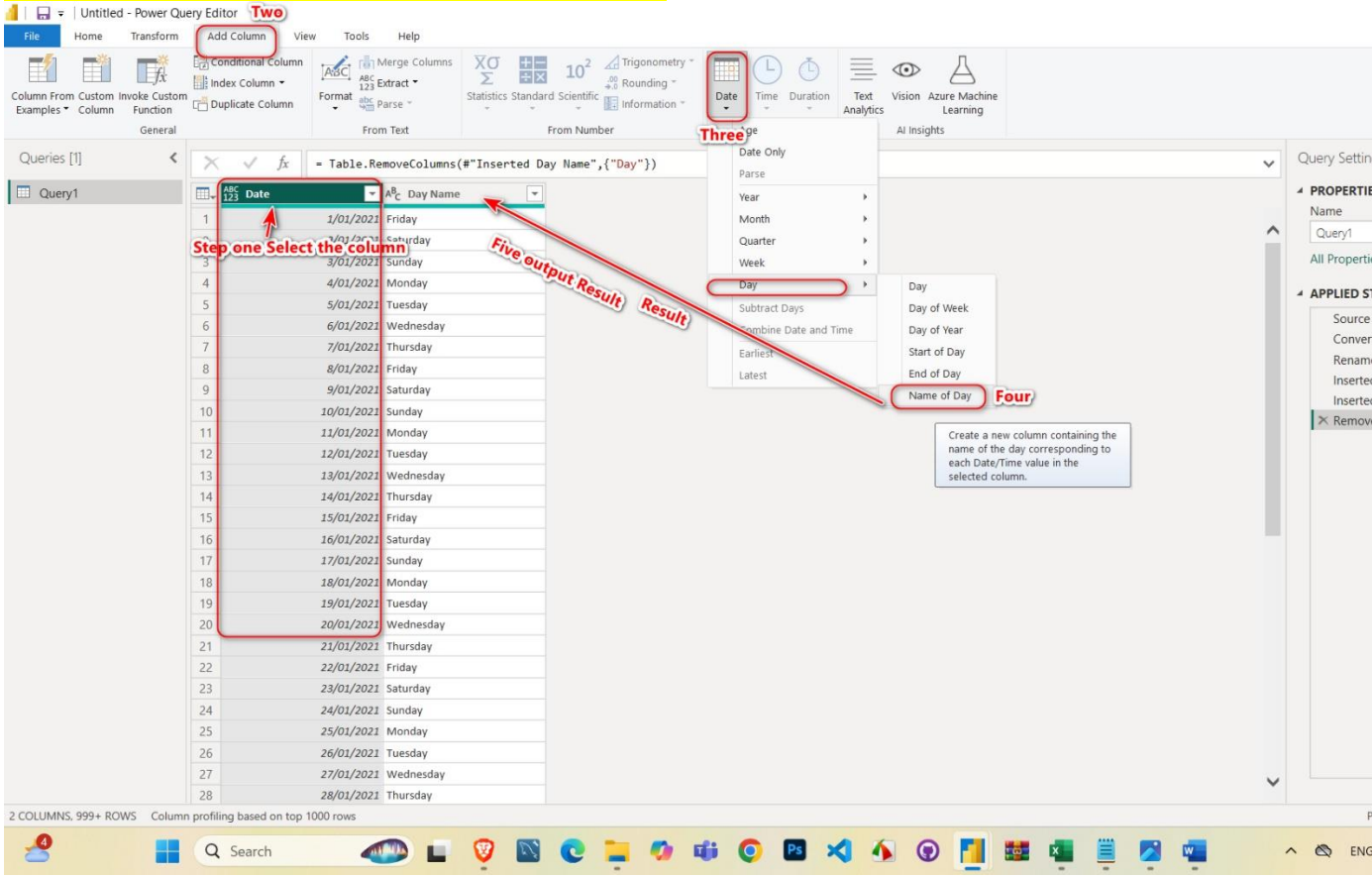
= List.Dates(#date(2021,1,1),1461,#duration(1,0,0,0))
Then Click on new produced transform tab ➔ To table ➔ Ok
Then the data will be converted to table and
Double click and rename the column name to Date as shown in figure below
Also change the datatype to date from ABC Text





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

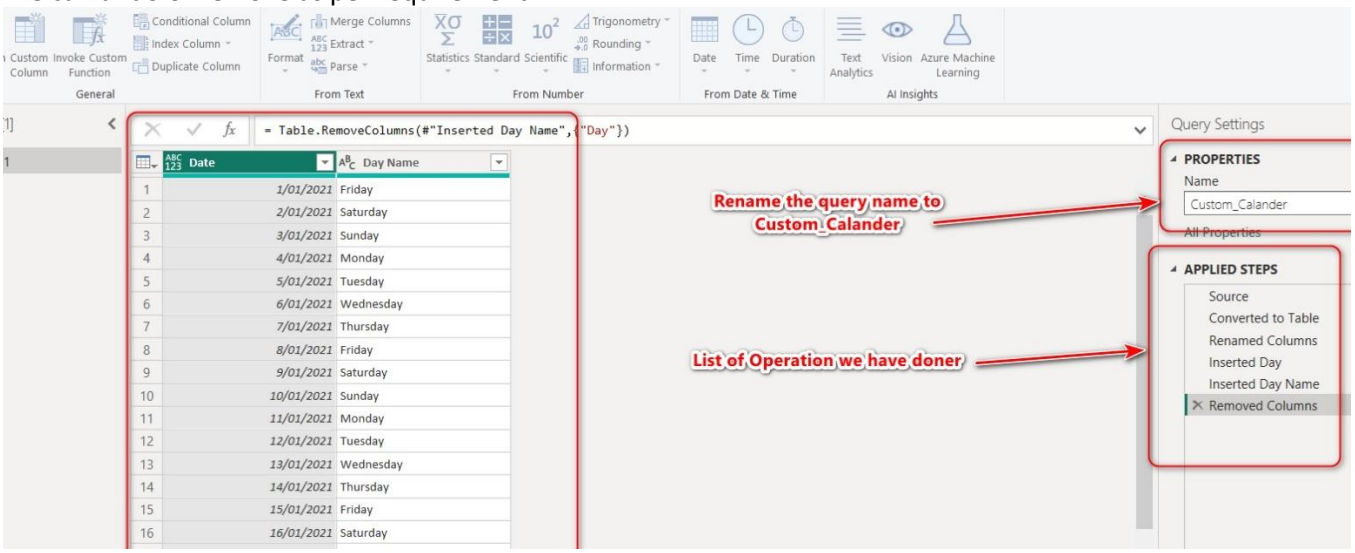
Go to Add Column Tab➔Data➔Day➔Name of Day



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



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

Data Modelling - Create Relationship\

- Data Modelling is all about creating connections between tables.
- Two types of tables are ➔**Primary (Dimension) tables** and **Fact Tables**

Data modelling is necessary when we have more than one table

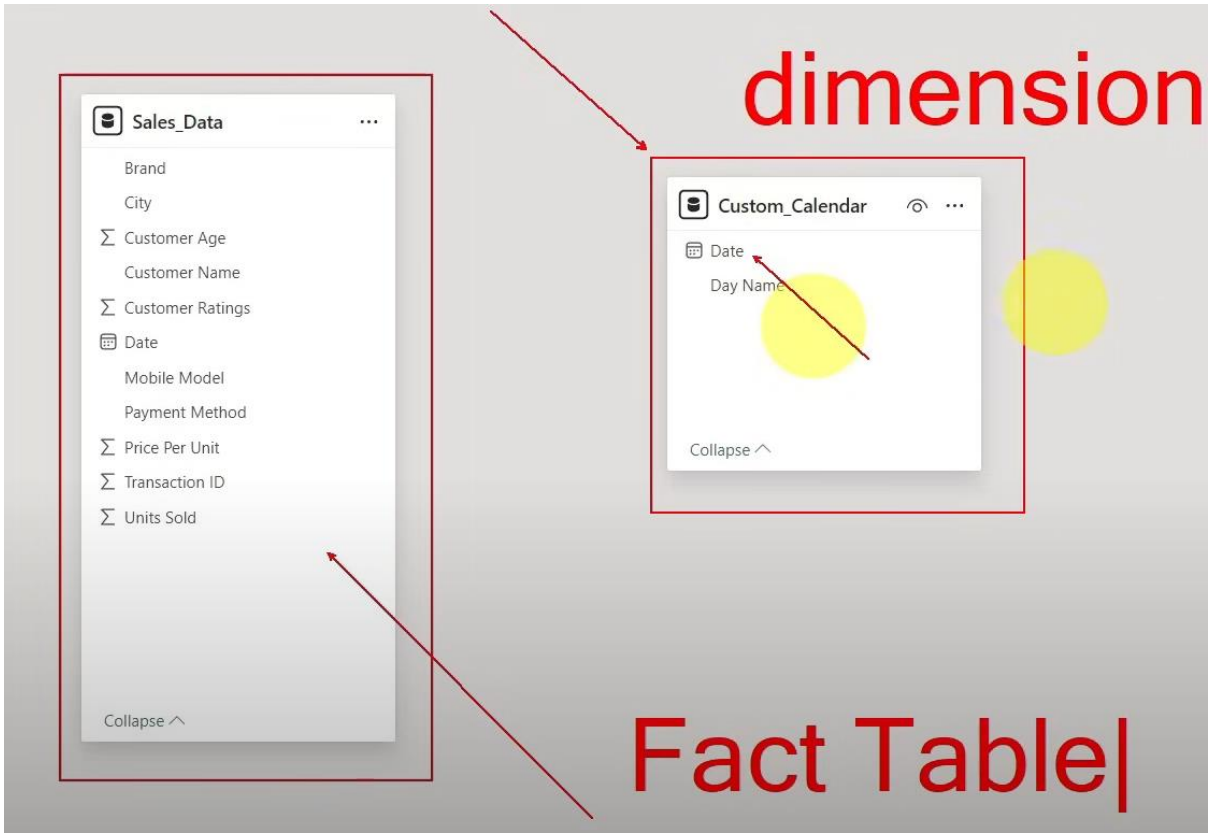
Dimension (Primary) and **Fact / Data Table [Relationship one to many]**

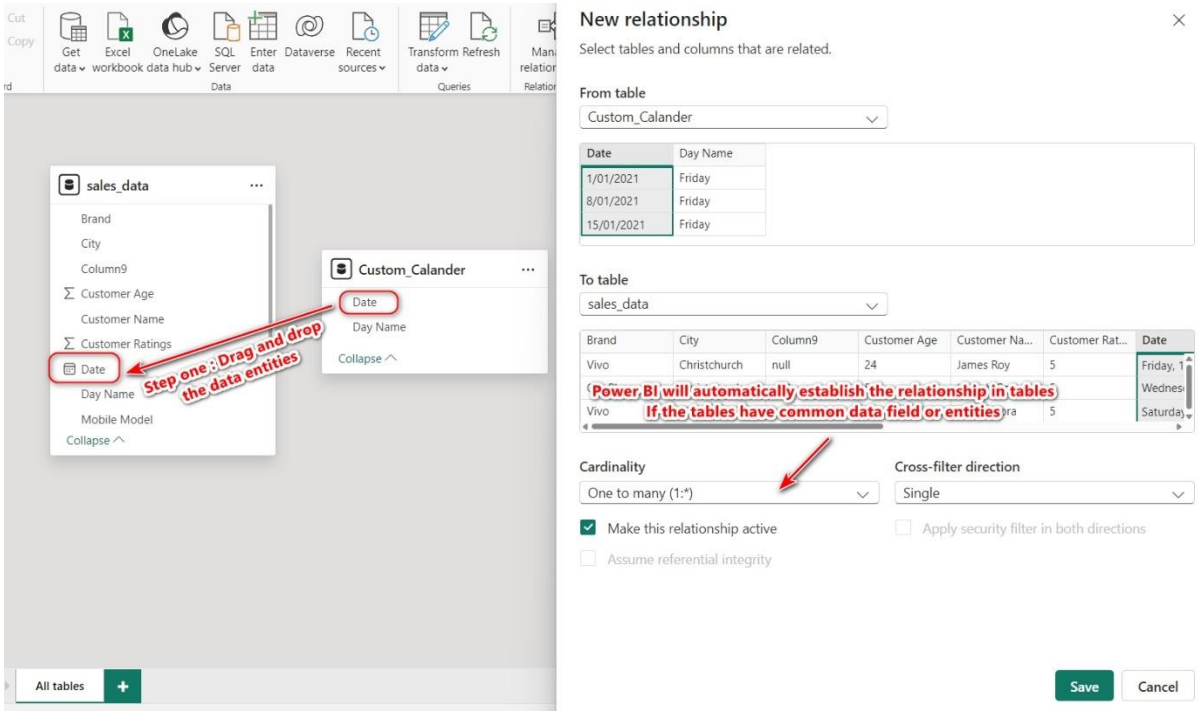
Dimension table have unique values and in fact/data tables values may be repeated

e.g Dimension table have unique data but in the fact table dates are repeated .i.e in the sane 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

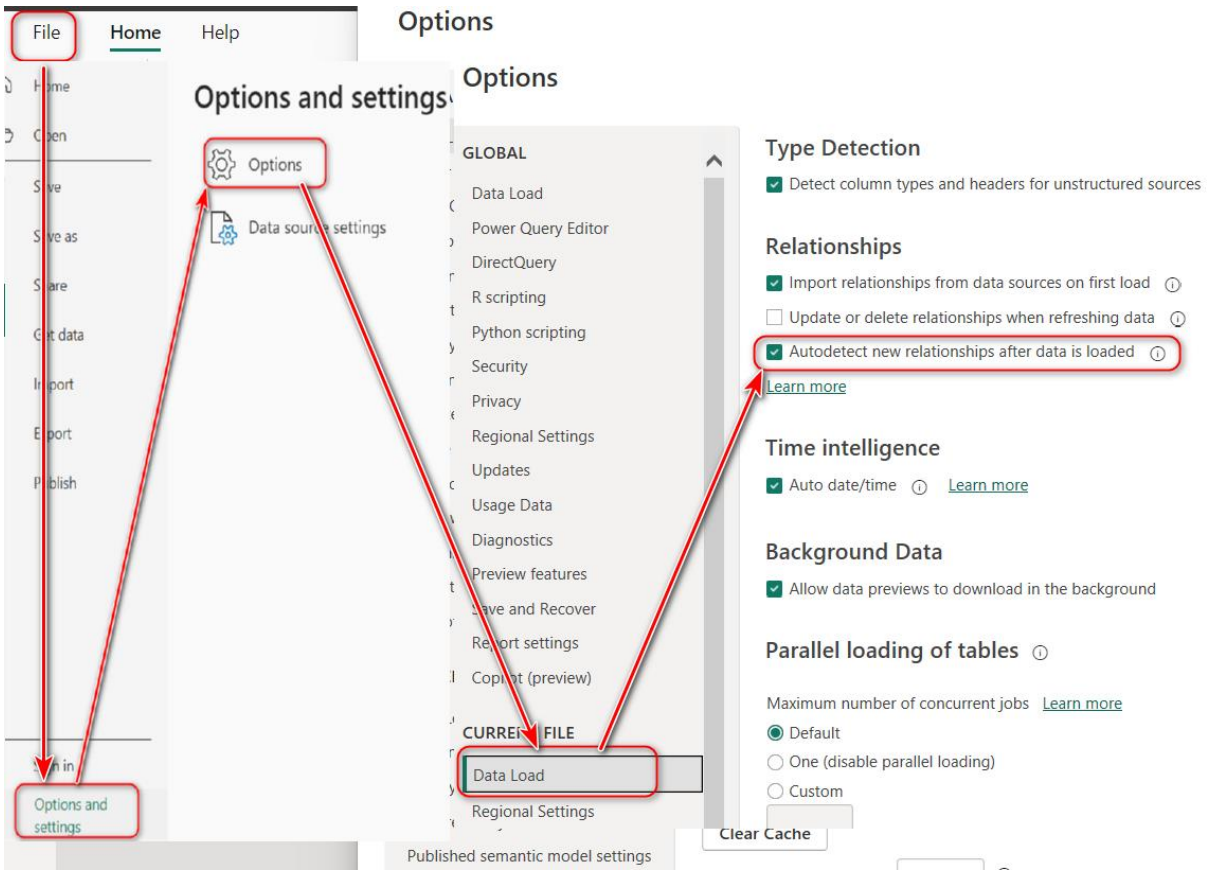
Power BI will automatically establish the relationship in tables

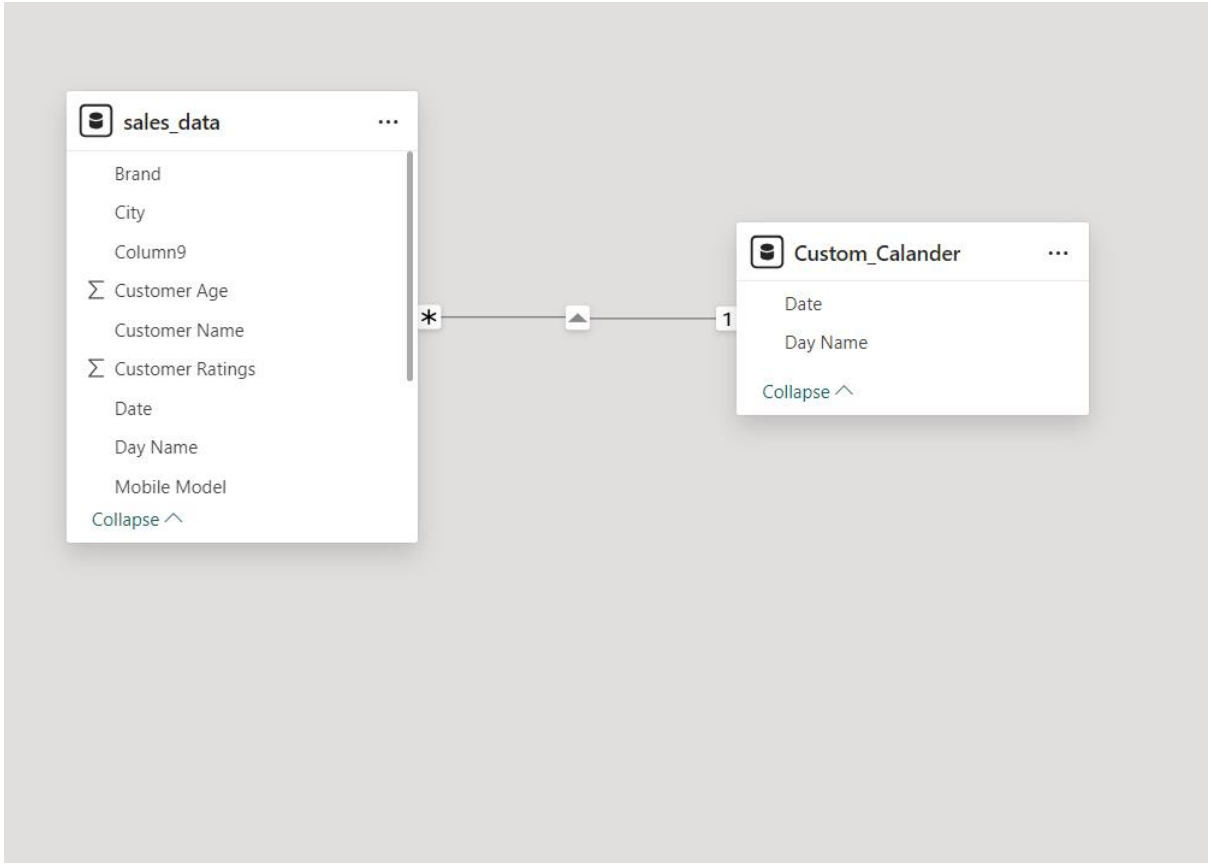




To establish the relationship automatically

Go to file ➔Options and Settings ➔Options ➔Data Load➔Checked on "**Autodetect new relationships after data is loaded**"


File
Home
Help
Options
Options and settings
Options
Data source settings
Options and settings
GLOBAL
Data Load
Power Query Editor
DirectQuery
R scripting
Python scripting
Security
Privacy
Regional Settings
Updates
Usage Data
Diagnostics
Preview features
Regional Settings
Data Load
Published semantic model settings
Clear Cache
Type Detection
Detect column types and headers for unstructured sources
Relationships
Import relationships from data sources on first load
Update or delete relationships when refreshing data
Autodetect new relationships after data is loaded
Learn more
Time intelligence
Auto date/time
Learn more
Background Data
Allow data previews to download in the background
Parallel loading of tables
Maximum number of concurrent jobs
Learn more
Default
One (disable parallel loading)
Custom


sales_data
Brand
City
Column9
Customer Age
Customer Name
Customer Ratings
Date
Day Name
Mobile Model
Collapse
*
1
Custom_Calander
Date
Day Name
Collapse

Required DAX (Data Analysis Expressions) Calculations in Power Bl

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])
```

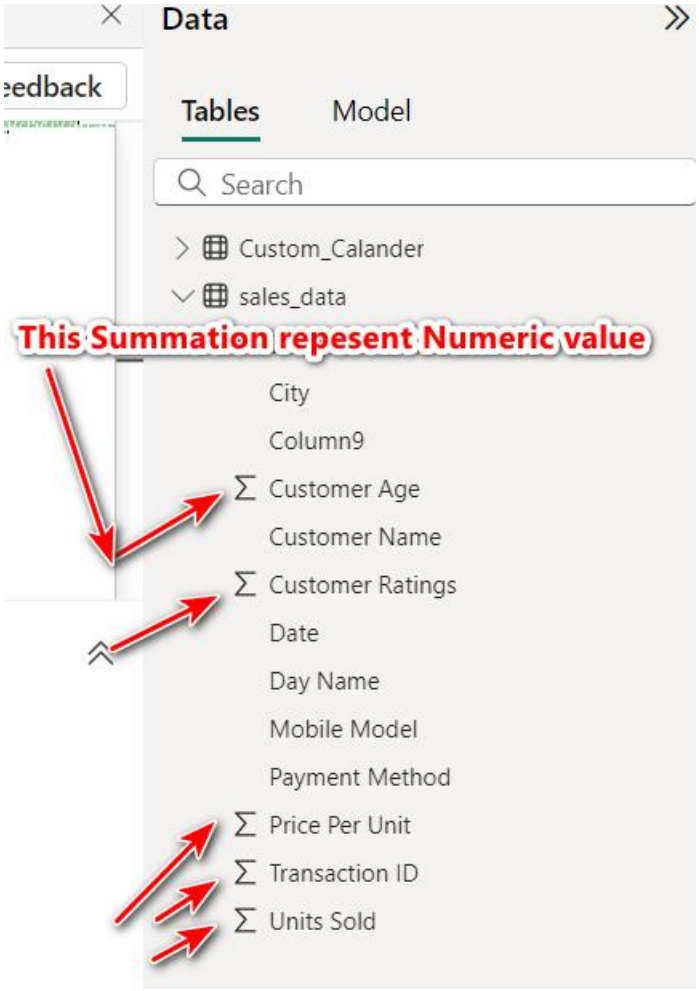
---

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]))
```



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

Implicit Measures	Explicit Measures
• Created automatically by Power BI when you drag a column (with numerical or aggregatable data) into a visualization. • They perform a simple aggregation (e.g., SUM, AVERAGE, COUNT) based on the data type.	• Created manually using DAX formulas in Power BI to define custom calculations. • Explicitly saved in the model as standalone measures.
Reusability Only in the visual where it's created	Reusable across the entire model
Customization Limited (e.g., aggregation type only)	Fully customizable using DAX formulas
Recommended Simple, quick aggregations	Advanced reporting and scalable models

Note We must be in **report View** then

Example of Implicit Measures(Automatic Drag and Drop)

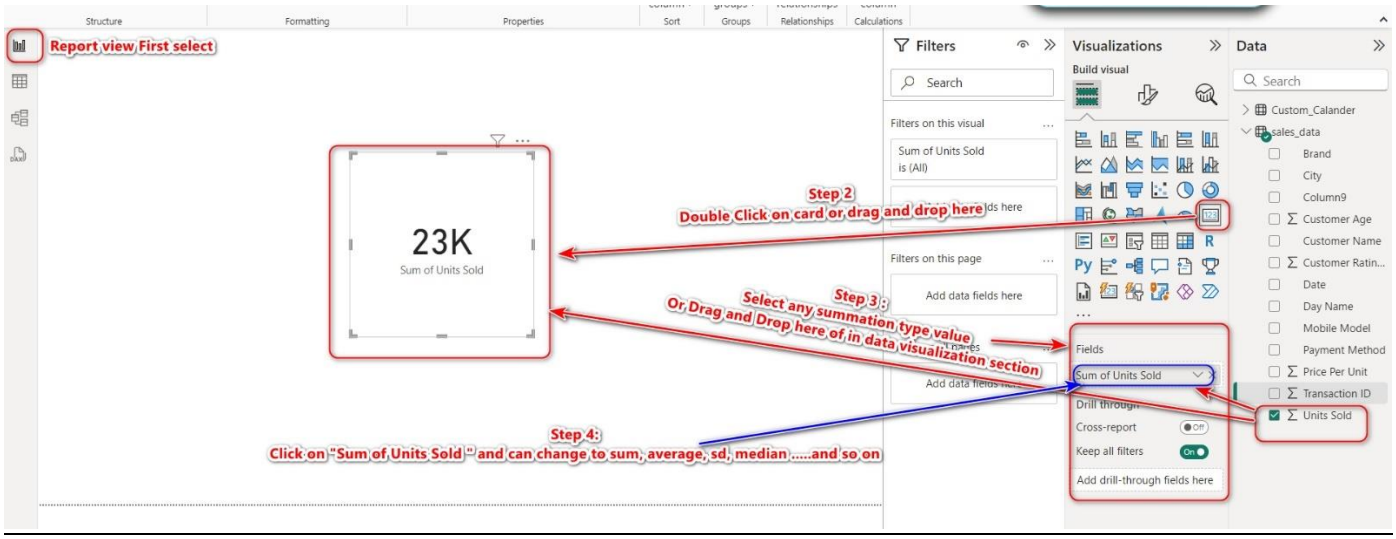
Drag Card from visualization section or **just double click on card**

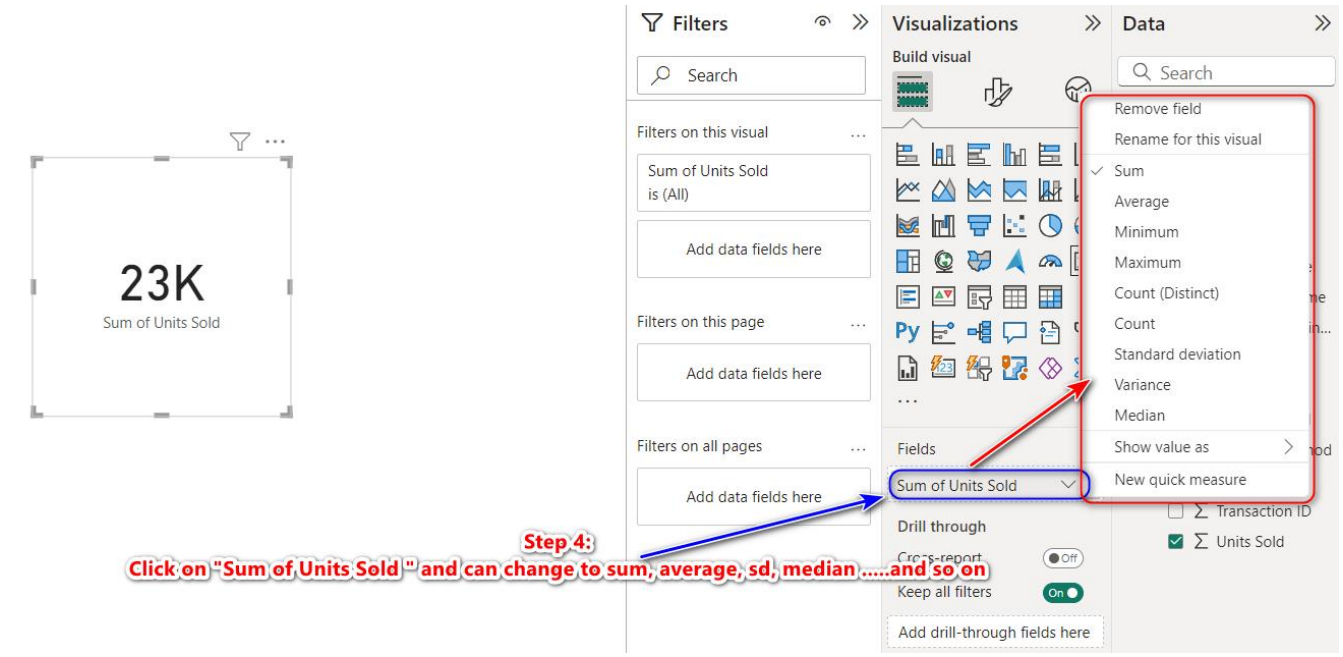
and

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

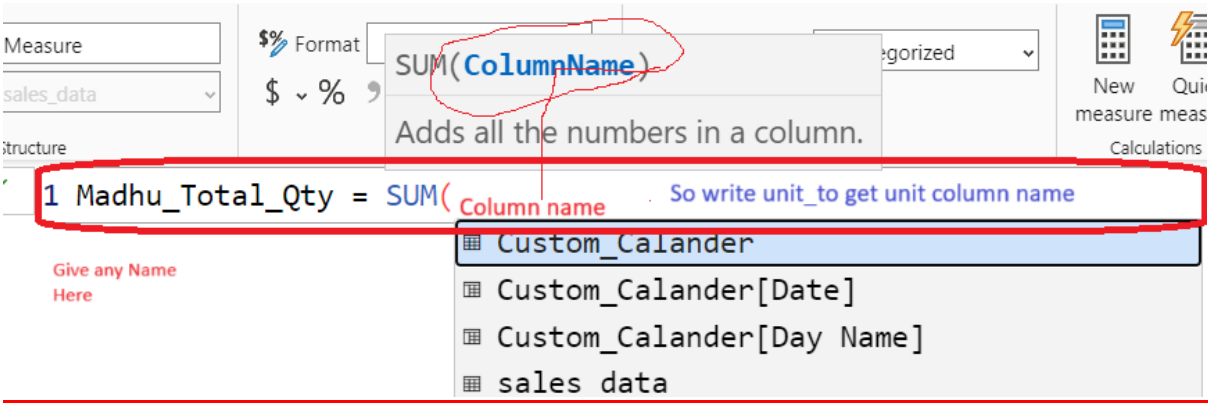
Note : The selected value can be edited Sum (Average,Minimum,Maximum,Count (Distinct),Count,Standard deviation,Variance,Median and more as per required)

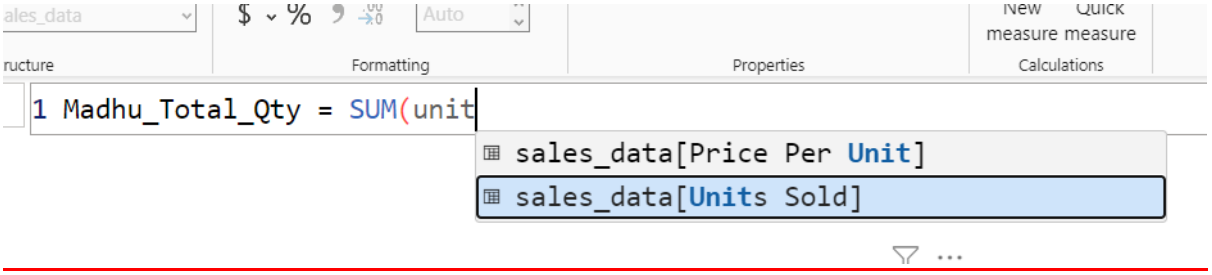
by just click in Field shown in visualization section

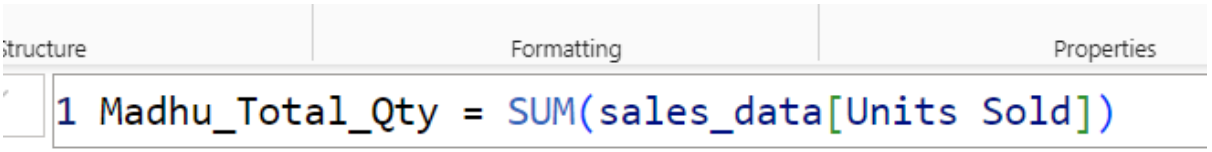




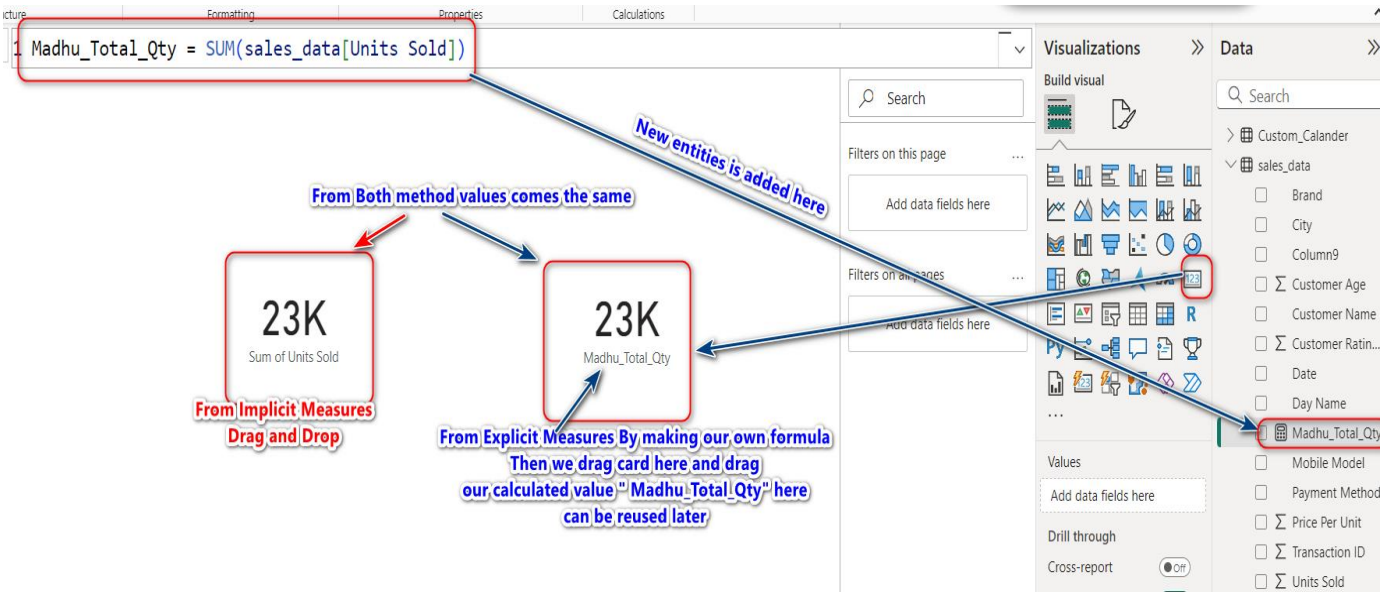
Example of Explicit Measures (by making formula)







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

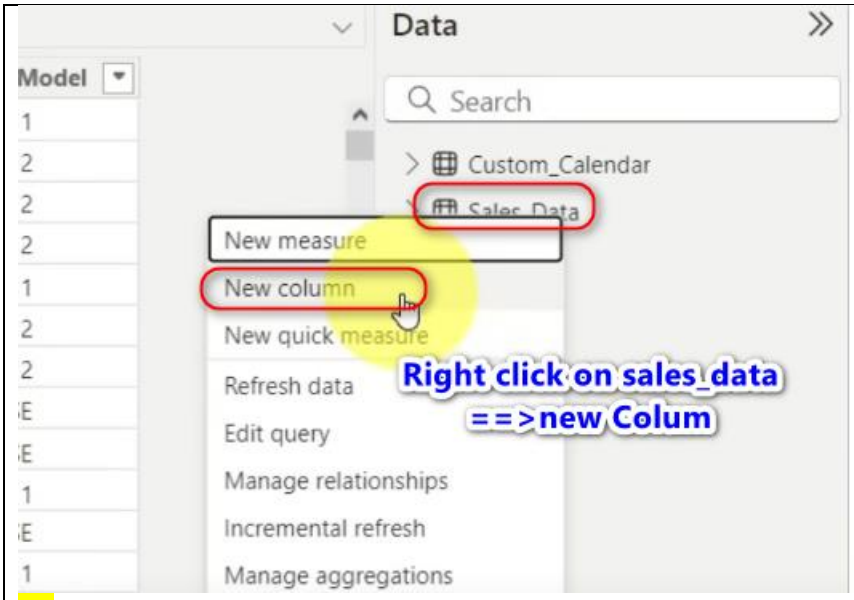


Note : **To find total sales we need to multiply unit by unit price**

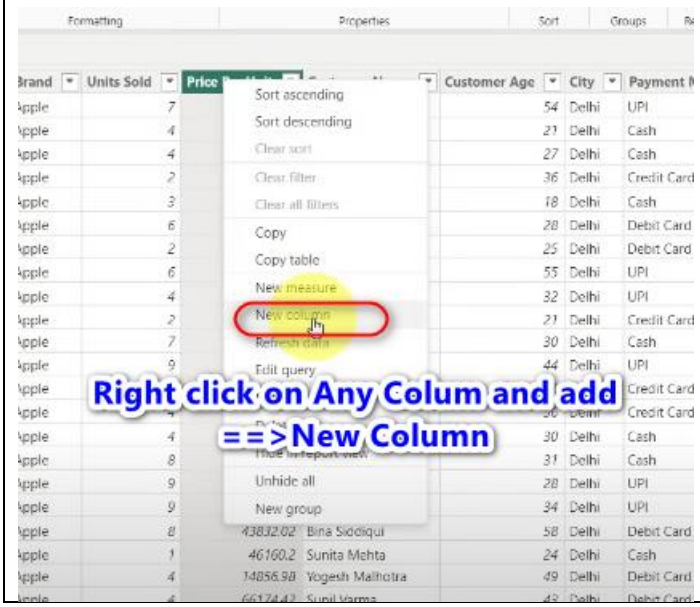
Total Sales == unit sold * price per unit

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

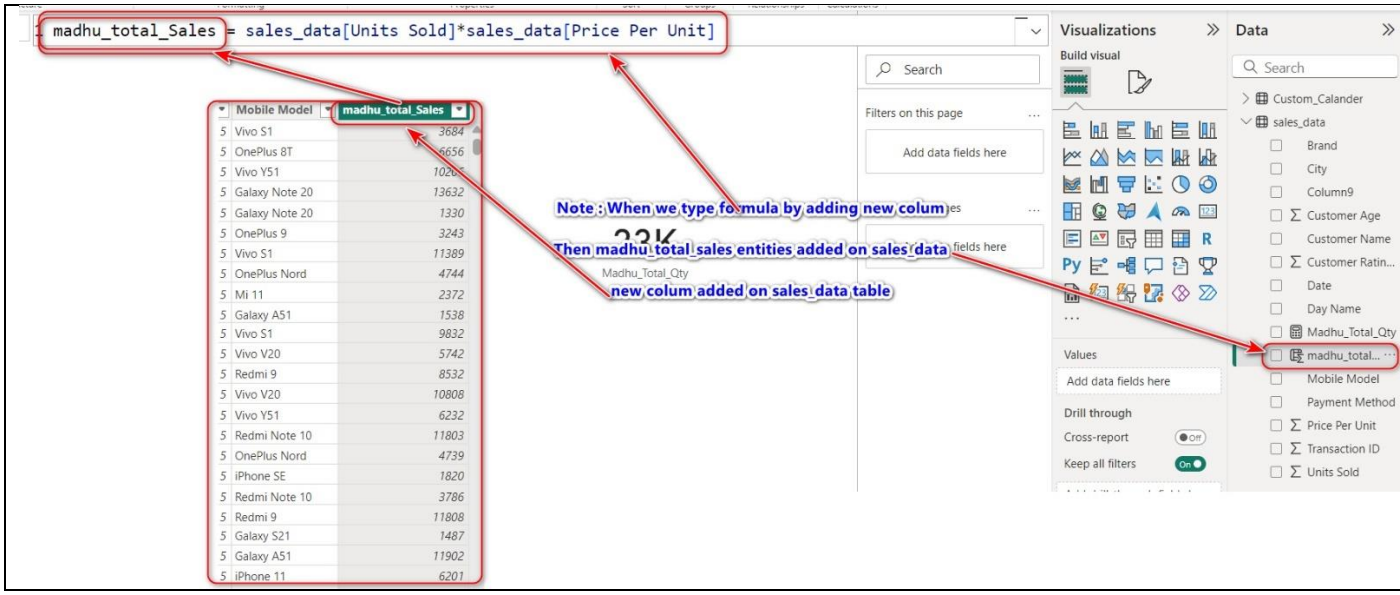


OR



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

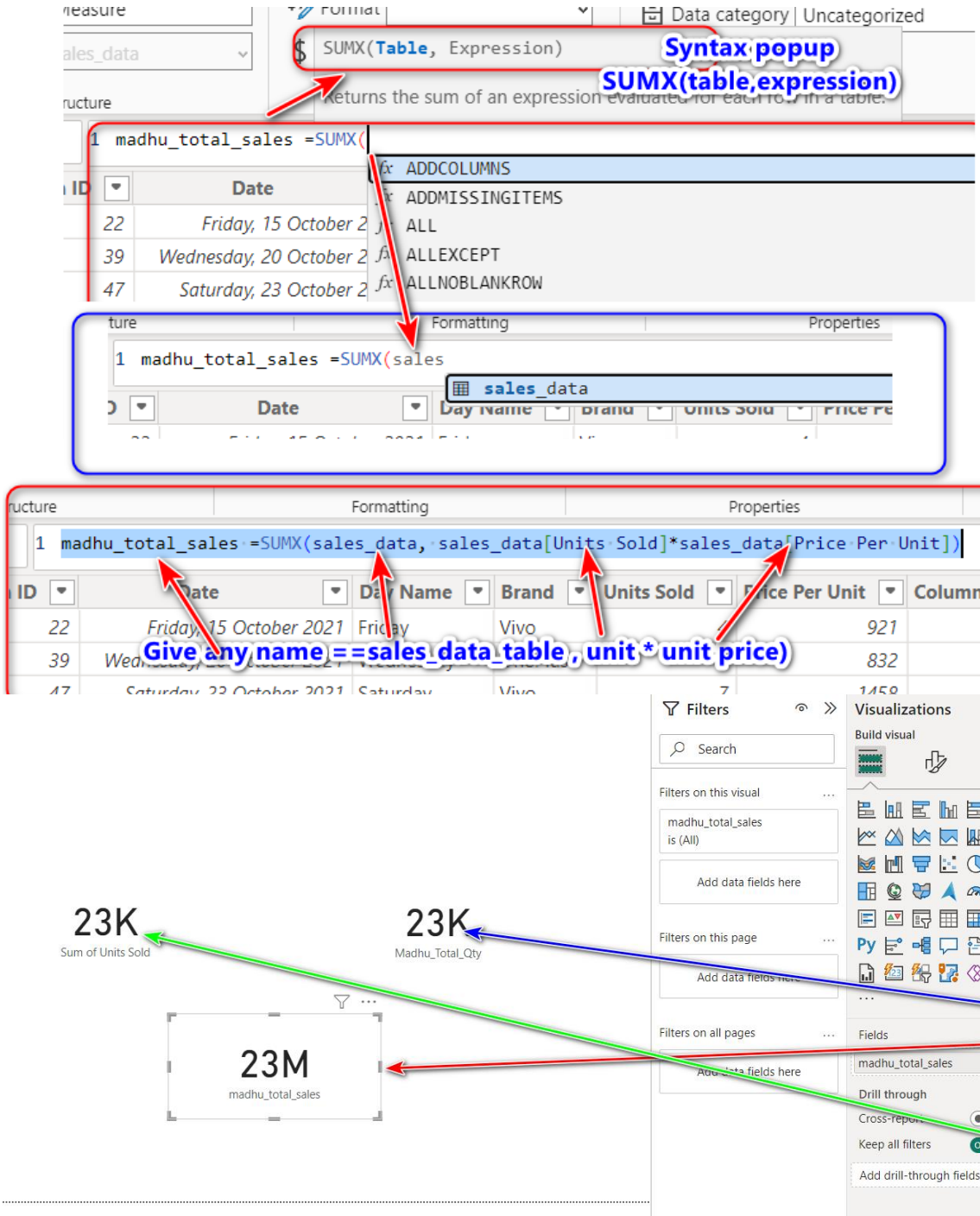
---

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 formaula

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



Lets Calculate

Total Transaction = countrow(table name)

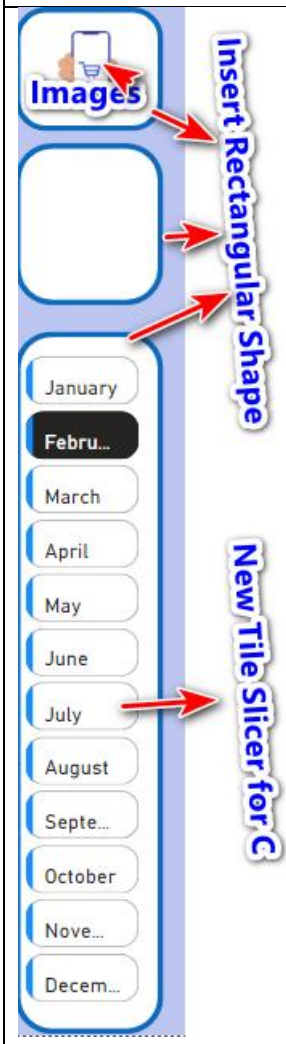
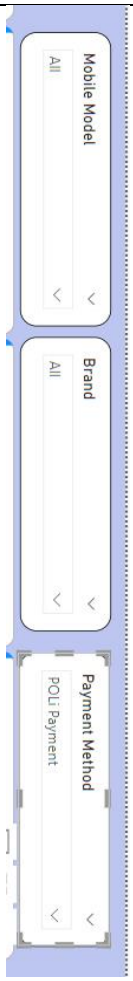
Right click on sales_data➔new measure ➔type formula

```
Total Transcation = COUNTROWS(sales_data)
```

Average ➔Average(tablenamewith columnname)

```
Average_Price = AVERAGE(sales_data[Price Per Unit])
```

Learn Dashboard Creation in Power Bl

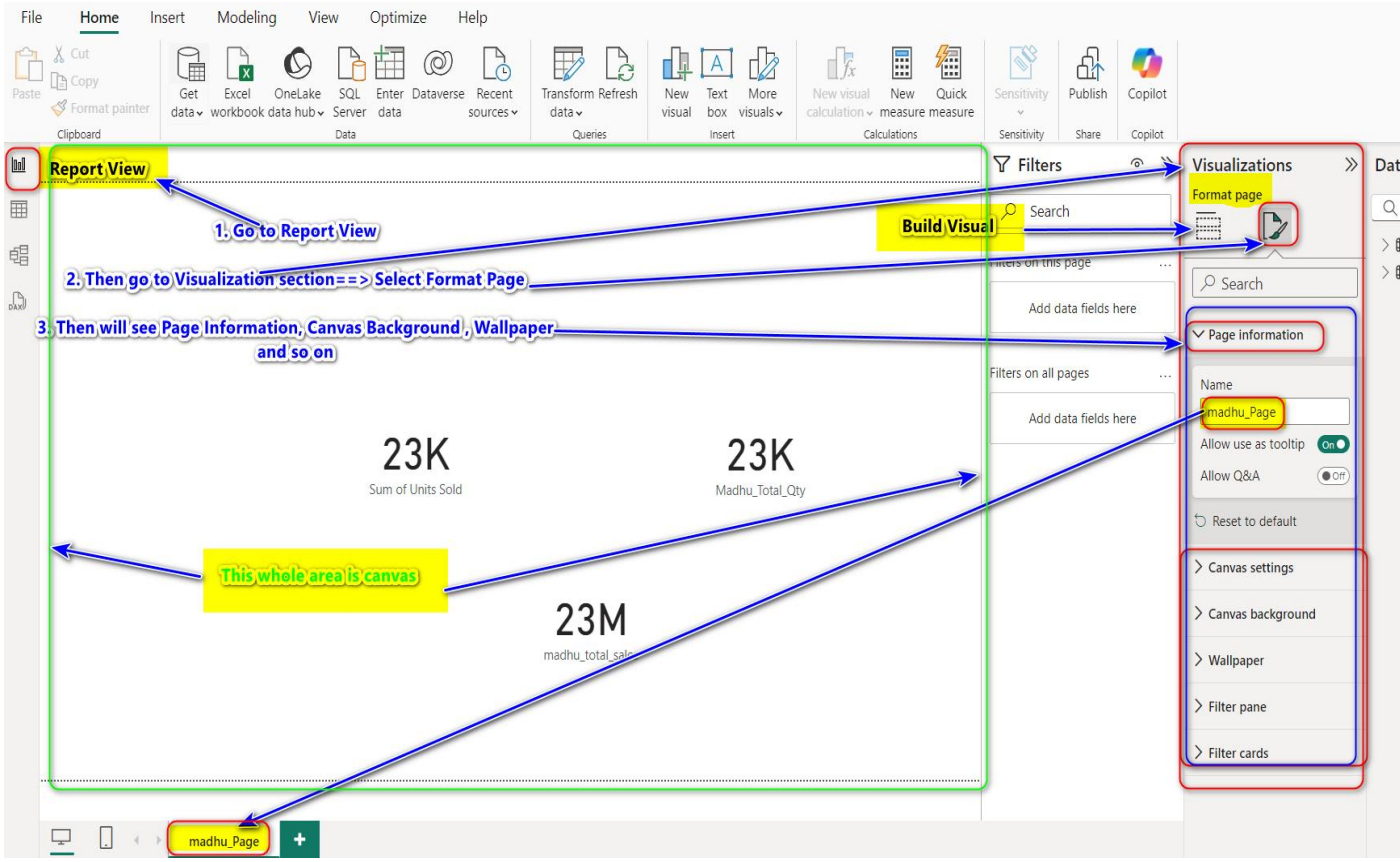
Add New Tile Slicer (for calender) and rectangular box from insert menu	New Data Card	old Slicer Now (filter) For mobile model, payment method, Brand
		

Colour Combination as per the company profile / logo/ website

1. Go to Report View

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

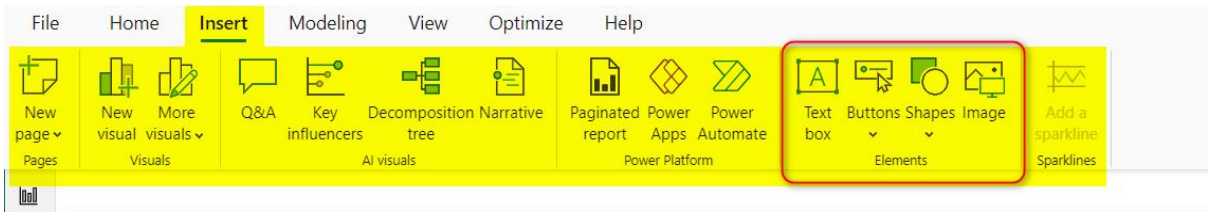
3. Then will see Page Information, Canvas Background, Wallpaper, and so on



To insert anything in Canvas

Insert Rectangular Shape

Click on Insert➔Elements (Shapes)



To Remove Background of any images

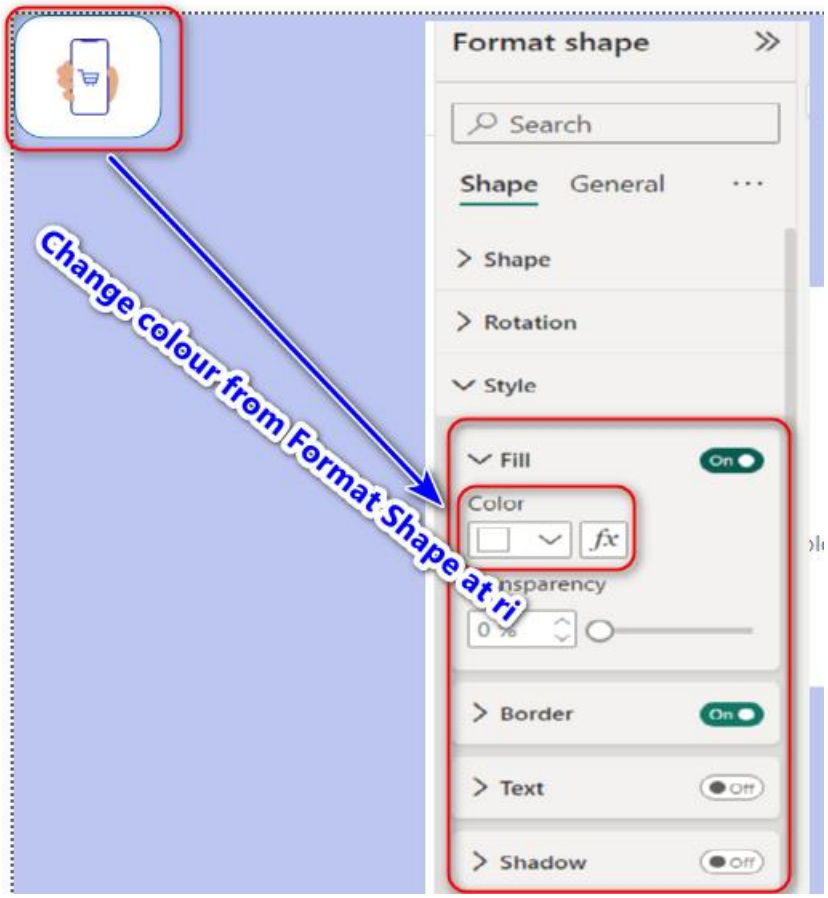
To remove the background and to convert to transparent images Go to www.remove.bg keep the photo in **png** **(Portable Network Graphic)** format

You can use colorPicker from Faststone Capture

To bring the shapes, images to front or back ,

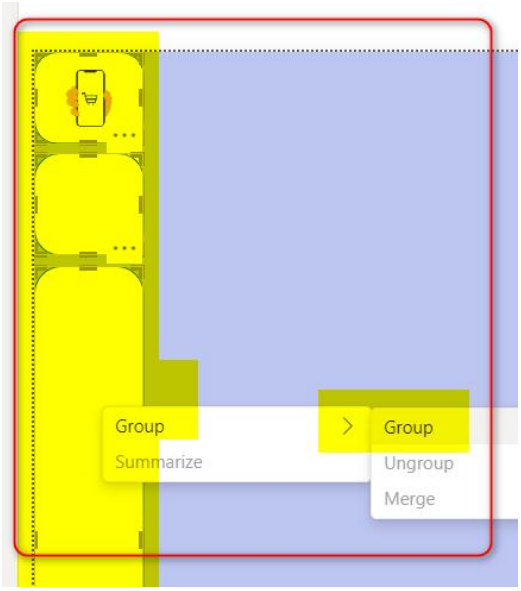
Simply select the images then go to Format ➔Bring Forward

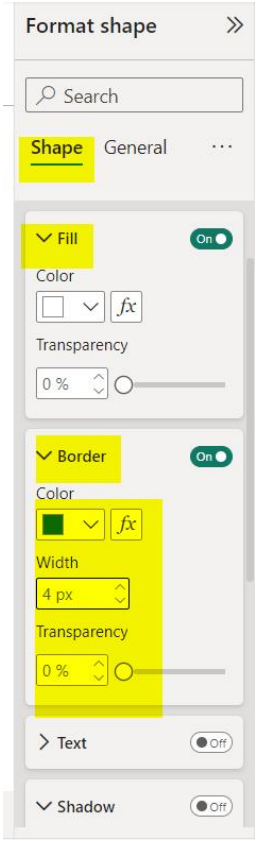
Note we are inserting shapes rectangular and png transparent images



Simply do copy and paste the shapes

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

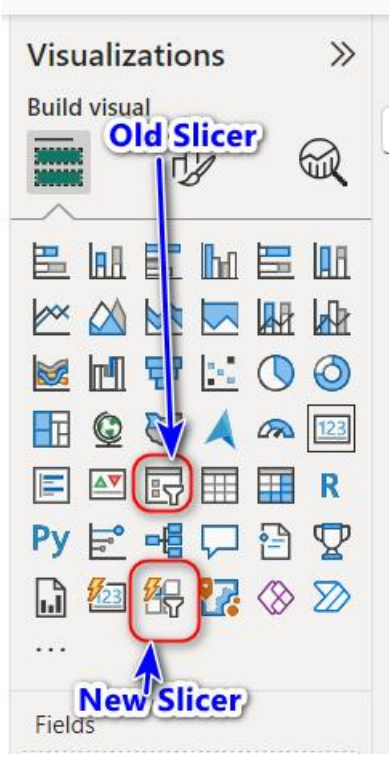




Commonly Used Visuals

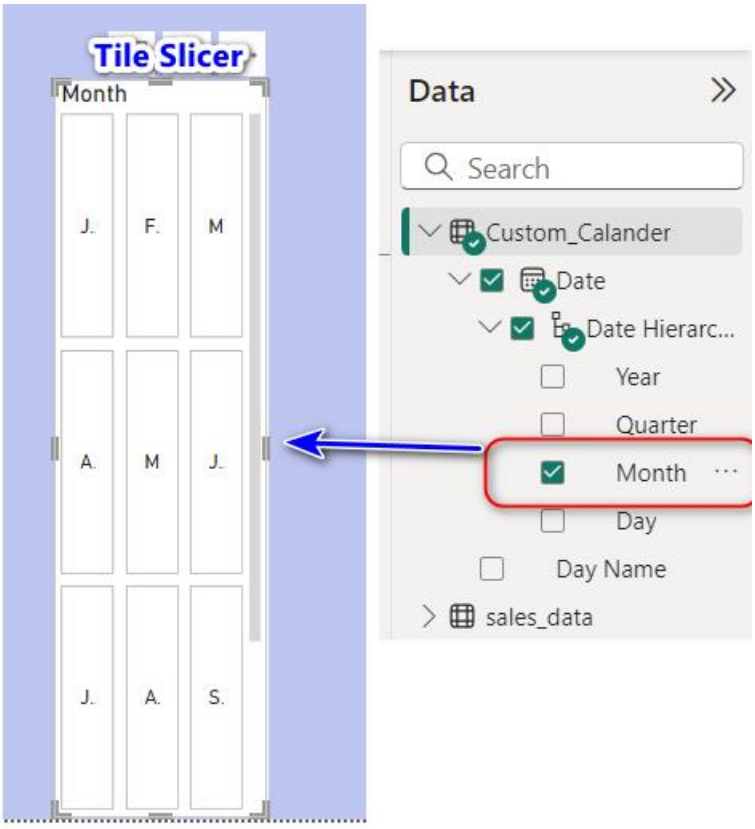
- **KPI cards**, **Bar** / **Pie Charts**, **Tables / Matrix** and **Slicers** are commonly used visuals.
- One needs to **click the visuals** to **activate the visual settings**.
- Use **Horizontal bar chart to represent more than 3 categories**.

Slicer (old Slicer and New Tile Slicer)

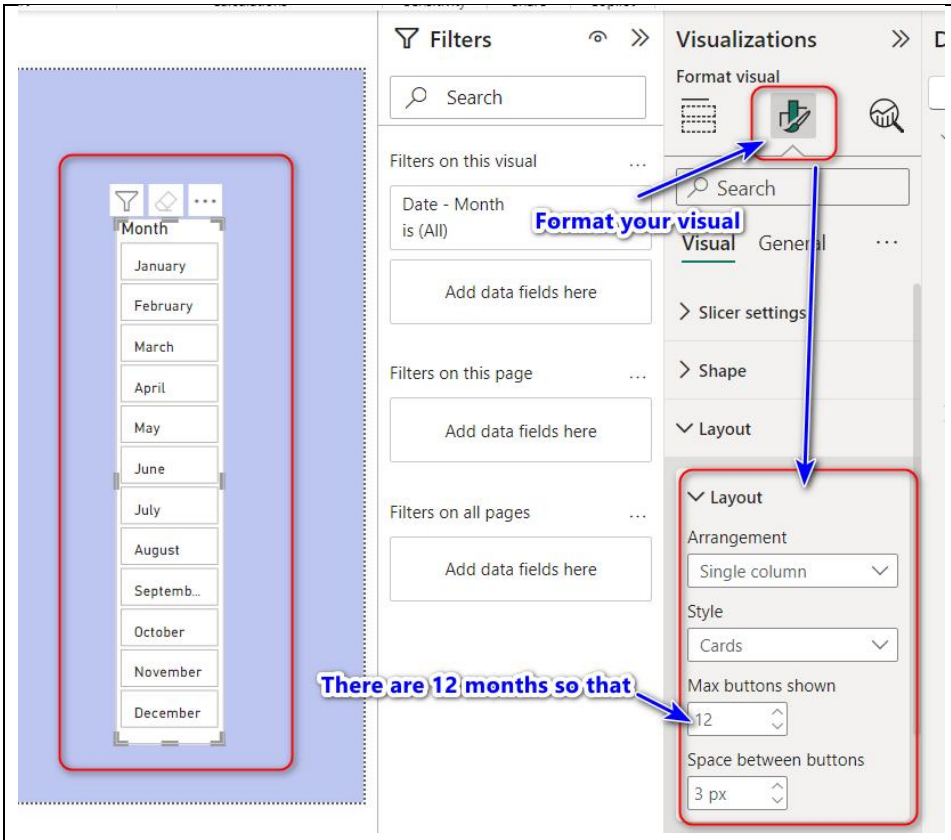


Add New Slicer

Insert the new slicer drag and drop the custom_calander➔Date➔Month on the slicer



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

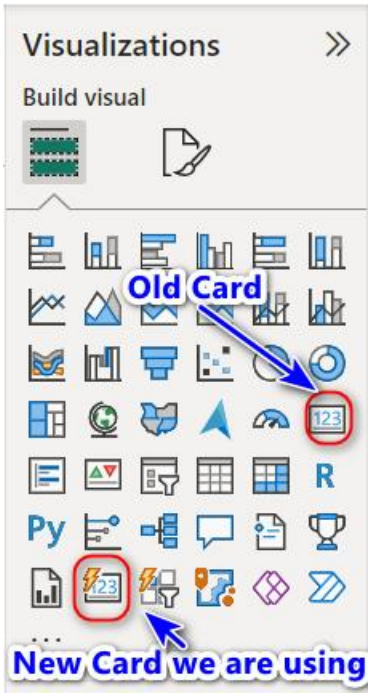


To remove the slicer title (i.e Month) ➔ Go to visual format➔General➔Turn Off the title, effect(turn off background ➔to remove background colour)

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

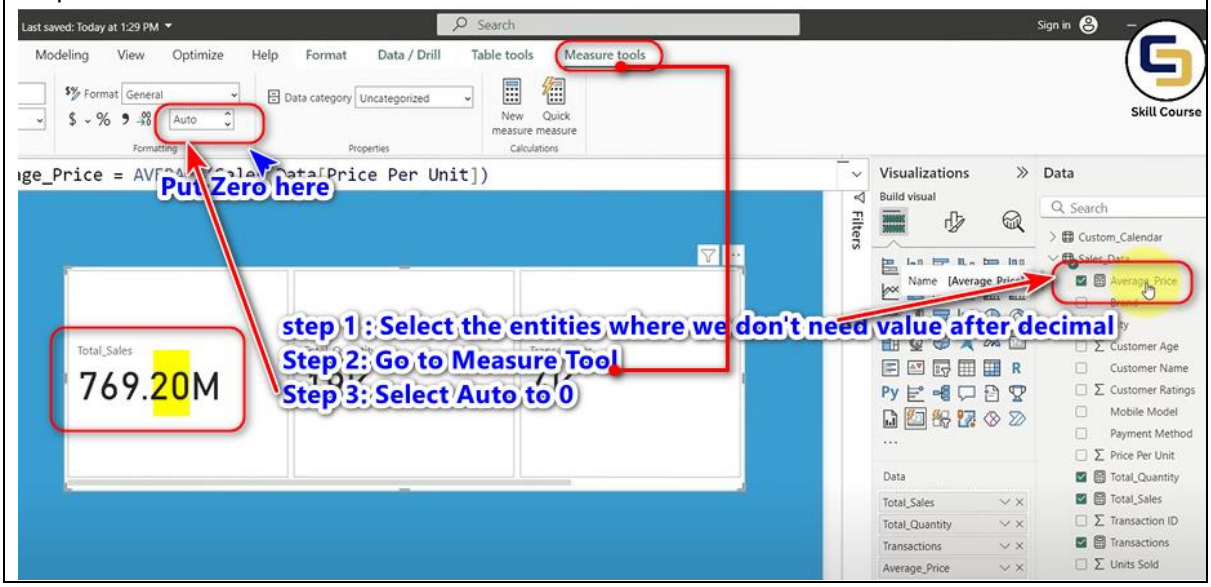
Card (New and Old)

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



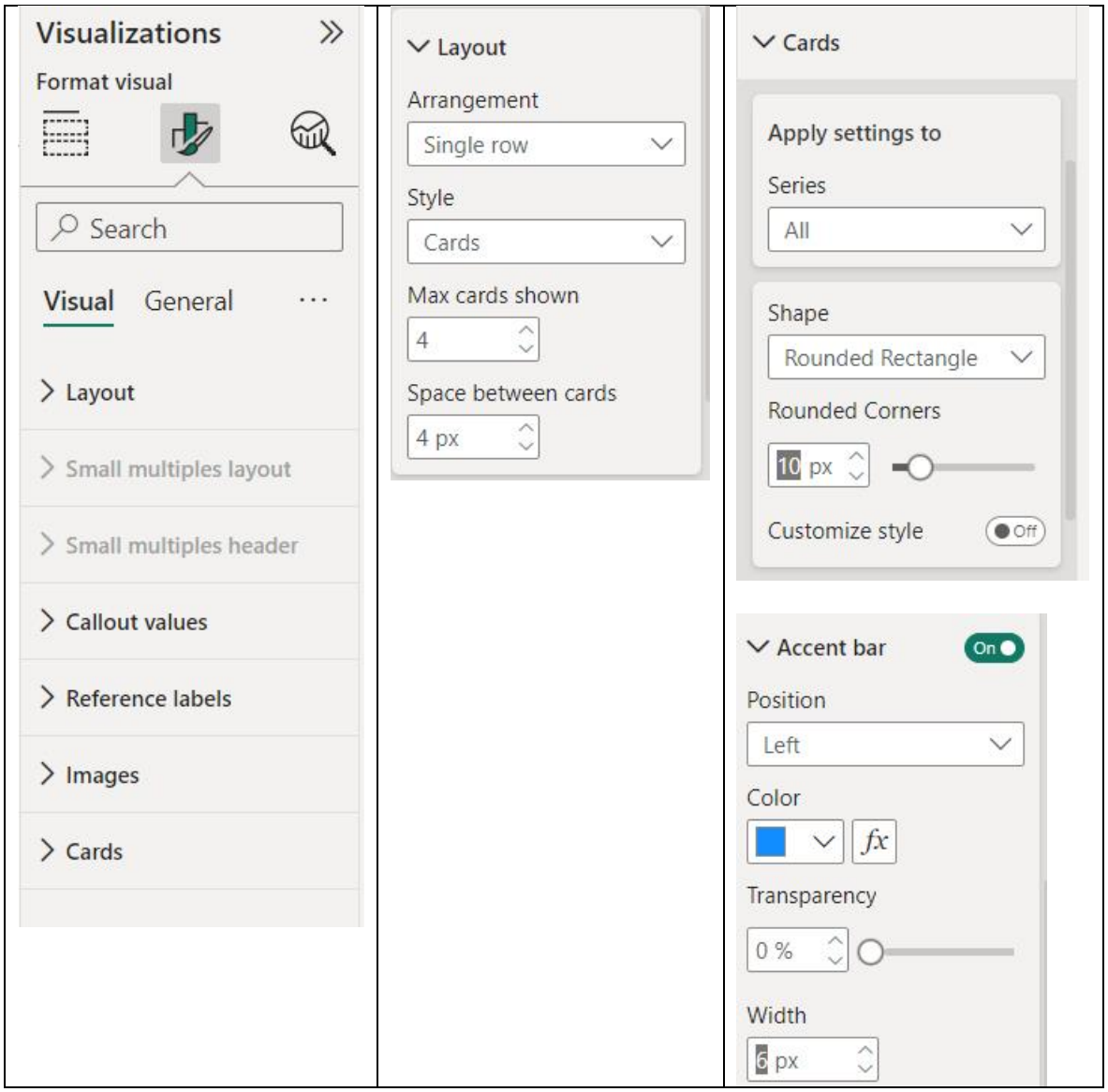
If need to remove Decimal point in KPI

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

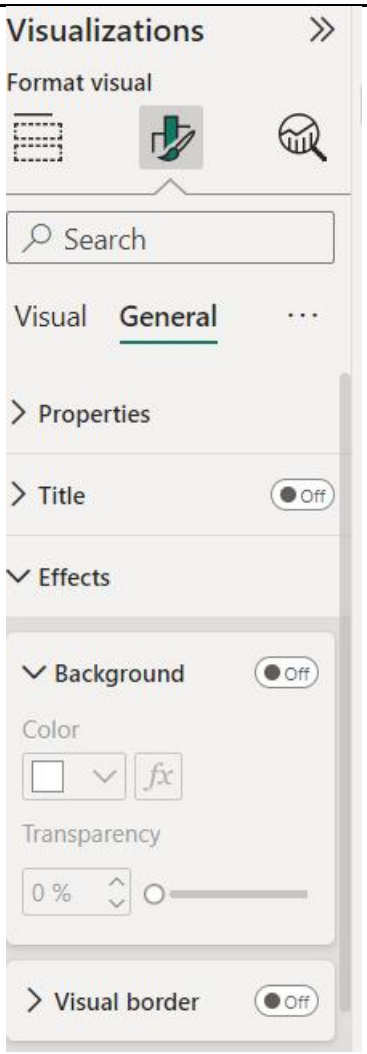


Options available for New Data Card in Visual

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

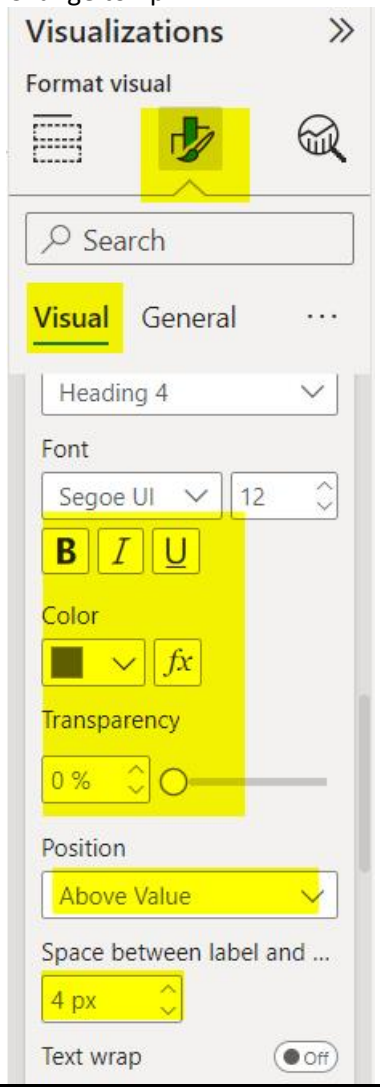


To remove Background
Go to General ➔Effect➔Remove Background



To decrease space between data and values
Total_Sales 80k

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

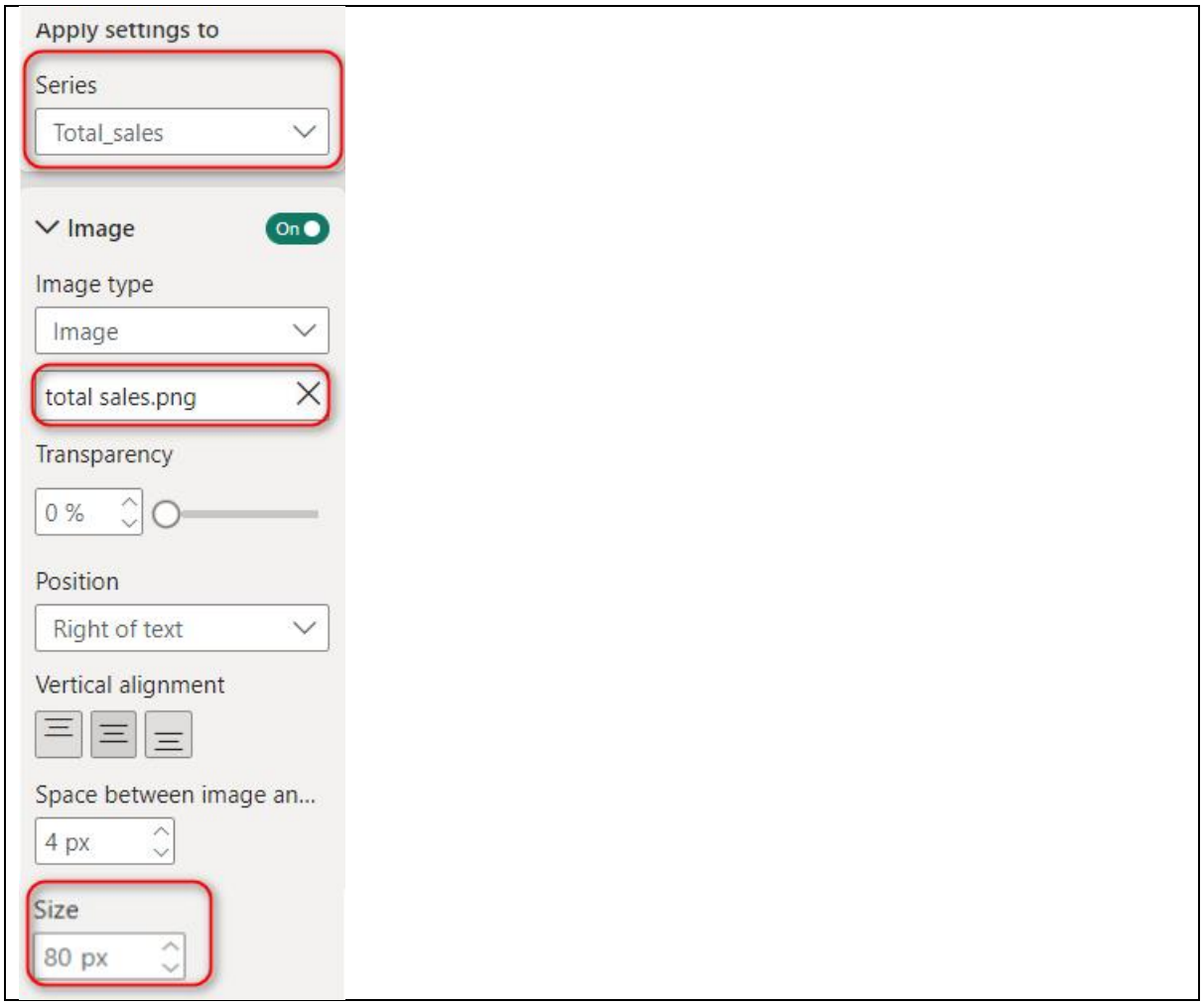


To add images save the png images from the google related to sales
Select the **new card➔Format your Visul➔Images**

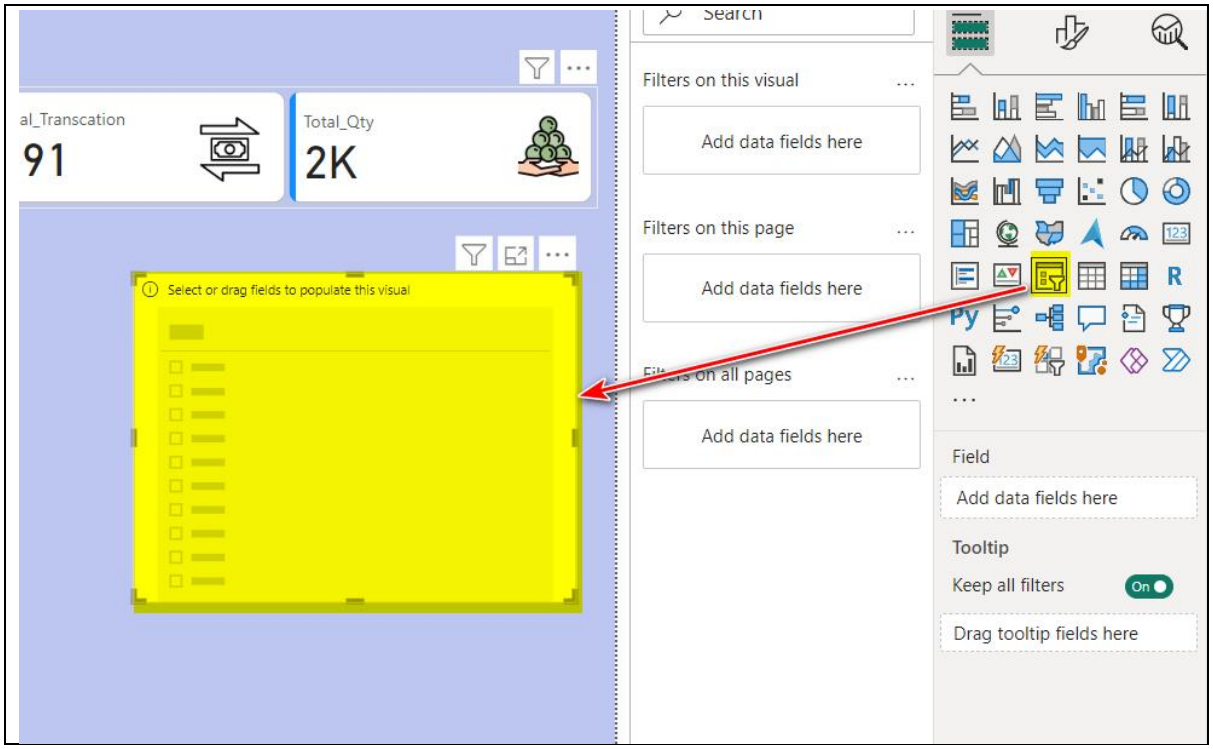
After selecting the images apply the setting for e.g for total sales

Series➔ Select Total_sales, browse the images of total sales with tansparent background, make size to 70 to 80px

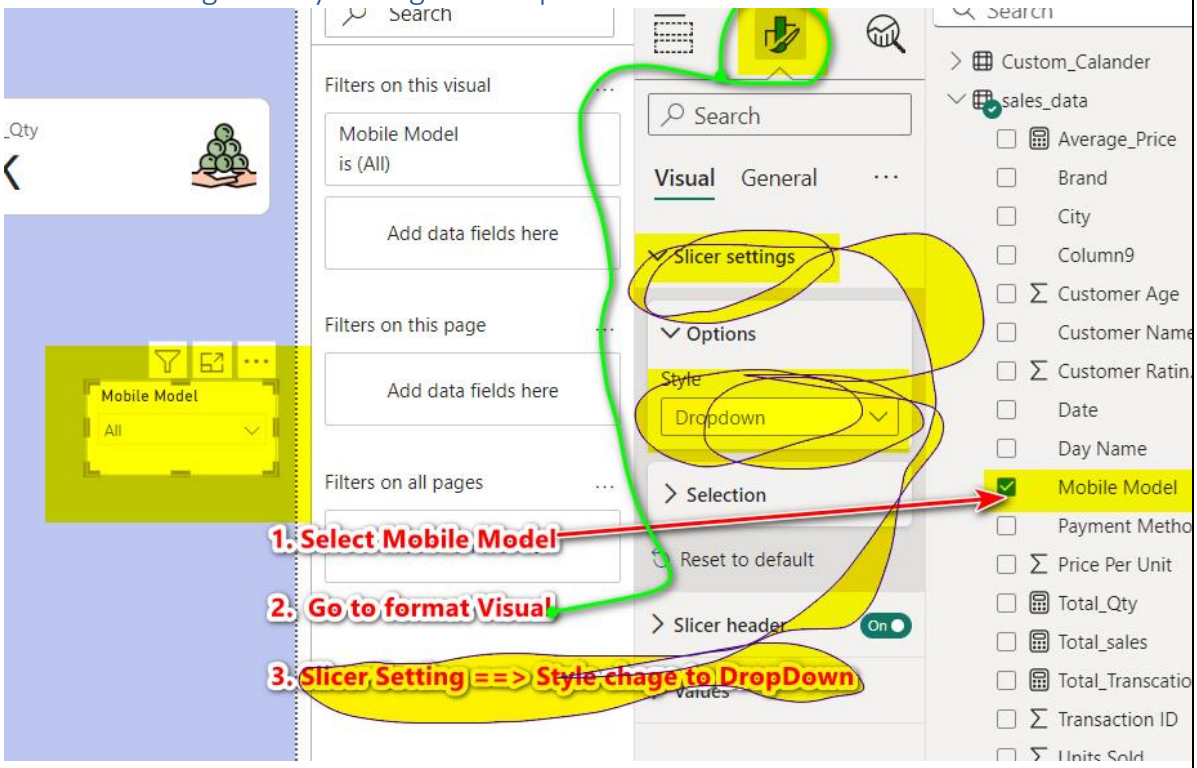
Similarly do for other 3



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

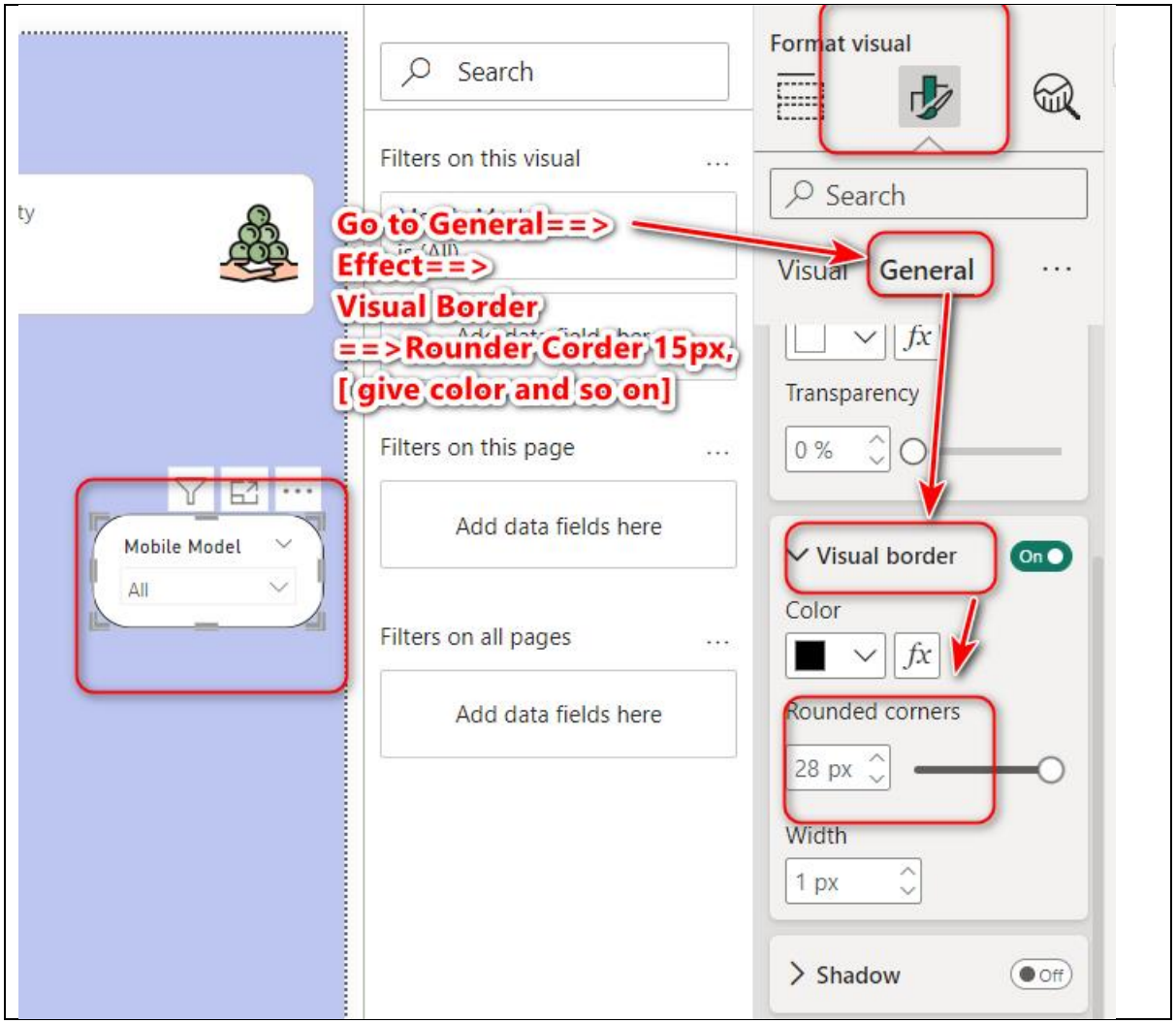

al_Transcation
91
Total_Qty
2K
Select or drag fields to populate this visual
Search
Filters on this visual
Add data fields here
Filters on this page
Add data fields here
Add data fields here
Field
Add data fields here
Tooltip
Keep all filters
On
Drag tooltip fields here

1. Select Mobile Model
2. Go to format Visual
3. Slicer Setting ==> Style chage to DropDown



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**

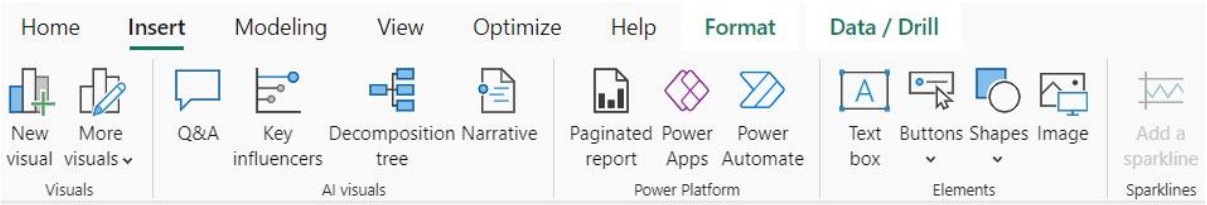
The remove the field mobile model and add brand, payment method that's all

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

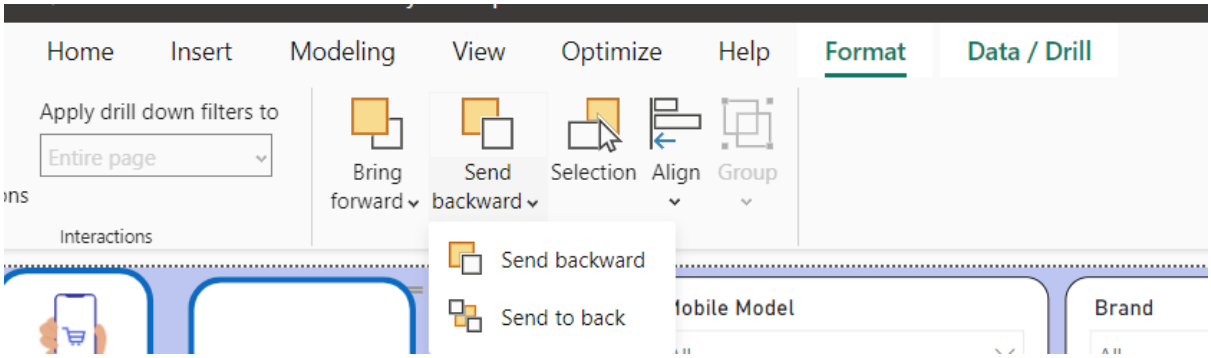
Infront of that just add textbox to write Mobile Dash Board

Steps:

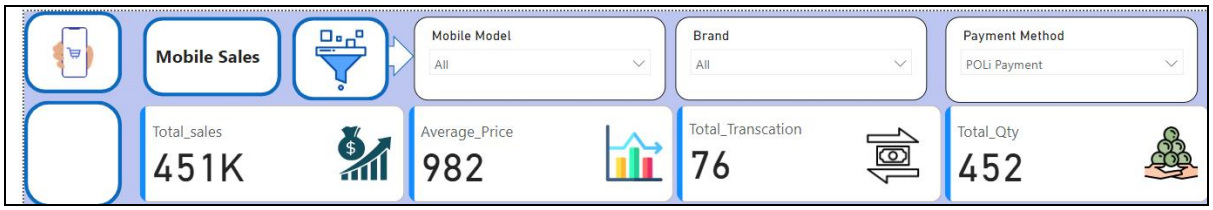
1. Just copy one **rectangular box**
2. Click on Insert (If TextBox, Images, shapes whatever we want)



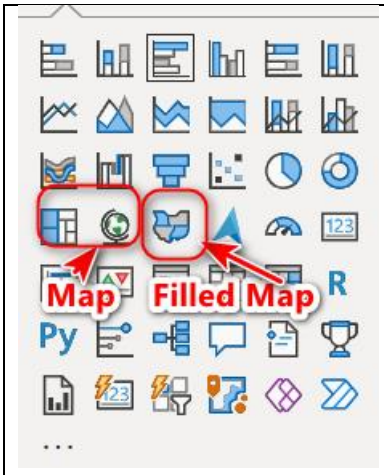
3. To Bring the images Forward or Backward ➔Click on Format➔Bring to Forward / Backward



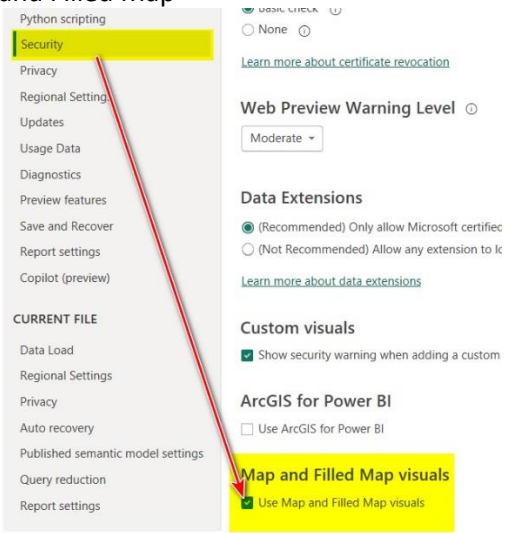
Finally



Map and Filled Map

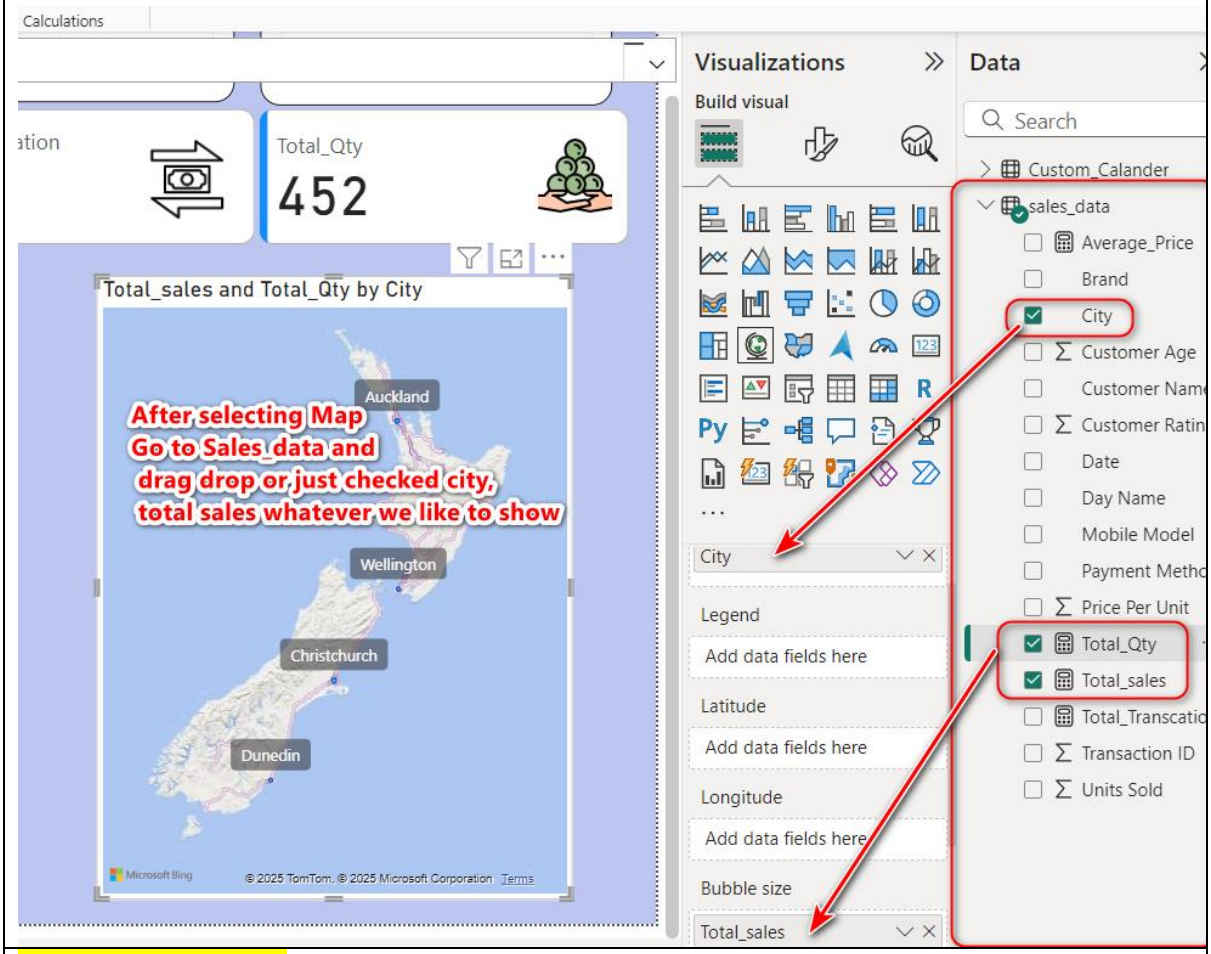


Before Adding Map
Go to File➔Options & Settings➔Options➔Global(Security)➔Checked the Use Map and Filled Map

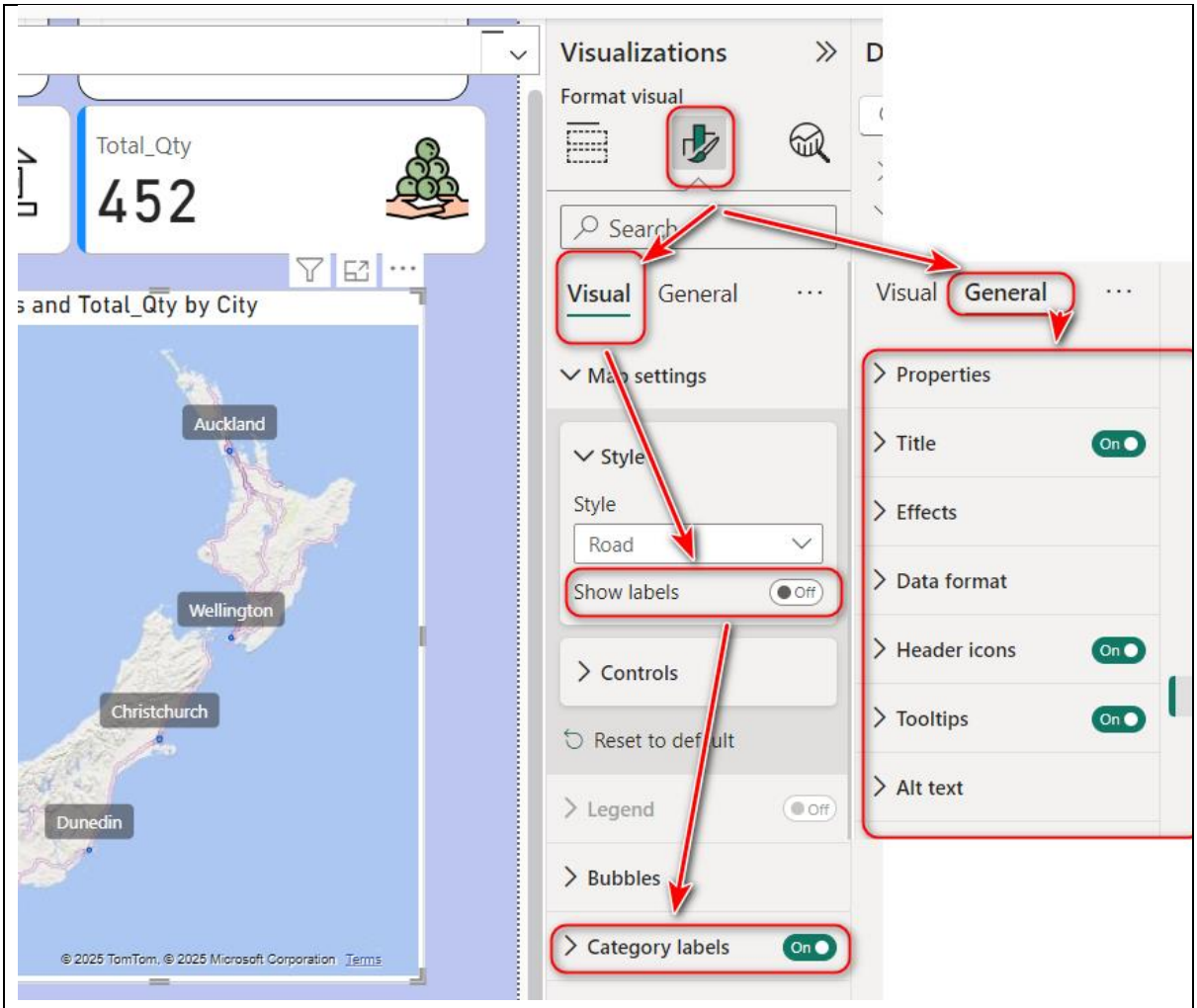


Just **Add Map** in Dashboard by clicking on **Map**
[Location, Legend, bobbleSize, latttute, Longitute]

After selecting Map ➔Go to Sales_data and drag drop or just checked city, total sales whatever we like to show



More Seeting for Map
➔**Turn OFF show labels**
➔**Turn ON Category Labels**



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

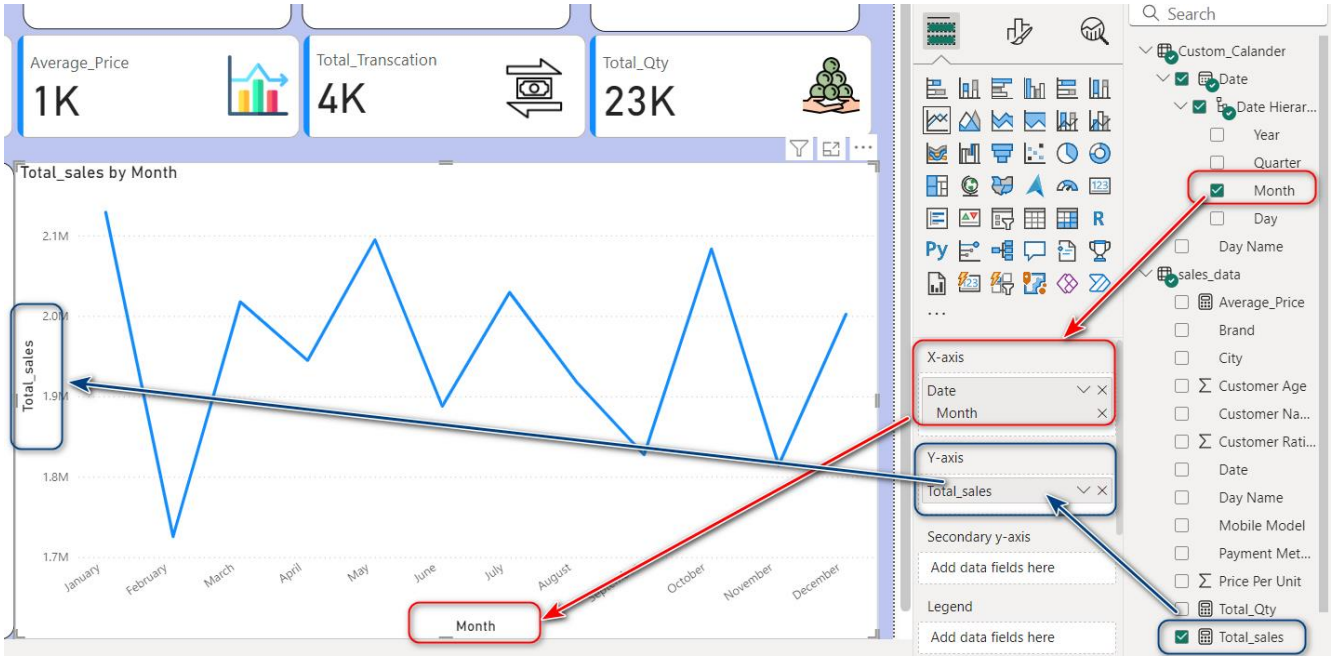
1. Select the slicer of "**Mobile Model"**
2. **Go to Home➔Format Painter**
3. Then click on Map

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,**

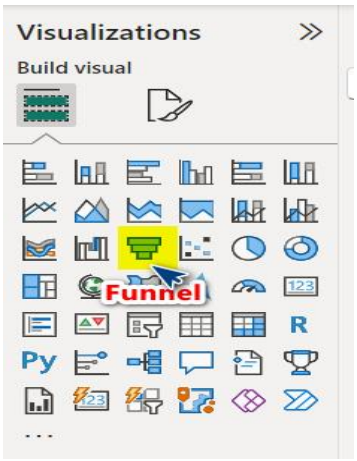


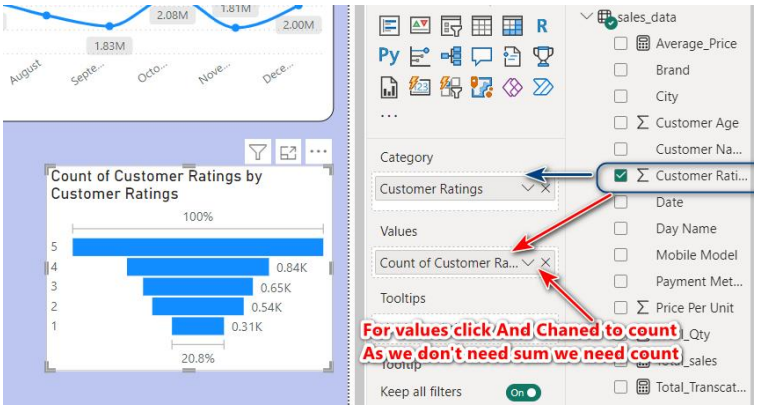
More Setting in LineChart

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

Funnel (Based on Customer Rating)

Just Click on Funnel that 's all





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 Colum

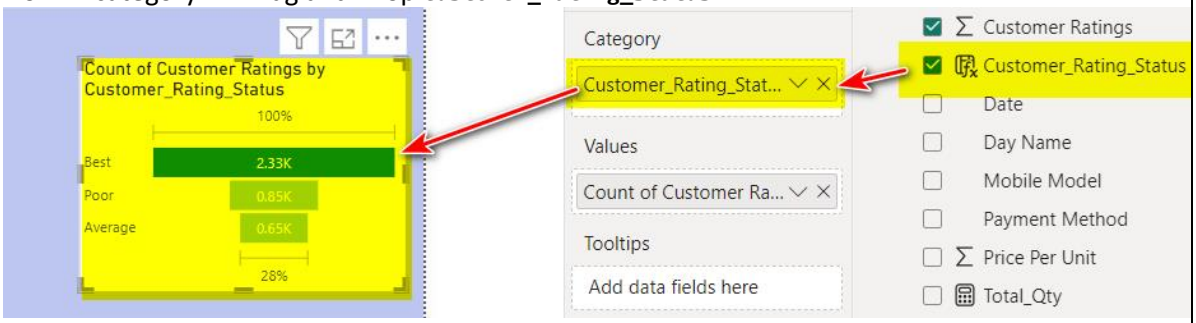
```
Customer Rating = IF(sales_data[Customer Ratings]>=4,"Best" )
```

ALT + Enter to make area for DAX Formula larger

Using if condition inside if (nested if)

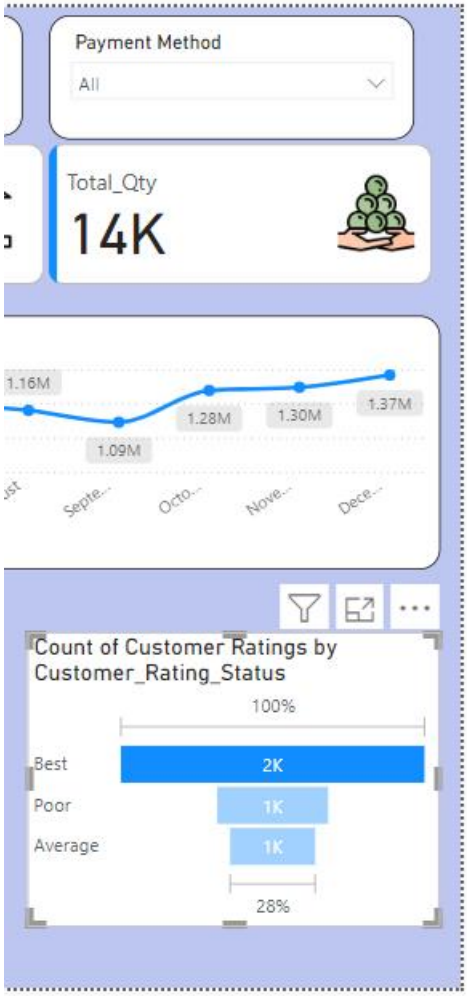
```
Customer_Rating_Status = IF(sales_data[Customer Ratings]>=4,"Best" ,
IF(sales_data[Customer Ratings]>2,"Average","Poor"))
```

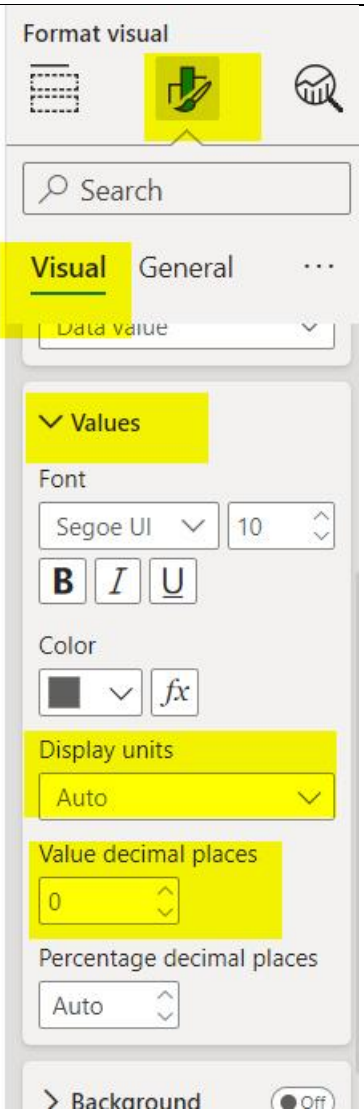
Now in category ➔ Drag and Drop **`Customer_Rating_Status`**



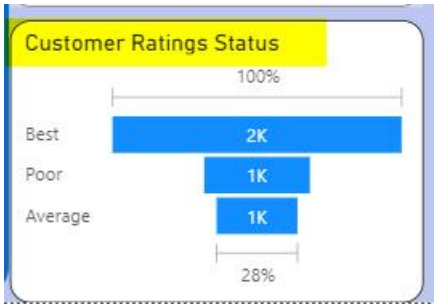
If don't like to keep values after decimal

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

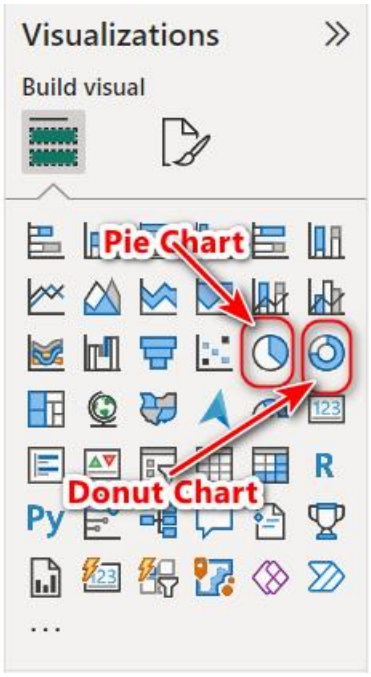




To Edit the title of funnel
Go to Format Your Visual➔General➔Title➔text (Customer Ratings Status)



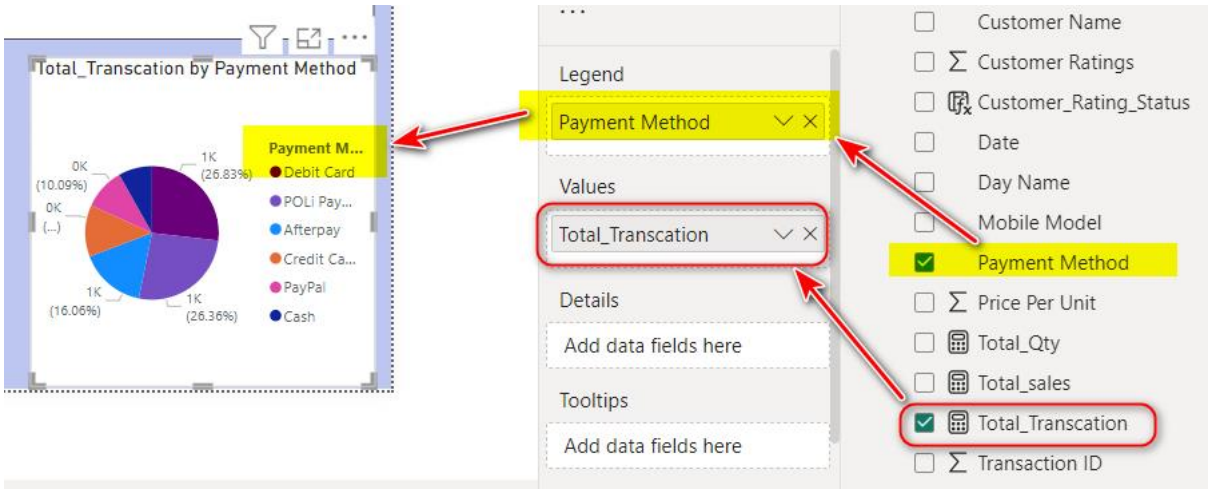
Pie Chart / Donut Chart



We will show transaction by payment method in Pie-chart

Legend➔Payment Method

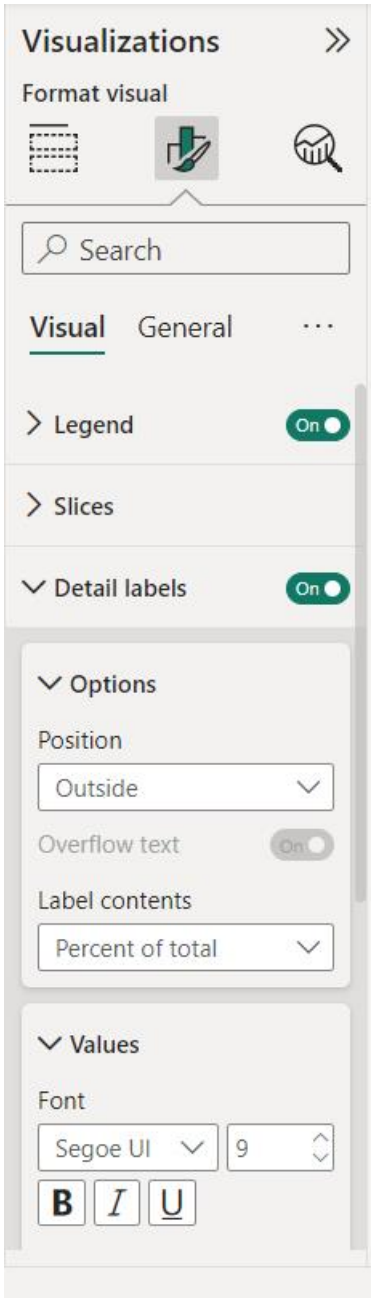
Values➔ Transaction



Click on format Printer and set it

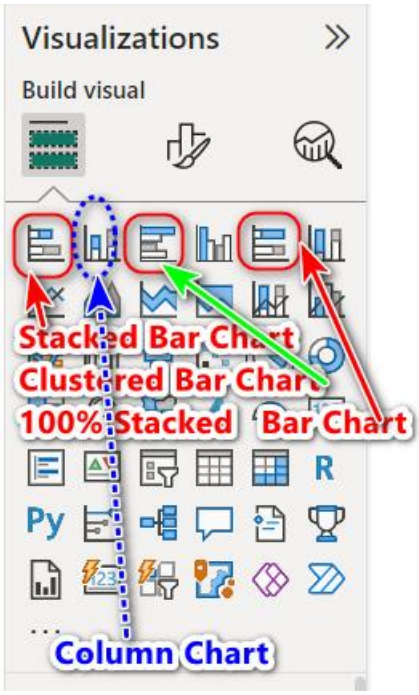
To show percentage in pie chart

General➔Details Labels➔Label Contents➔Percentage of Total



Bar Chart

We will use the bar chart for Total Sales by Model

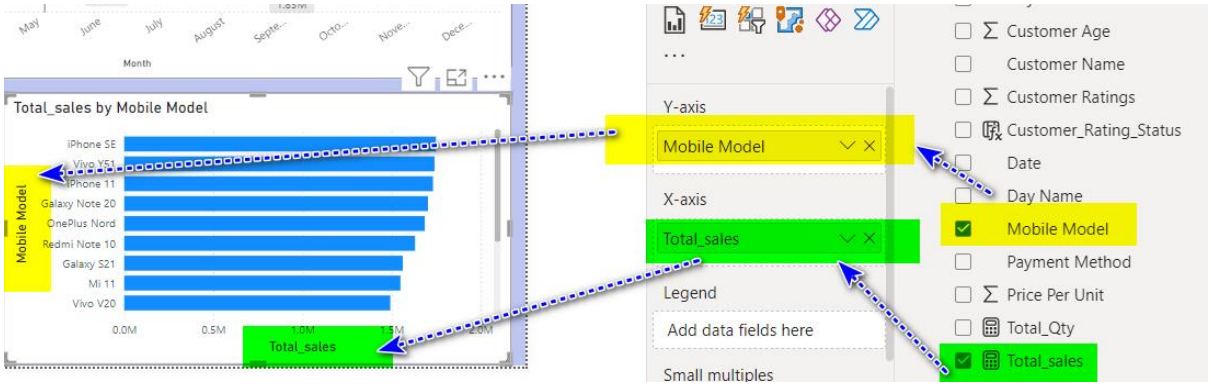


We used Clustered Bar chart here

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

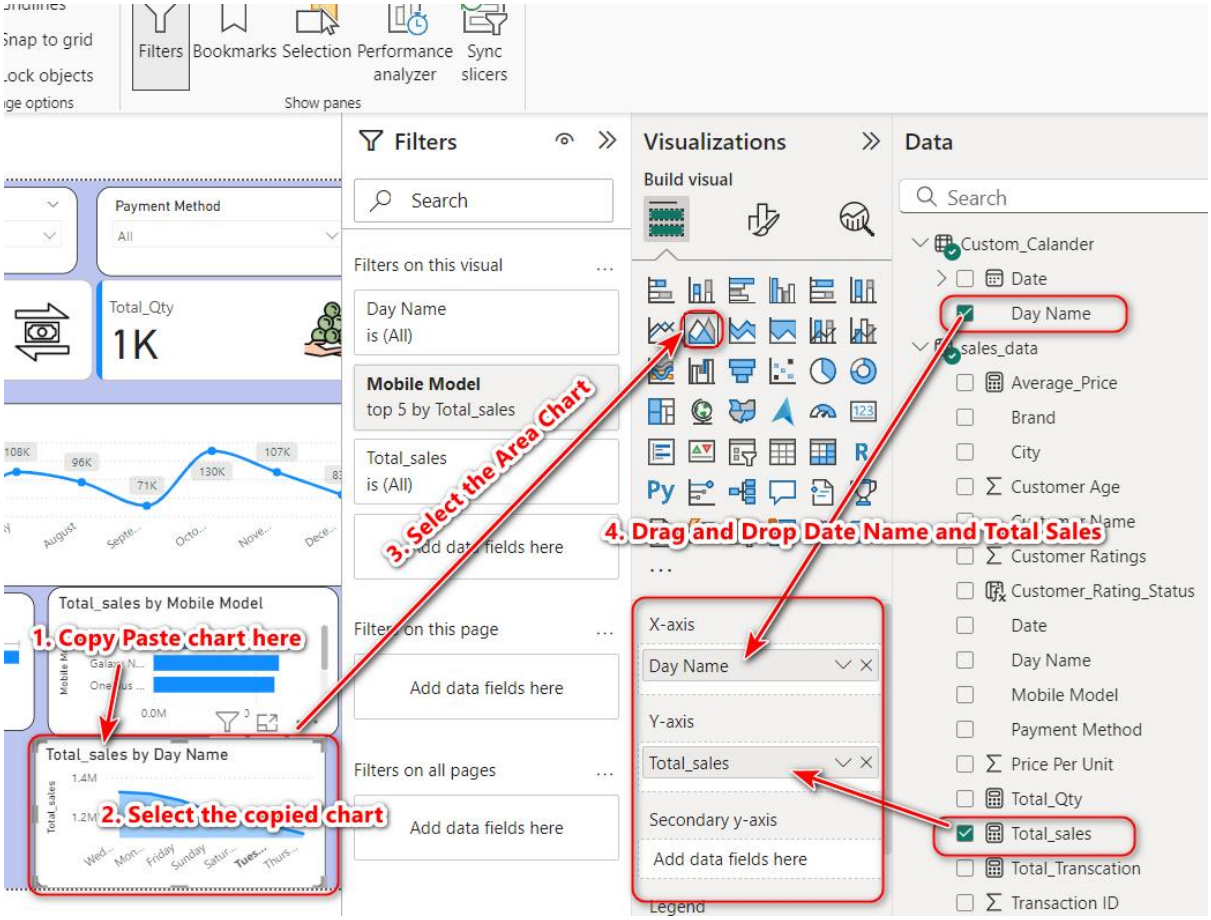
Area Chart

We want to show total sales by Day in Area Chart

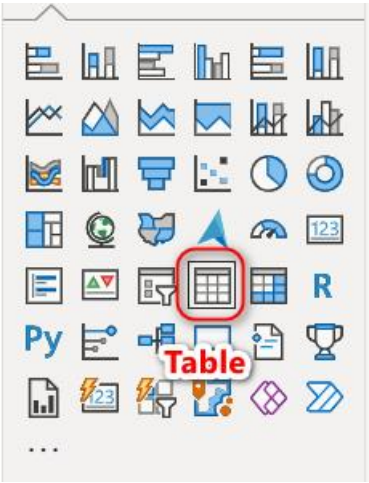
Copy and paste the same Bar Chart

➔Click on copied Bar chart ➔ Go to Visualizations➔Select Area Chart ➔That's All
X- Axis➔Day Name

Y-Axis ➔Total Sales

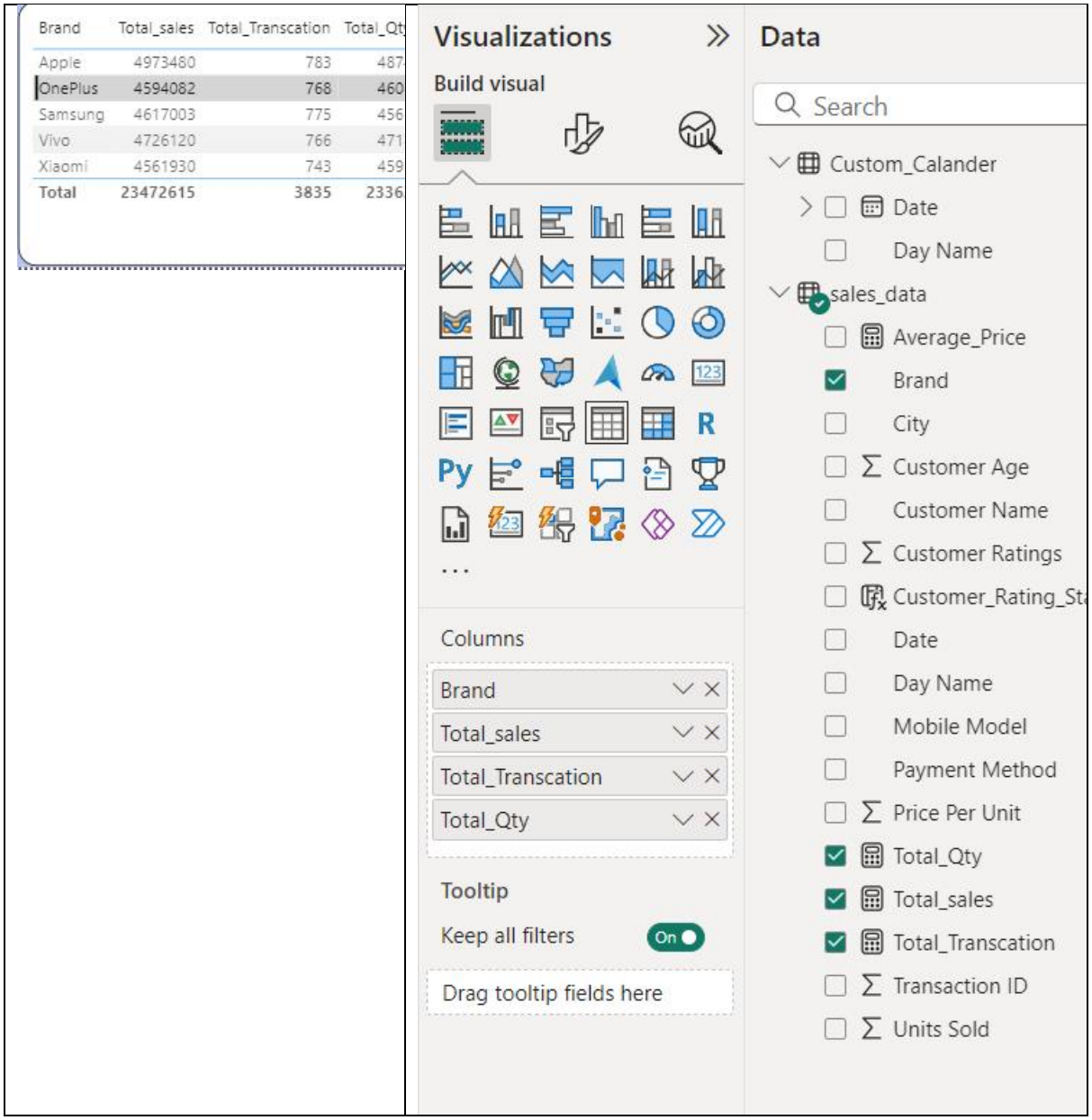


Table



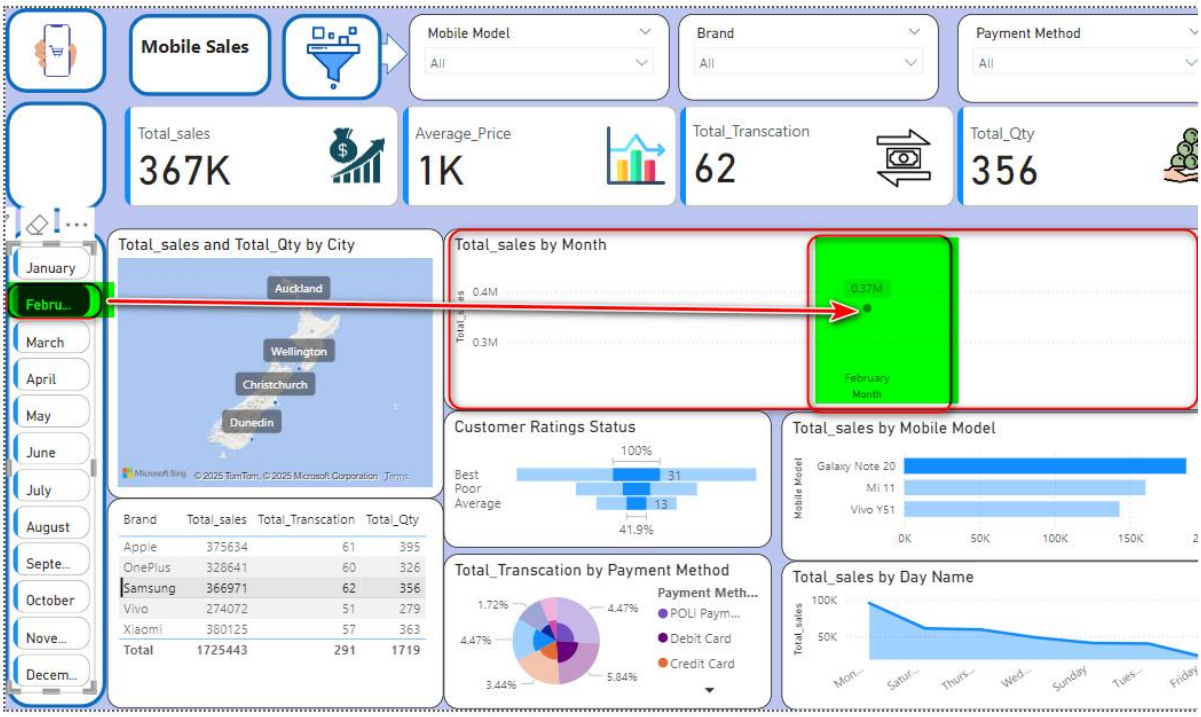
We want to **Show Brand, Total Sales, Transaction, Total Quantity**

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



Edit Interaction in Power BI

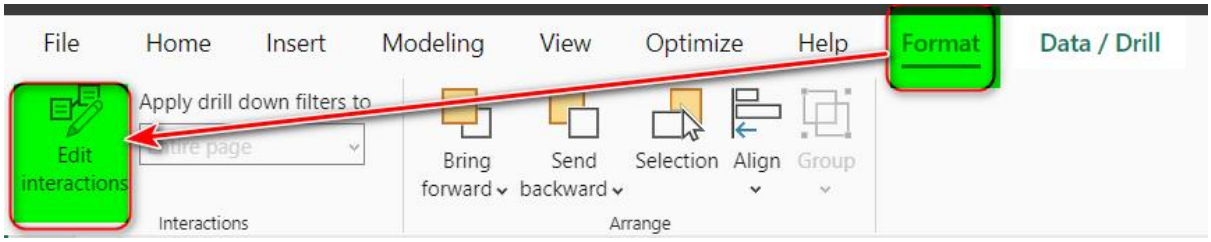
Note for Line chart every filter / slicer is working but the slicer on left hand side based on Month is not working . When we select the month e.g. Feb its just showing one dot in Feb only not a line chart.

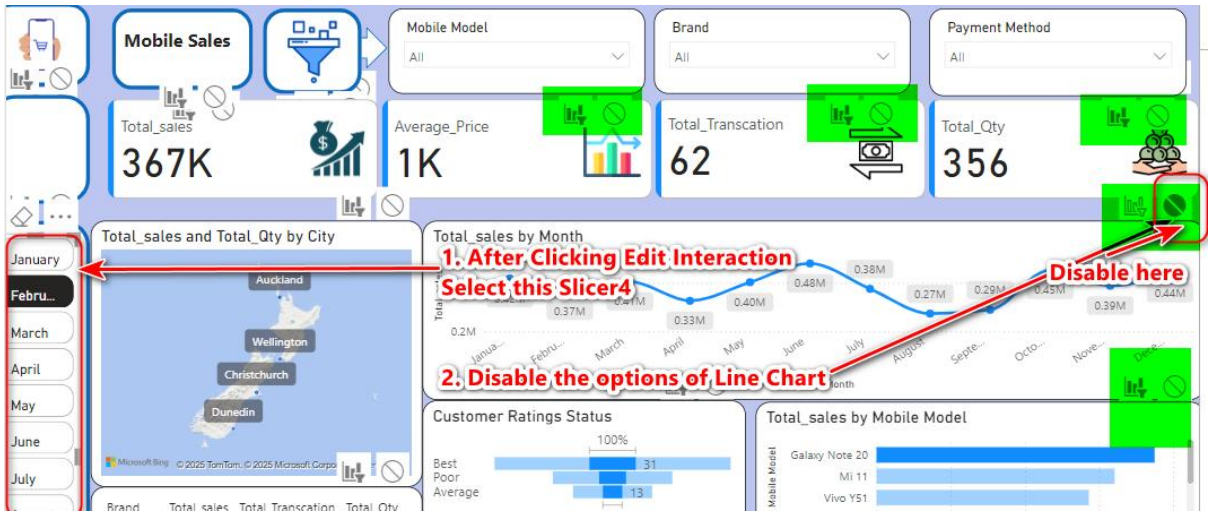


So that we need Edit Interaction and when we select that month “there shouldn’t any effect on line Chart”

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



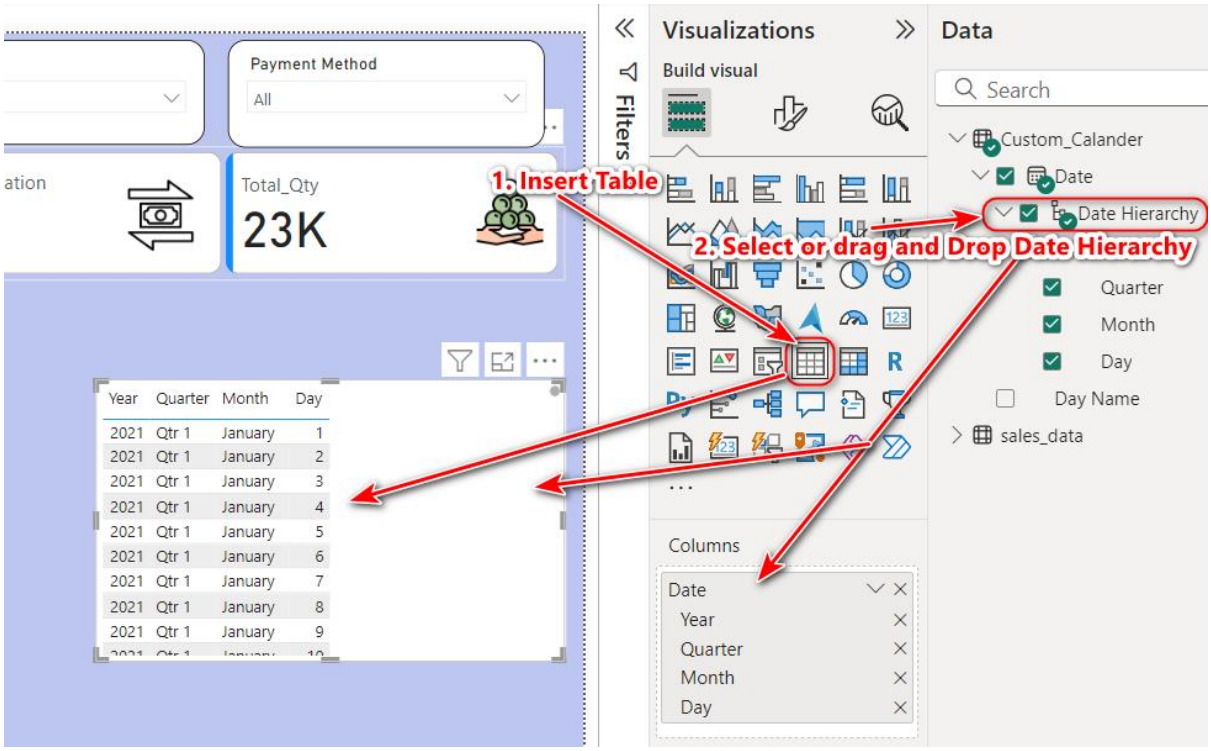


MTD QTD and YTD DAX Functions

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.**

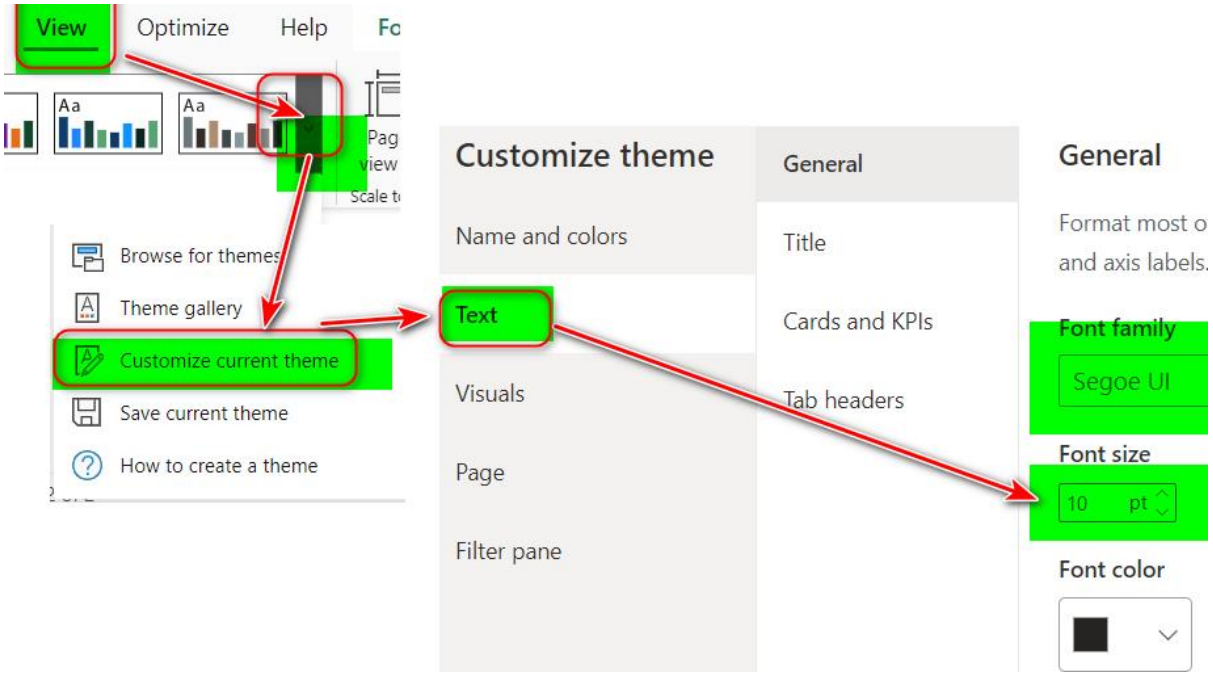
Note Formula for MTD, QTD and YTD is same just change name only in POwerBI

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

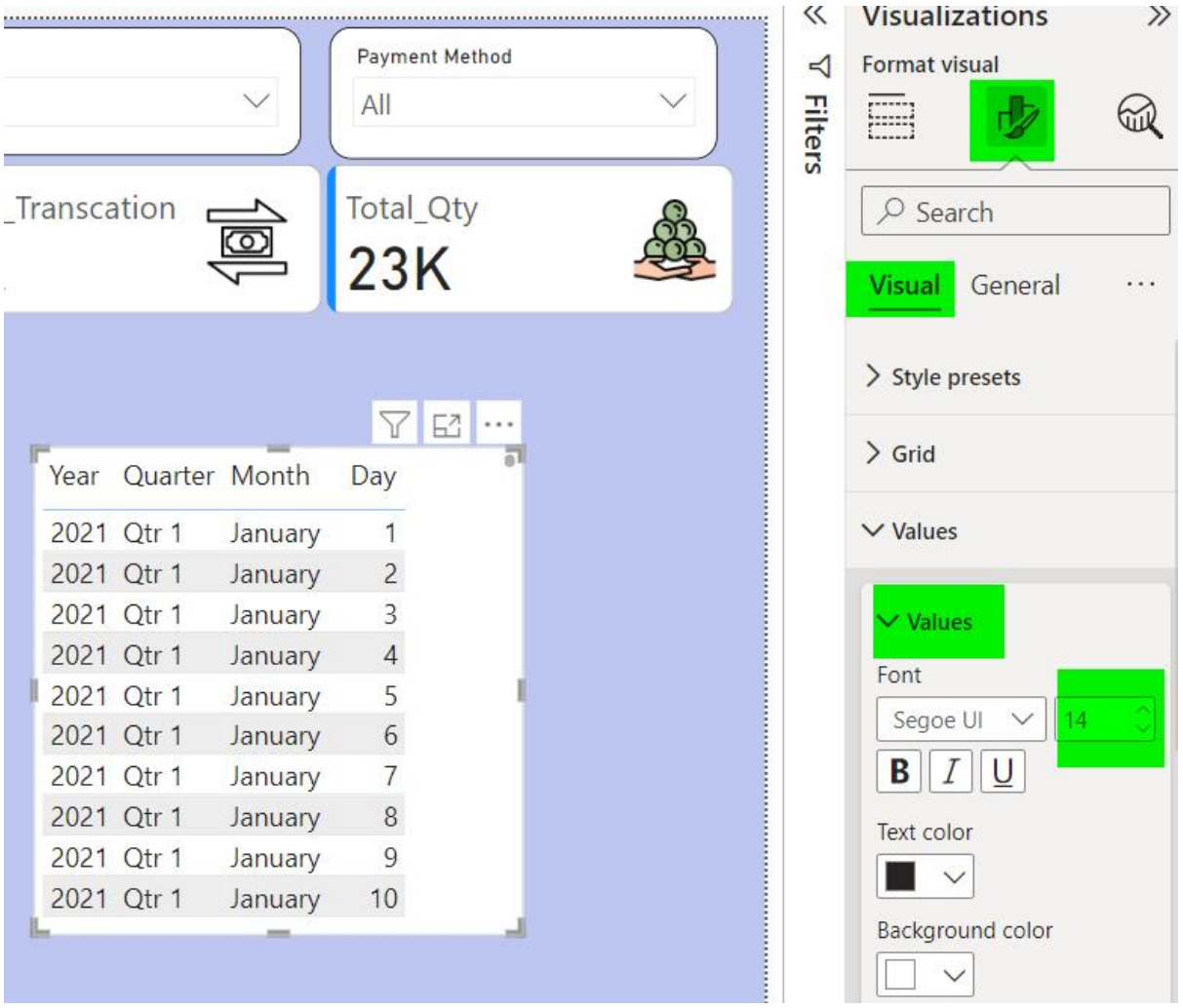


To Change Font Size

View➔Expand Theme➔Customize Current Theme➔Text➔General➔Font Size➔14



Just to change table value then Visual➔Values➔14



1. MTD (Month-to-Date)

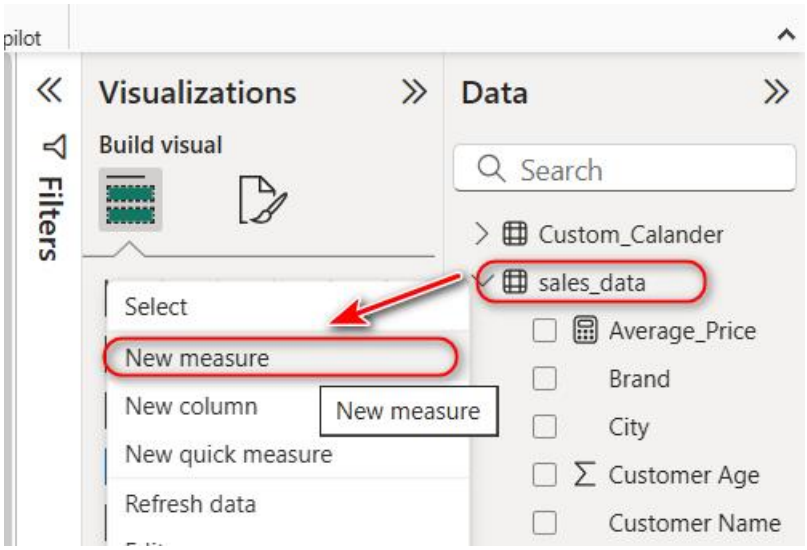
Calculates the cumulative value from the start of the current month to the current date.

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

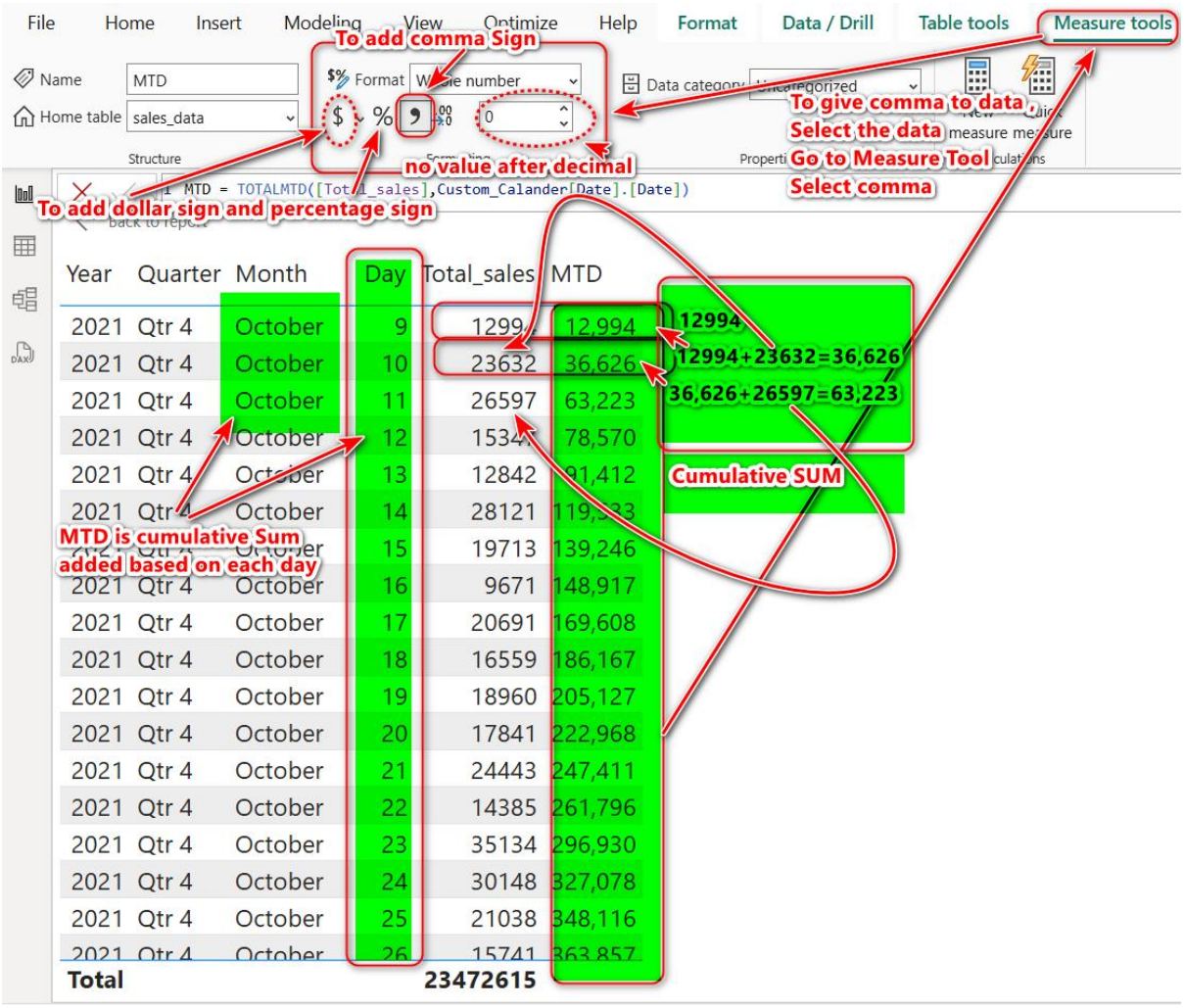
```
MTD = TOTALMTD([Total_sales],Custom_Calander[Date].[Date])
```

To give comma in any Data

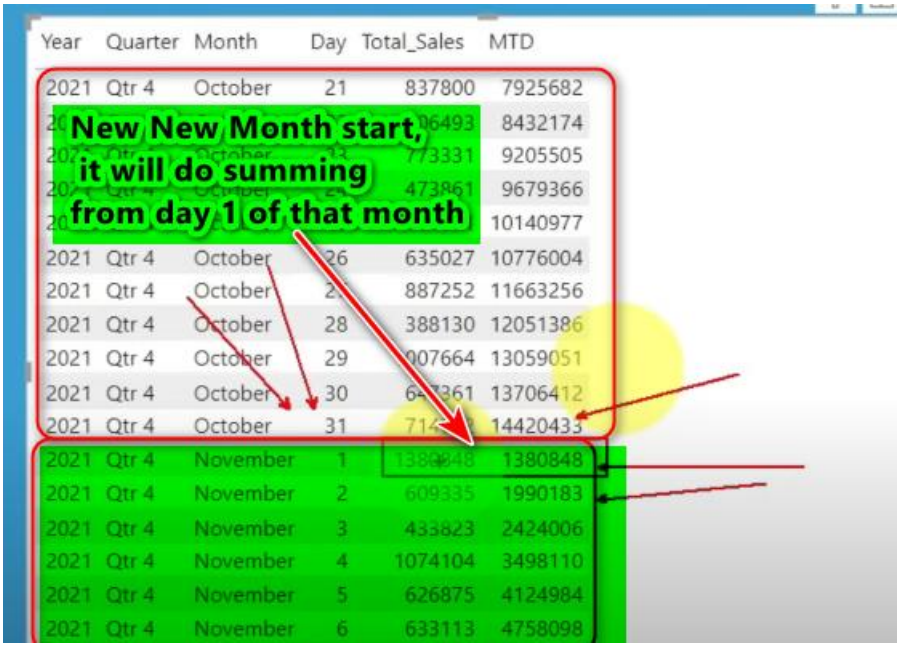
Select the data➔Go to Measure Tool➔Select comma

➔Select Auto to 0 for no decimal value

MTD is cumulative Sum added based on each day



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	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	714021	14420433
2021	Qtr 4	November	1	1380848	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:

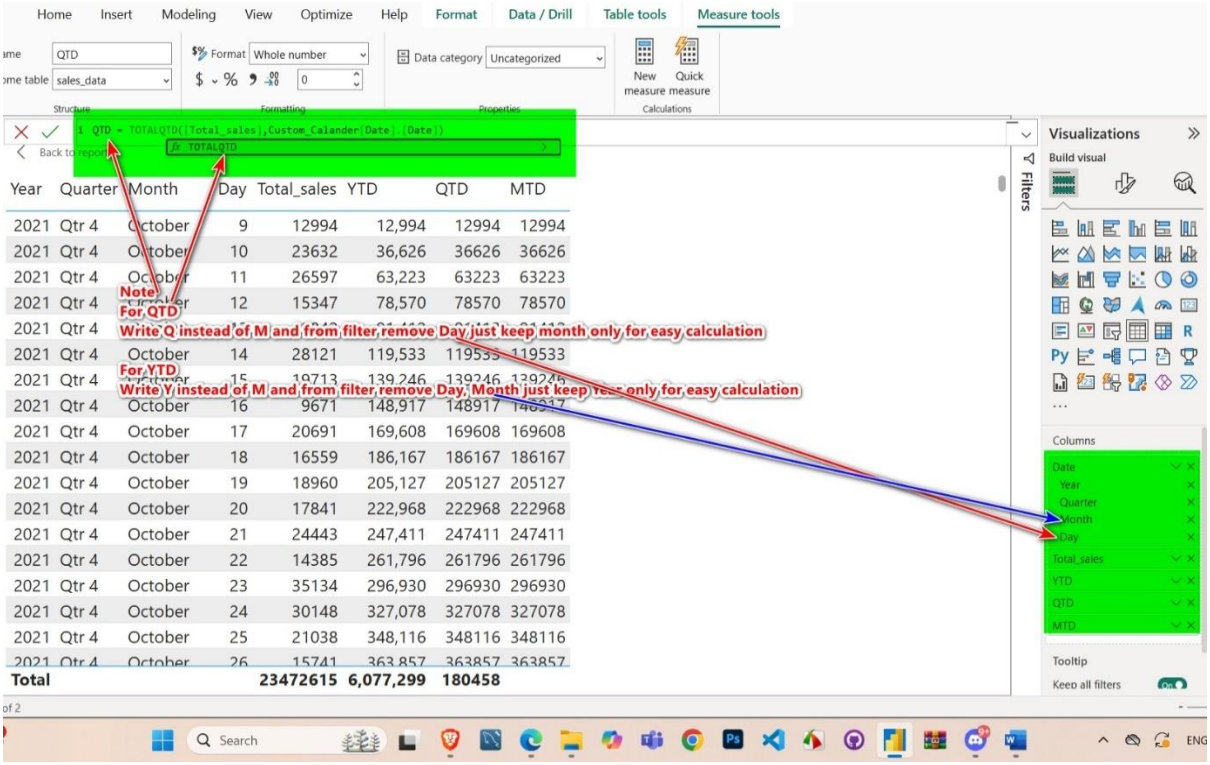
```
QTD_Sales = TOTALQTD(
    [Total Sales],          -- Measure or expression to aggregate
    'Date'[Date]            -- Date column from your date table
)
```

- `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	`MTD = TOTALMTD([Total_sales],Custom_Calander[Date].[Date])`
QTD	`QTD = TOTALQTD([Total_sales],Custom_Calander[Date].[Date])`
YTD	`YTD = TOTALYTD([Total_sales],Custom_Calander[Date].[Date])`

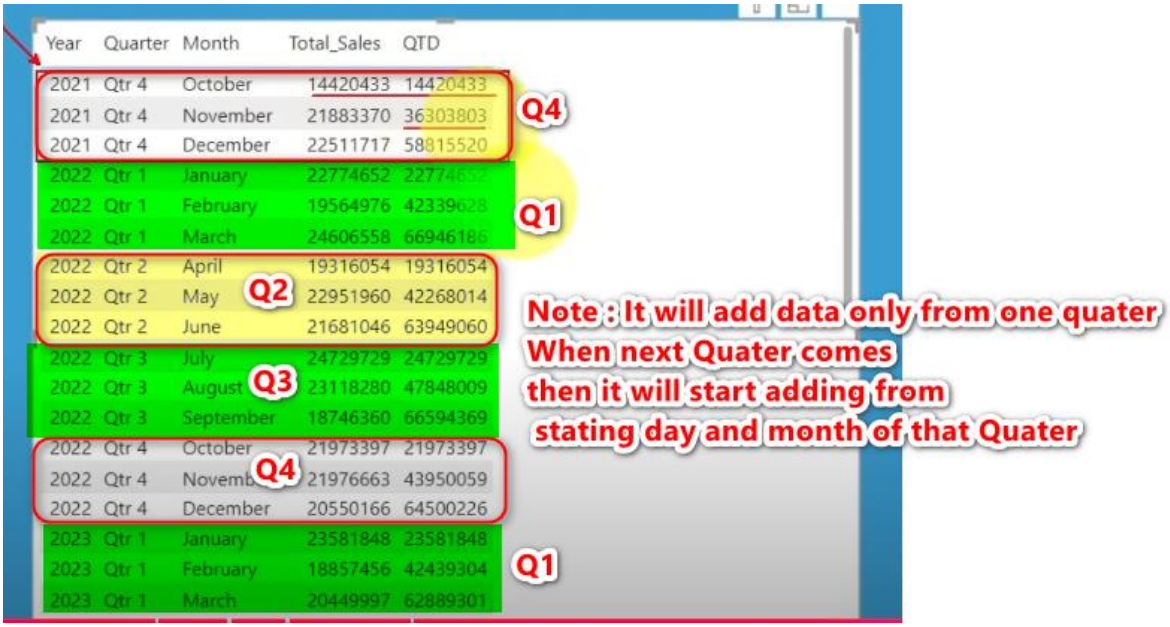


Note : It will add data only from one quater

When next Quater comes

then it will start adding from

stating day and month of that Quarter



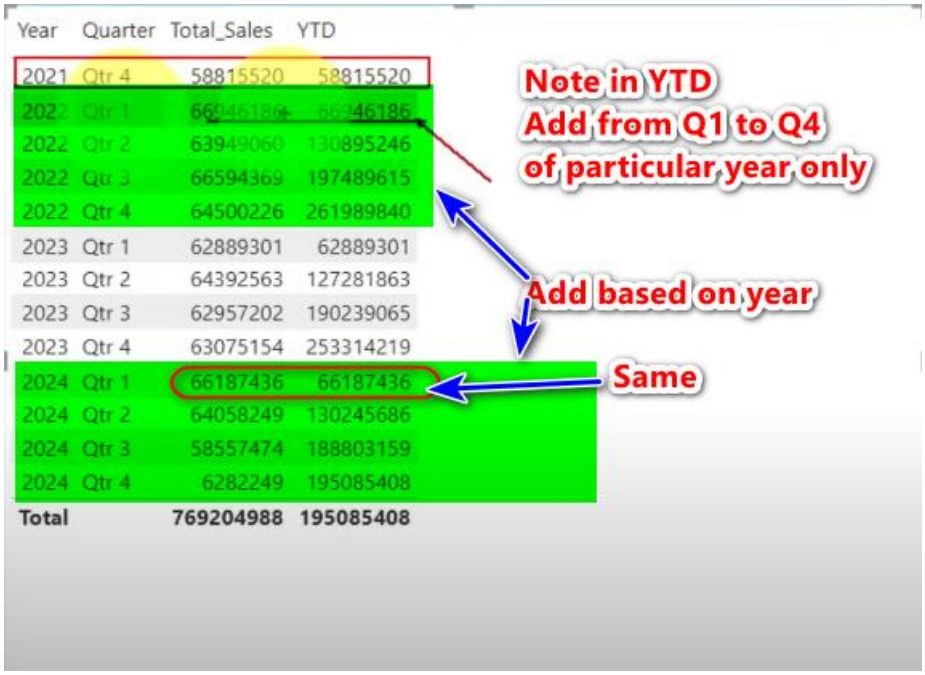
3. YTD (Year-to-Date)

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

DAX Function:

```
YTD_Sales = TOTALYTD(
    [Total Sales],          -- Measure or expression to aggregate
    'Date'[Date],           -- Date column from your date table
    "12/31"                 -- 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.



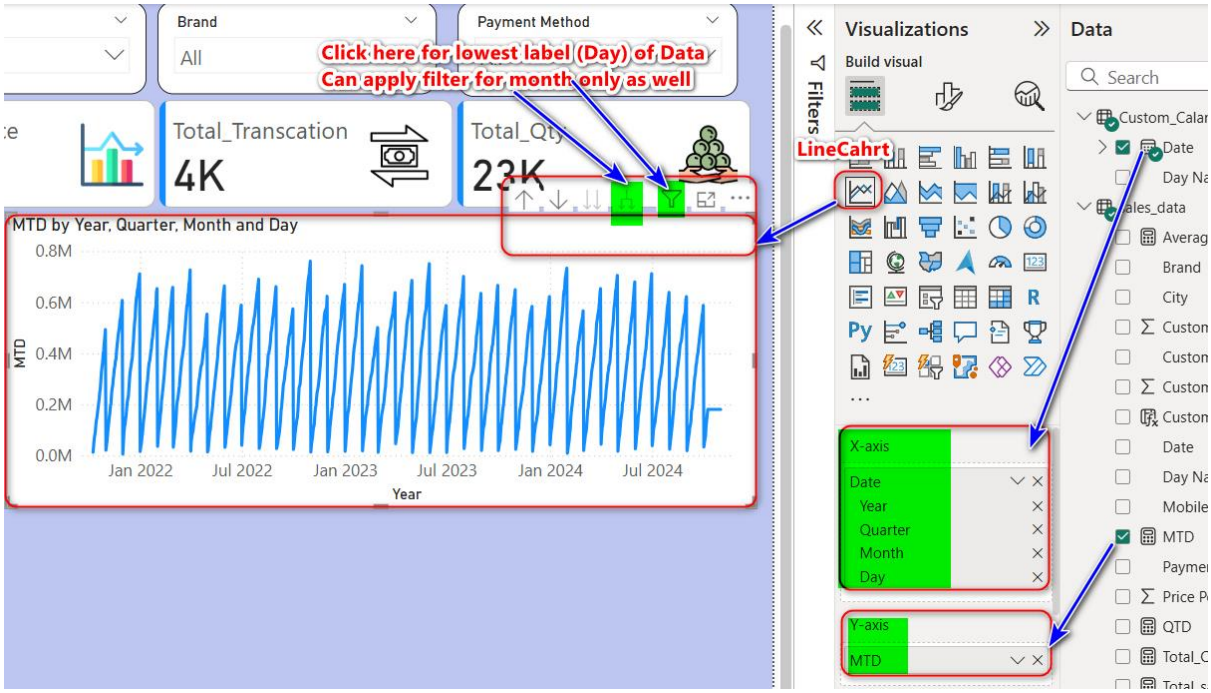
Additional Considerations:

- **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],
```

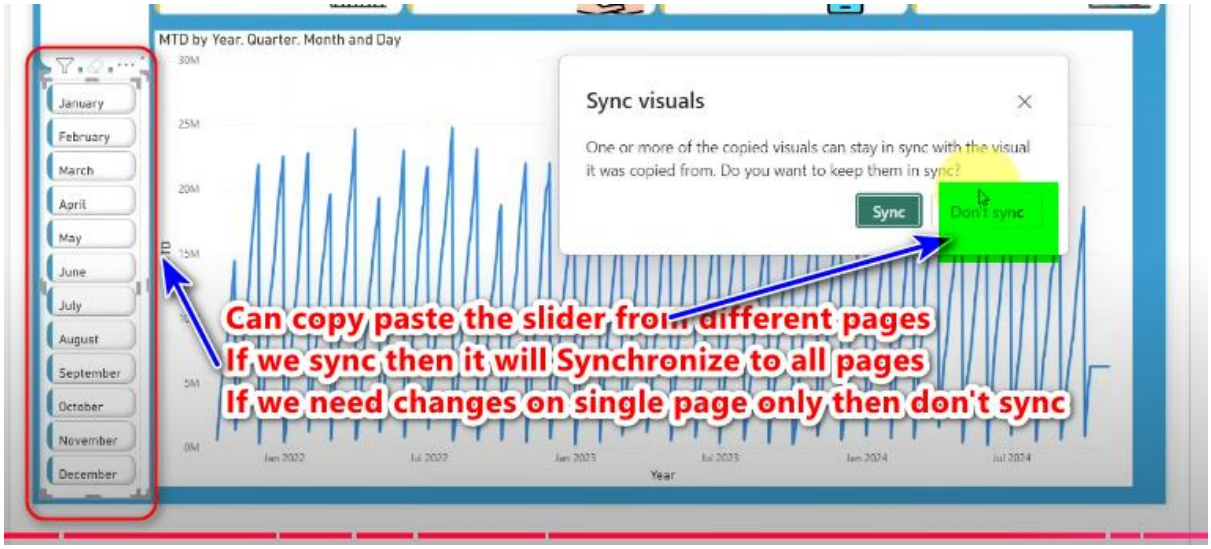
```
    DATESYTD('Date'[Date], "06/30")  -- Example: Fiscal year ends on
June 30
)
```

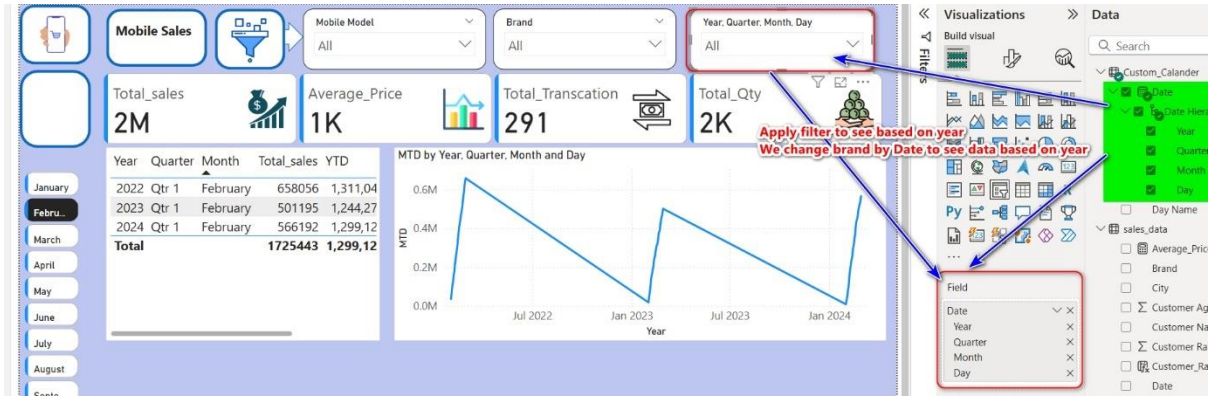
Adding Line Chart for MTD

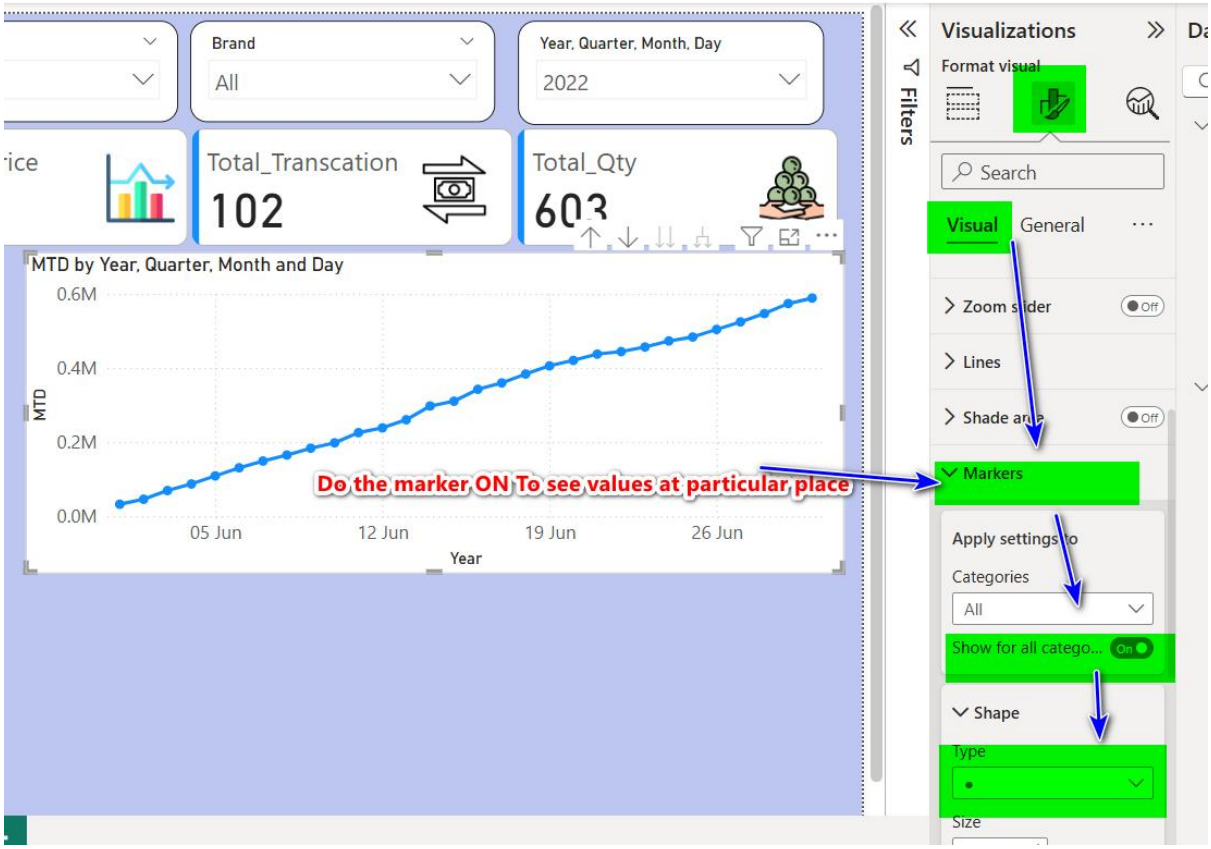


Can copy paste the slider from different pages➔ If we sync then it will Synchronize to all pages ➔

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, 20222, 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]))
```

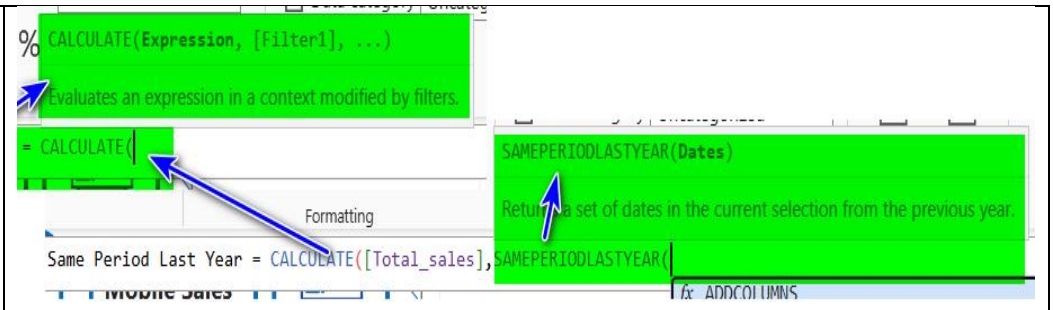
How to use DAX formula in multiple line then use ➔ **ALT + ENTER**

We use calculate formaula

Syntax of Calcualte
Calculate (Expression, filter)
Expression➔Total_sales
Filter we use
SAMEPERIODLASTYEAR

Syntax of SAME PERIOD LAST YEAR

SAMEPERIODLASTYEAR(date)



Same Period last year o December

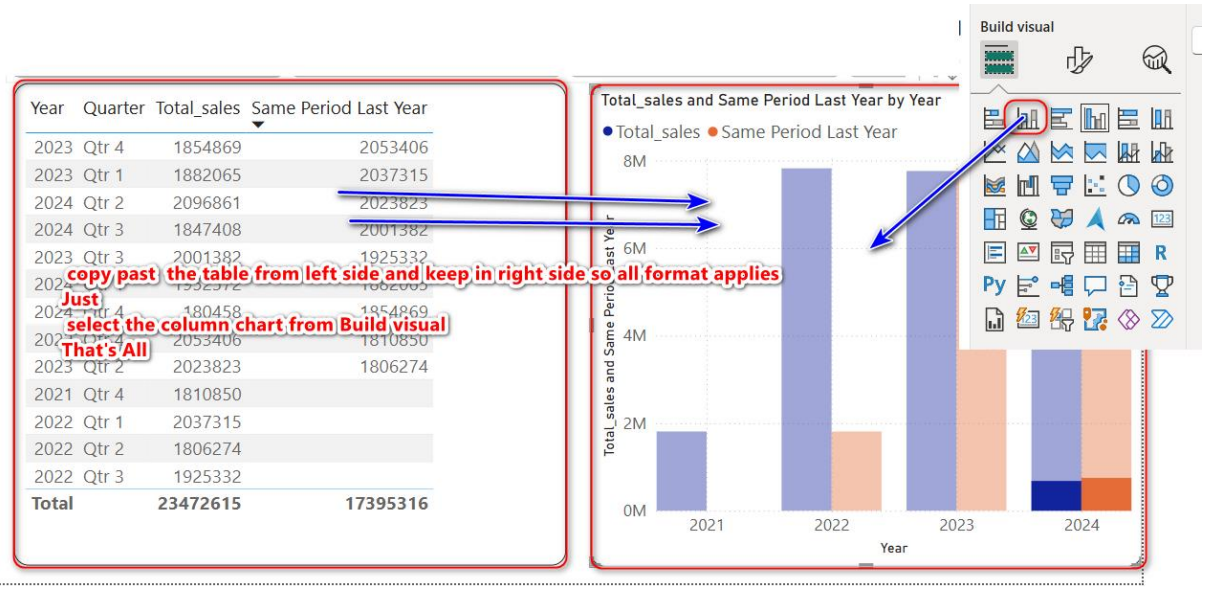
Year	Quarter	Month	Total_sales	Same Period Last Year
2022	Qtr 4	December	669630	710602
2023	Qtr 4	December	622021	669630
2024	Qtr 4	December		622021
2021	Qtr 4	December	710602	
Total			**2002253**	**2002253**

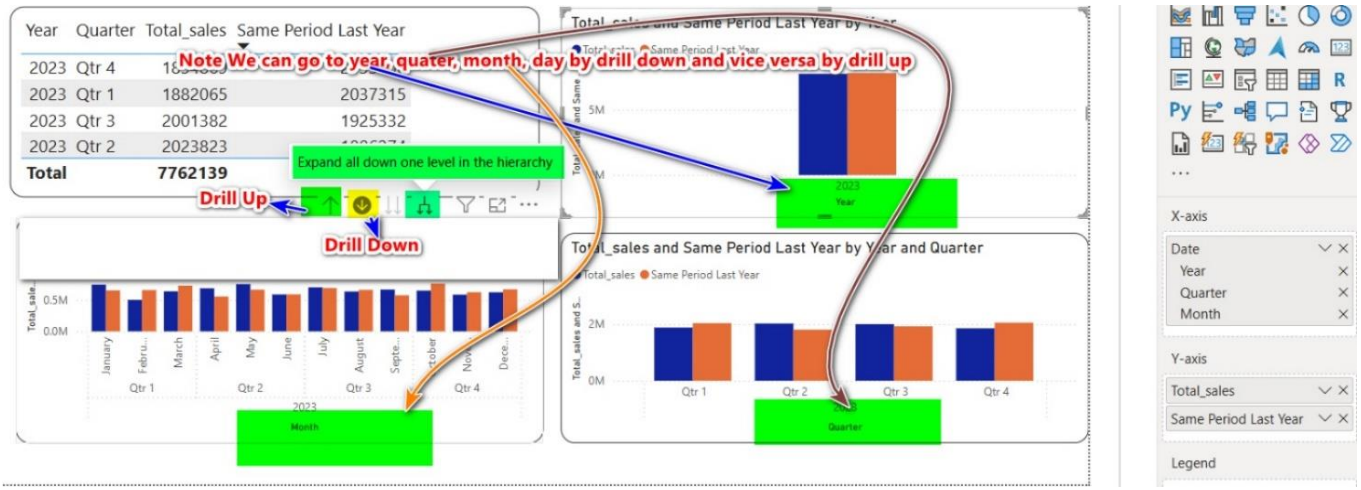
Year	Quarter	Total_sales	Same Period Last Year
2023	Qtr 4	1854869	2053406
2023	Qtr 1	1882065	2037315
2024	Qtr 2	2096861	2023823
2024	Qtr 3	1847408	2001382
2023	Qtr 3	2001382	1925332
2024	Qtr 1	1952572	1882065
2024	Qtr 4	180458	1854869
2022	Qtr 4	2053406	1810850
2023	Qtr 2	2023823	1806274
2021	Qtr 4	1810850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

Compare the sale between last year and the current year

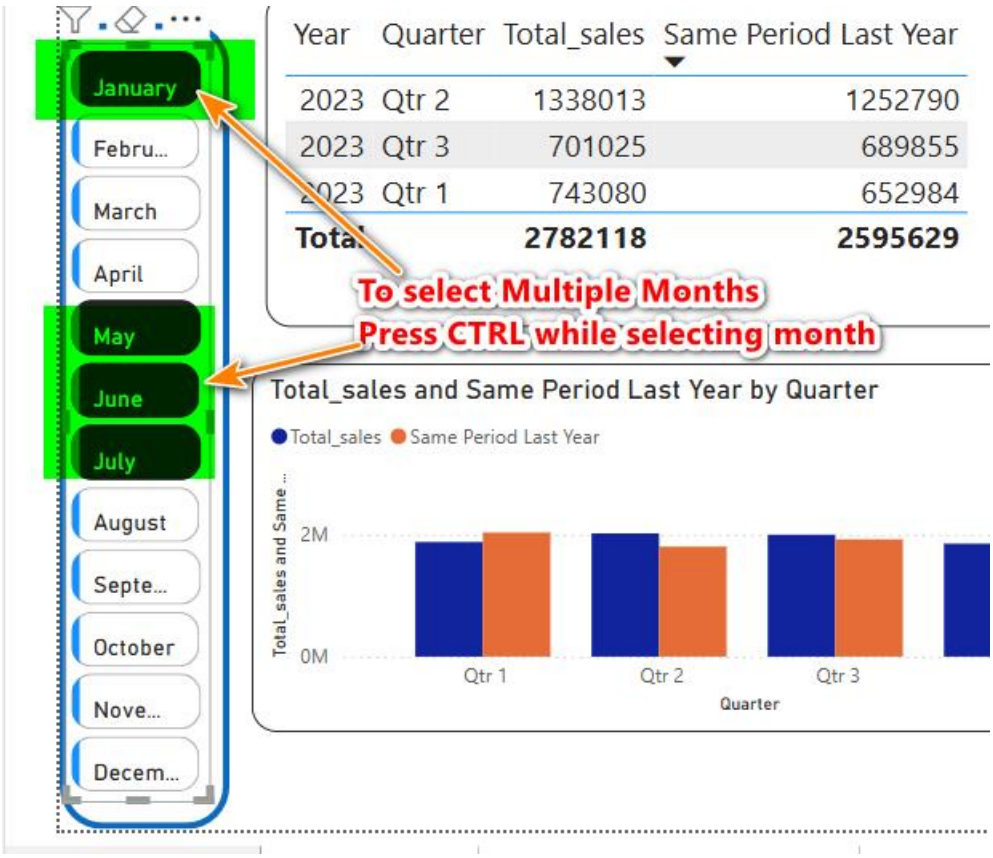
This means there is no sale in last year in that qater , month , or day

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


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 4 180458 1854869
2023 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
Total 23472615 17395316
copy past the table from left side and keep in right side so all format applies
Just
select the column chart from Build visual
That's All
Total_sales and Same Period Last Year by Year
Total_sales
Same Period Last Year
8M
6M
4M
2M
0M
Total_sales and Same Period Last Year
2021
2022
2023
2024
Year
Build visual

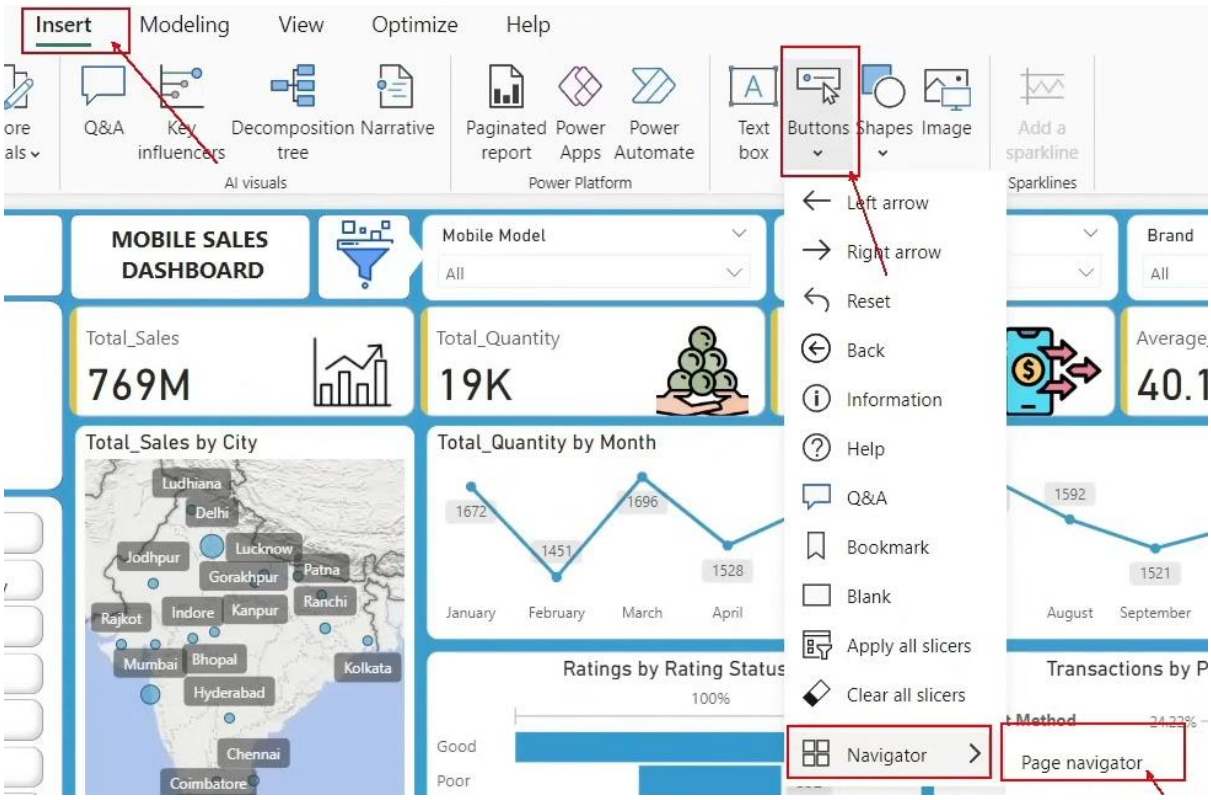

Year Quarter Total_sales Same Period Last Year
2023 Qtr 4
2023 Qtr 1 1882065 2037315
2023 Qtr 3 2001382 1925332
2023 Qtr 2 2023823
Total 7762139
Note We can go to year, quater, month, day by drill down and vice versa by drill up
Expand all down one level in the hierarchy
Drill Up
Drill Down
Total_sales and Same Period Last Year by Year and Quarter
Total_sales
Same Period Last Year
Qtr 1
Qtr 2
Qtr 3
Qtr 4
Quarter
X-axis
Date
Year
Quarter
Month
Y-axis
Total_sales
Same Period Last Year
Legend

To select Multiple Months Press CTRL while selecting month



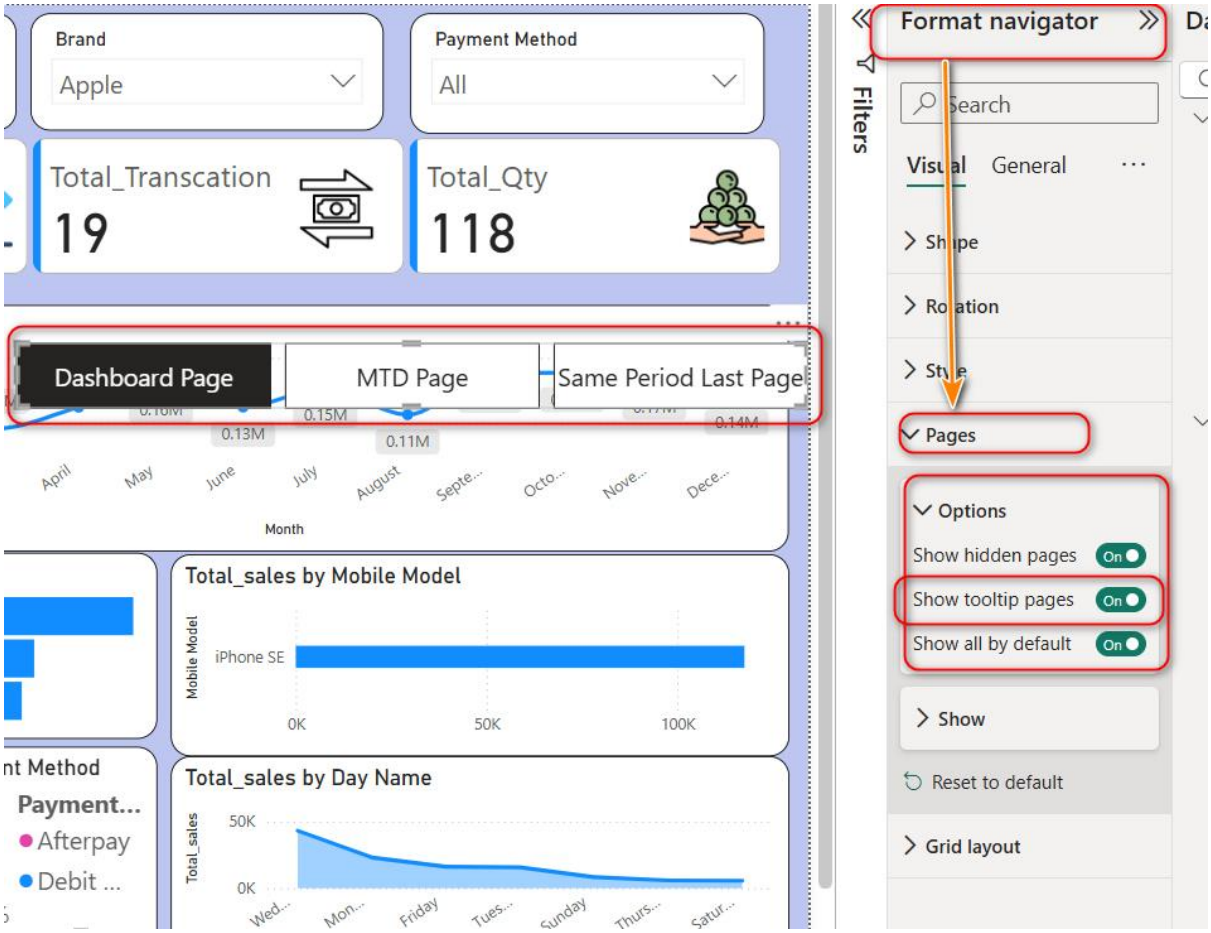
To Add Navigator / Buttons

Go to Insert Menu➔ Buttons➔Navigator➔Page Navigator



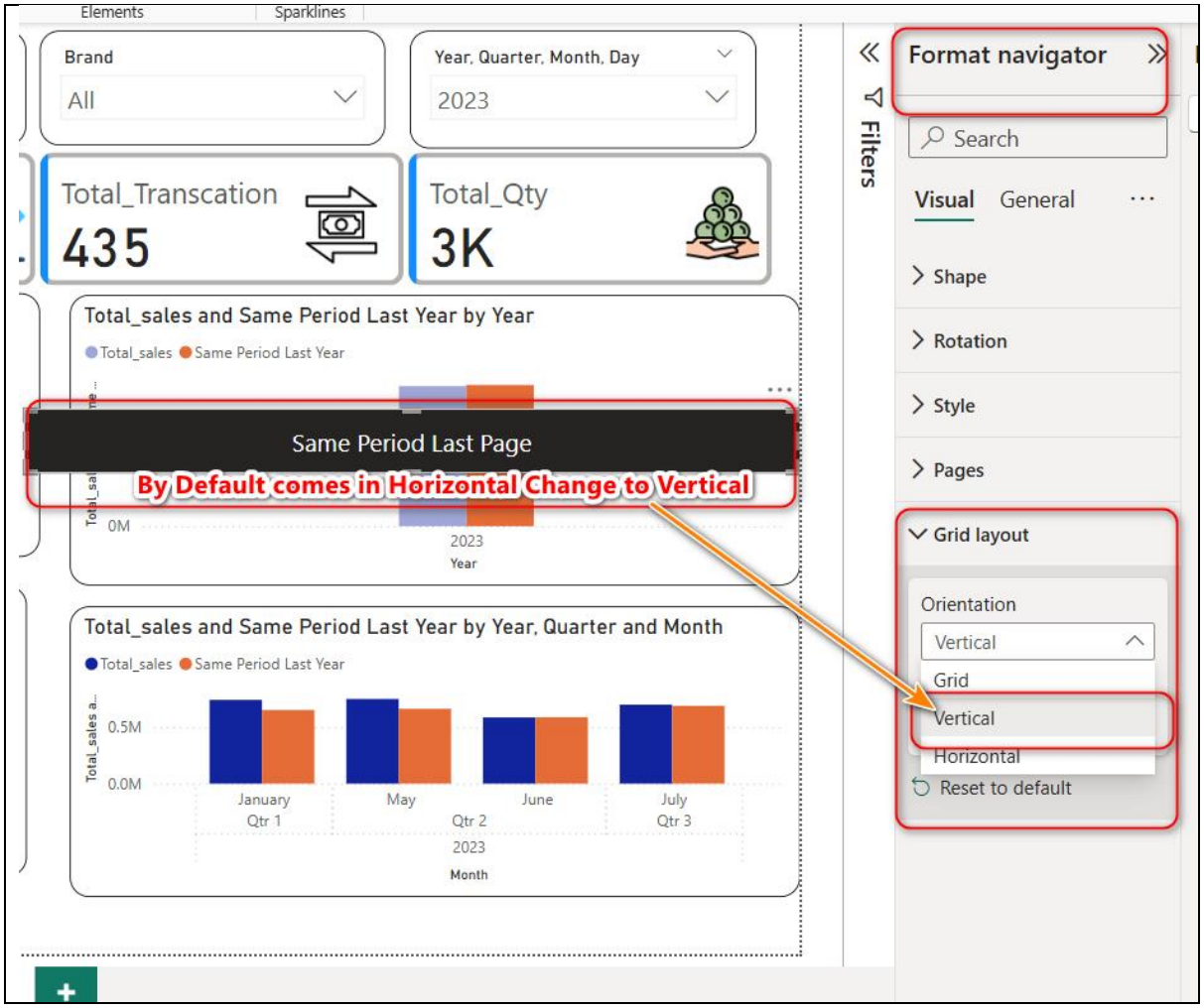
Note Sometimes will only come **one page only** In that case

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



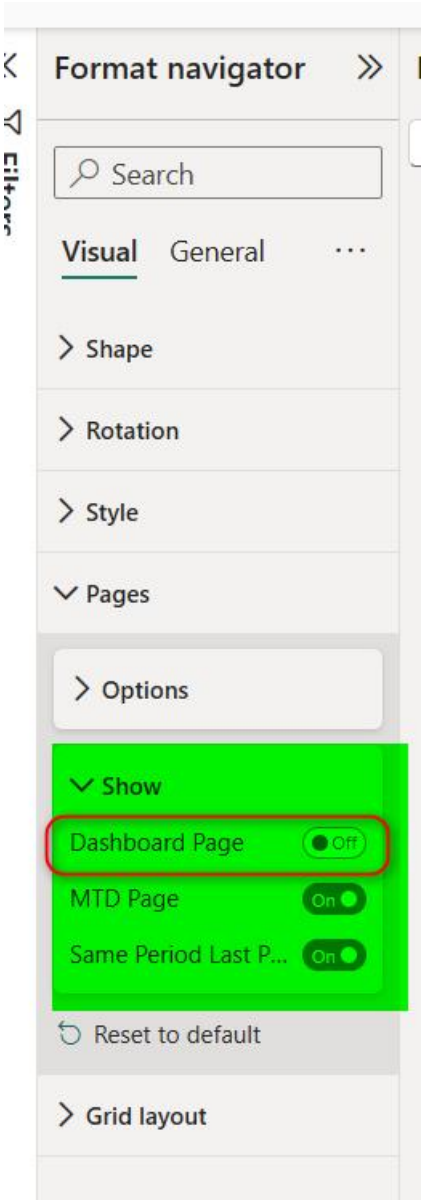
It comes by default in horizontal .

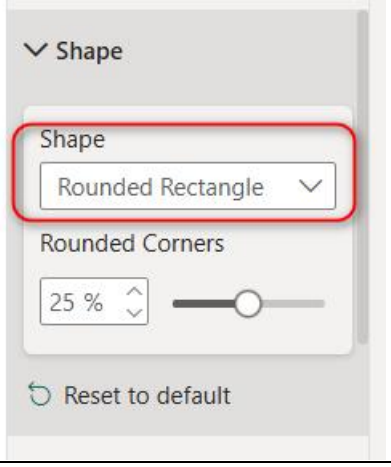
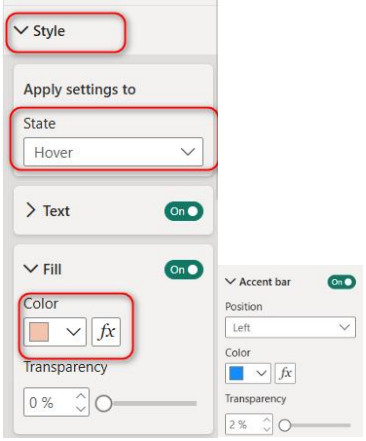
We can go to Format Navigator ➔Grid Layout➔orientation➔Vertical, horizontal, Grid (we can choose as per requirement)



If we are in Dash board 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 ancent bar 	

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

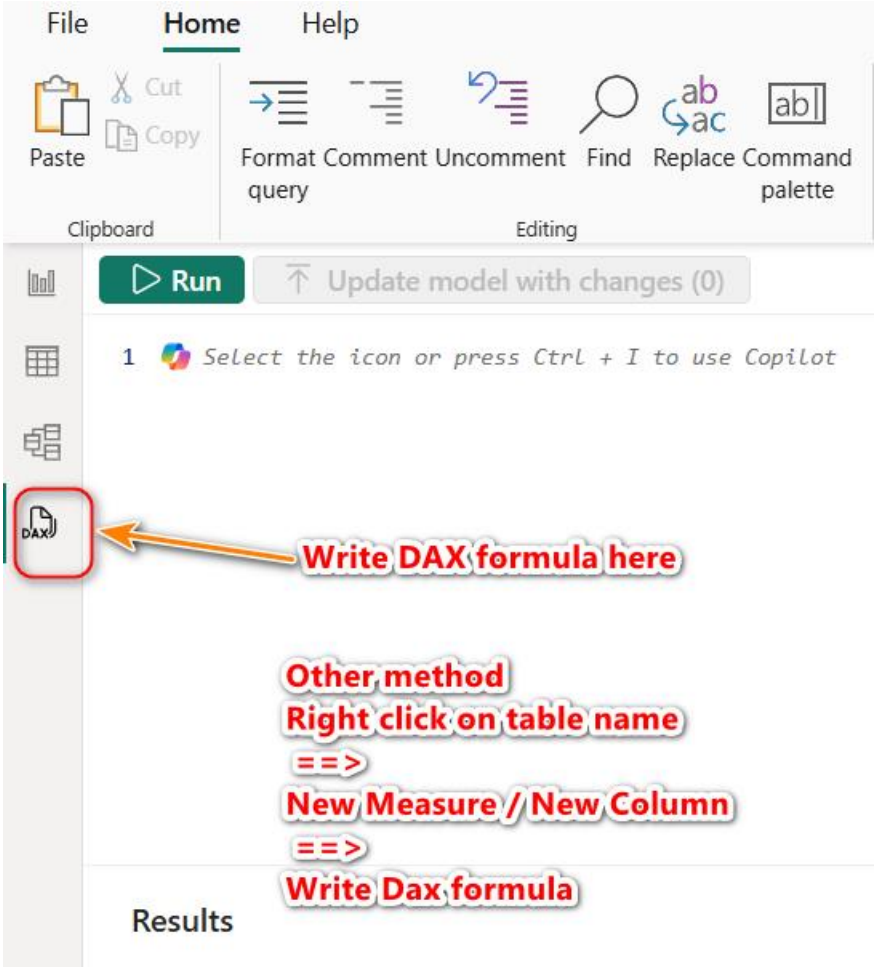
How to click on buttons

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

DAX Query

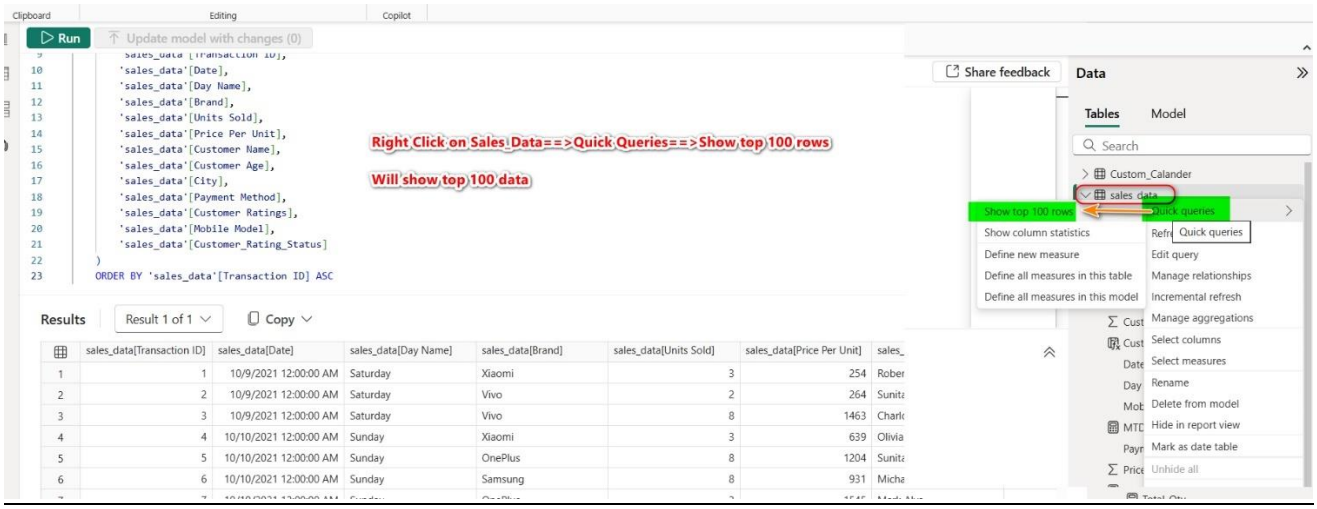
DAX (**Data Analysis Expressions**) is used to create custom calculations for your reports.

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 ➔



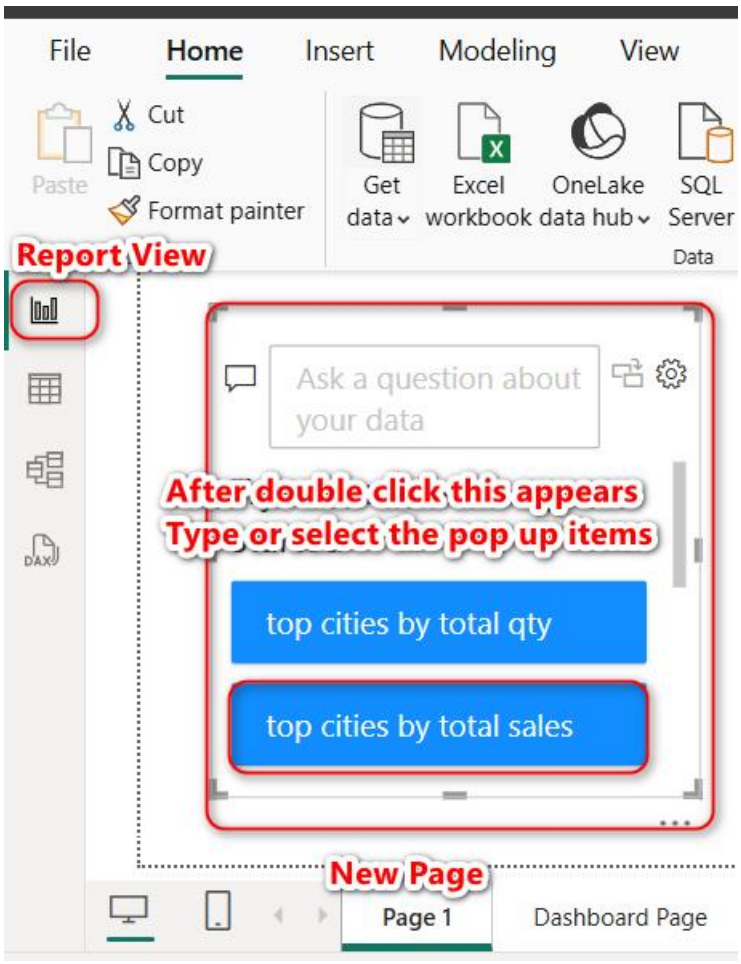
	sales_data[Transaction ID]	sales_data[Date]	sales_data[Day Name]	sales_data[Brand]	sales_data[Units Sold]	sales_data[Price Per Unit]	sales_
1	1	10/9/2021 12:00:00 AM	Saturday	Xiaomi	3	254	Rober
2	2	10/9/2021 12:00:00 AM	Saturday	Vivo	2	264	Sunita
3	3	10/9/2021 12:00:00 AM	Saturday	Vivo	8	1463	Charl
4	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	Sunita
6	6	10/10/2021 12:00:00 AM	Sunday	Samsung	8	931	Micha

```
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
```

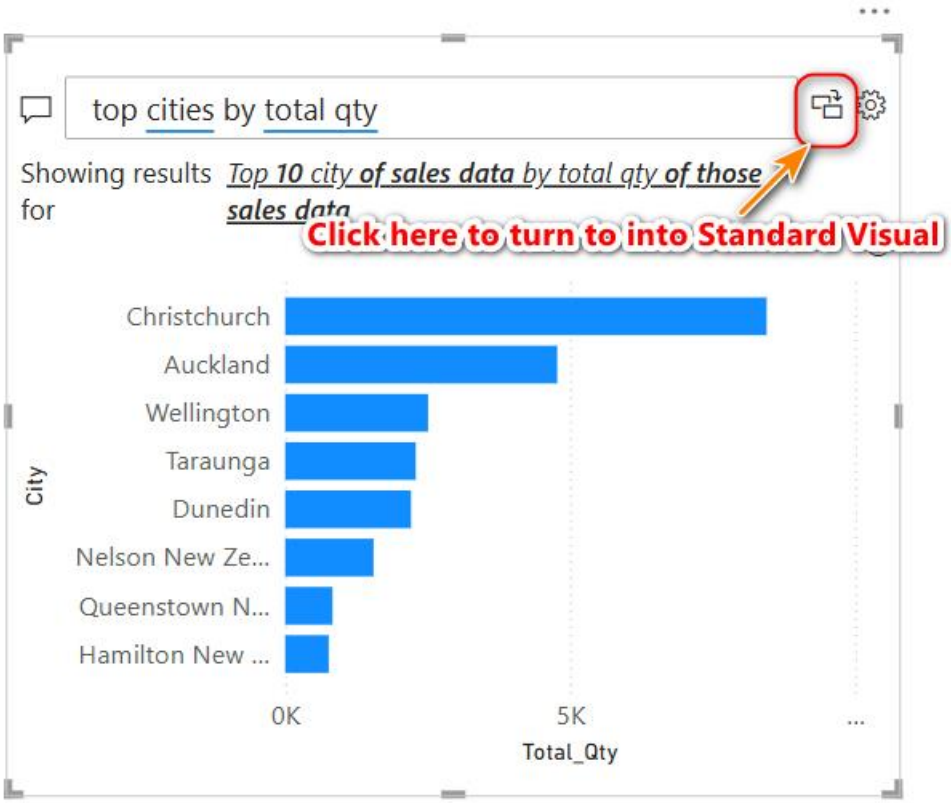
Similar to SQL practice more

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.


File
Home
Insert
Modeling
View
Cut
Copy
Format painter
Paste
Get data
Excel workbook
OneLake data hub
SQL Server
Data
Report View
Ask a question about your data
After double click this appears
Type or select the pop up items
top cities by total qty
top cities by total sales
New Page
Page 1
Dashboard Page

Can change QA to standard visual



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