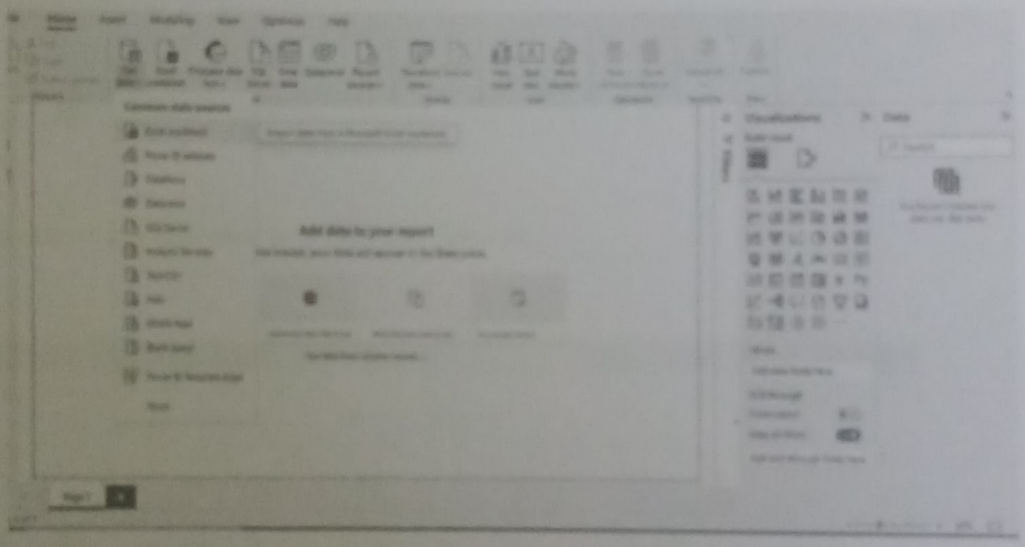
EXP NO: 7	PREPARE & LOAD DATA USING POWER BI
DATE: 22/7/24	

AIM:

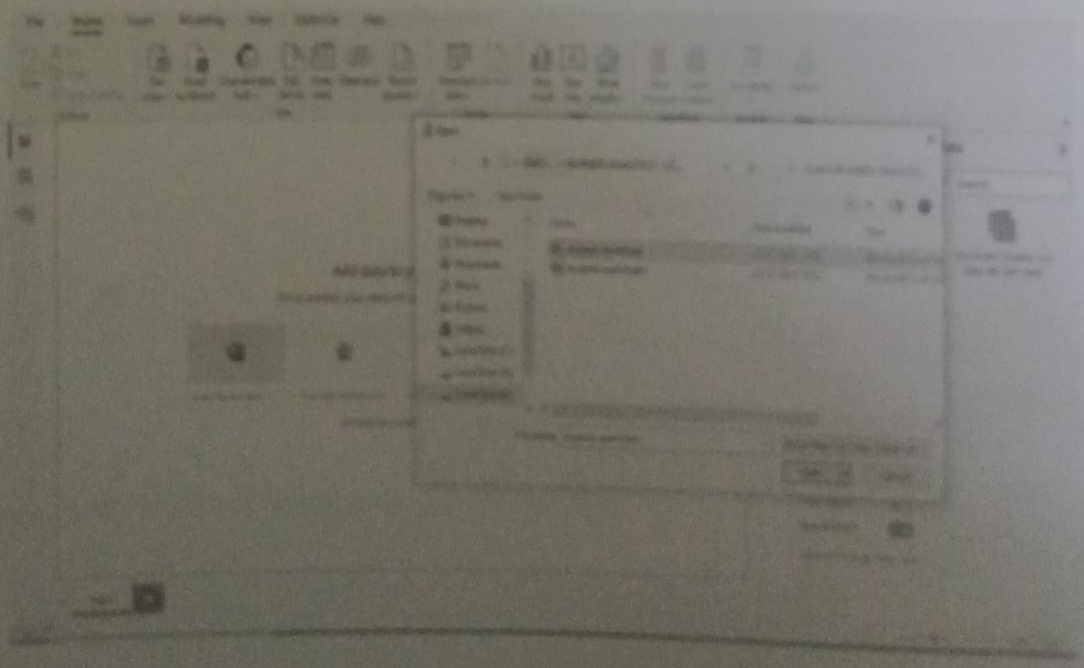
To Prepare & Load data Using Power Bi

PROCEDURE:

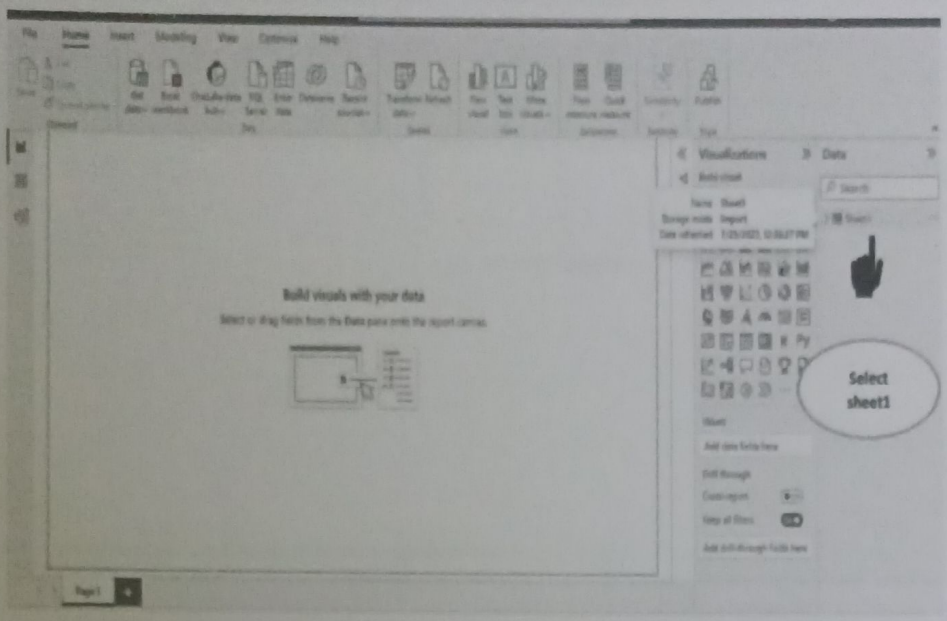
Step 1: Open Power bi application



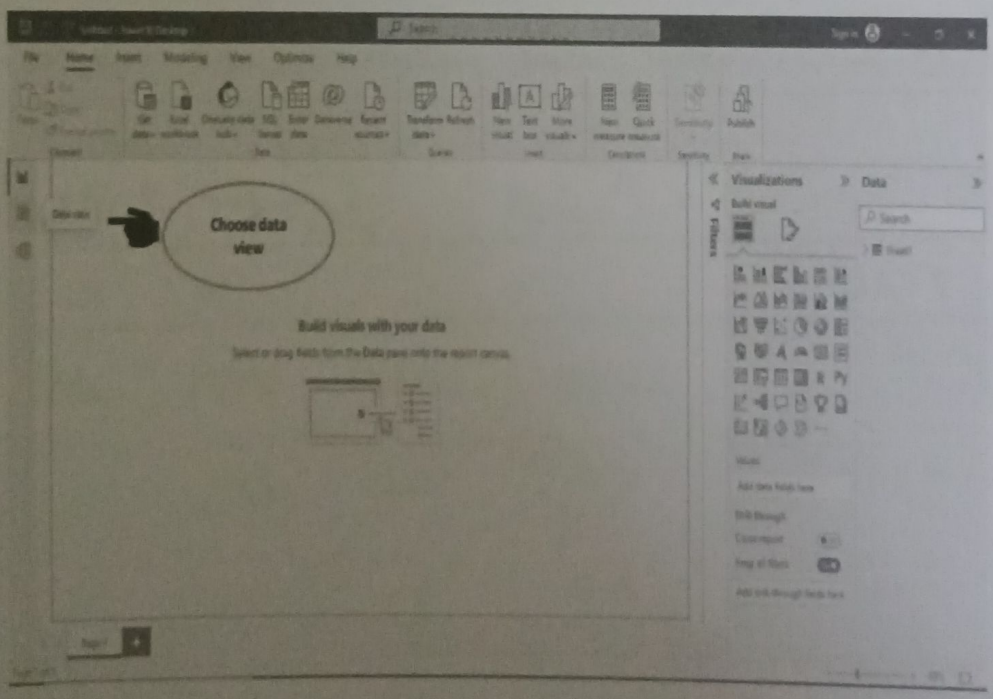
Step 2: Seleect the data set to load in Power bi application



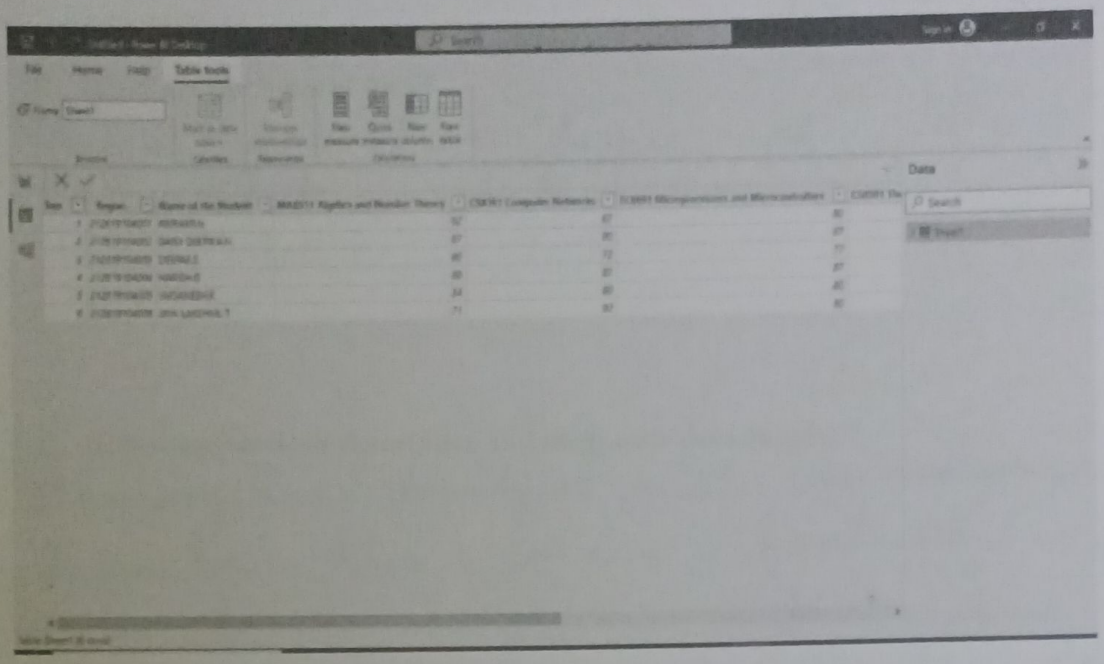
Step 3: The loaded data set will be displayed on screen.



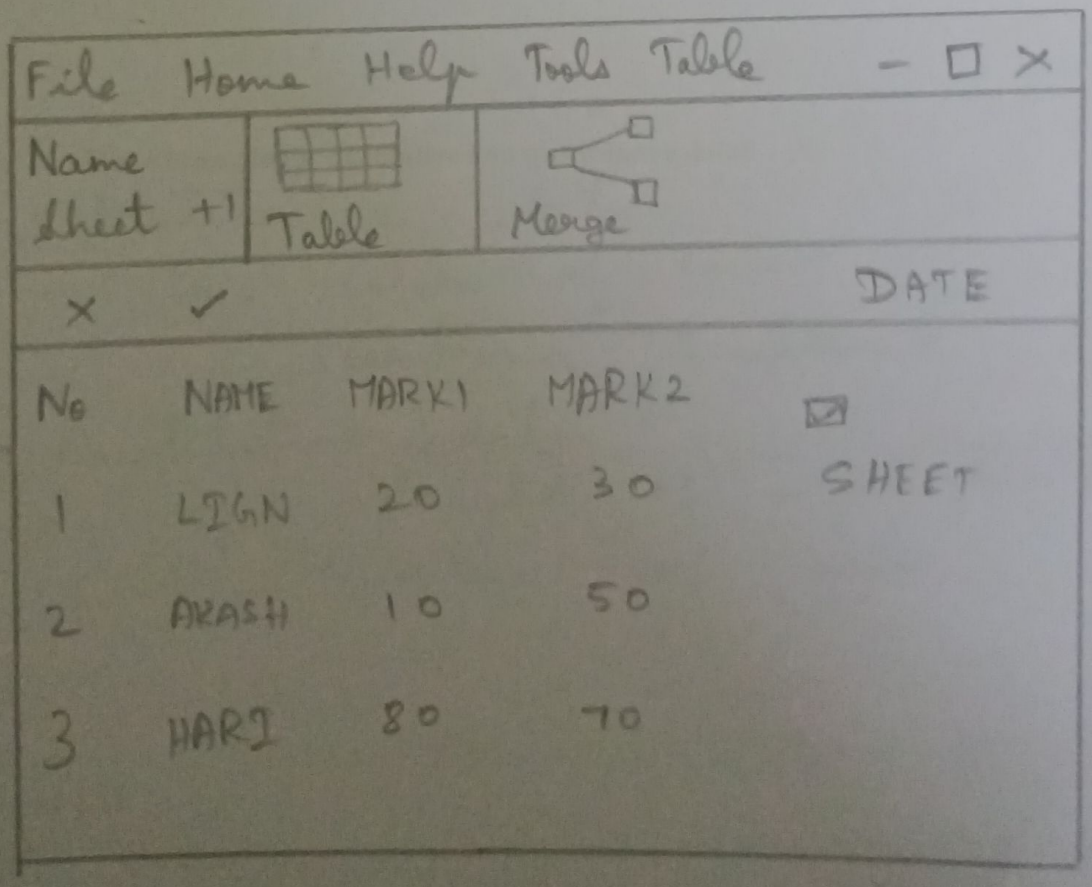
Step 4: choose the data view to display you data set.



Step 5: Data set will be displayed and close the application.



OUTPUT:


File Home Help Tools Table
Name sheet +1
Table
Merge
DATE
No NAME MARK1 MARK2
SHEET
1 LIGN 20 30
2 AKASH 10 50
3 HARI 80 70

EXP NO: 8(A)	PERFORM STATISTICAL OPERATIONS USING POWER BI [Mean, Median, Mode and Standard Deviation, Variance]
DATE: 29/7/24	

AIM:

To perform statistical operations like Mean, Median, Mode and Standard deviation, Variance Using Power Bi.

PROCEDURE:

Step 1 : Start the application Desktop power bi.

Step 2 : Create datasheet for student marks in application.

Sno	Regno	Name of the Student	MA8551 Algebra and Number Theory	CS8591 Computer Networks	EC8691 Microprocessors and Microcontrollers	CS8501 Theory of Computation	CS8592 Object Oriented Analysis and	OMD551 Basic of Biomedical Instrumentation
1	212619104001	ABIRAMI N	92	87	80	87	84	87
2	212619104002	DAISY DEEPIKA N	87	80	87	80	87	80
3	212619104003	DEEPAK S	80	72	77	87	80	87
4	212619104004	HARISH G	80	87	87	80	80	80
5	212619104005	JAIGANESH K	34	80	80	50	75	87
6	212619104006	JAYA LAKSHMI T	71	92	80	80	75	80

Step 3: calculate Mean, Median, Mode and Standard deviation, Variance

Step 4: your output will be displayed.

Sno	Regno	Name of the Student	MA8551 Algebra and Number Theory	CS8591 Computer Networks	EC8691 Microprocessors and Microcontrollers	CS8501 Theory of Computation	CS8592 Object Oriented Analysis and Design	OMD551 Basic of Biomedical Instrumentation
1	212619104001	ABIRAMI N	92	87	80	87	84	87
2	212619104002	DAISY DEEPIKA N	87	80	87	80	87	80
3	212619104003	DEEPAK S	80	72	77	87	80	87
4	212619104004	HARISH G	80	87	87	80	80	80
5	212619104005	JAIGANESH K	34	80	80	50	75	87
6	212619104006	JAYA LAKSHMI T	71	92	80	80	75	80

	Column1
Mean	74
Standard Error	8.512735557
Median	80
Mode	80
Standard Deviation	20.85185843
Sample Variance	434.8
Kurtosis	3.733266953
Skewness	-1.838637384
Range	58
Minimum	34
Maximum	92
Sum	444
Count	6

OUTPUT:

MEAN	74
STANDARD ERROR	8.5127
MEDIAN	80
MODE	80
SD	20.85
MINIMUM	34
MAXIMUM	92
SUM	444
COUNT	6

VIVA QUESTIONS:

1. **What are the various statics formulas?**

$$\text{Mean} = \frac{a_1 + a_2 + a_3 + a_4}{4}$$

$$\text{variance} = \Sigma(x_1 - \bar{x})^{2n}$$

$$SD = \sqrt{\frac{\Sigma(x_1 - \bar{x})^2}{n}}$$

2. **What is mean?**

The mean is the sum of all values in a dataset divided by number of value.

$$\text{Mean} = \frac{\Sigma x_1}{n}$$

3. **Write the formula for standard deviation?**

$$SD = \frac{\Sigma(x_1 - \bar{x})^2}{n}$$

EXP NO: 8(B)	DEVELOPING DATA MODEL
DATE: 29/7/24	

AIM:

To Develop the data model using Power BI Desktop

THEORY:

Data models are visual representations of an enterprise's data elements and the connections between them. By helping to define and structure data in the context of relevant business processes, models support the development of effective information systems.

The predominant data modelling types are hierarchical, network, relational, and entity-relationship. The Data Modelling diagram is used to create or view graphical models of relational database system schemas including a range of database objects.

PROCEDURE:

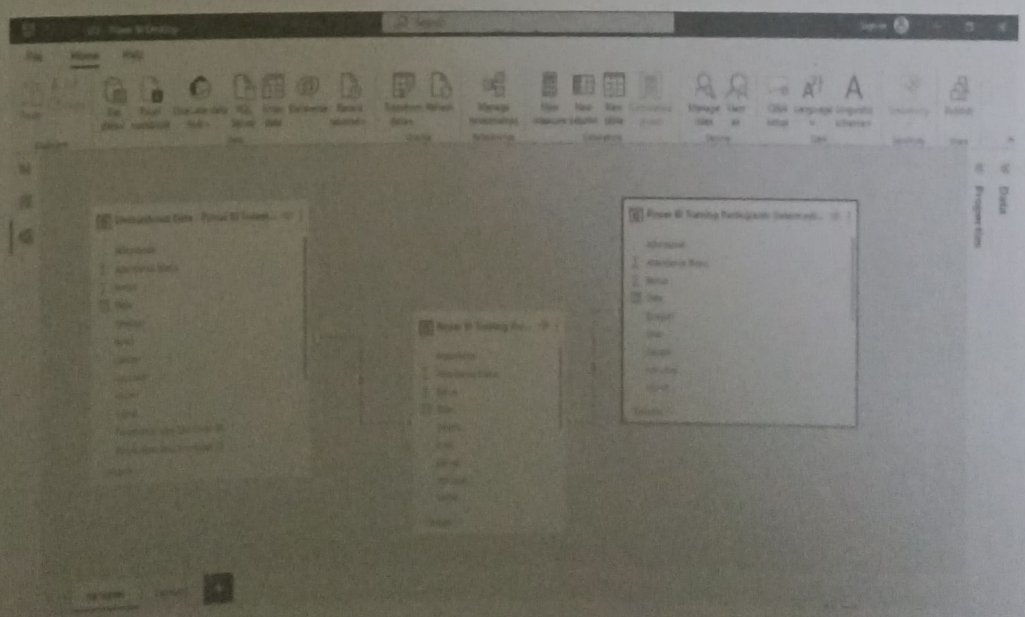
Step 1 : Start Power BI Desktop

Step 2 : Goto to home menu , select get data and then choose excel worksheet

Step 3 : Select your file to load into Power Bi application and press load button

Step 4 : Now the file is loaded and now click model view in the left panel

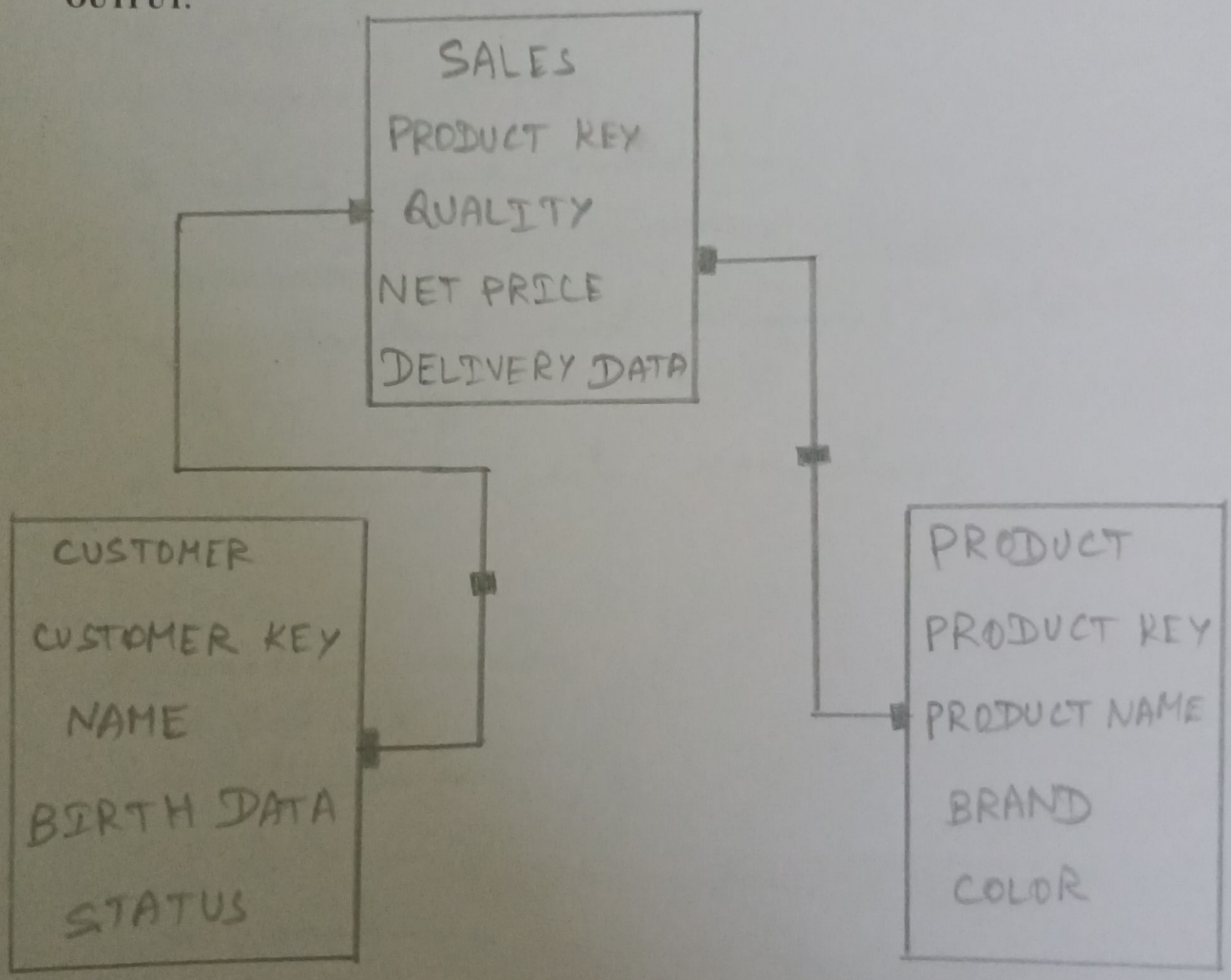
Step 5: Now data modeling of the given tables are displayed in output screen



Step 6 : Save the file in desired location

Step 7 : Close the Power BI Desktop application

OUTPUT:



EXP NO: 9	DATA PREPROCESSING OPERATIONS
DATE: 5/8/24	

AIM:

To perform data preprocessing operations using Power BI Desktop.

THEORY:

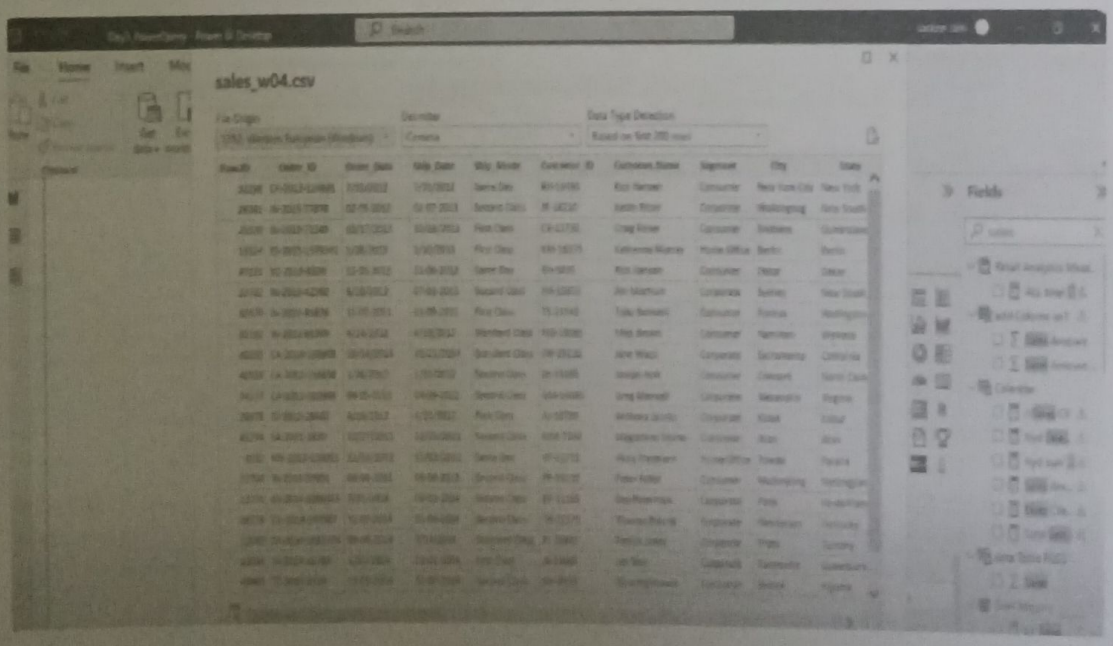
Data processing starts with data in its raw form and converts it into a more readable format (graphs, documents, etc.), giving it the form and context necessary to be interpreted by computers and utilized by employees throughout an organization.

Data preprocessing includes

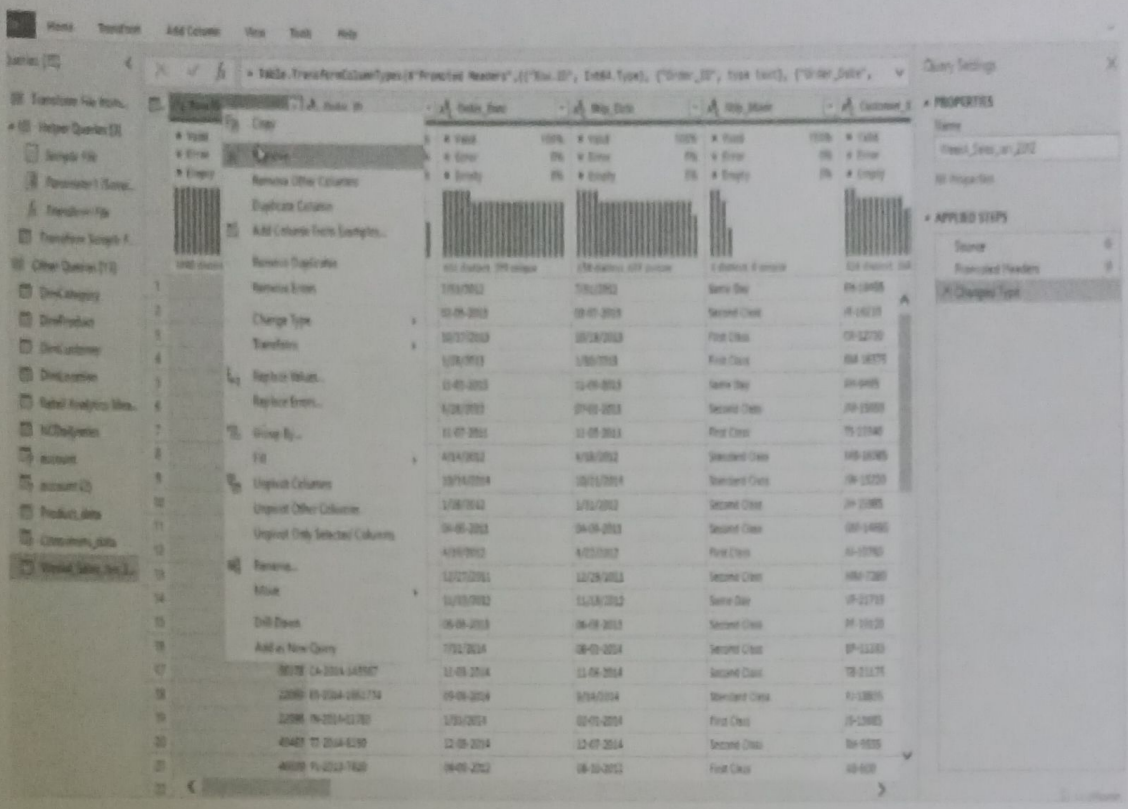
- Removing un relevant data
- Removing null values
- Add needed columns
- Add default values

PROCEDURE:

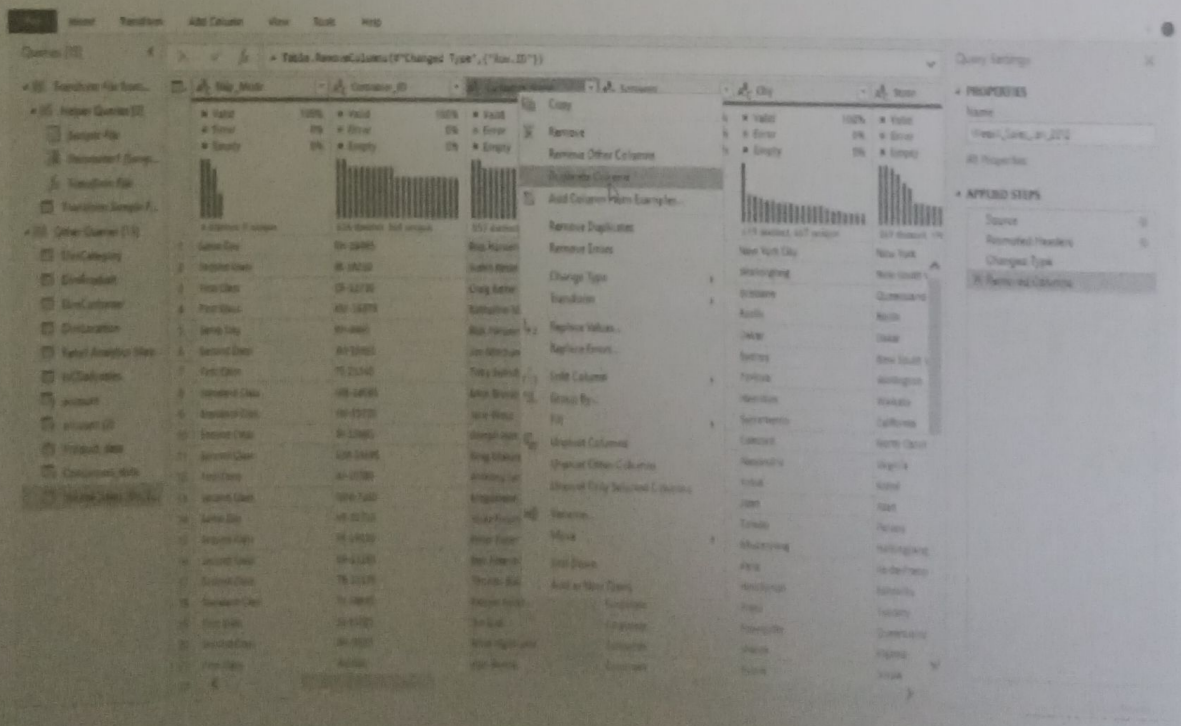
Step 1: Load the dataset in power bi.



Step 2:Select the column and click remove option to remove unwanted column.

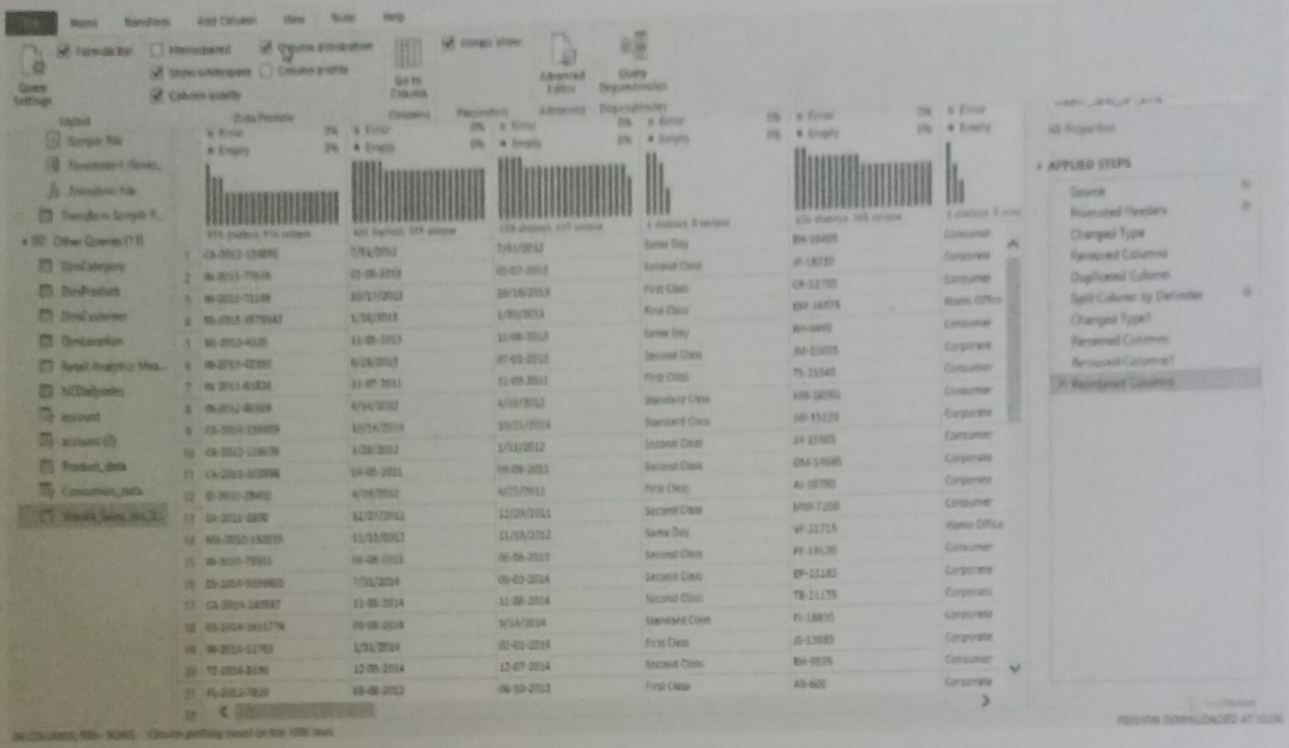


Step 4: make a duplicate column to split a column into two

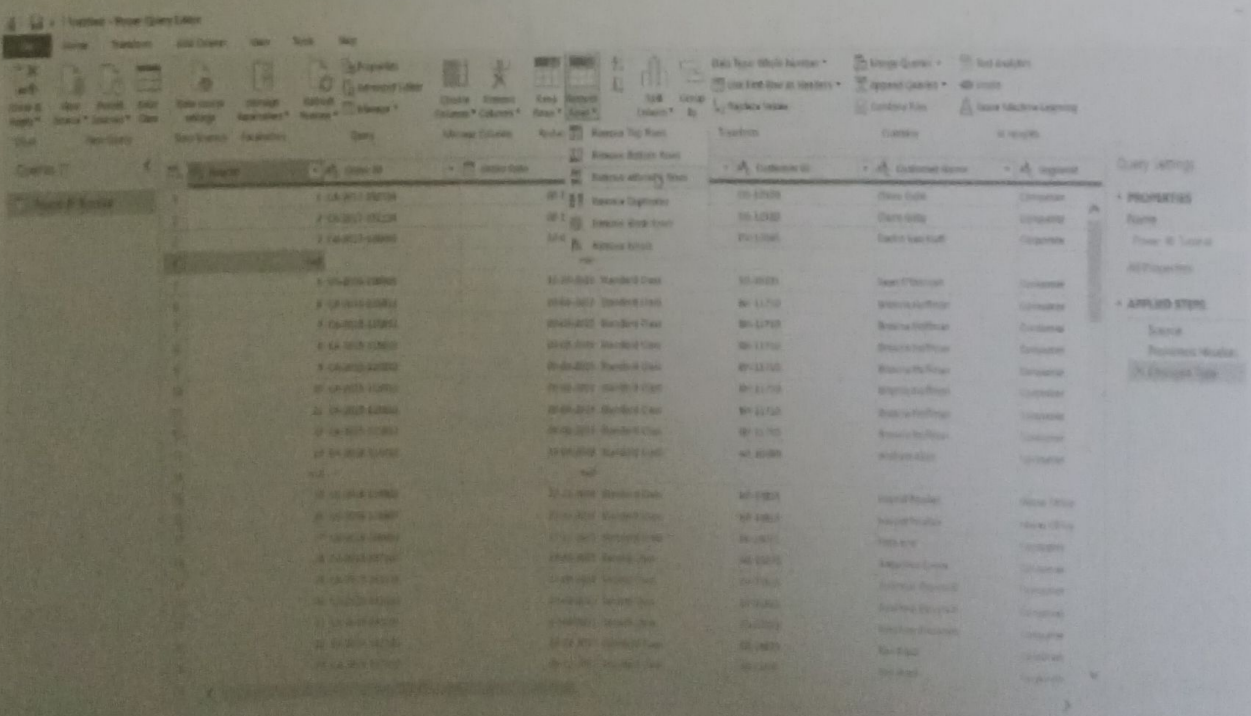


Step 5:split column using split column by number.delimiter

Step 6: to remove null value select view ribbon,in that select column qulity



Step 7 : to remove null values select remove rows ,in that you can choose the various option.



OUTPUT:

No	NAME	M_1	M_2	M_3	M_4
1	Ram	24	81	64	11
2	Ravi	84	92	24	48
3	Raj	36	64	36	63
4	Hari	32	72	42	69
5	Akash	46	88	48	55

VIVA QUESTIONS:

1. What is the ETL process?

Extract :- Retrieve data from various sources

Transform :- Convert the data into a suitable form or structure.

Load :- Insert the transformed data in target.

2. What are the four types of data processing?

Batch processing
Real time processing
online processing
stream processing

RESULT:

Thus the data preprocessing operations are executed successfully using Power BI Desktop.

EXP NO: 10	DESIGN A REPORT
DATE: 12/8/24	

AIM:

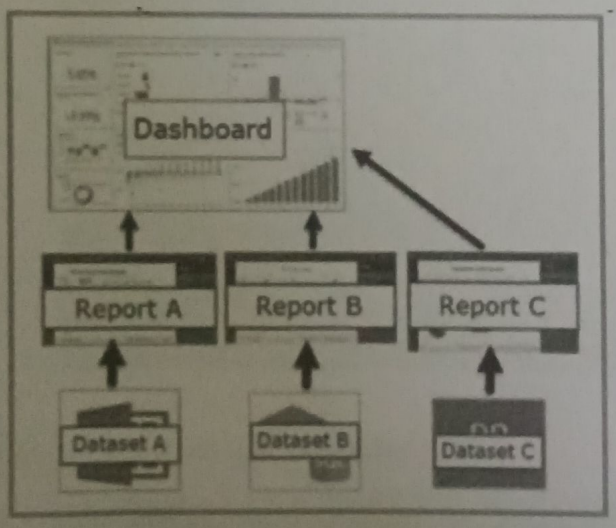
To design a report using Power BI Desktop.

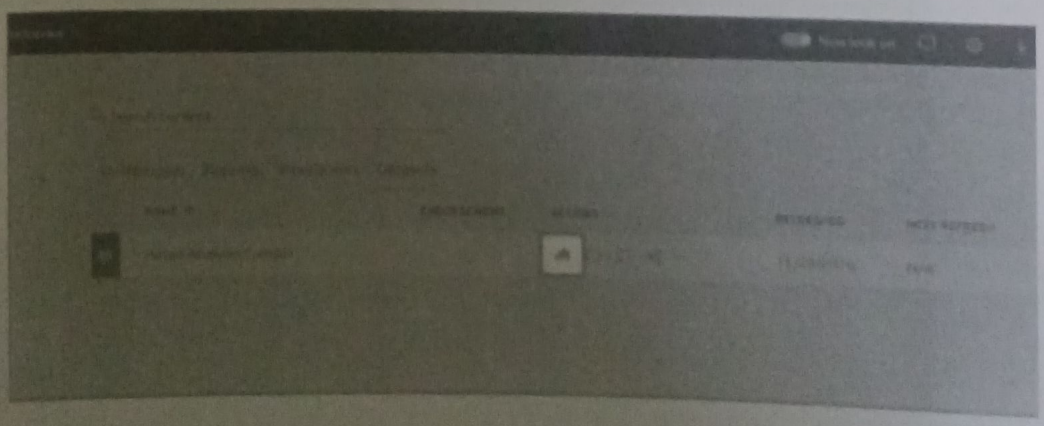
THEORY:

Before you can create any reports in Power BI, you need a dataset and a blank report canvas.

Once you have your dataset, go to the "Datasets" section in your workspace and click the 'Create report' icon.

In our example, the available dataset is the "Retail Analysis Sample":





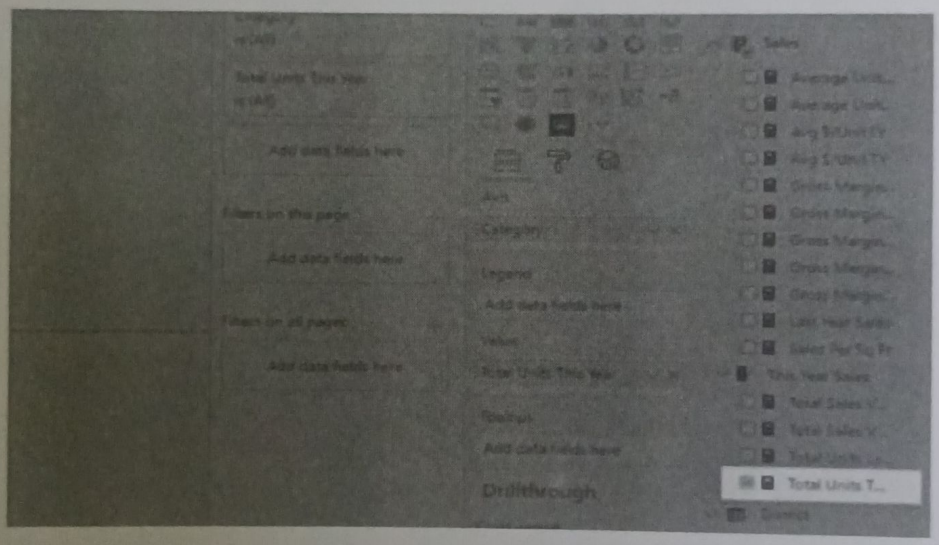
There are three primary sections you have to know:

- Canvas
- Fields pane
- Visualizations pane

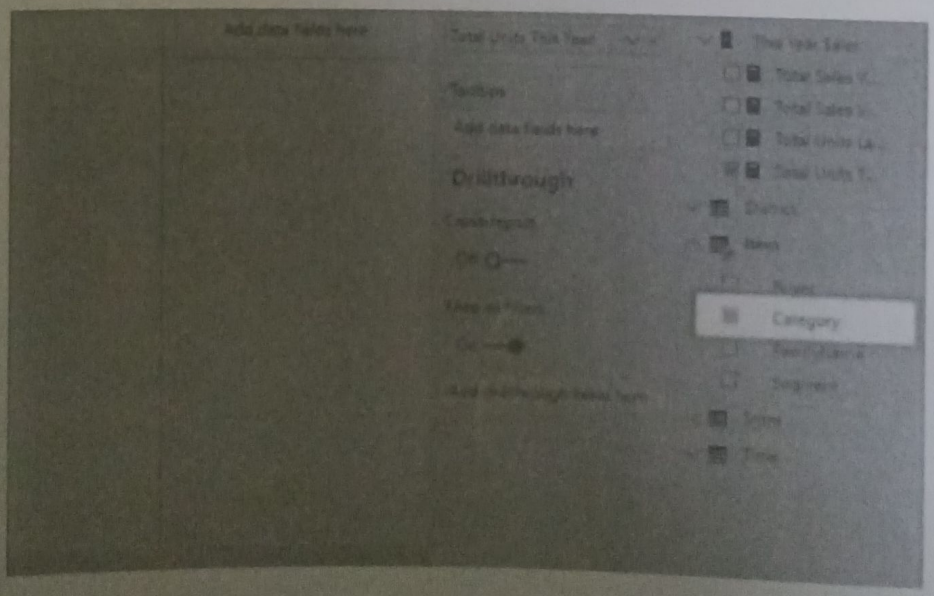
Obviously, the canvas is the empty white space at the center where the visuals will be made. The fields pane contains the different fields of your dataset (think of it as the columns of your dataset). The visualizations pane is where you can edit and modify your visualizations like the type of visualization, the format, and specific options for the values of your visual.

PROCEDURE:

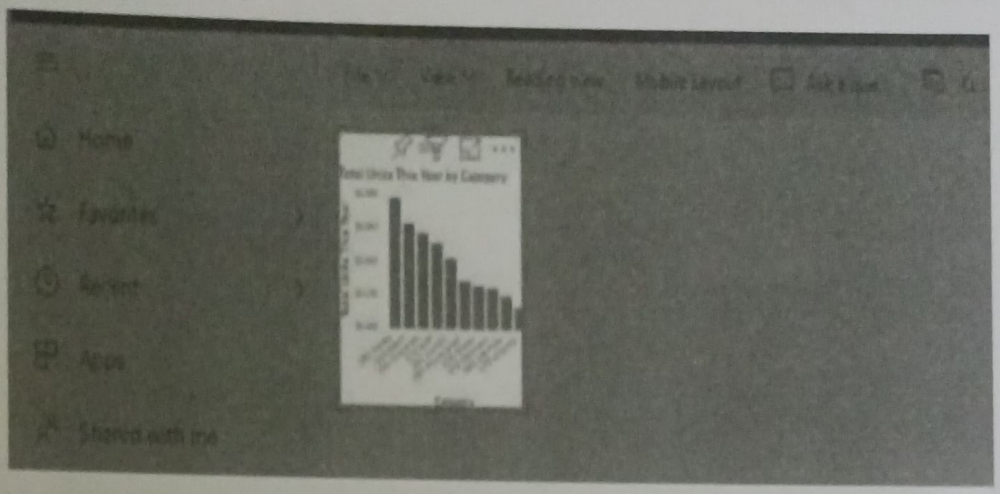
Step 1: Select "Sales" and then "Total Units This Year"



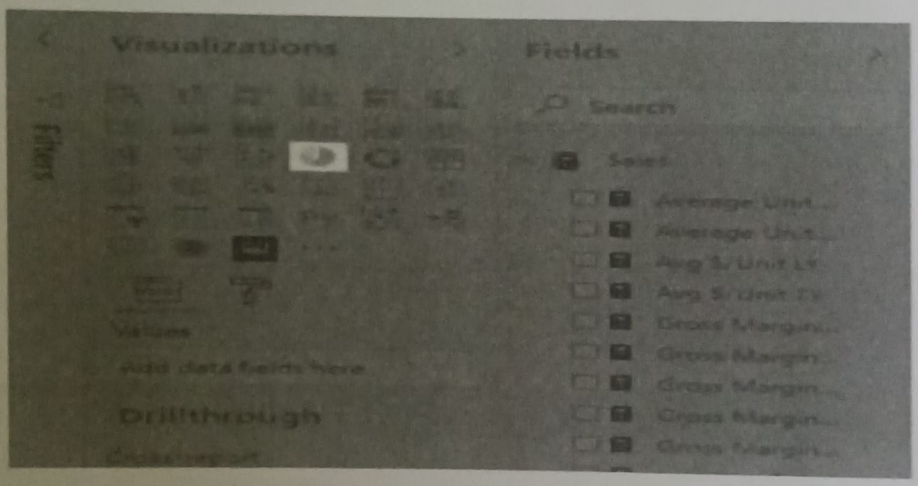
Step 2: Select items and then category



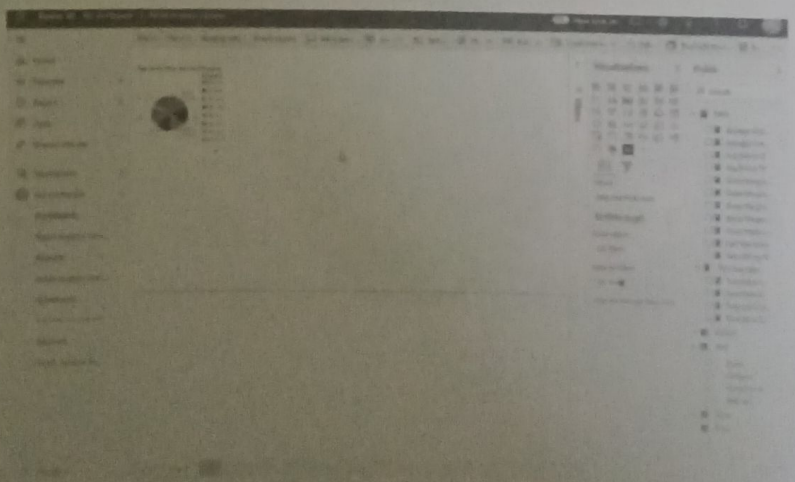
Step 3: the visuals will appear on canvas.



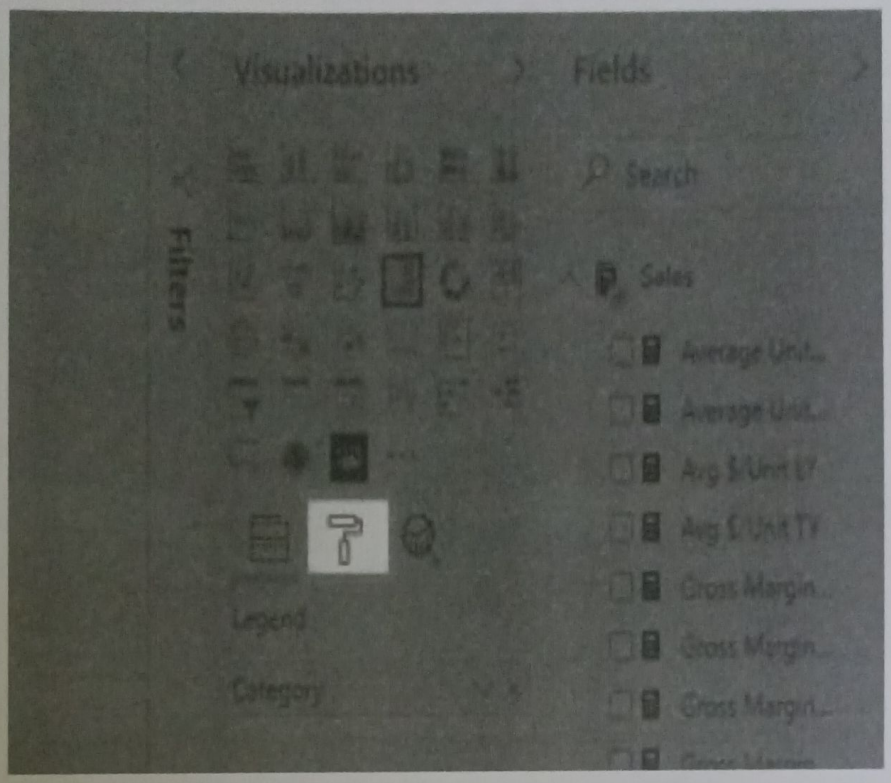
Step 4: To change the type of visual, just head over to the visualizations pane and click the pie chart icon:



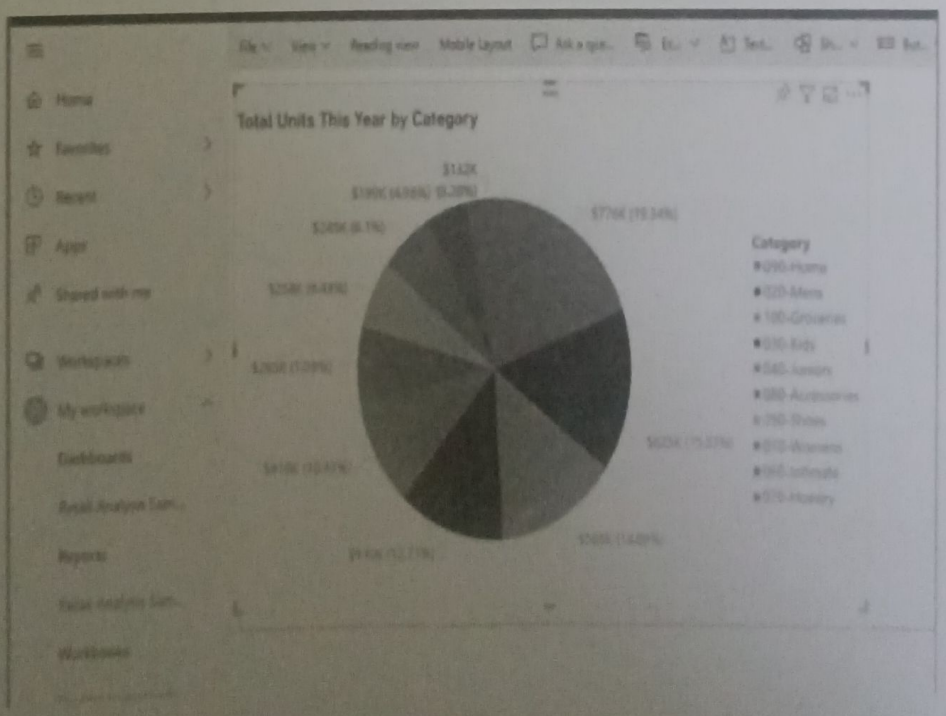
Step 5: Simply click on the visual and drag its corners:



Step 6: The next part is enlarging the texts — legend, detail labels, and title — of your report. On the visualizations pane, go to the 'Format' section:

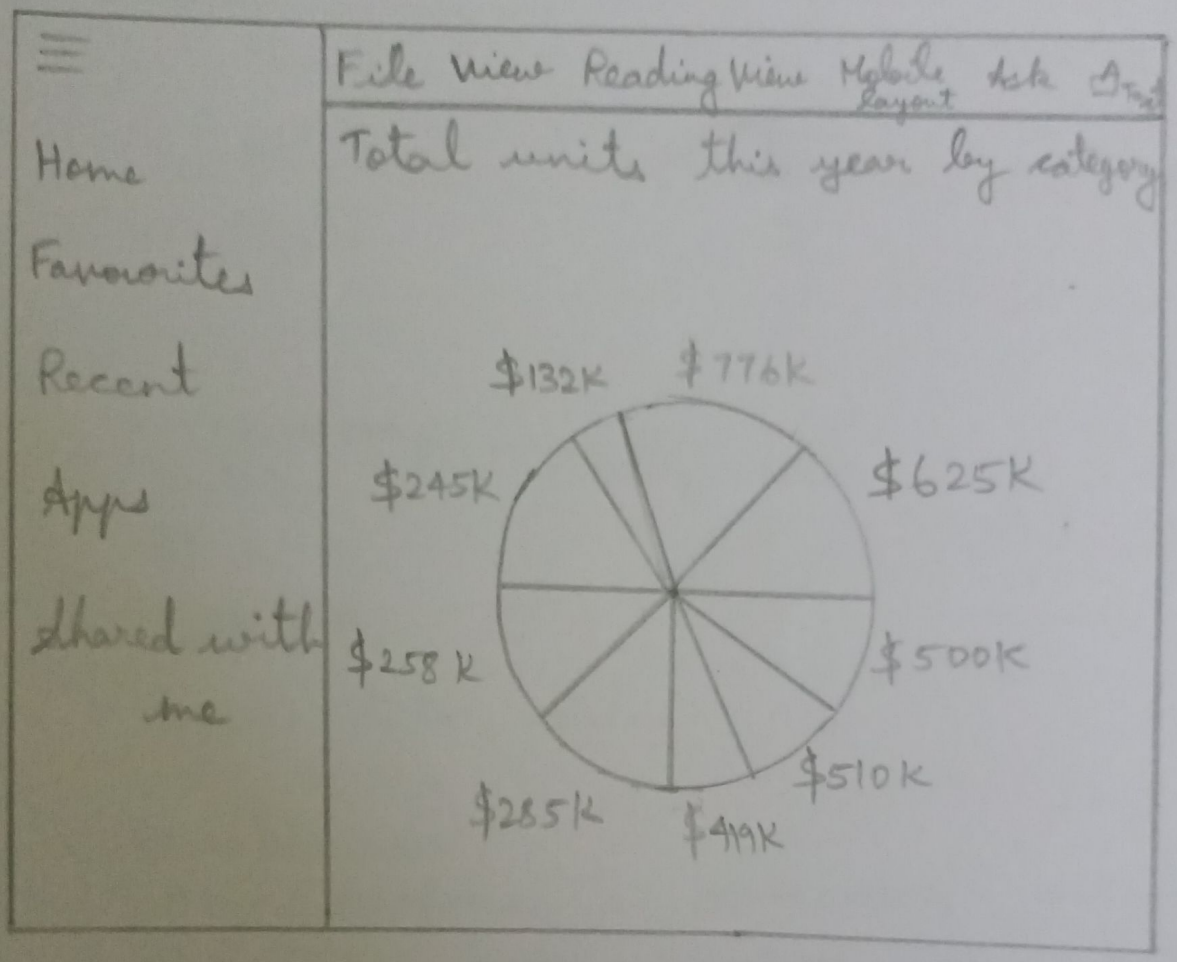


Step 7: you can change the format of your visuals. Each type of visual has different sets of options so an option on another might not be available on another. To enlarge the text, simply go through the 'Legend', 'Detail labels', and 'Title' and then adjust the text



Step 8: click 'File' from the tab list and select 'Save'

OUTPUT:


File View Reading View Mobile Layout Help
Home
Favorites
Recent
Apps
Shared with me
Total units this year by category
$132K
$776K
$245K
$625K
$258K
$500K
$510K
$285K
$419K

EXP NO: 11	CREATE A DASHBOARD AND PERFORM DATA ANALYSIS
DATE: 19/8/24	

AIM:

To Create a dashboard and perform data analysis using Power BI Desktop.

THEORY:

Power BI offers interactive and dynamic features required for creating interactive dashboards. These dashboards, which are simply a collection of visuals, can be built with a deep level of interactivity and are accessible in various formats to consumers. Since they are usually a single page, Power BI dashboards need to be well-designed highlights of an entire story.

It is also important to note that Power BI dashboards are quite different from Power BI reports. For example:

1. Power BI reports are available on Power BI Desktop and Power BI service, while Power BI dashboards can only be found on Power BI service.
2. Reports can be multi-paged, while dashboards are single-paged highlights.

PROCEDURE:

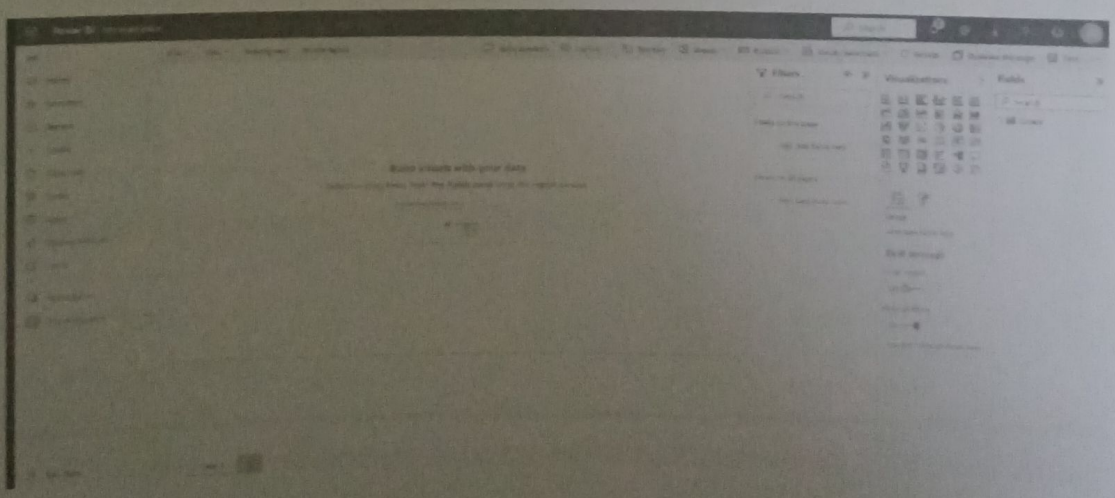
Step 1: load the dataset.

Step 2: Opening a Report from the Uploaded Data

Notice that from the workspace image, there are two file types of the same name. One is the dataset and the other is the dashboard.

Click on the Superstore.xlsx dashboard. On the blank canvas that pops up, click on the dataset name 'Superstore.xlsx'.

Finally, a Reporting canvas will appear, similar to the view on Power BI Desktop.

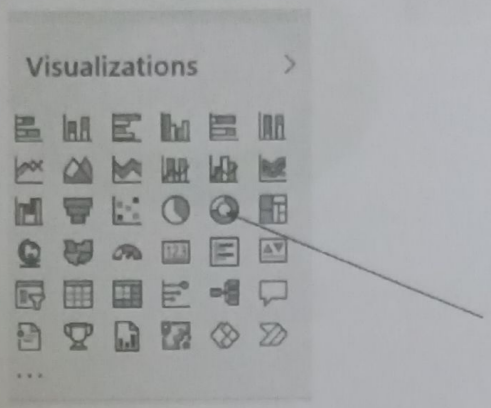


Step 3: Creating a Tile and 'Pin to a Dashboard'

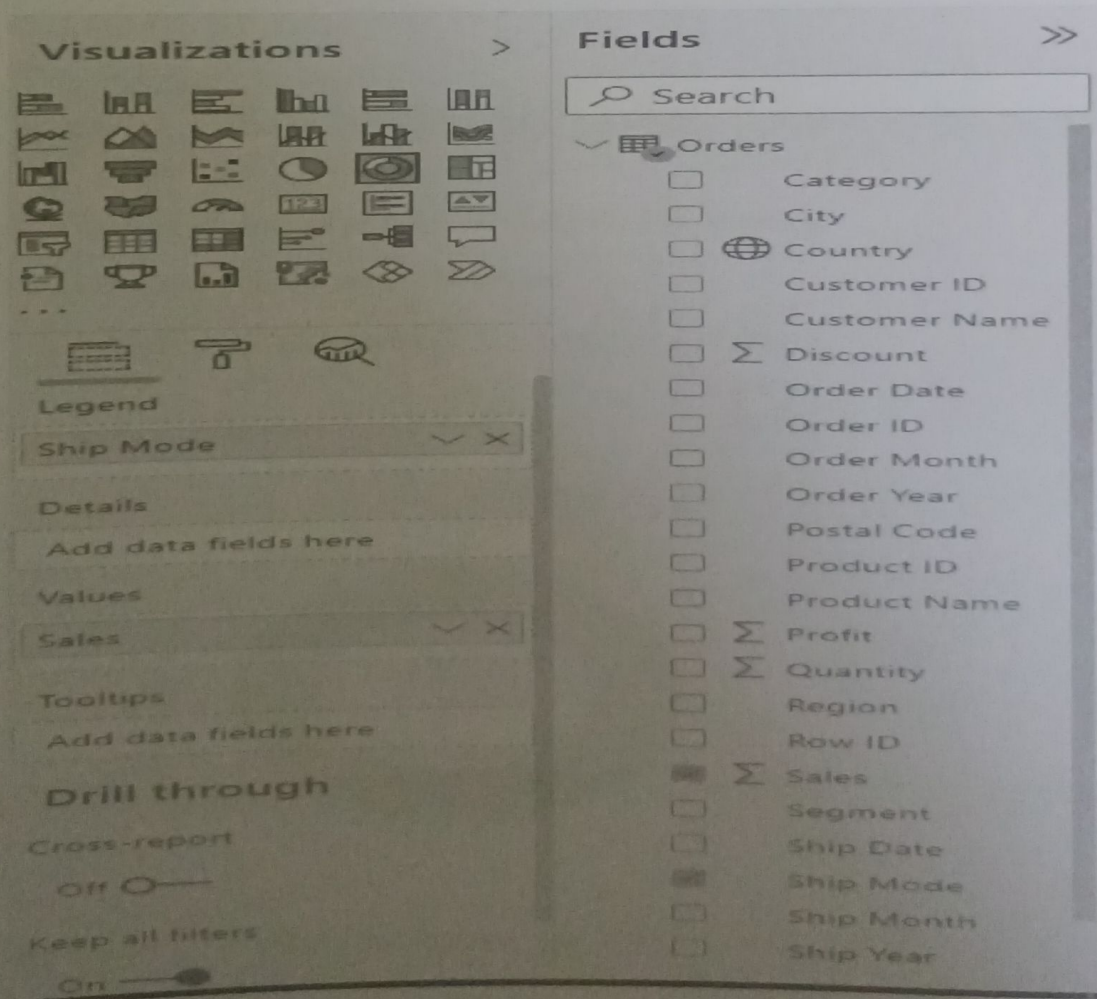
You can begin creating your visuals after you have decided on the data that will form the basis of your report, and designed the layout of this report.

We will create a simple donut chart that shows the 'Sales across the Shipmode'.

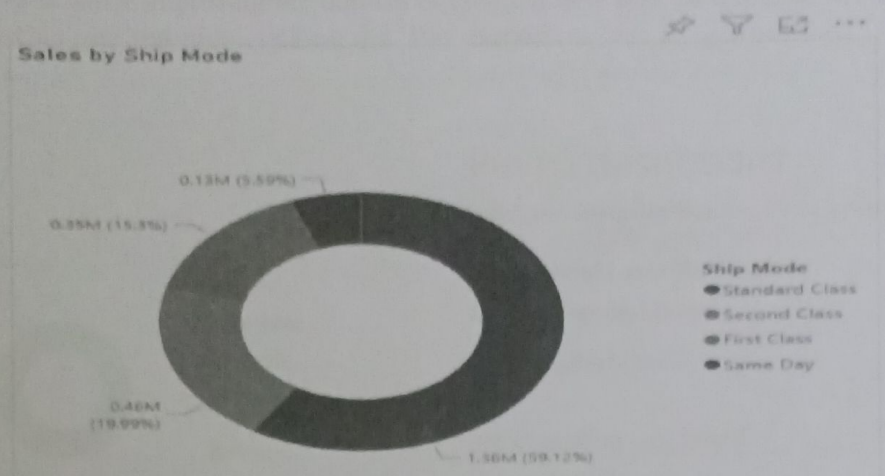
- Select the donut chart option from the visualization pane.



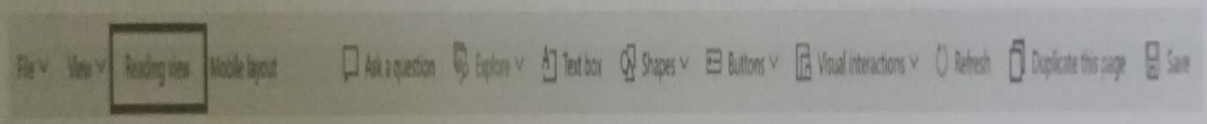
Step 4: Drop the Sales in the Values field and Ship Mode to the legend.



Step 5: We now have a donut chart.



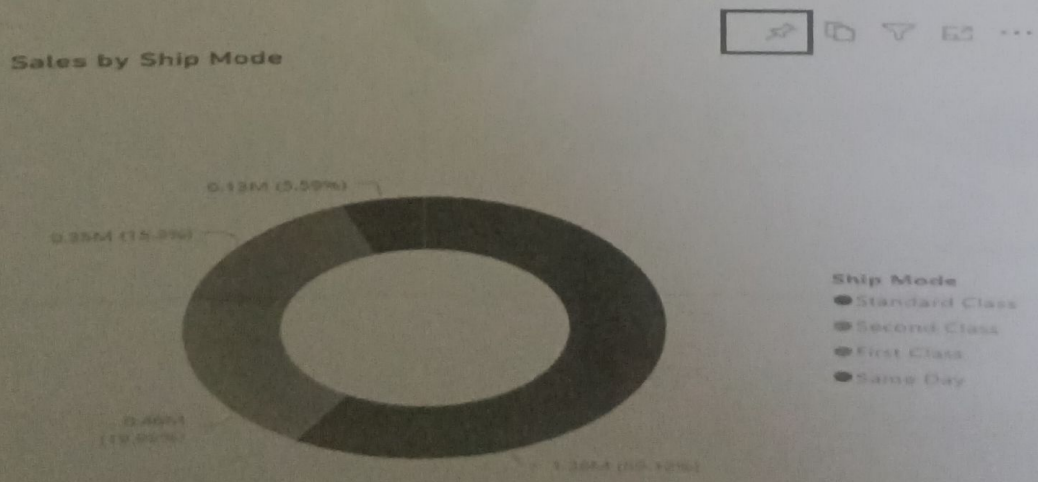
Step6: Save the report by clicking on the 'Reading view' option on the ribbon at the top.



Step 7: Give the report a name. In this case, we will call it 'Superstore'.

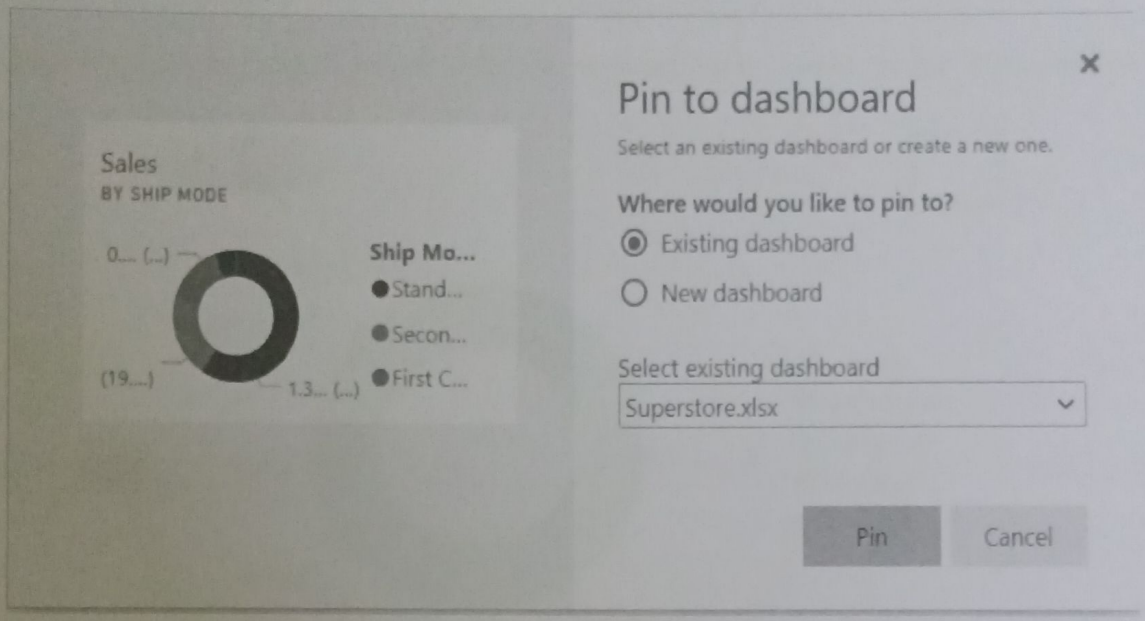
Step 8: Pinning a Single Visual to a Dashboard

- Now that we have created a tile, we can pin this to a dashboard.



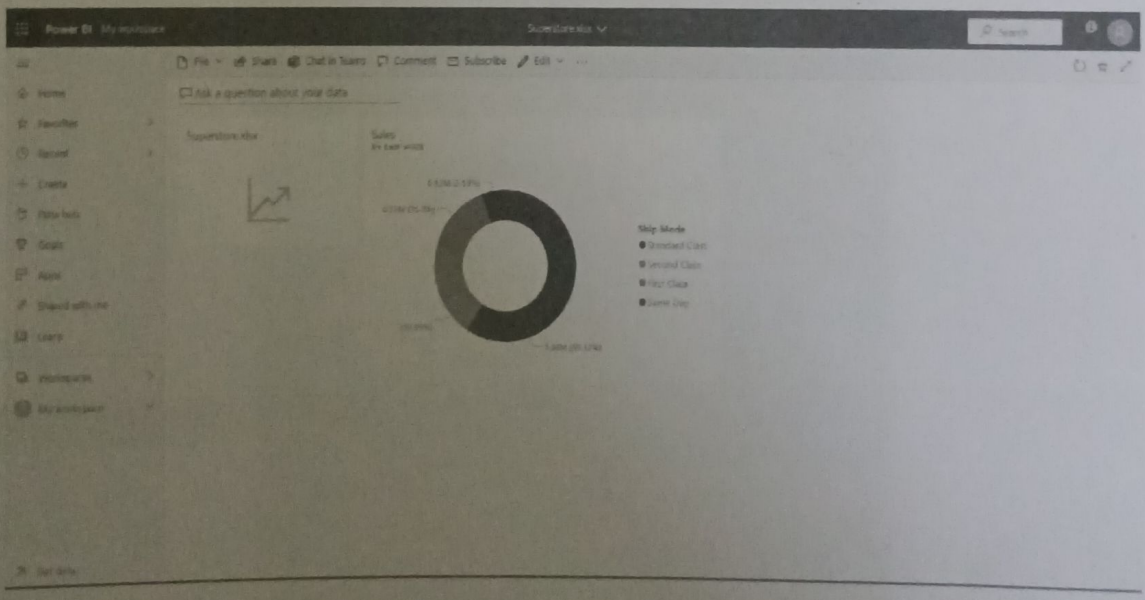
Step 9: the recently created donut chart and click on the pin icon that appears.

- A 'Pin to dashboard' window will appear. You can pin to an existing dashboard that we created while importing the dataset or create a new one. In our case, we will pin to the existing one and then click on the 'Pin' button.



Step 10: A pop-up will appear on the top right. Click on 'Go to dashboard'.

Step 11: We will be taken to a new window, the **Superstore** Dashboard.



Step 12: **Organizing and Updating Tiles**

Positioning of Tiles

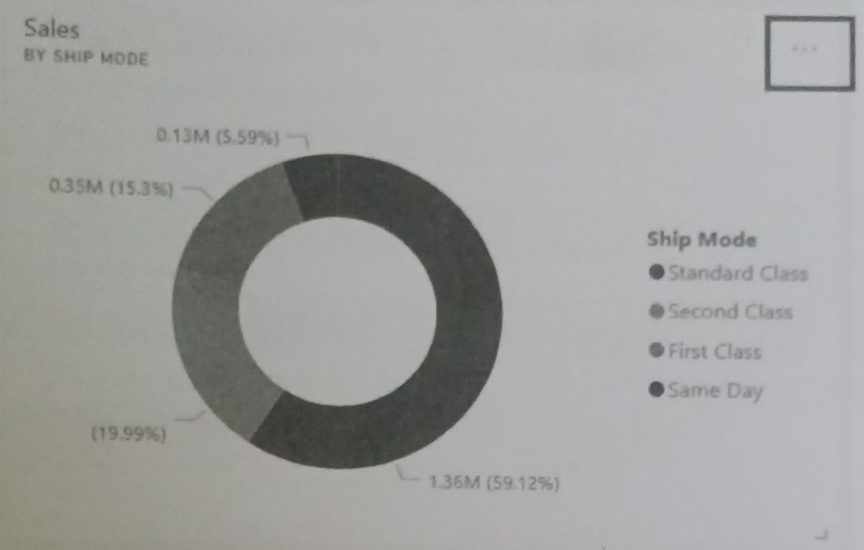
You can move the tile around on your dashboard to a convenient position just by holding a left click on the tile and moving it.

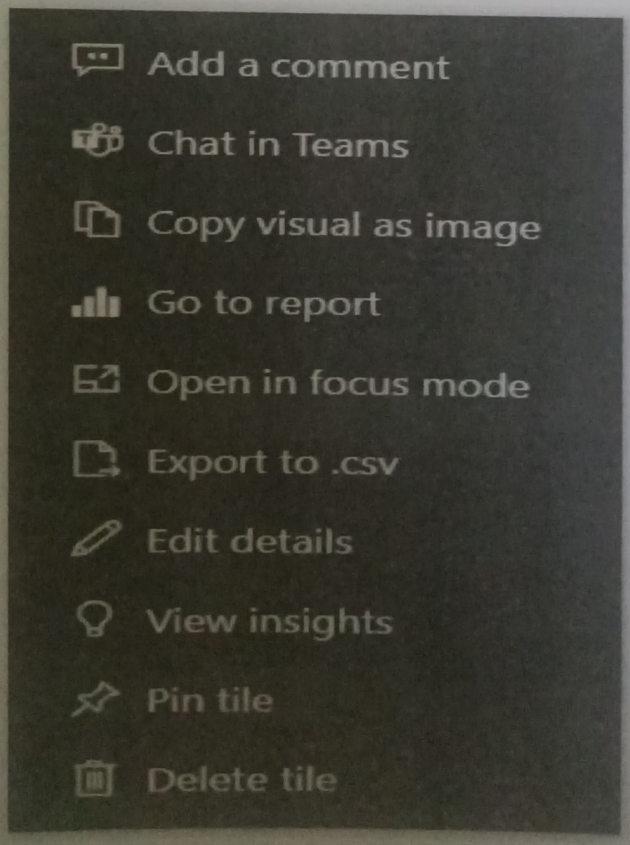
Tile Size

You can increase or decrease your tile size by dragging the little arrow at the bottom right of the tile.

Other Tile Options:

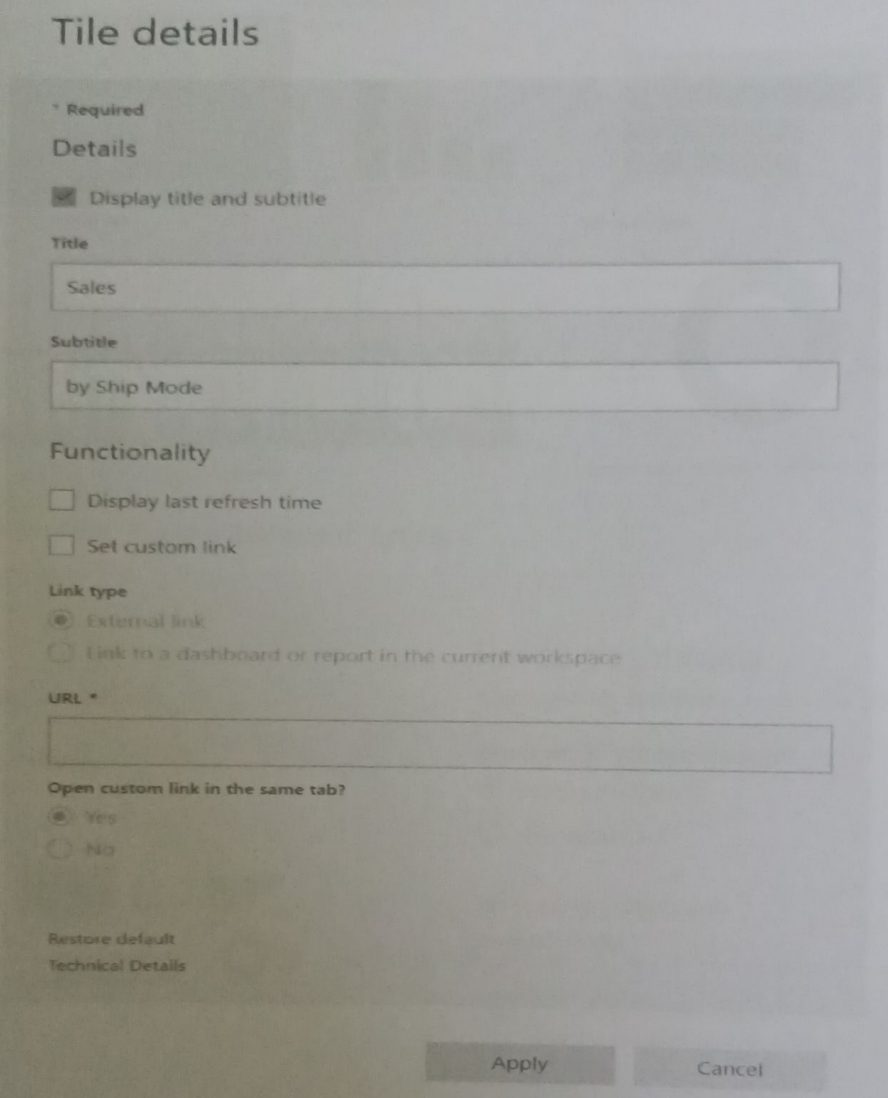
By clicking on the kebab (...) menu on the tile, more options are shown around 'Tile settings'.





Step 13: Edit Details

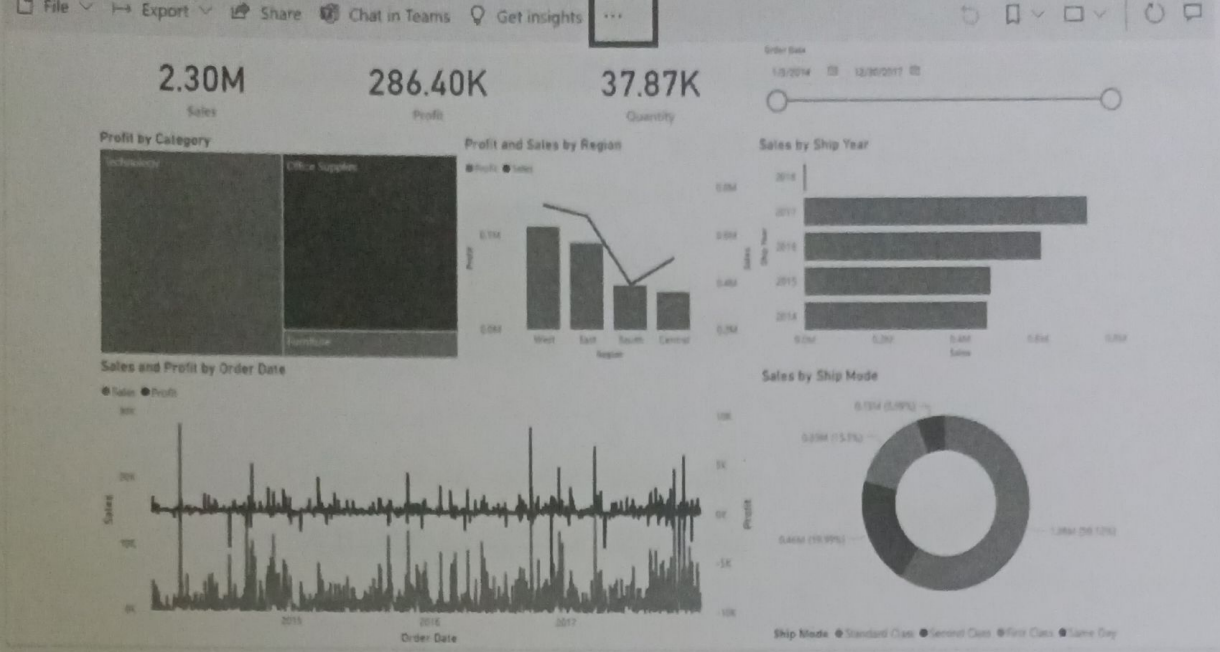
- From the option above, we can click on 'Edit details'.



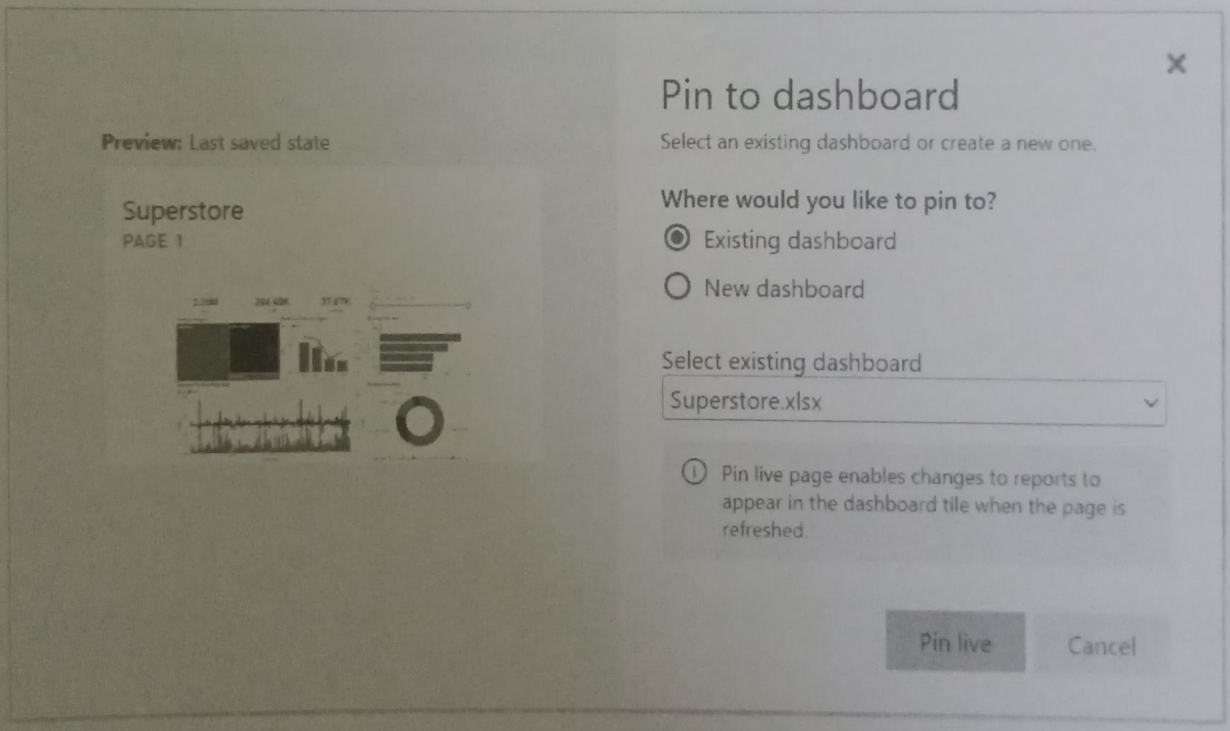
- We can make certain edits, such as changing the tile title and displaying the last refresh time showing when a certain tile was last updated. A custom link can also be associated with your tile.

step 14: Pin an Entire Report to a Power BI Dashboard

- We will first need to create more visuals for our Superstore Report.
- Go back to 'My workspace'. Open the Superstore report type.
- Click on the Edit button.
- Add some more Power BI Visuals.
- Select the option (...) at the top of the report view.

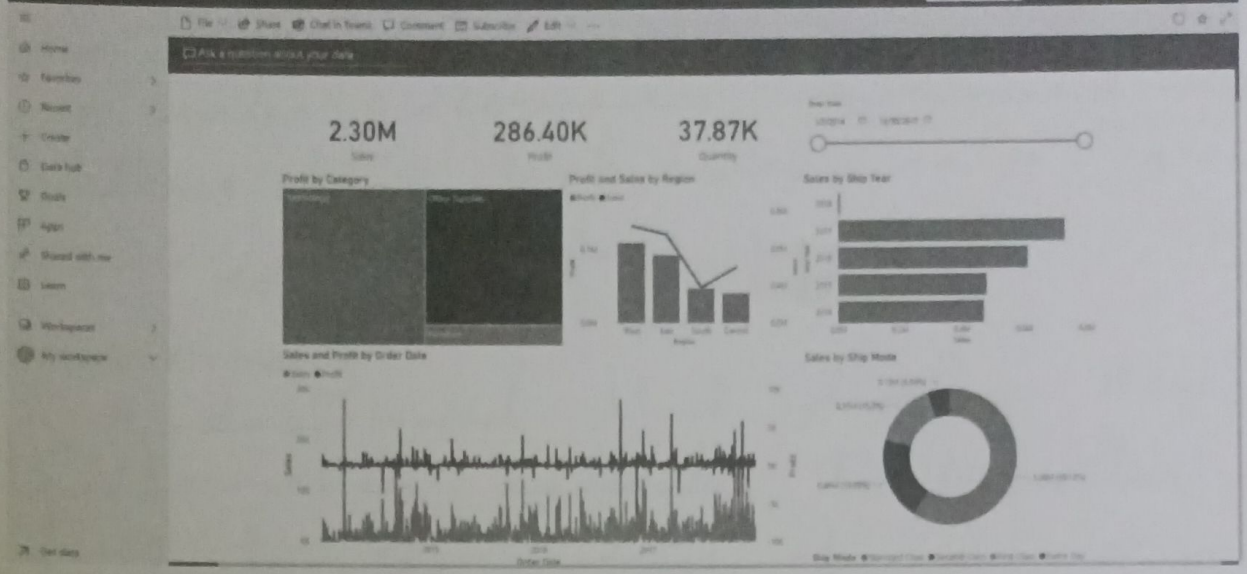


Step 15: Choose the 'Pin to a dashboard' option.

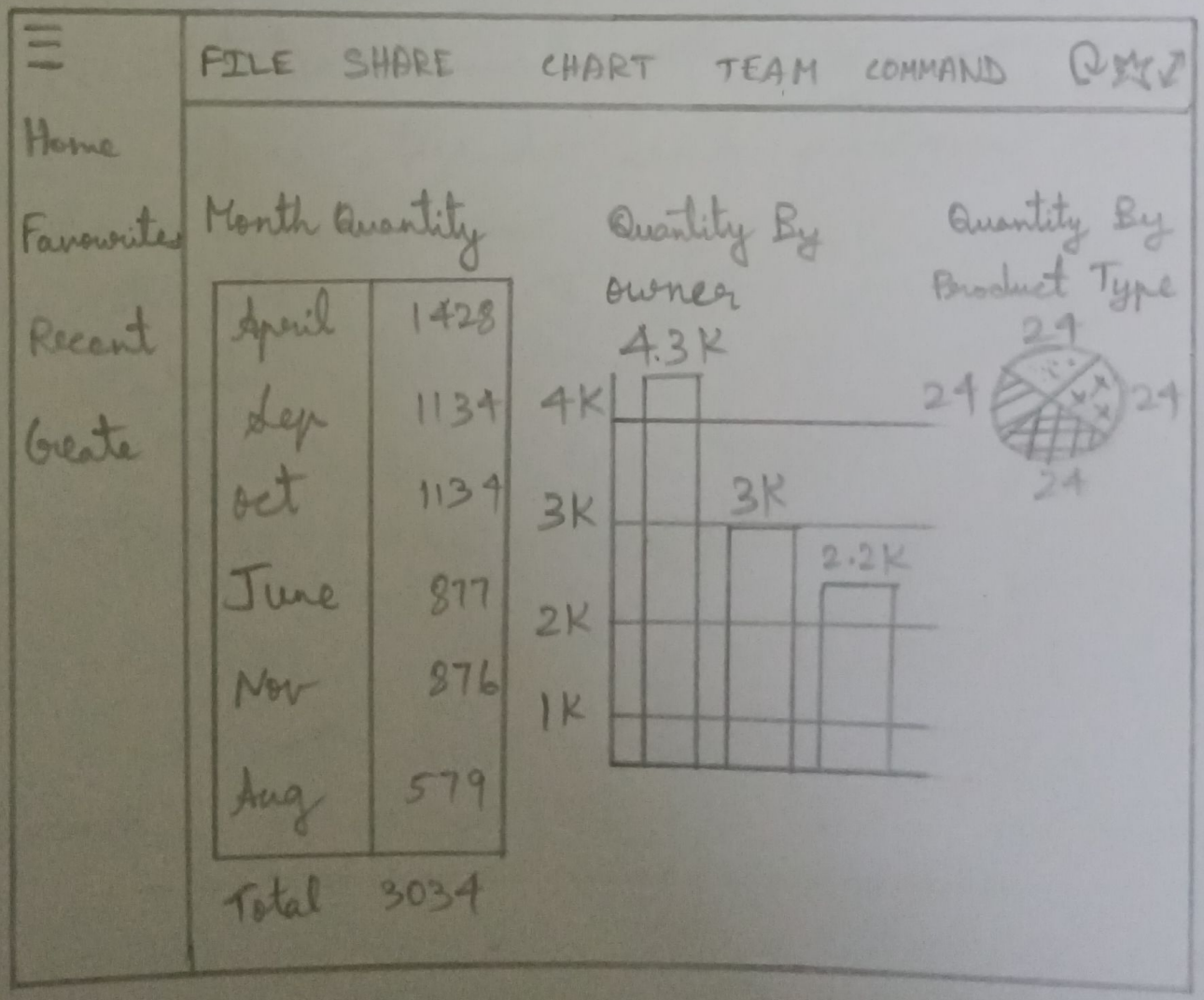


Step 16: Click the 'Pin live' option. Then select the 'Go to dashboard' option.
Note: when pinning at a report level, any changes that happen to the report will also be taken into effect on the dashboard.

- You should now see your report page pinned to a dashboard.


2.30M
286.40K
37.87K
Profit by Category
Profit and Sales by Region
Sales by Ship Year
Sales and Profit by Order Date
Sales by Ship Mode

OUTPUT:


FILE SHARE CHART TEAM COMMAND
Home
Favourites
Recent
Create
Month Quantity
April 1428
Sep 1134
Oct 1134
June 877
Nov 876
Aug 579
Total 3034
Quantity By Owner
4.3K
4K
3K
3K
2.2K
2K
1K
Quantity By Product Type
24
24
24
24

EXP NO: 12	PERFORM DAX CALCULATIONS
DATE: 2/9/24	

AIM:

To Perform DAX calculations using Power BI Desktop.

THEORY:

Data Analysis Expressions (DAX) is a formula expression language used in Analysis Services, Power BI, and Power Pivot in Excel. DAX formulas include functions, operators, and values to perform advanced calculations and queries on data in related tables and columns in tabular data models.

If you need to perform an OR operation on multiple expressions, you can create a series of calculations or, better, use the OR operator (||) to join all of them in a simpler expression. The function evaluates the arguments until the first TRUE argument, then returns TRUE.

PROCEDURE:

Step 1: You can directly upload the data table to the Power BI file.

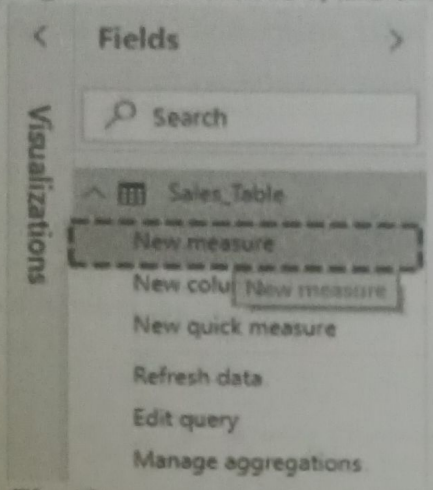
	A	B	C	D	E
1	City	State	Units Sold	Sale Price	Sale Value
2	Auburn	Alabama	$ 143	$ 14	$ 2,002
3	Auburn	New York	$ 181	$ 22	$ 3,982
4	Auburn	Washington	$ 219	$ 18	$ 3,942
5	Columbia	Maryland	$ 363	$ 13	$ 4,719
6	Columbia	South Carolina	$ 309	$ 15	$ 4,635
7	Columbia	South Carolina	$ 436	$ 24	$ 10,464
8	Columbia	Georgia	$ 154	$ 17	$ 2,618
9	Columbus	Georgia	$ 544	$ 16	$ 8,704
10	Columbus	South Carolina	$ 123	$ 14	$ 1,722
11	Columbus	Georgia	$ 241	$ 11	$ 2,651
12	Concord	California	$ 272	$ 18	$ 4,896
13	Concord	New Hampshire	$ 270	$ 21	$ 5,670
14	Concord	California	$ 433	$ 10	$ 4,330
15	Des Moines	Iowa	$ 473	$ 16	$ 7,568
16	Des Moines	Washington	$ 129	$ 18	$ 2,322
17	Des Moines	Iowa	$ 382	$ 24	$ 9,168
18					

Now, we will experiment CALCULATE function to arrive at different sets of results. Arrive at one particular city sales total

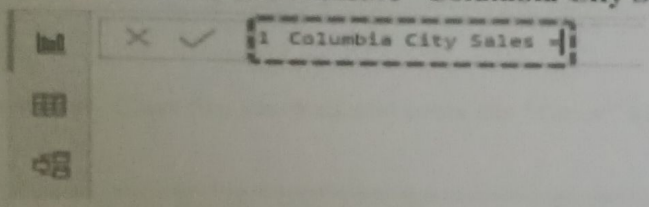
For example, assume you need to create a "New Measure," which gives one particular city total, for example, "Columbia" city.

The steps to use the DAX calculate function in Power BI is as follows.

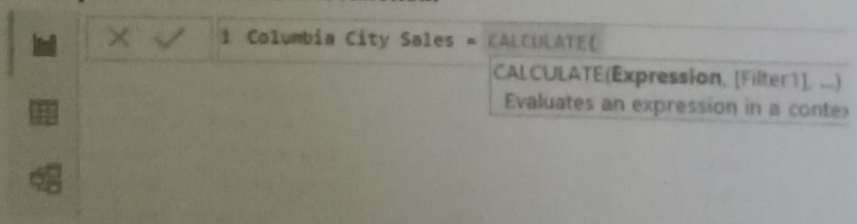
1. **Right-click on the table, and choose the "New measure" option.**



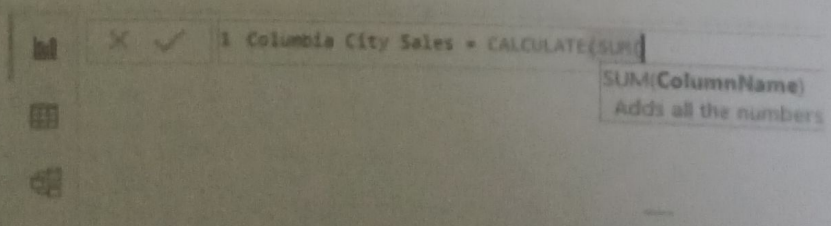
2. **Give the name to this measure "Columbia City Sales."**



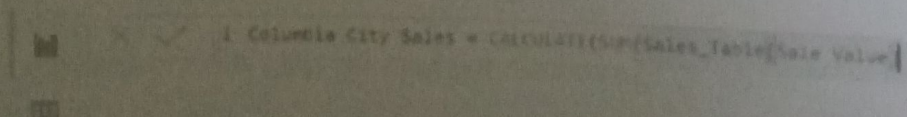
3. **Now, open the CALCULATE function.**



4. **An expression is the first option. We need to add the "Columbia" city total in this example, so op the SUM function.**



5. **The "ColumnName" we need to SUM is the "Sales Value" column, so choose the respective column**



6. **The "ColumnName" we need to SUM is the "Sales Value" column, so choose the respective column.**

```
1 Columbia City Sales = CALCULATE(SUM(Sales_Table[Sale
  Value]),FILTER(
```

FILTER(**Table**, FilterExpression)
Returns a table that has been filtered.

7. **The table we refer to is the "Sales_Table." So first, choose the table name.**

```
1 Columbia City Sales = CALCULATE(SUM(Sales_Table[Sale
  Value]),FILTER(Sales_Table,
```

8. **We need to select the "City" column for Filter Expression and give the criteria as "Columbia."**

```
1 Columbia City Sales = CALCULATE(SUM(Sales_Table[Sale Value]),
  FILTER(Sales_Table,Sales_Table[City]="Columbia"
```

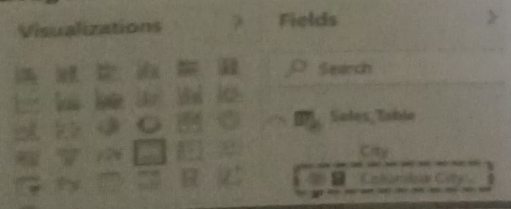
FILTER(Table, **FilterExpression**)
Returns a table that has been filtered.

9. **We are done. Close two brackets and press the "Enter" key to get the new measure.**

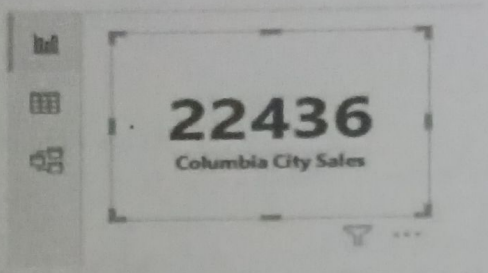
```
1 Columbia City Sales = CALCULATE(SUM(Sales_Table[Sale Value]),
  FILTER(Sales_Table,Sales_Table[City]="Columbia"))
```

City	State	Units Sold	Sale Price	Sale Value
Auburn	Alabama	143	14	2002
Auburn	New York	181	22	3982
Auburn	Washington	219	18	3942
Columbia	Maryland	363	13	4719
Columbia	South Carolina	309	15	4635
Columbia	South Carolina	436	24	10464
Columbia	Georgia	154	17	2618
Columbus	Georgia	544	16	8704
Columbus	South Carolina	123	14	1722

10. **Drag the "Columbia City Sales" to "Fields" to see the new measure.**



11. Now, this measure only gives the total sales of the city "Columbia."



12. **You can cross-check the "Columbia" city total in Excel as well.**

	A	B
1		
2		
3	**City**	**Sum of Sale Value**
4	Auburn	9,926
5	Columbia	22,436
6	Columbus	13,077
7	Concord	14,896
8	Des Moines	19,058
9	**Grand Total**	**79,393**
10		

Like this, we can use the CALCULATE function to arrive at different results.

OUTPUT:

No	A	B
1	HONDA	10,503
2	HYUNDAI	7000
3	MARUTHI	17,798
4	AUDI	5000
5	BMW	5650
	TOTAL	2,71,650

EXP NO: 13	PRESENTATION OF A CASE STUDY CAMPUS RECRUITMENT ANALYSIS
DATE: 9/9/24	

AIM:

To Presentation of a case study for Campus Recruitment Analysis using Power BI Desktop

The Challenge:

Campus Placements/ Campus Recruitment drives are conducted in various educational institutes for providing job opportunities to the students who are pursuing their particular academic courses. As much as it is important to the students, it is also important to the institute as it gives a chance to contemplate about the process. This data includes students from various colleges.

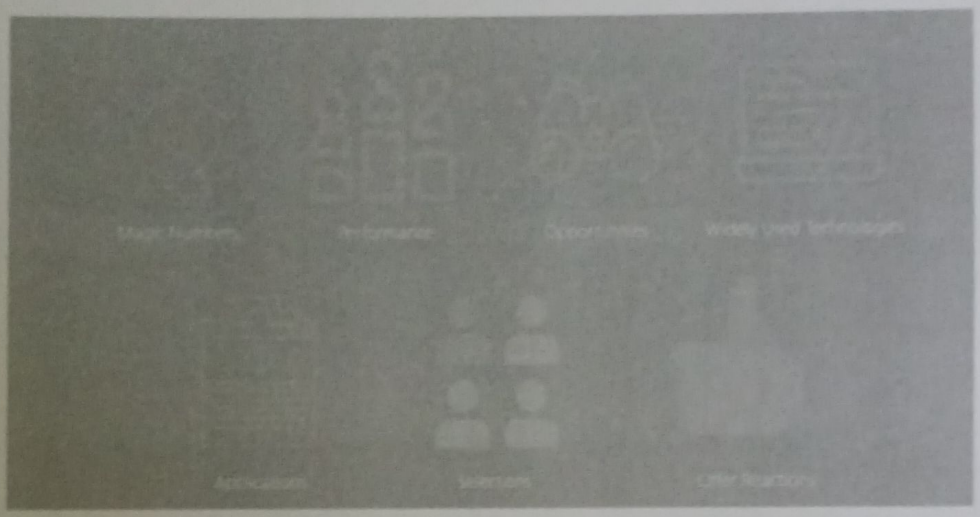
The Solution What every management team wants to know:

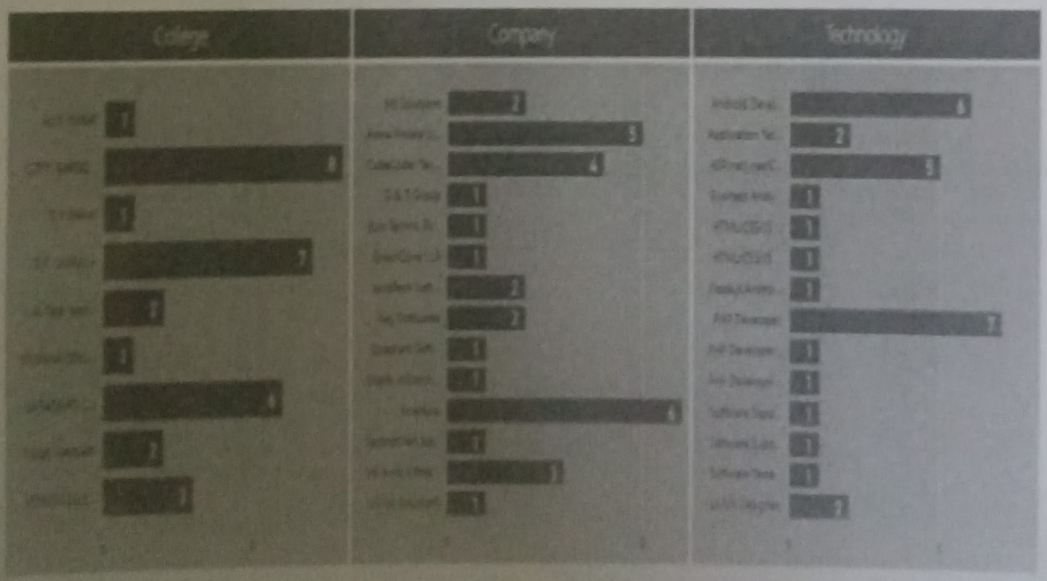
- How many companies appeared?
- How many students appeared?
- Which companies have hired the most of the students and from which college?
- How many students accepted the offer?
- Were the companies beneficial in accordance to their vacancies?
- How many students were selected by the companies?
- What was the ratio between students applied and the vacancies available?
- Which college were the most preferred by the students?
- Which technologies were the most preferred by the students?
- Which colleges were benefitted by this recruitment in terms of the selection?
- Which colleges did not perform up to the mark?
- Which colleges were involved the most in terms of the students registered?
- Which companies were beneficial in accordance to their vacancies?

The Extra Mile

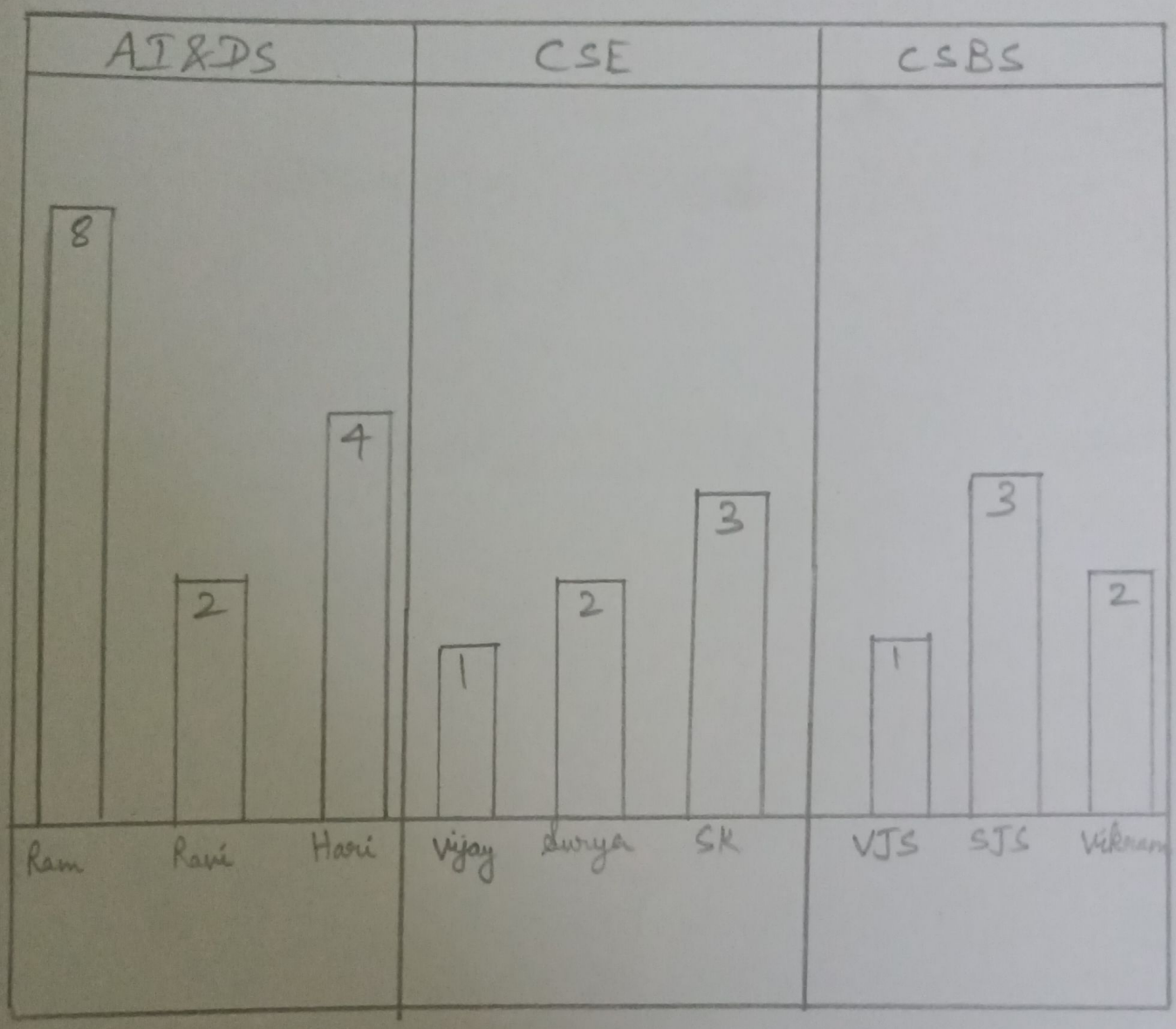
- We gave users a menu driven page where they can navigate to the page of their interest.

- Overview of companies with respect to the technologies.
- Overview of students with respect to the technologies, companies and colleges.
- Overview of selected students with respect to the technologies, companies and colleges.
- Insights on basis of the students' priority and the offers given to them.
- We have given extra information apart from what is need about every area of interest.





OUTPUT:



RESULT:

The Presentation of a case study for Campus Recruitment Analysis was performed Successfully using Power BI Desktop and displayed desired output in neat format.