

11. Create and manage relationships between tables in Power BI. Explain how these relationships impact your data model and reporting

Step1: Open the Power BI Desktop

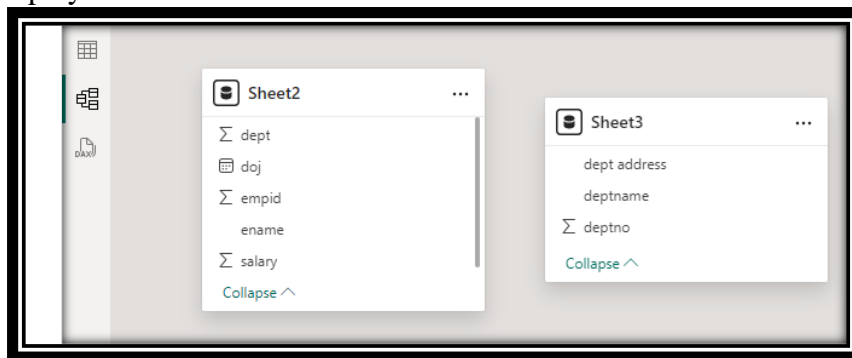
- Start→type (power bi desktop) in search window
- Select the Power BI desktop and press Enter Button
- Then it Display the power bi desktop

Step2: From the screen select the **Blank report** and press the enter the key

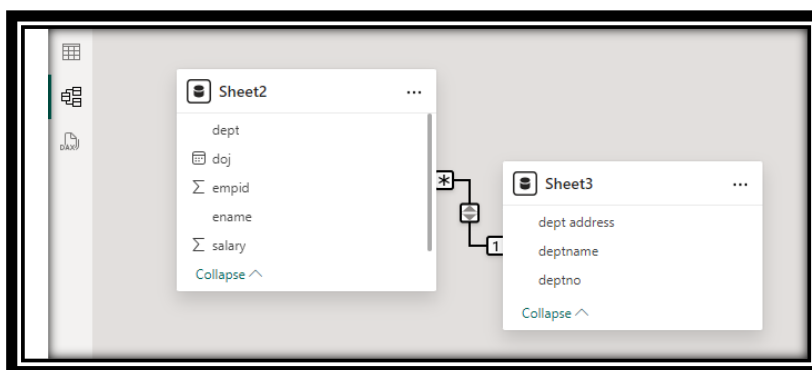
- then it show the power bi **Home page** with home tab

Step3: Select the **Get data option form the Home menu** (for storing data in to power BI desktop)

- It shows the list of files its supports from that select any one of the file which you want to create the report
- for creating the relation ship you must have more than one table and there should be one common column then you can create the relationship
- after selecting the two tables in to power BI now You can create the relation ship with the following steps
- First select the model view from the left side
- It will display as it is



- To make a relation ship just drag and drop the common column from one table to another table then automatically relationship will be created or
- Select the manage relationship option from the above it will display another window there you need to select the from table and to table and select the common column and define the cardinality like 1:1 or 1: M or M:M or M:1 and cross direction like single or both then it will display as follows



- Before relation ship we can not create a table with mixed column values but after creating the relationship we can create the table with mixed columns as follows from both tables
- Take table visuals and drag and drop the columns from both table it will be as follows

Data From Both Table									
dept	dept	address	ename	salary	Year	Quarter	Month	Day	
101	mumbai	balu	56000	2001	Qtr 1	March		3	
101	mumbai	sai	45000	2000	Qtr 1	January		1	
101	mumbai	siddu	80000	2020	Qtr 2	June		17	
102	sec	kiran	78000	2000	Qtr 1	January		2	
102	sec	sony	89000	2003	Qtr 4	December		23	
102	sec	vani	45000	2005	Qtr 2	April		5	
103	hyd	geetha	67000	2015	Qtr 4	December		30	
103	hyd	krish	90000	2010	Qtr 2	May		5	

12. Experiment with the cross-filter direction in a Power BI report. Show how changing the filter direction affects the data displayed in your report

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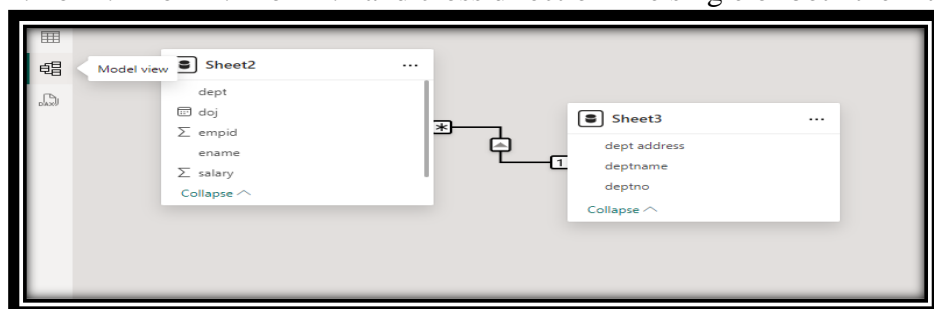
→ after selecting the two tables in to power BI now You can create the relation ship with the following steps

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→ It will display as it is

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→ Select the manage relationship option from the above it will display another window there you need to select the from table and to table and select the common column and define the cardinality like 1:1 or 1: M or M:M or M:1 and cross direction like single or both then it will display as fol



lows

Edit relationship

Select tables and columns that are related.

From table
Sheet2

dept	doj	empid	ename	salary
101	Saturday, Jan...	1001	sai	45000
102	Sunday, Janu...	1002	kiran	78000
101	Saturday, Mar...	1003	balu	56000

To table
Sheet3

dept address	deptname	deptno
mumbai	sales	101
sec	purchase	102
hyd	finance	103

Cardinality
Many to one (*:1)

Cross-filter direction
Single

☒ Make this relationship active
☐ Assume referential integrity

☐ Apply security filter in both directions

Save **Cancel**

The cross filter direction = single/both

If we select single only one way joining the tables

If we select the both then two way joining the tables

deptno	dept address	deptname	ename	deptno	deptname	dept address
103	hyd	finance	geetha	101	sales	mumbai
103	hyd	finance	krish	102	purchase	sec
101	mumbai	sales	balu	103	finance	hyd
101	mumbai	sales	karnakar			
101	mumbai	sales	sai			
101	mumbai	sales	siddu			
102	sec	purchase	kiran			
102	sec	purchase	sony			
102	sec	purchase	vani			

13. Create a series of measures in Power BI and save your work. Explain how you use these measures in different visualizations.

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Step 4: It open the browser window from that select your file

Step 5: Again it open Navigator window showing to you all tables to the left side and data to the right side

Step 6: Select the tables which you want to create the reports

Step 7: Click on Load

Step 8: Now the selected tables and columns are added to the right side of your data pane

Step 9: Click on > **table name** Symbol to see all columns of that table

Creating the measure in power BI

Step 10: select the measure option and create the following measure

Total employs=count(HRDataset_v14[empid])

Sum of all employs salary=sum(HRDataset_v14[salary])

Max salary =max(HRDataset_v14[salary])

Min salary=min(HRDataset_v14[salary])

Avg employs salary=avg(HRDataset_v14[salary])

Step 11:

→ Now all measure are gets added to the data pan

→ Drag the cards into the page and also drag the measure in to the page that's gets displayed

→ And apply the required formatting settings

→ The result will be as follows



Step 12

→For saving → file menu→save→give the name →ok then it will be saved with that name

14. Write a DAX expression to create a calculated column in Power BI. Explain the logic behind your expression

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We selected emp table which contain (empid,ename,salary,dept)

Now we are creating the calculated column as tax

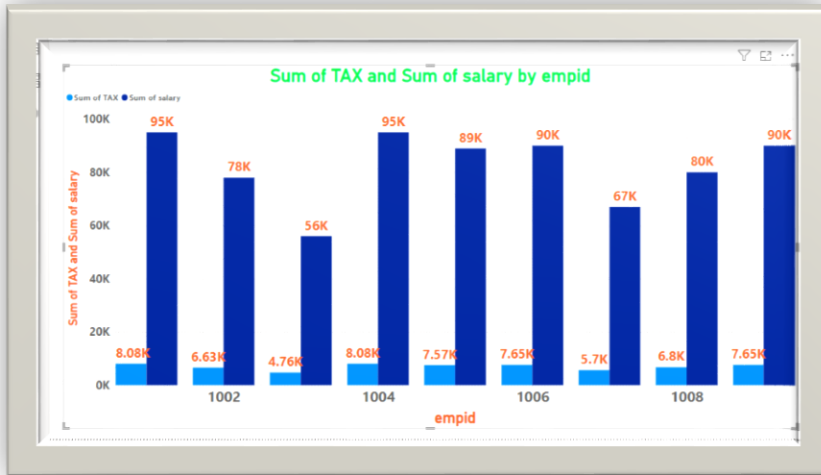
Tax=10 % on sales

Go to data pane select three dots(...) click on it and select calculated column and type as follows

Tax=emp(salaray)*10/100

Step 9: select column chart drag and drop the empid in rows and salary and tax in columns

Step 10: apply the title color size and data labels etc



15. Create at least three different measures using DAX. Demonstrate how these measures can be used in visualizations

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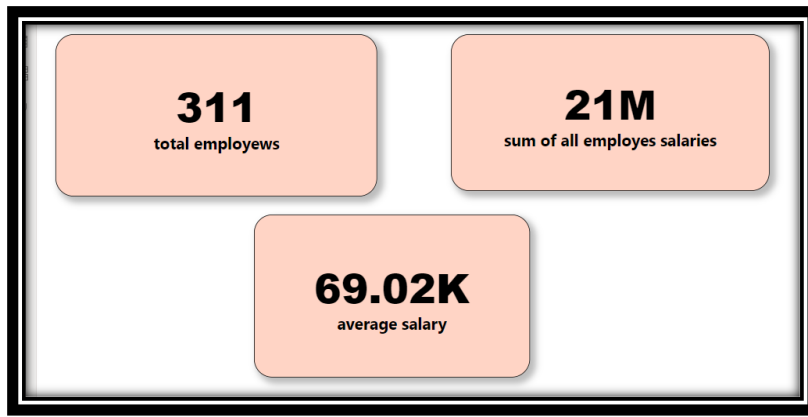
Step 11:

→ Now all measure are gets added to the data pan

→ Drag the cards into the page and also drag the measure in to the page that's gets displayed

→ And apply the required formatting settings

→ The result will be as follows



16. Use a combination of DAX functions and operators to solve a specific business problem, such as calculating year-over-year growth

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calculating year-over-year growth

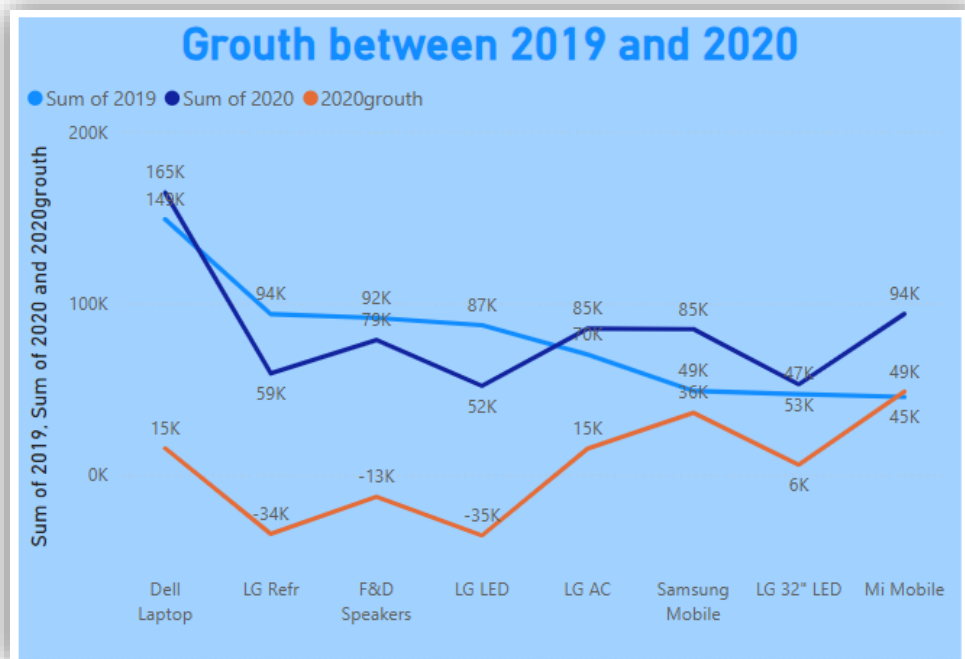
Step 10:

select table from the data pane(...) and click on three dots(...) select calculated column and type as follows

2020grouth = **SUM**(Table1[2020]) - **sum**(Table1[2019])

Grouth_persentage = **Table1[2020grouth]/Table1[2019]*100**

Step 11 take the line chart drag and drop the 2019 ,2020,2020grouth,mesures



17. Create various charts (e.g., bar, line, pie) using Power BI's visualization tools. Discuss the scenarios where each type of chart would be most effective

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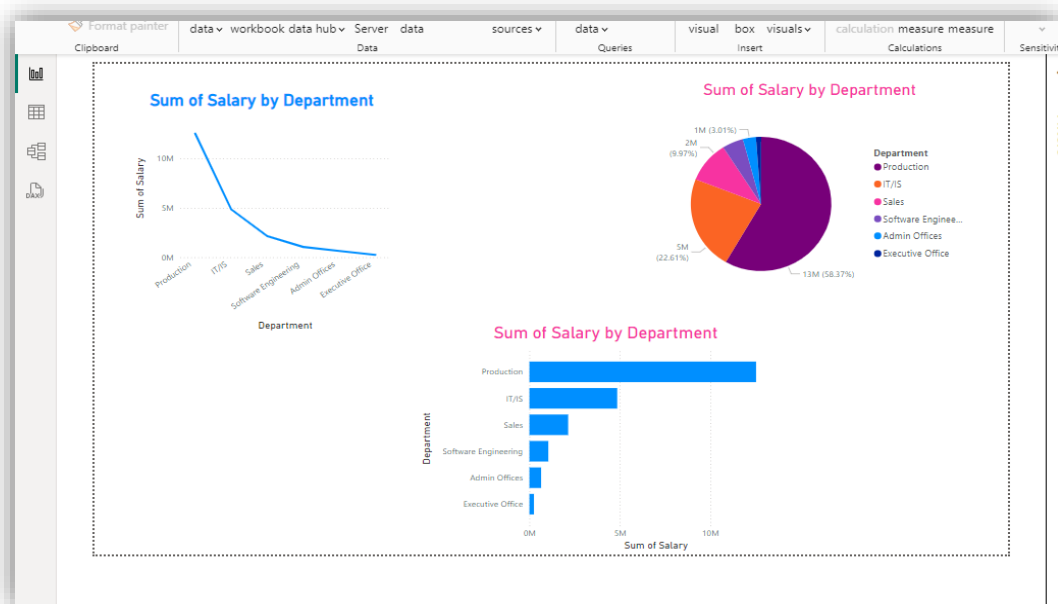
Step 9: Click on > **table name** Symbol to see all columns of that table

Step 10: drag the line chart from the visualization pan and add department name and salary to the x and y axis

Step 11: drag the bar chart from the visualization pan and add department name and salary to the x and y axis

Step 12: drag the pie chart from the visualization pan and add department name and salary to the legend and values fields

Step 13: apply the necessary formatting's to the charts



18. Build a report using matrices and tables in Power BI. Highlight the differences and advantages of using matrices over tables in specific scenarios

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For Creating table

→ Select the TABLE from the visualization pan drag in to the report view

→ Drag the required column and drop in to the column fields then it will be constructed with the specified columns(like employee name,state,department)

For creating the matrix

- ➔ Select the matrix form the visualization drag the department , gender, employee name in to the respected fields like rows , column , values then it will be created the matrix with rows as department and columns as gender and name are the values will be as follows

emp data with table		
Employee_Name	State	Department
LaRotonda, William	MA	Admin Offices
LeBlanc, Brandon R	MA	Admin Offices
Steans, Tyrone	MA	Admin Offices
Ait Sidi, Karthikeyan	MA	IT/IS
Bacong, Alejandro	MA	IT/IS
Barbossa, Hector	TX	IT/IS
Booth, Frank	CT	IT/IS
Champaigne, Brian	MA	IT/IS
Clayton, Rick	MA	IT/IS
Costello, Frank	MA	IT/IS
Cross, Noah	CT	IT/IS
DeVito, Tommy	MA	IT/IS
Dougall, Eric	MA	IT/IS
Fett, Boba	MA	IT/IS
Foss, Jason	MA	IT/IS
Goeth, Amon	MA	IT/IS
Gruber, Hans	MA	IT/IS
Lajiri, Jyoti	MA	IT/IS
Monroe, Peter	MA	IT/IS
Navathe, Kurt	MA	IT/IS
Pearson, Randall	MA	IT/IS

employee data with matrix			
Department	F	M	Total
Admin Offices	Boutwell, Bonalyn	LaRotonda, William	Boutwell, Bonalyn
Executive Office	King, Janet		King, Janet
IT/IS	Becker, Renee	Ait Sidi, Karthikeyan	Ait Sidi, Karthikeyan
Production	Akinkuolie, Sarah	Adinolfi, Wilson K	Adinolfi, Wilson K
Sales	Bunbury, Jessica	Chigurh, Anton	Bunbury, Jessica
Software Engineering	Andreola, Colby	Cady, Max	Andreola, Colby
Total	Akinkuolie, Sarah	Adinolfi, Wilson K	Adinolfi, Wilson K