Credit Card Customer and Transaction Report

1) Partition/ Steps of the Project Video

a) Project Overview: We see the problem statements and the process or work what we have to do in our project.

b) Data Extraction: We had to connect our Power Bi with our Database (SQL) then we import data in power bi and then we will create the Dashboards.

c) Data Processing and DAX Queries: We perform some calculations, process data, use formulas and functions to create new columns, charts and tables.

d) Dashboards and Insights: We will create 2 Dashboards and share their insights and also share some bullet points so to add in you resume.

e) Export and Share: We export the Project insights and all things like dashboards and all and then we also share the link to the LinkedIn too.

2) About Project

- There are 2 dashboards: Credit Card Customer Report and Credit Card Transaction Report.
- We have created weekly report of our data. The data will be organized weekly that we choose or select. Same as week we have some filters that we are using.
- Filters are: Male / Female, Company Card type(Platinum, Gold, Silver, Blue)
- Also we can watch data quarterly
- Some KPI's (Key Performance Indicators) are used here like, Total Revenue, Total Interest, Transaction Amount, Transaction count etc.
- We use different charts for visualizing The Revenue based on Expenditure type, education, Customer Job, Quantity Revenue and Transaction Count.
- Credit Card Transaction Report was based on Gender (Male / Female).
- Advantage of creating Dashboard is that once you create it there is only to need to refresh this for the new data the data. We just need to add the next week data and refresh it, all the KPI's, charts and tables automatically updated as well.

Q. Why not to develop colorful dashboards in office or for any work.

Ans. Because Stakeholder or clients only want to get the insights from the dashboards. Also avoid Dark Background colors.

3) Project Objective

To develop comprehensive credit card weekly dashboard that provides real-time insights into key performance metrics and trends, enabling stakeholders to monitor and analyze credit card operations effectively.

4) Importing Data to SQL database

For importing data from SQL to Power BI we have pre-contained data available in SQL and that data we insert in SQL through multiple pipelines but we use this when we are working on real world time data. So in this project we :

- We Prepare the CSV file.
- Create Table in SQL database.
- Import csv file into SQL database.
- After that when we get data inside SQL then we connect it with Power Bi to create charts and reports.

We have 4 data files:

- A-customer.csv
- B-cust_add.csv
- C-credit_card.csv
- D-cc_add.csv

We will make Credit card transactions and credit card customer dashboard using A and B respectively.

5) About Columns in 'credit_card.csv'

- Client-num: It is the customer id number.
- Card-category: We have 4 types of card i.e Blue, Gold, Platinum, Silver.
- Annual Fees: Every card had annual fees /charge
- Activation-30 days: Asking us if activated the card in 30 days or not.
- Customer Acquisition cost: Providing Services to the customer whether it is gathering the customer to provide services, so these services had a cost that is called Customer Acquisition Cost.
- Week-start-date: The week a customer come to the company and start their services.
- Week number: Based on above parameter it is choose (Ex: 01 Jan 2023 – 07 Jan 2023) it is the 1st week called as **Week-1,** and so on.

All our data is in sorted in weekly level because we had to create the weekly dashboards.

- Current-year: we had choose 2023 but we can add as many years as we want.
- Credit-limit: Every card had a limitations of money and all.
- Total-revolving balance: Old balance that is carry forward in next month to pay.
- Total-transaction-amount: how much transactions you had done in that particular week.

- Total-transaction-volume: Means how many times performed transaction.(ex: I had pay restaurant bills, recharge etc. and I had pay that times.
- Average Utilization-ratio: It will be founded by Credit-limit and total Revolving balance, less the value of AUR good customer appointed you are.
- Use chips: how you used the card whether Online, live pin or Swipe etc.
- Expenditure-type: On Which asset you had payed.
- Interest: how many company earn.
- Delinquent: those who don't pay money.

6) About Columns in 'customer.csv'

All Data is a foreign data or U.S. data means all Zip code and currency is of U.S based.

Client-Num, Customer-Gender, Depender, Maritial status, State-cd, zipcode, car-owner, house-owner, personal-loan, contact, customer-job, income, customer-satisfaction score.

7) Creating the Database named mjProject and then created two tables using query in MySQL. (We can also use PostgreySQL) same commands as well!

Tables name are: **cc_details** and **cust_details**

8) Now we had to import the data inside the tables and we use copy function. Copy function will copy all the values from the .csv file

**Copy** function was used in Postgrey sql but in My SQL below query will be used

```
LOAD DATA INFILE 'path/to/your/file.csv' INTO TABLE your_table_name FIELDS
TERMINATED BY ';'  IGNORE 1 ROWS;
```

Key points about the query:

- **"LOAD DATA INFILE":** The core command to initiate the import. 🔗
- **"path/to/your/file.csv":** Replace this with the actual path to your CSV file. 🔗
- **"INTO TABLE your_table_name":** Specify the table where you want to import the data. 🔗
- **"FIELDS TERMINATED BY ','":** Indicates that the columns in your CSV file are separated by commas. 🔗
- **"IGNORE 1 ROWS":** Optional, skips the first row of the CSV file if it contains headers. 🔗

To copy data from a CSV file into a MySQL table, the query used is "LOAD DATA INFILE". This command allows you to directly import data from a text file (like a CSV) into a table, making it efficient for large datasets. 🔗

But there was a error and it was that, there is a location fixed for the files to be copied that is C drive.


```
48 ●    select @@secure_file_priv;
```

@@secure_file_priv
C:\ProgramData\MySQL\MySQL Server 8.0\Upl...
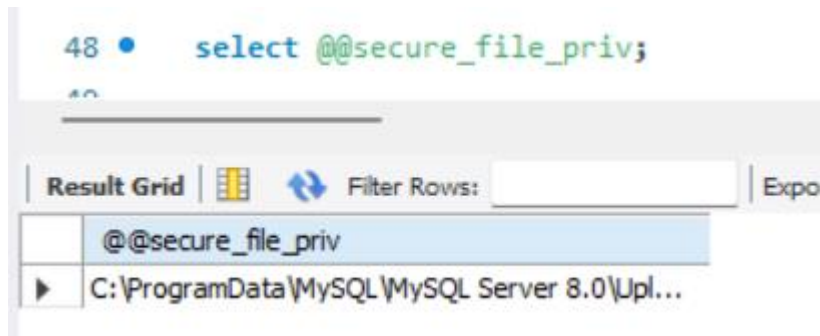
Now we have to change so that files data should be copied from every location.
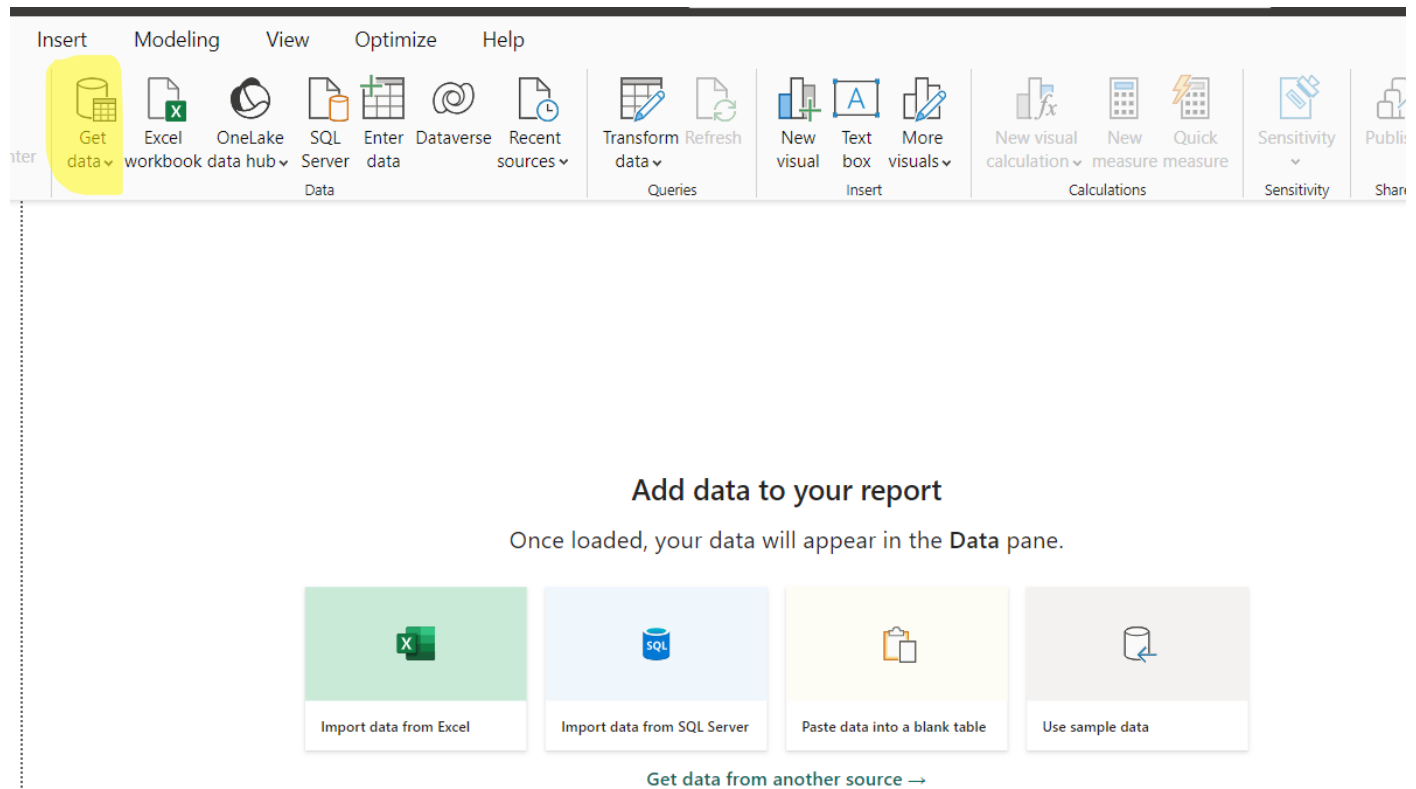
But we are using PostgreSQL here,

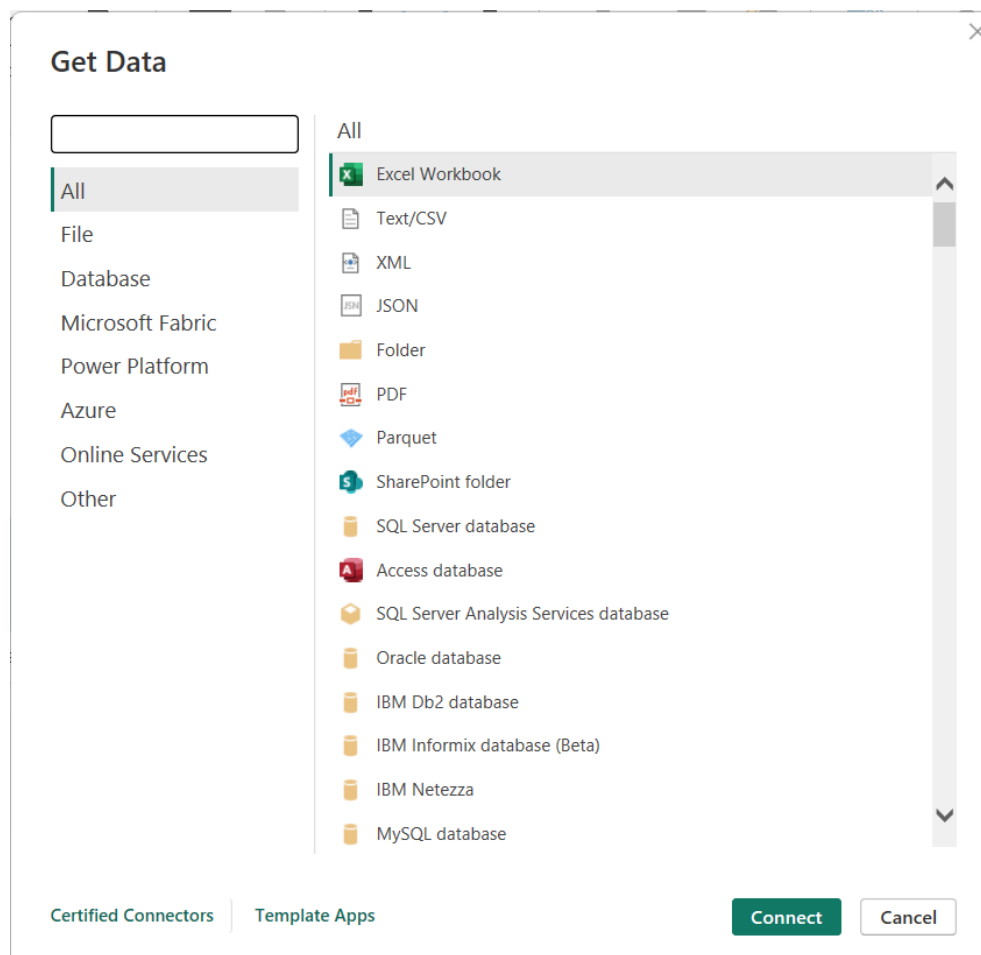This query was used to copy data from the CSV file into the table

```
3  copy cc_detail
4  from 'D:\YMCA\Sem 7\Major Project\credit_card.csv'
5  delimiter ','
6  csv header
```
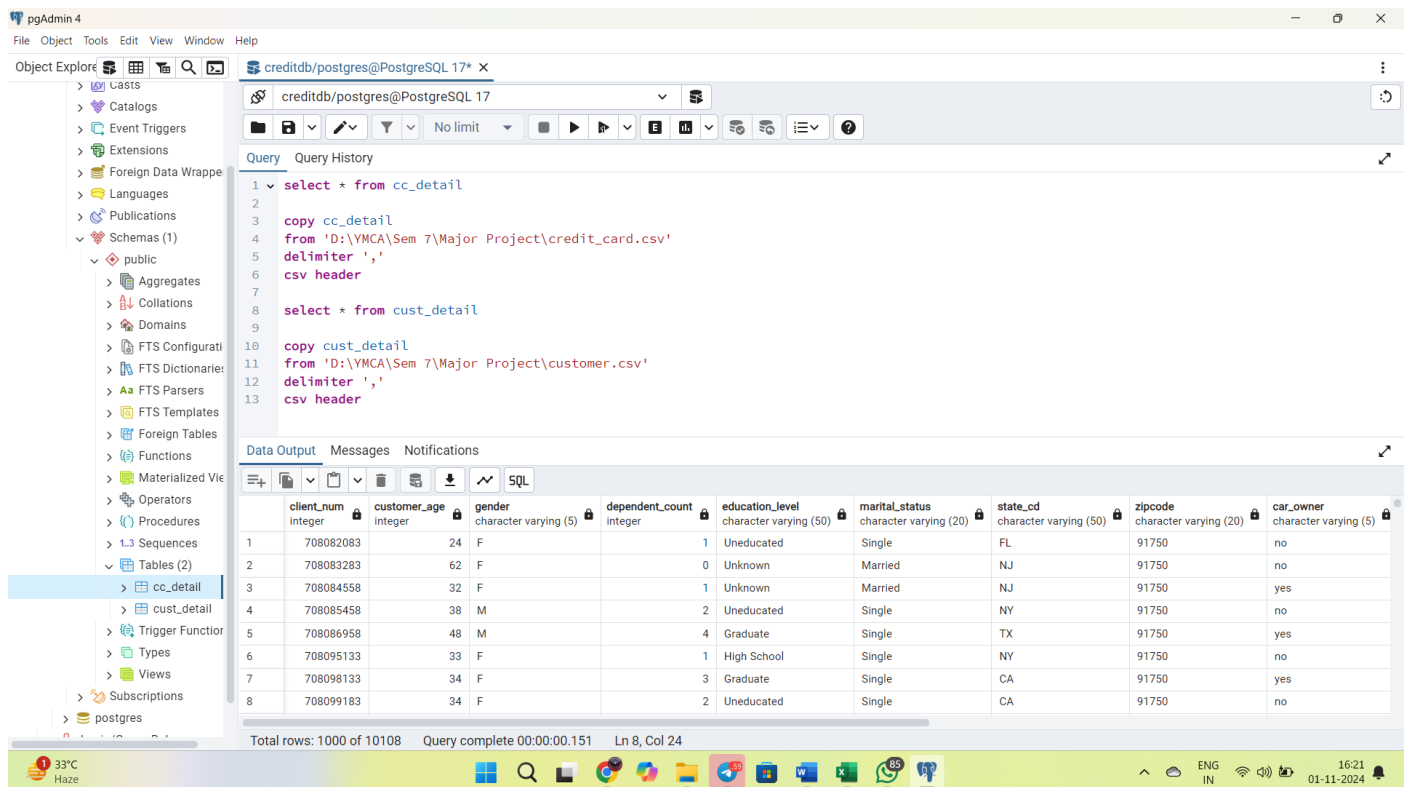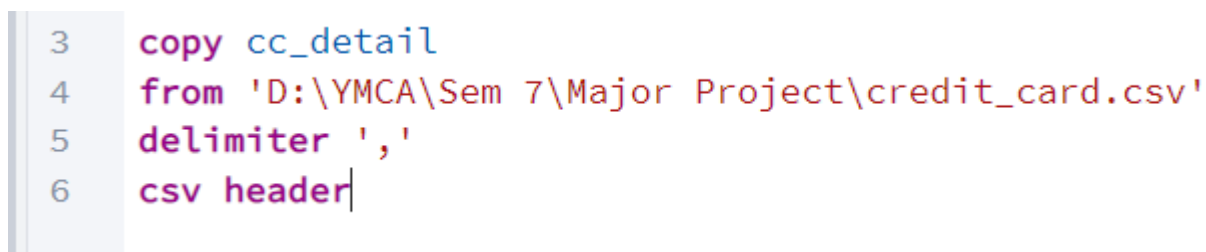
9) Next step is to connect this database with power bi and import the data into it.

Steps are:

a) Now we import data by clicking on **Get Data**

b) You can import data from the following:

We have Choose Database and in it we choose PostgreSQL database.

Get Data

Search	Database
All	SQL Server database
File	Access database
Database	*Import data from a SQL Server database.*
Microsoft Fabric	SQL Server Analysis Services database
Power Platform	Oracle database
Azure	IBM Db2 database
Online Services	IBM Informix database (Beta)
Other	IBM Netezza
	MySQL database
	PostgreSQL database
	Sybase database
	Import data from a PostgreSQL database.
	Teradata database
	SAP HANA database
	SAP Business Warehouse Application Server
	SAP Business Warehouse Message Server
	Amazon Redshift
	Impala

c) After that you had to write the host name and the database name

PostgreSQL database

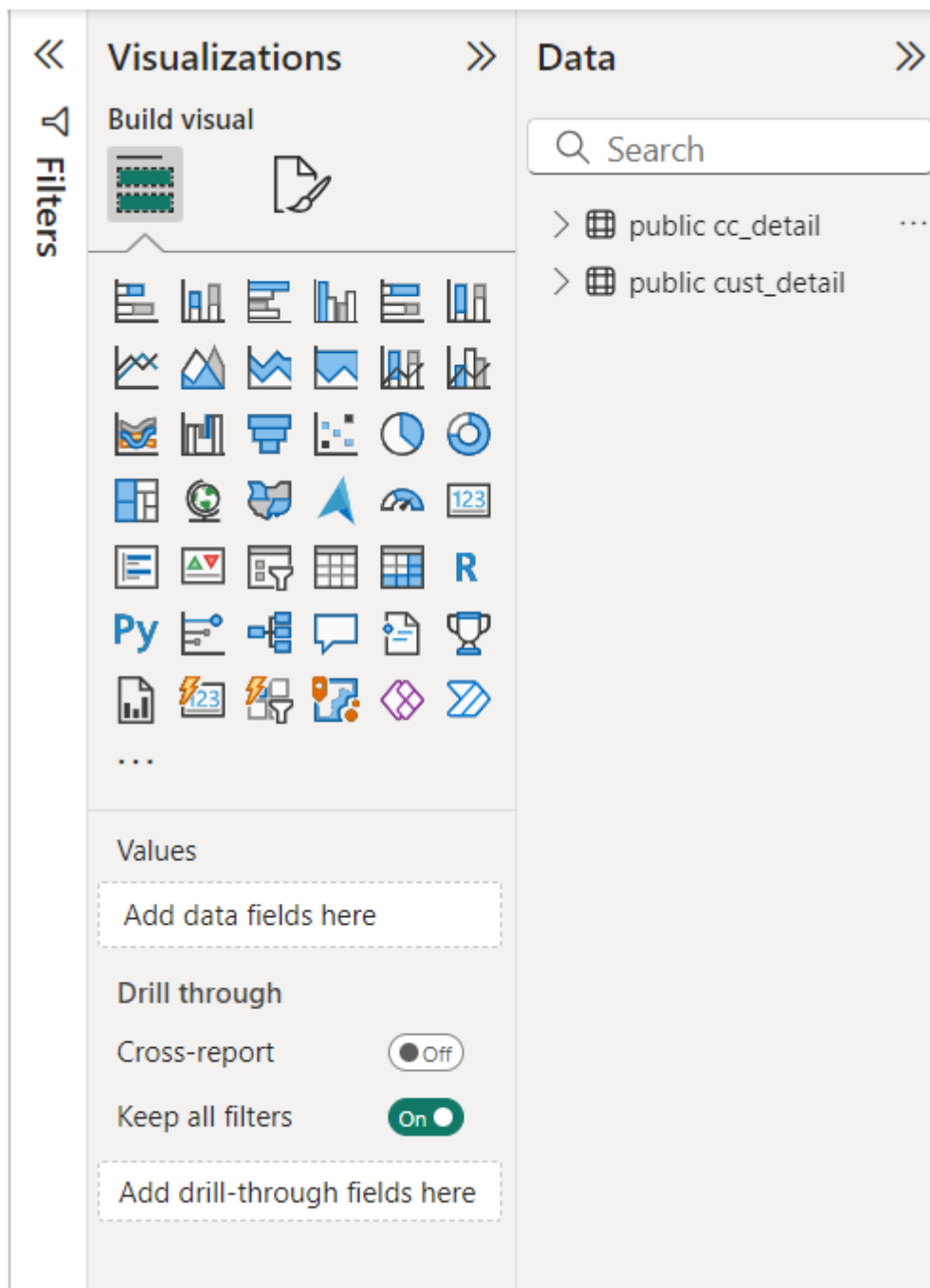Server

Database

Data Connectivity mode ⓘ
◉ Import
◯ DirectQuery

▷ Advanced options

OK   Cancel

d) Now the data is imported perfectly

Some how if not able to import the Data from Database then simple import the .csv files.

10) <u>Data Processing and DAX Queries</u>

The first step in data processing was to check the data is null or not, there are duplicate values or not etc.

The best move for data cleaning should be done in Database not in Data Visualization tools.

We had to choose the headers carefully and based on the output data we want to visualize to get the insights from it.

Steps we Performed:

1) Select the Table and then Click on Add column

2) Provide name to the column as **AgeGroup** and use **SWITCH()** function that is used to handle multiple conditions.
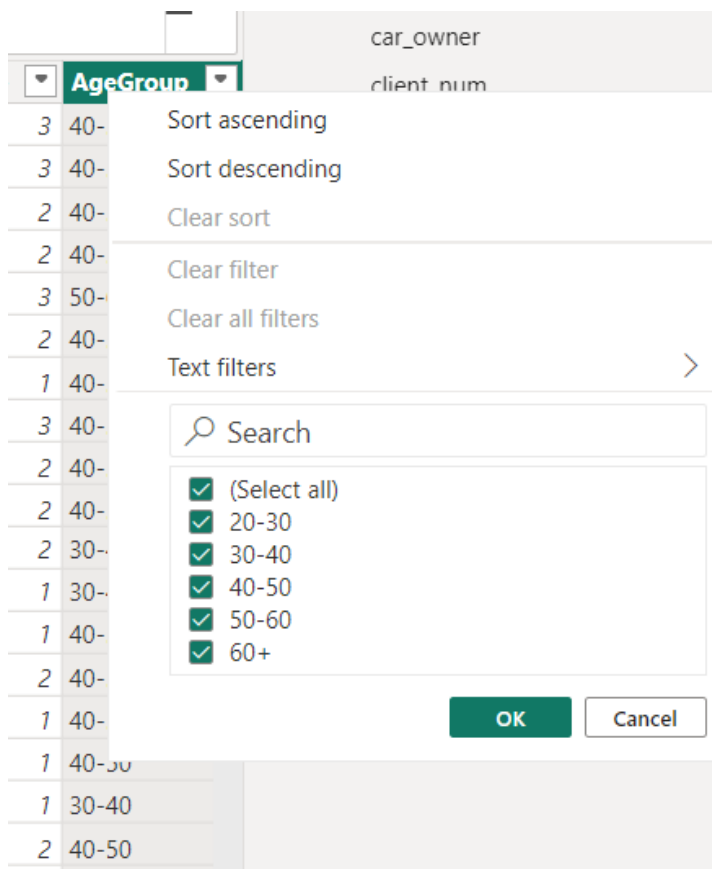
SWITCH()
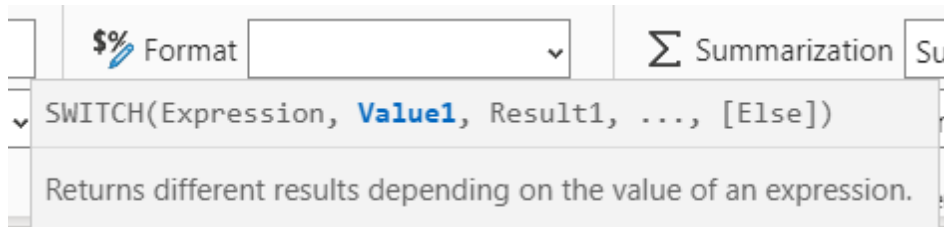
3) Write down the DAX Query below

These Quaries based on project understanding and how it should be analysed.

```
AgeGroup = SWITCH(
    TRUE(),
    'public cust_detail'[customer_age] < 30,"20-30",
    'public cust_detail'[customer_age] >=30 && 'public cust_detail'[customer_age] < 40 ,"30-40",
    'public cust_detail'[customer_age] >=40 && 'public cust_detail'[customer_age] < 50 ,"40-50",
    'public cust_detail'[customer_age] >=50 && 'public cust_detail'[customer_age] <60 ,"50-60",
    'public cust_detail'[customer_age] >=60,"60+",
    "unknown"
)
```
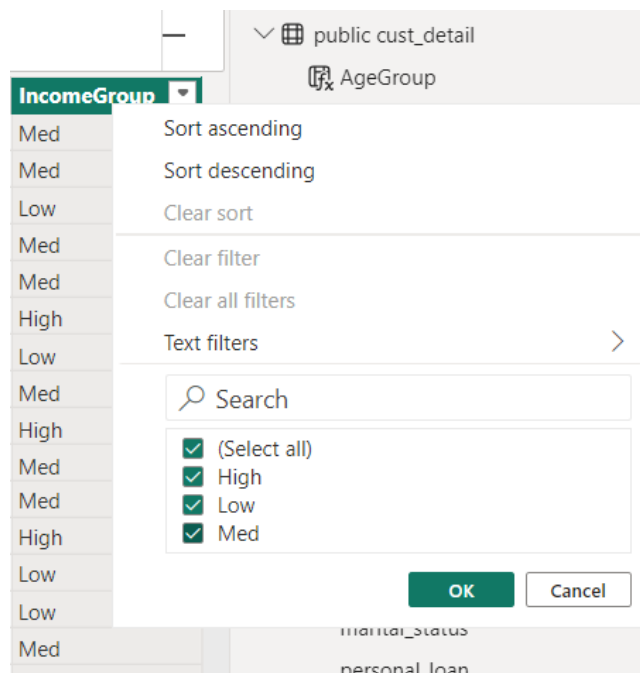
The Group is created and we also do the same thing for all the groups we made

```
IncomeGroup = SWITCH(
    TRUE(),
    'public cust_detail'[income] < 35000, "Low",
    'public cust_detail'[income] >= 35000 && 'public cust_detail'[income] <
70000, "Med",
    'public cust_detail'[income] >= 70000,"High",
    "unknown"
)
```
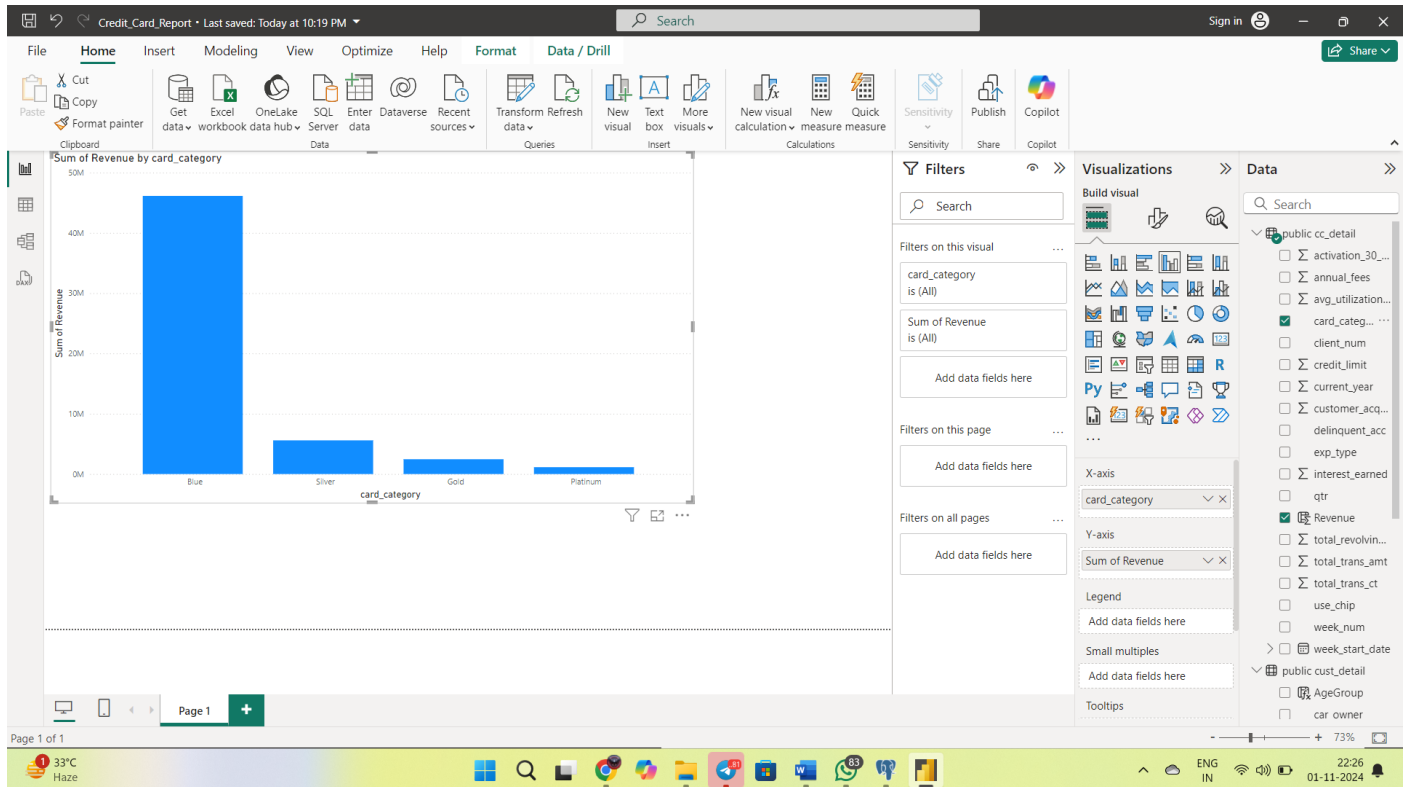
We can choose these values on our own.


```
Revenue = 'public cc_detail'[annual_fees] + 'public cc_detail'[total_trans_amt] +
'public cc_detail'[interest_earned]
```

Usage of above generated column is that **We can see the Sum of revenue of different category of cards.**

In the above graph we see that **We get higher revenue from blue card.**

Now we create a table to compare week on week.

First we create the column for week number because below are not sorted as well.

Query is :

```
week_num2 = WEEKNUM('public cc_detail'[week_start_date])
```

The Output column was created and now we sort it in ascending order!

week_start_date	week_num	qtr	curre	cre
01 January 2023	Week-1	Q1	2023	
01 January 2023	Week-1	Q1	2023	
01 January 2023	Week-1	Q1	2023	
01 January 2023	Week-1	Q1	2023	
01 January 2023	Week-1	Q1	2023	
01 January 2023	Week-1	Q1	2023	
01 January 2023	Week-1	Q1	2023	
01 January 2023	Week-1	Q1	2023	
01 January 2023	Week-1	Q1	2023	
01 January 2023	Week-1	Q1	2023	
01 January 2023	Week-1	Q1	2023	
01 January 2023	Week-1	Q1	2023	
01 January 2023	Week-1	Q1	2023	
01 January 2023	Week-1	Q1	2023	
01 January 2023	Week-1	Q1	2023	
01 January 2023	Week-1	Q1	2023	
01 January 2023	Week-1	Q1	2023	
01 January 2023	Week-1	Q1	2023	
01 January 2023	Week-1	Q1	2023	
01 January 2023	Week-1	Q1	2023	
01 January 2023	Week-1	Q1	2023	
01 January 2023	Week-1	Q1	2023	
01 January 2023	Week-1	Q1	2023	
01 January 2023	Week-1	Q1	2023	
01 January 2023	Week-1	Q1	2023	

interest_earned	delinquent_acc	Revenue	week_num2
370	0	5185	1
337.05	1	5277.05	1
702.2	0	4513.2	1
236.4	0	4426.4	1
3047.31	0	17913.31	1
1932.19	0	16995.19	1
1523.84	0	11382.84	1
2019.38	0	11543.38	1
1424.43	0	10153.43	1
785	0	5165	1
1054.62	1	5160.62	1
387.84	0	2343.84	1
419.73	1	3248.73	1
2417.12	1	17909.12	1
374	0	2714	1
253.56	0	4779.56	1
1054.17	0	9463.17	1
627.9	0	9747.9	1
525	0	5200	1
1284.64	0	6022.64	1
745.47	0	3876.47	1
707.2	0	5417.2	1
514.8	1	5549.8	1
456.56	1	2337.56	1
1084.82	1	6315.82	1
893.04	1	4969.04	1
1214.08	0	5800.08	1

Now for sorting below Double click on week_num2

week_num	week_num2
Week-52	52
Week-51	51
Week-50	50
Week-49	49
Week-48	48
Week-47	47
Week-46	46
Week-45	45
Week-44	44
Week-43	43
Week-42	42
Week-41	41
Week-40	40
Week-39	39
Week-38	38

week_num	week_num2
Week-1	1
Week-2	2
Week-3	3
Week-4	4
Week-5	5
Week-6	6
Week-7	7
Week-8	8
Week-9	9
Week-10	10
Week-11	11
Week-12	12
Week-13	13
Week-14	14
Week-15	15

Now we add Revenue In it and to remove decimal click on the column and then column tools and then in formatting you find auto, change it to zero.

Total	5,53,15,410.23

Total	55315410

Now we have to calculate the week on week revenue so to find the difference so to find current week revenue we use a function or a formula.

Click on public cc_detail ->New Measure, then write the below query

```
Current_week_Revenue = CALCULATE(
    SUM('public cc_detail'[Revenue]),
    FILTER(
        ALL('public cc_detail'),
        'public cc_detail'[week_num2] = MAX('public cc_detail'[week_num2])))
```
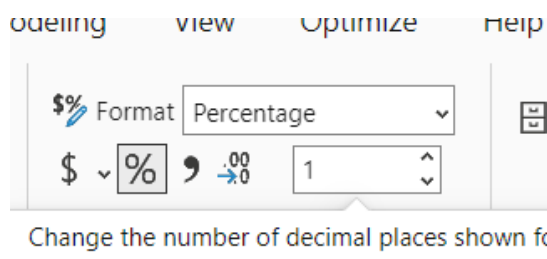
Current_week_Revenue
12,36,294.67
11,82,651.53
11,53,364.56
11,48,249.80
11,47,869.75
11,31,280.79
11,21,745.13
11,17,637.54
11,16,900.64
11 15 663 02

Same for Previous week revenue

```
Previous_week_Revenue = CALCULATE(
    SUM('public cc_detail'[Revenue]),
    FILTER(
        ALL('public cc_detail'),
        'public cc_detail'[week_num2] = MAX('public cc_detail'[week_num2])-1))
```

Previous_week_Revenue
1035629
1053089
1148250
1071919
1064578
1121745
1099909
1071542
1002502

Now we generate a New column called WeekOverWeek_revenue

```
wow_revenue = DIVIDE(([Current_week_Revenue] -
[Previous_week_Revenue]),[Previous_week_Revenue])
```

wow_revenue
0.02
0.09
-0.07
-0.01
0.05
-0.02
-0.03
0.02

To convert it into Percentage and decimal point-1

wow_revenue
1.7%
9.0%
-6.6%
-0.7%
5.4%
-1.9%

So,basically it's a week on week comparison done to check kitne percent se increase/decrease hua hai.

week_num2	Previous_week_Revenue	Current_week_Revenue	wow_revenue
52	1070439	933134	-12.8%
51	1026549	1070439	4.3%
50	980152	1026549	4.7%
49	1008777	980152	-2.8%

11) **Creating the Dashboards**

a) Add Heading
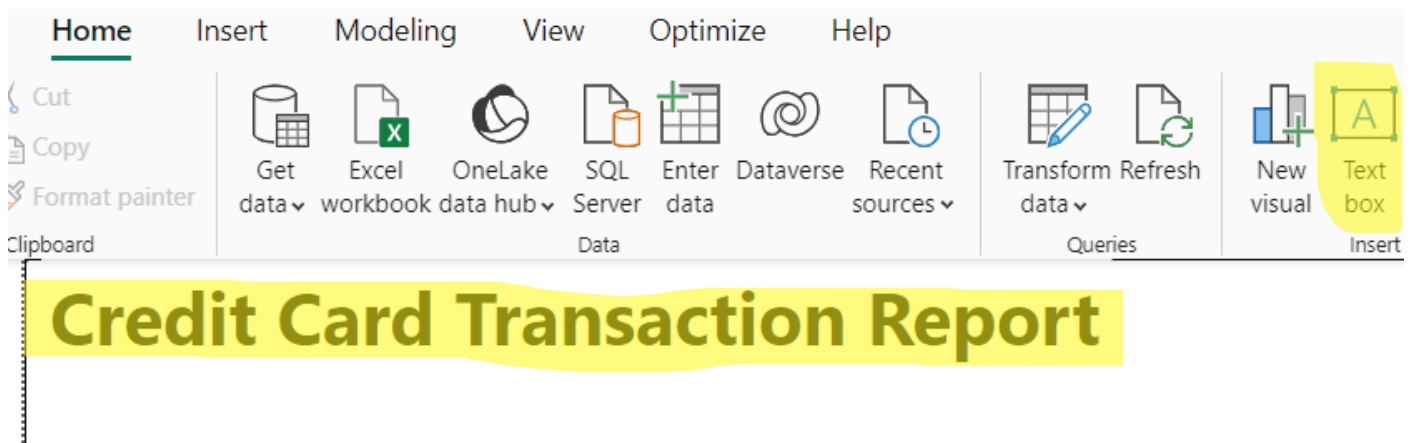
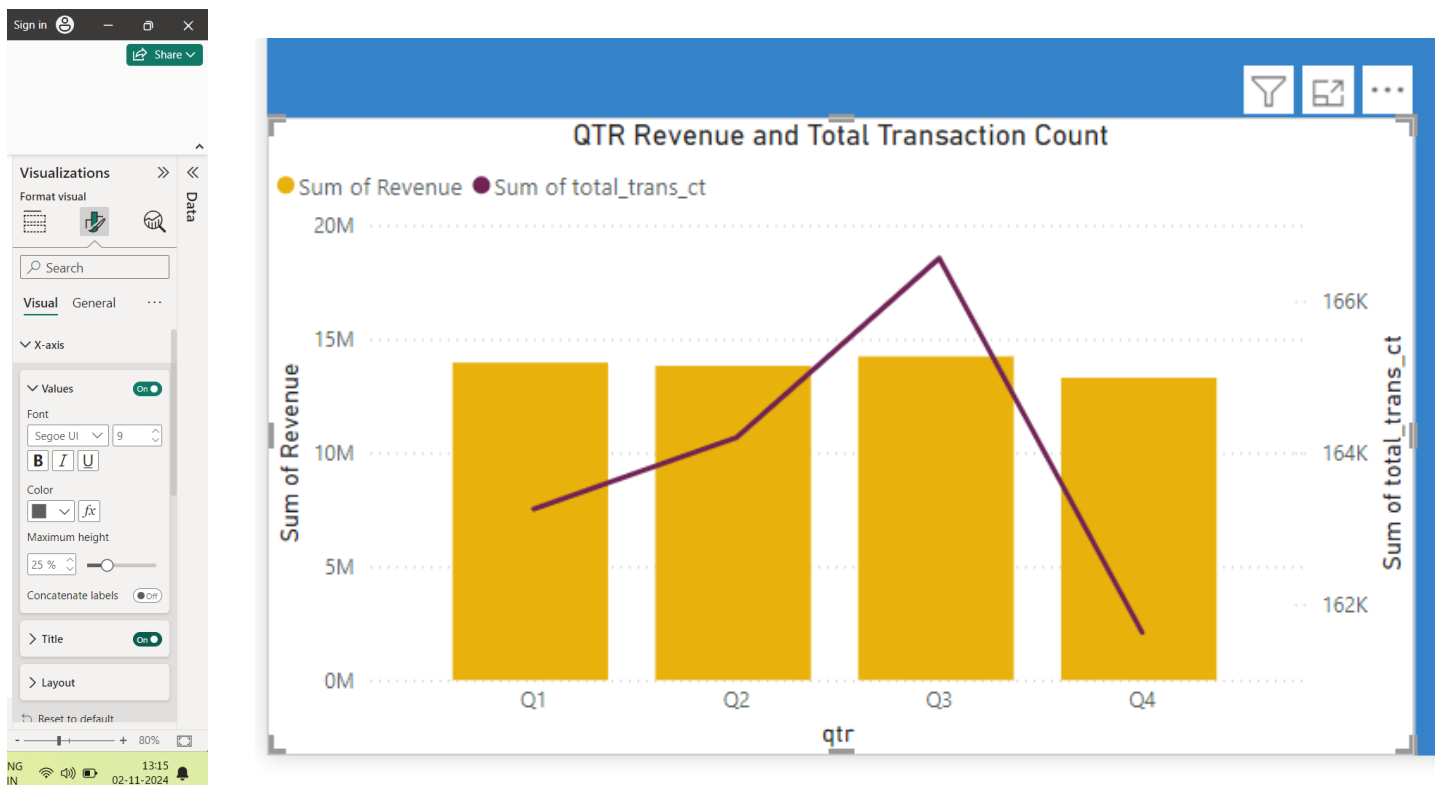
b) Firstly we create Line and Stacked Column Chart
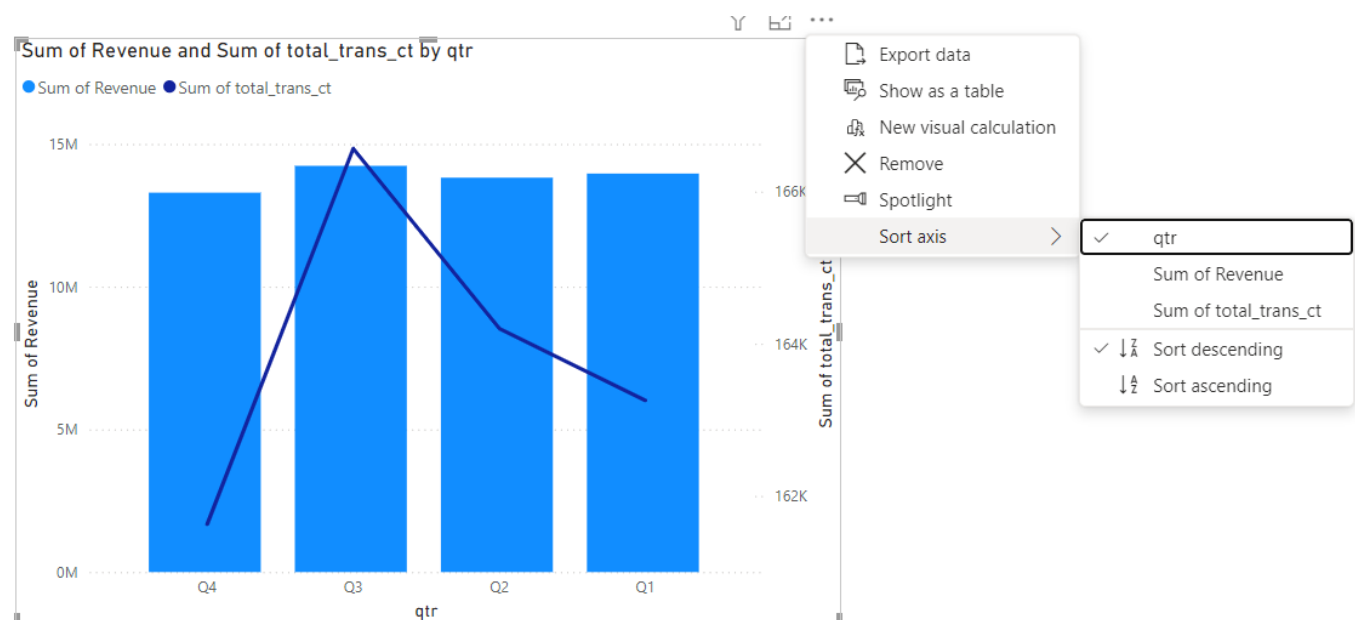
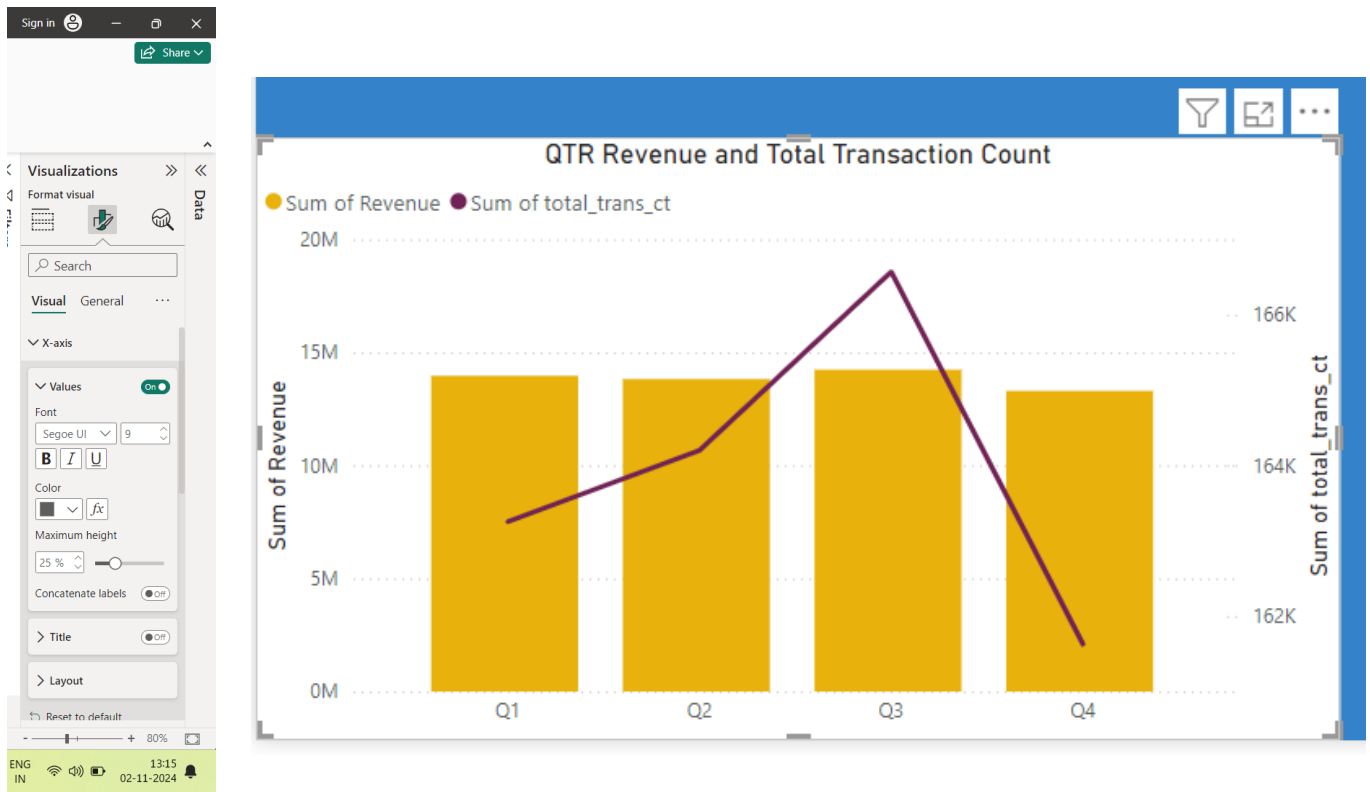And we sort on basis of Qtr, change color of the bars also
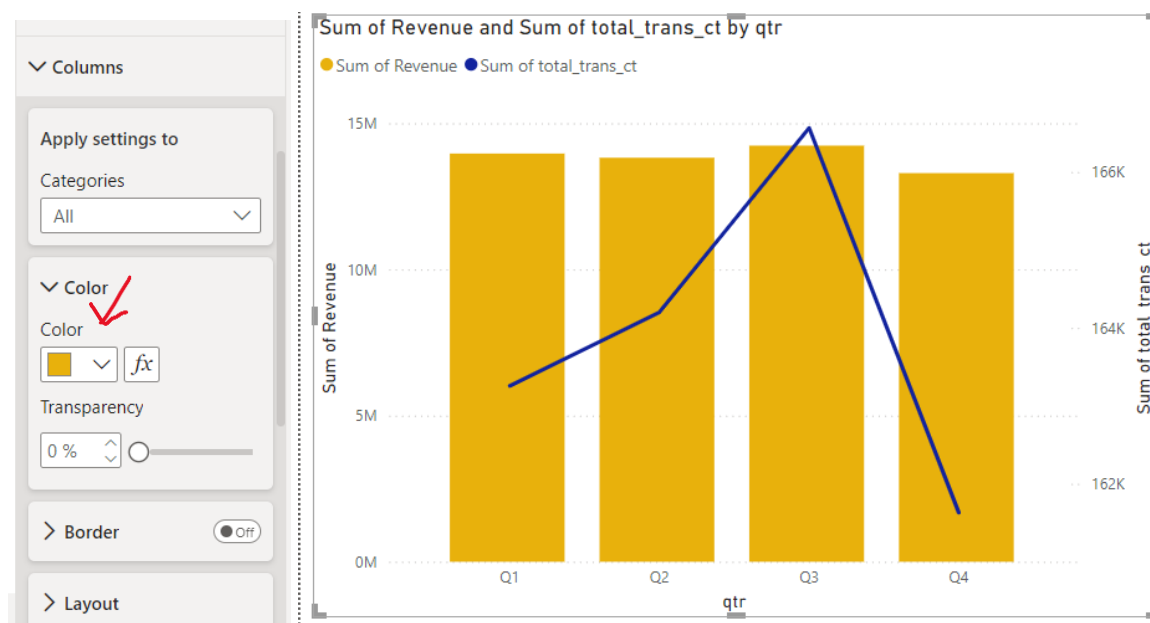
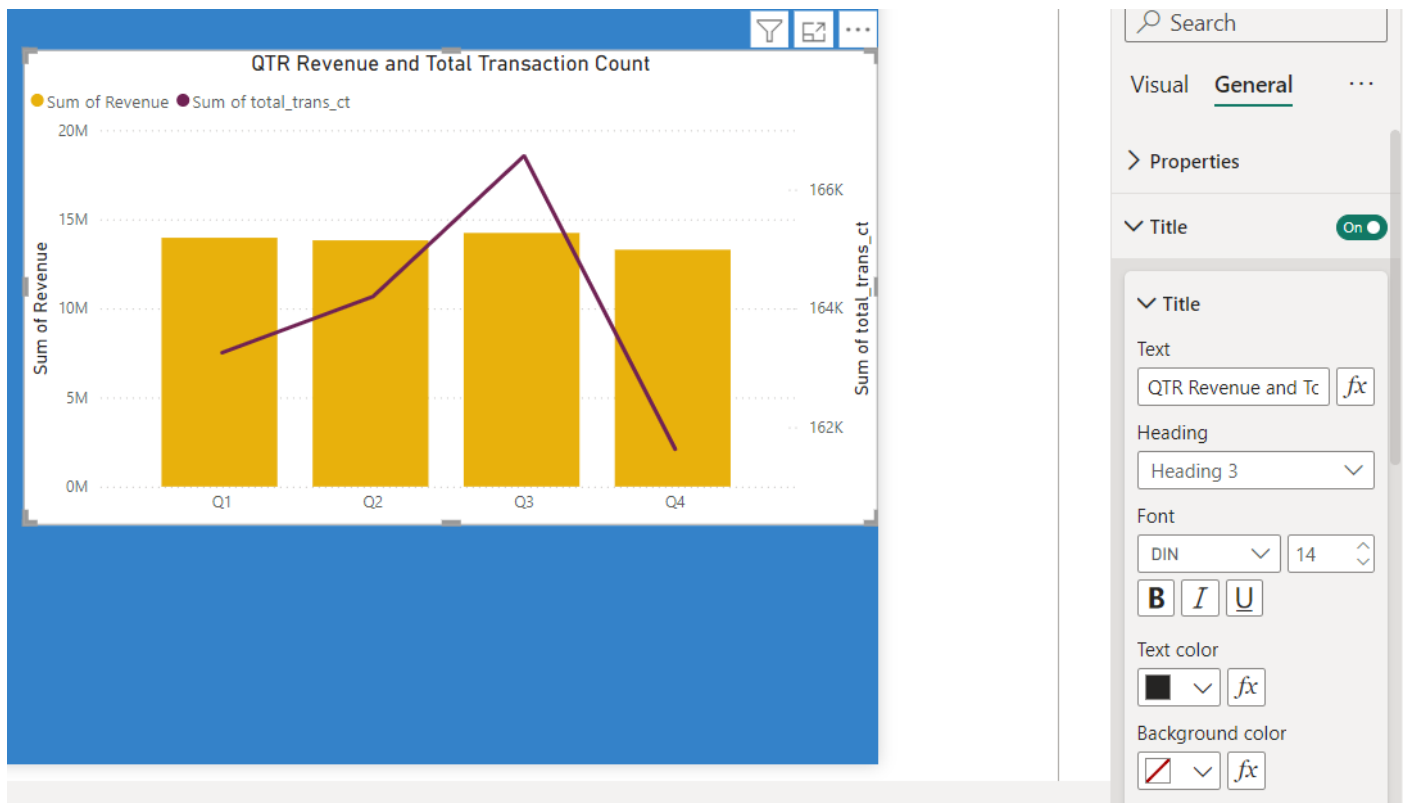c) We change Background also, can eaily put image or color and Can change Line color also. You can see the output.
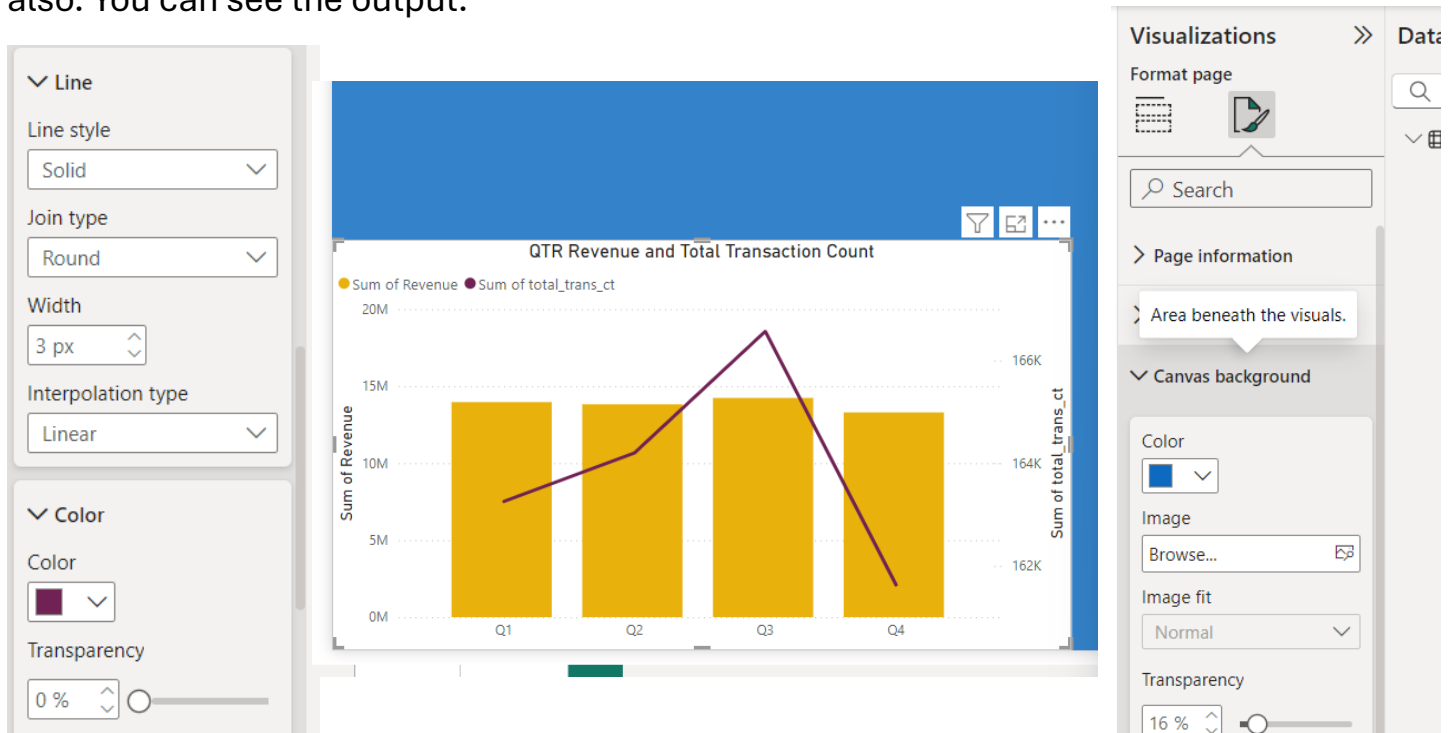
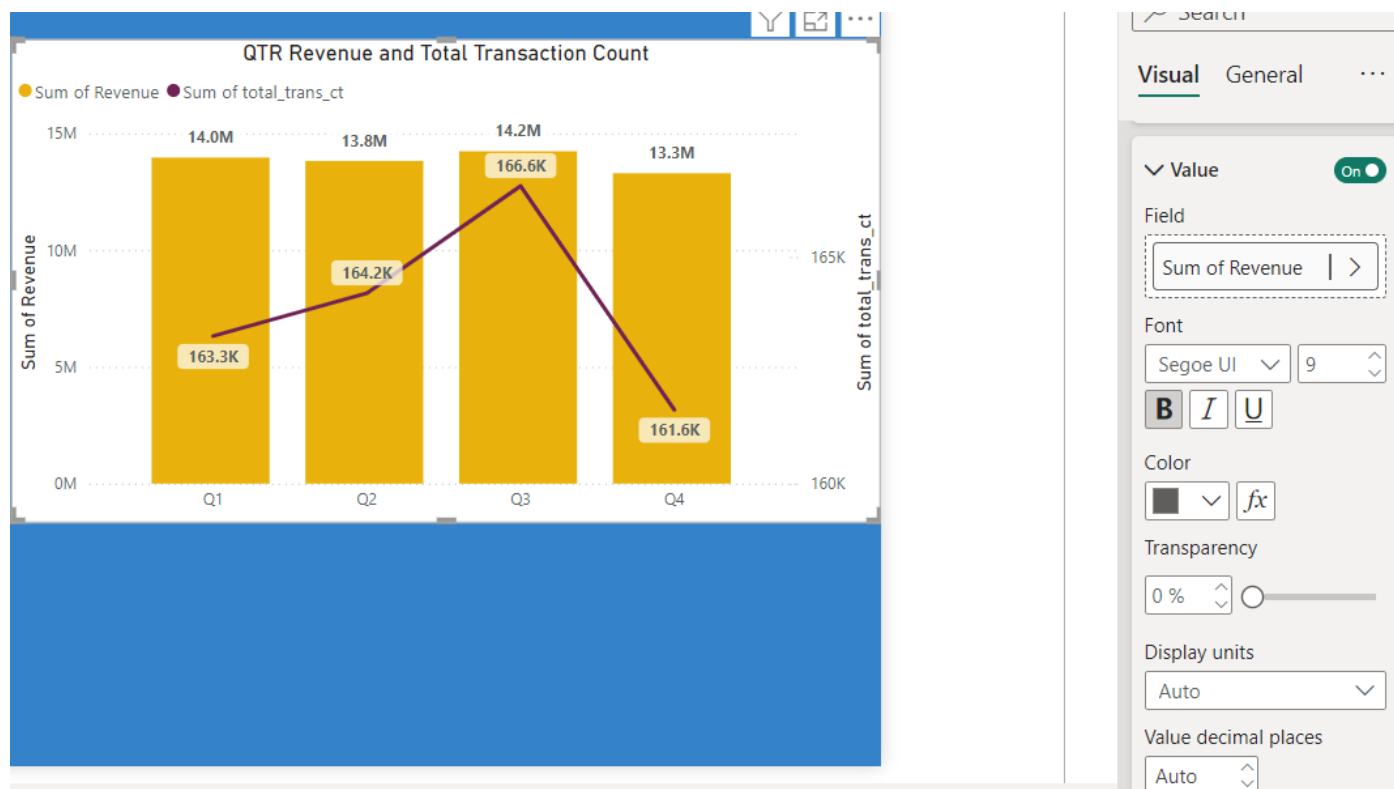d) Remove **Qtr** because already Q1, Q2, Q3, Q4 is written.
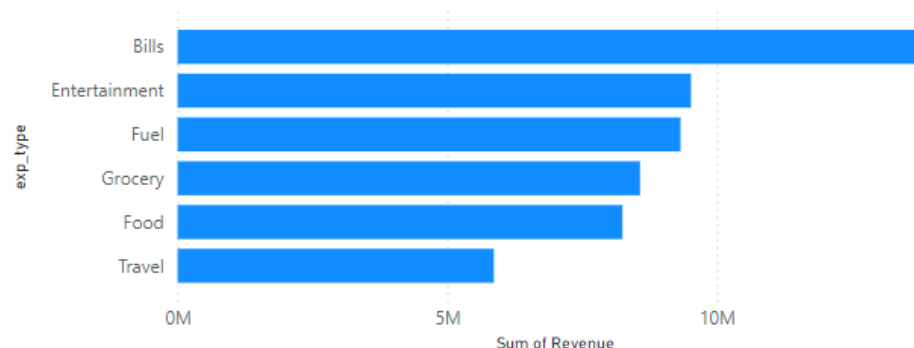
e) Can change title easily

f) Want to add values or data labels

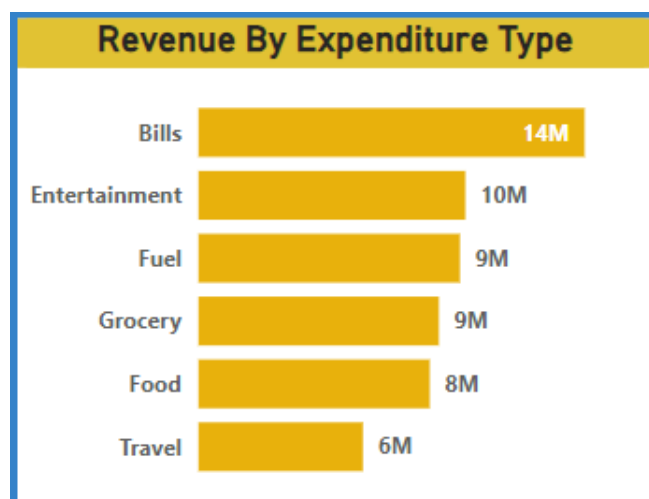## g) We Create a Stacked bar chart and see how Revenue expanded according to expenditure type.
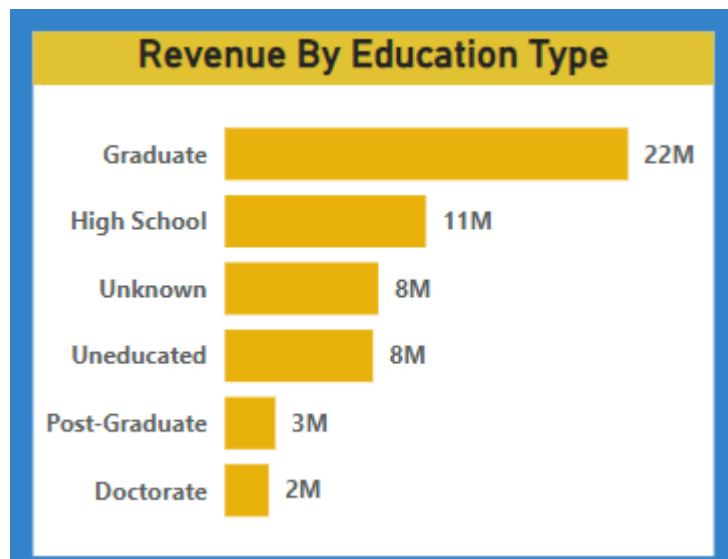

Now, I want the same settings of previous chart so do follow the steps
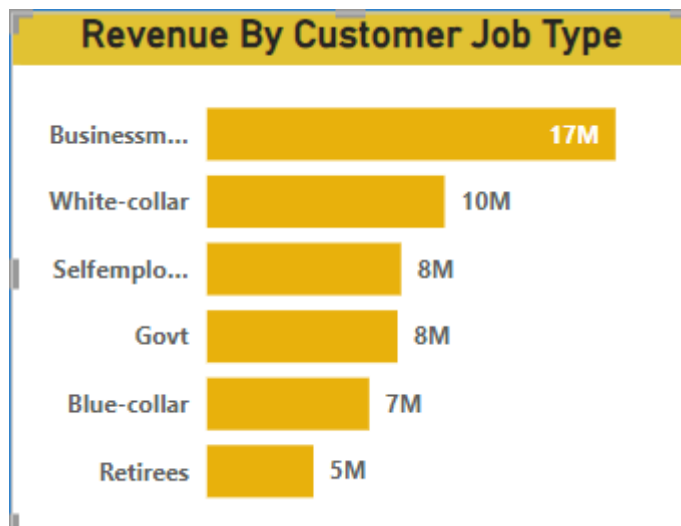
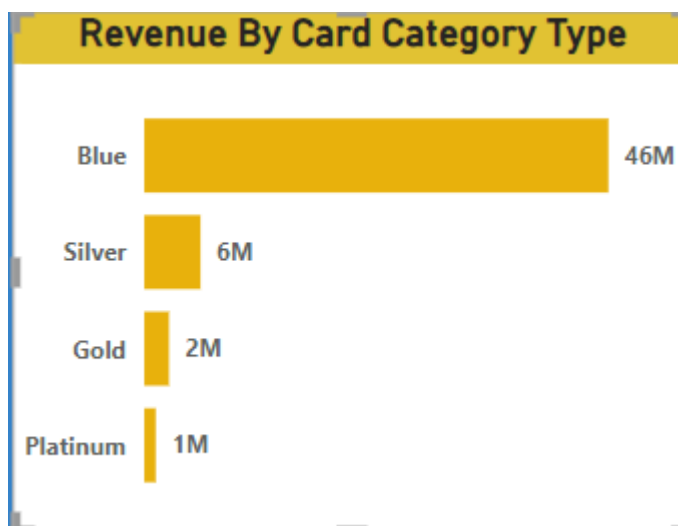Select the Chart->Click on Format Painter->Then click on New Chart
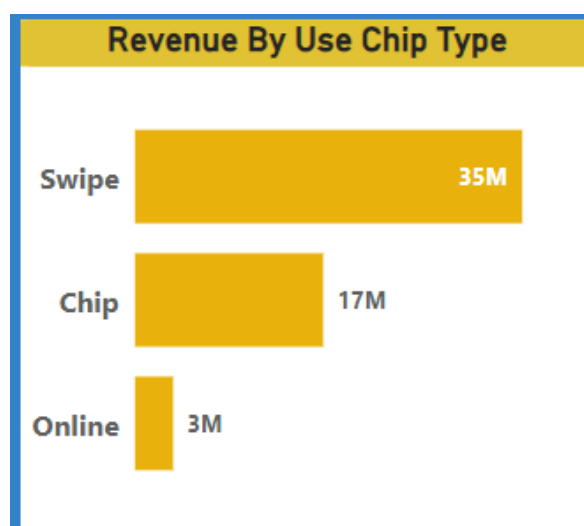
See Revenue Based Education Type

See Revenue based Customer Job Type

Revenue By Education Type

Graduate	22M
High School	11M
Unknown	8M
Uneducated	8M
Post-Graduate	3M
Doctorate	2M

Revenue By Customer Job Type

Businessm...	17M
White-collar	10M
Selfemplo...	8M
Govt	8M
Blue-collar	7M
Retirees	5M

See Revenue Based on Card-Category

See Revenue based Chip Type

Revenue By Card Category Type

Blue	46M
Silver	6M
Gold	2M
Platinum	1M

Revenue By Use Chip Type

|	
Swipe	35M
Chip	17M
Online	3M

Now, We create the Table and The Important Column in this the **Card Type**.

card_category	Sum of Revenue	Sum of total_trans_amt	Sum of interest_earned
Blue	46139398	36957875	6495888
Silver	5586332	4586746	812081
Gold	2454072	2024078	373784
Platinum	1135608	953314	161629
Total	**55315410**	**44522013**	**7843382**

Now we Add **K**ey **P**erformance **I**ndicator'**S** (**KPI's**) , We use Card Tool.

Revenue	Amount	Count	Total Interest
55M	45M	656K	8M

Now we Create Filters and for it we choose Slicers. After creating it just do the settings and all.
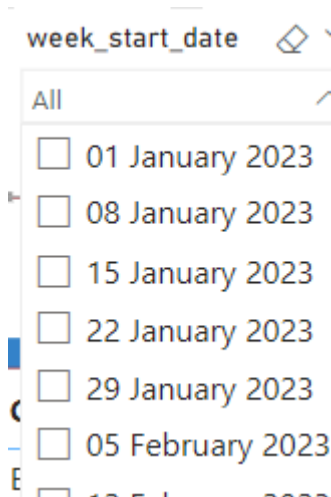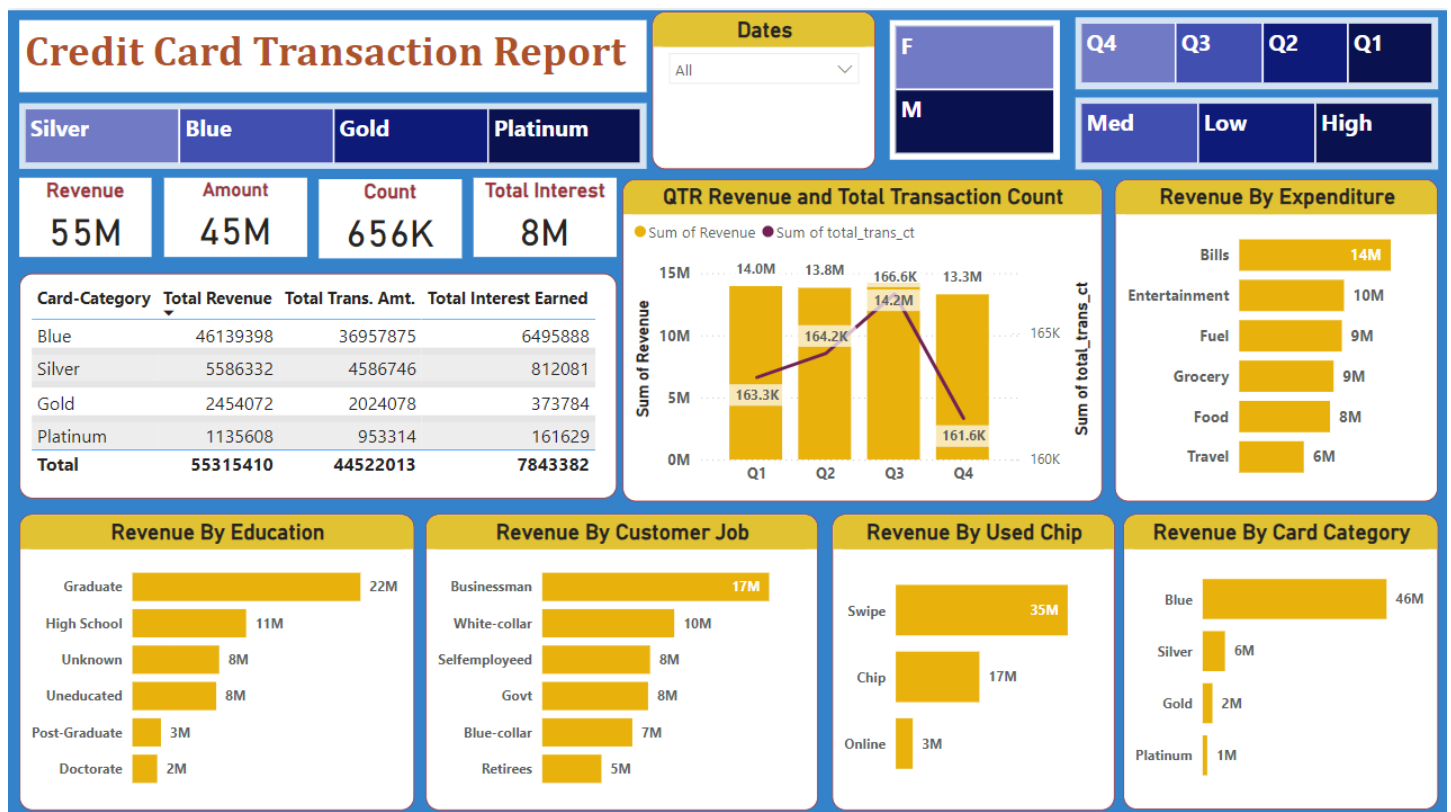

We use Tree map that is a chart and based on area it will take place
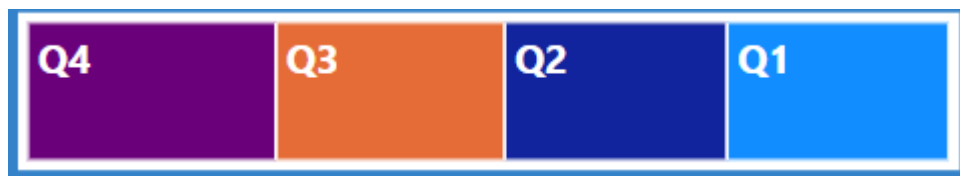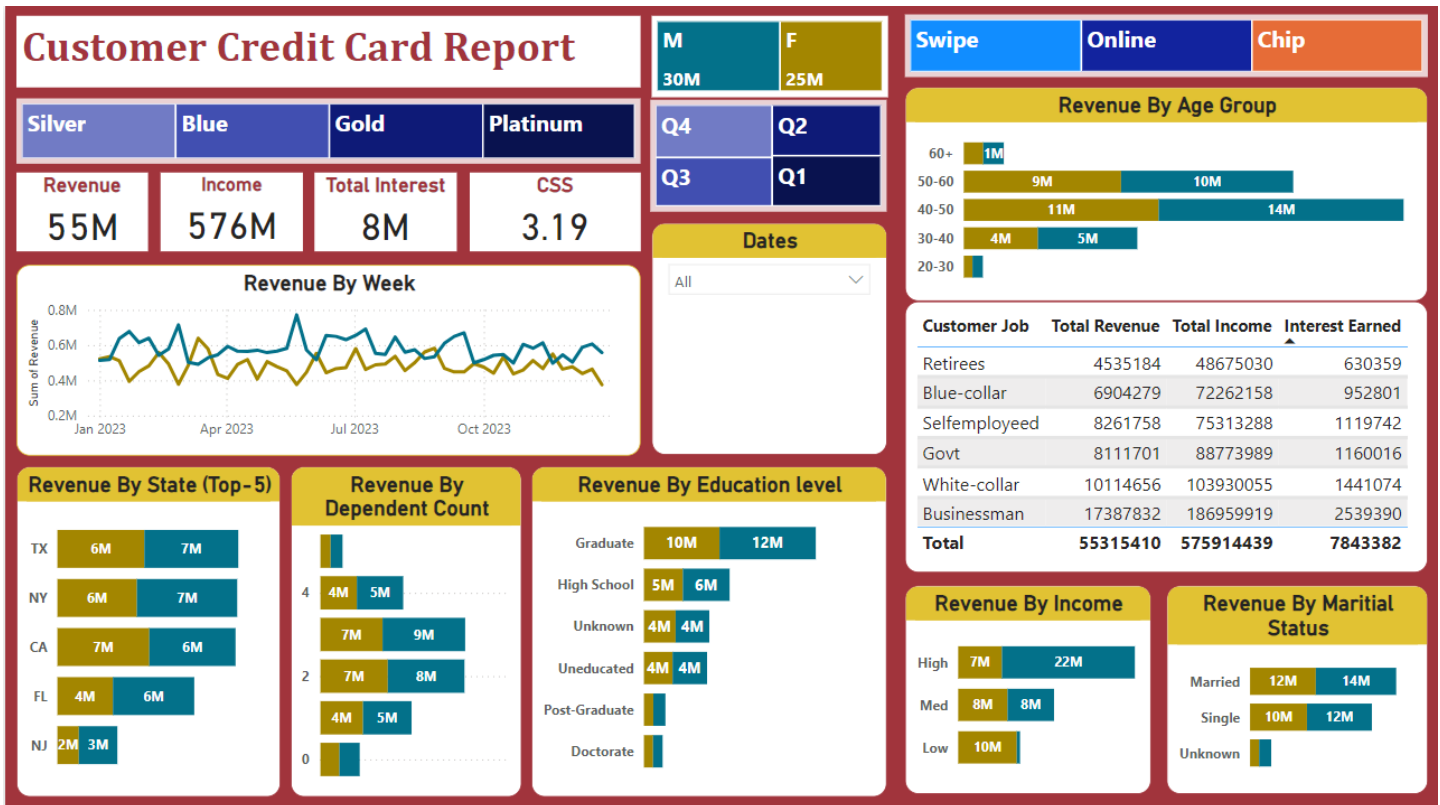

And based on this Q1,Q2,Q3,Q4 you can select that particular data , for multiple select use ctr+

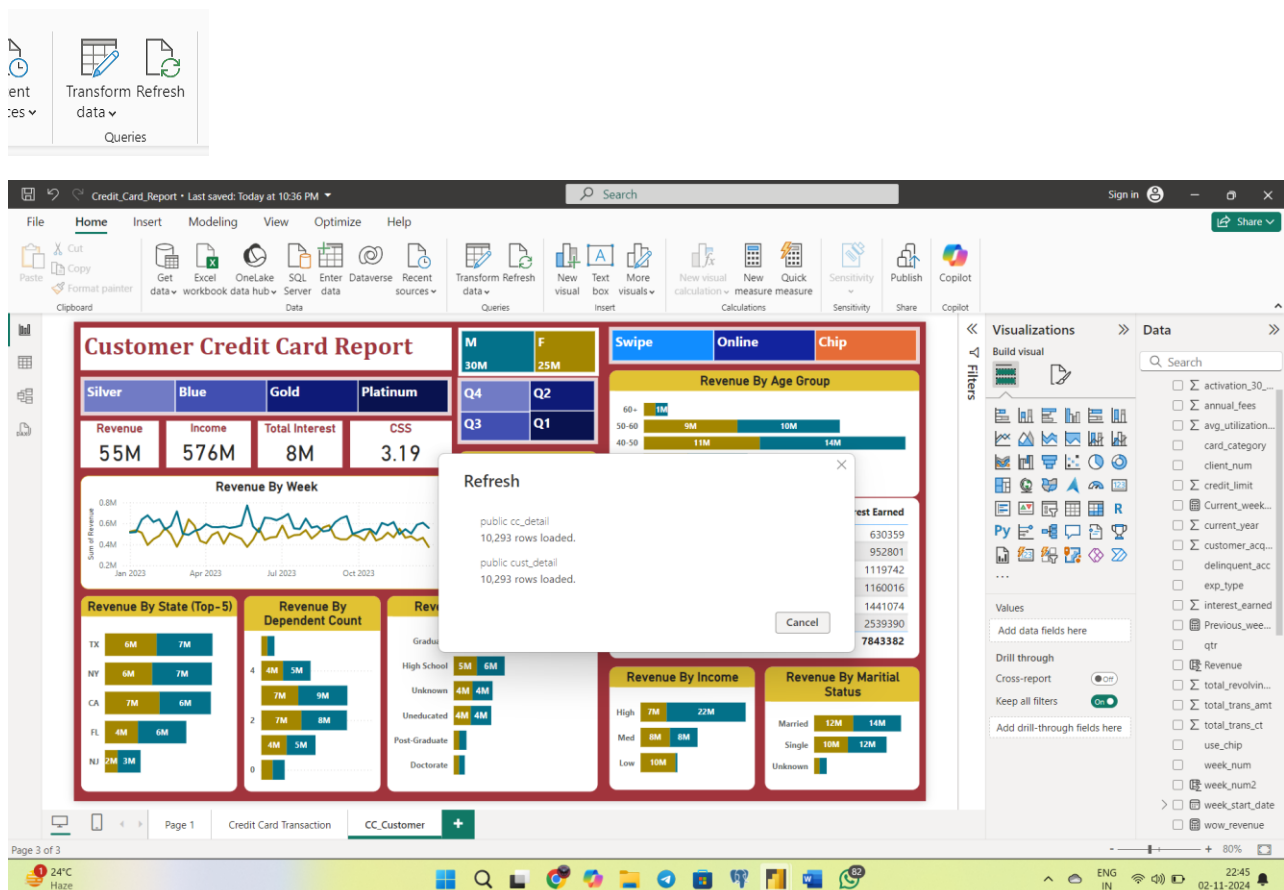# Final Dashboard-1 (Credit Card Transaction)

Final Dashboard-2 (Customer Credit Card)

Now we try to refresh or add new data to check whether dashboard is updating or not.

Add the data in Sql database and then click on refresh on Power BI, the data will automatically refreshed because we had pre connected it with our sql.

Project Insights- Week 53 (31st Dec)

WoW change:

- Revenue increased by 28.8%,
- Total Transaction Amt & Count increased by xx% & xx%
- Customer count increased by xx%

Overview YTD:

- Overall revenue is 57M
- Total interest is 8M
- Total transaction amount is 46M
- Male customers are contributing more in revenue 31M, female 26M
- Blue & Silver credit card are contributing to 93% of overall transactions
- TX, NY & CA is contributing to 68%
- Overall Activation rate is 57.5%
- Overall Delinquent rate is 6.06%

Note: You can add more insights

delinquent_acc	%GT Count of delinquent_acc
0	93.94%
1	6.06%
Total	**100.00%**

activation_30_days	%GT Count of activation_30_days
0	42.54%
1	57.46%
Total	**100.00%**

6.06 % fail to return money to credit card bank holders

57.46 % activate their cards within 30 days.