

## DATA VISUALIZATION LAB

### Task – 1

**Aim :** Introduction to the Data Visualization

#### 1) What is Data Visualization ?

**A)** It is a Graphical Representation of the Information and Data in the form of Visual like charts, Graphs, maps .. etc; To make data Easier to the Human Brain to understand and pull the insights from the visuals.

#### 2) Difference between RDBMS, Data Warehouse, Big Data ?

**A)** RDMS : It stores the Data in Releationsi.e; Tables and they are in 2 – Dimensional Data and we can easily manipulate and calculate the data.

Data Warehouse : it is a multi dimensional Database and it Applies the analysis, analytics on huge amount of data  
At a time from all sources i.e; database, nosql;

Big Data : The name it self says that it handles and bundles of the Trillions of data analyzes with volume, velocity, variety  
Of characteristics and many more.

#### 3) Examples for RDMS, Data Warehousing, Big data ?

**A)** RDMS : sql, mysql, MongoDB, microsoftsql, oracle DB.

Data Warehousing :a data warehouse might combine customer information from an organization's point-of-sale systems, its mailing lists, website, and comment cards

Big Data : Hadoop, banking and financial services.

#### **4) Examples For Data Visualization ?**

A) Examples are tableau, Power Bi, MS Bi, charts, graphs, maps, Histograms, scatter plots, box plots, violin plots..

#### **5) Difference Between Reporting Service Tools And Data Visualization Tools ?**

A) Reporting Service Tools : it's kind of making an story telling From data in visuals like charts, graphs, tables all together

Data Visualization Tools : after cleaning and querying the data the final step is to represent in the visuals using data visualize tools i.e; charts, visualizations panel;

#### **6) Difference between Different Types of Charts ?**

A) There are 2 mainly charts are used they are :

Bar charts : represents the data is rectangles , squares and in Bars.

Pie charts : represents the data in circles with high % and low % And some others by highlighting the required Parameters.

**7) What is a Dashboard ?**

**A)** A dashboard is a collection of visuals and reports all together  
At a time is called dashboard

**8) What are Different Sources For any Data Visualization Tools ?**

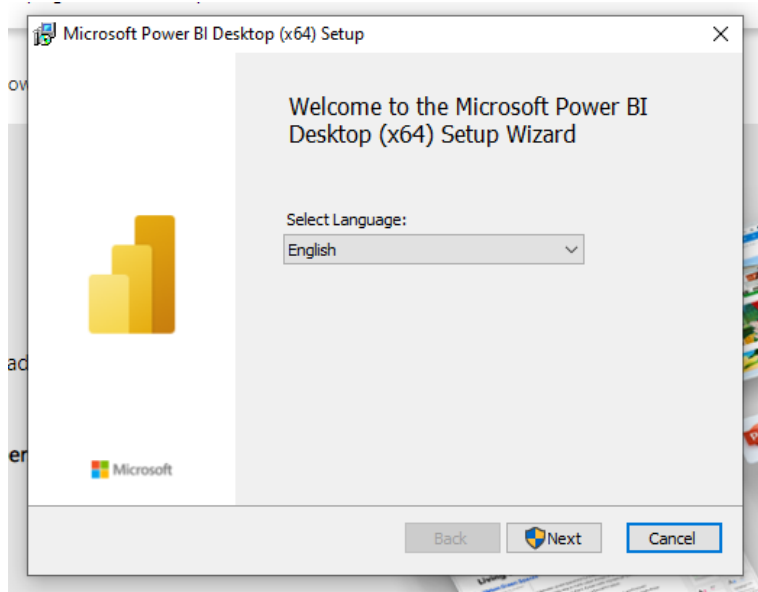
**A)** Tableau, Microsoft Power Bi, excel, Qlick View, Data Wrapper,  
Github, Amazon Web Services,

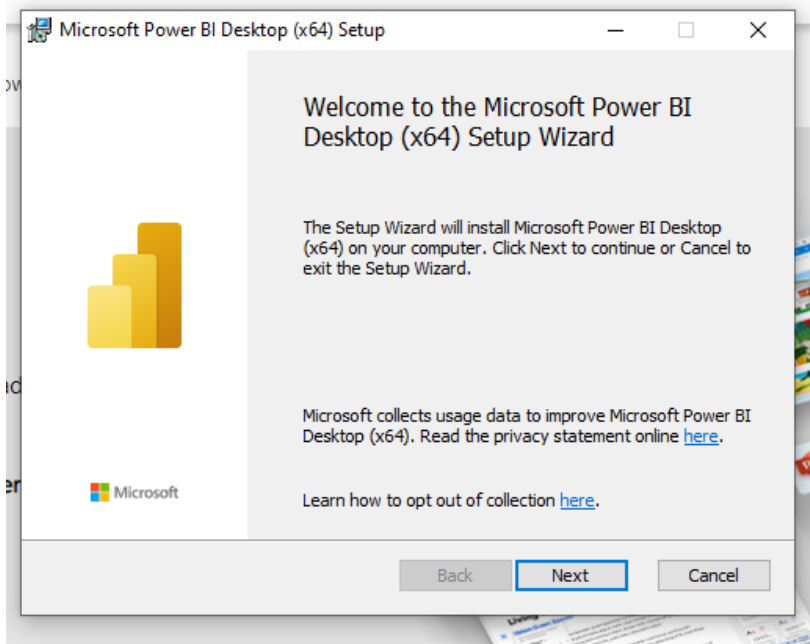
## Task – 2

**Aim :** Install the microsoft power bi software

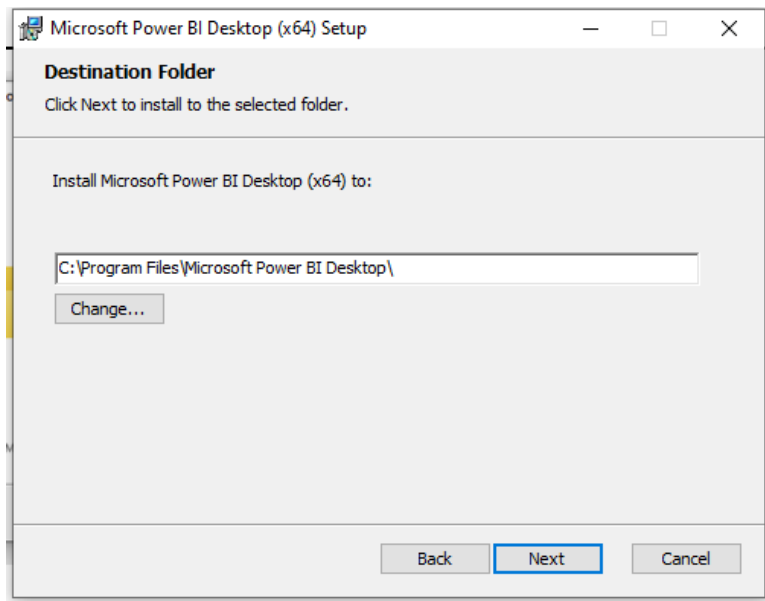
**Procedure :**

- 1) Go to the website <https://powerbi.microsoft.com/en-us/downloads/>
- 2) Navigate to the products panel and click on the Power Bi Desktop Option.
- 3) Now click on the “ see download and language options “ the scroll down to the webp page and select the required language and click on the download option.
- 4) Next select the option Powerbidesktop setup.exe file and click on the “ Next option “
- 5) After download the file then run the file.

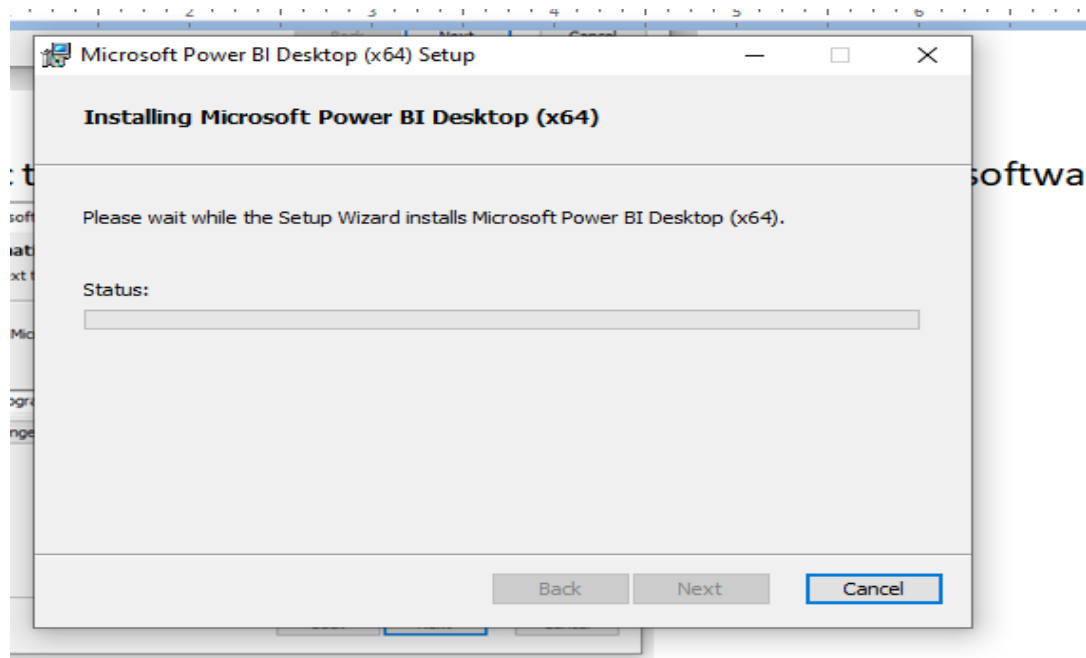




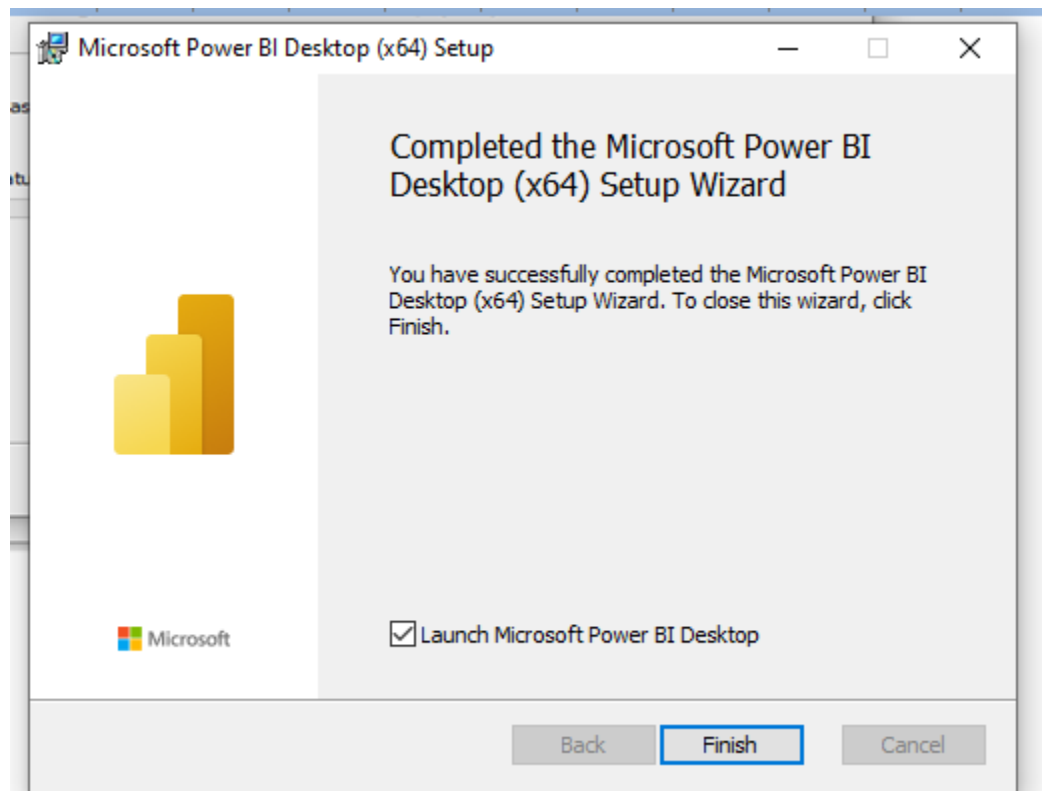
6) Select the destination drive and folder to download the software



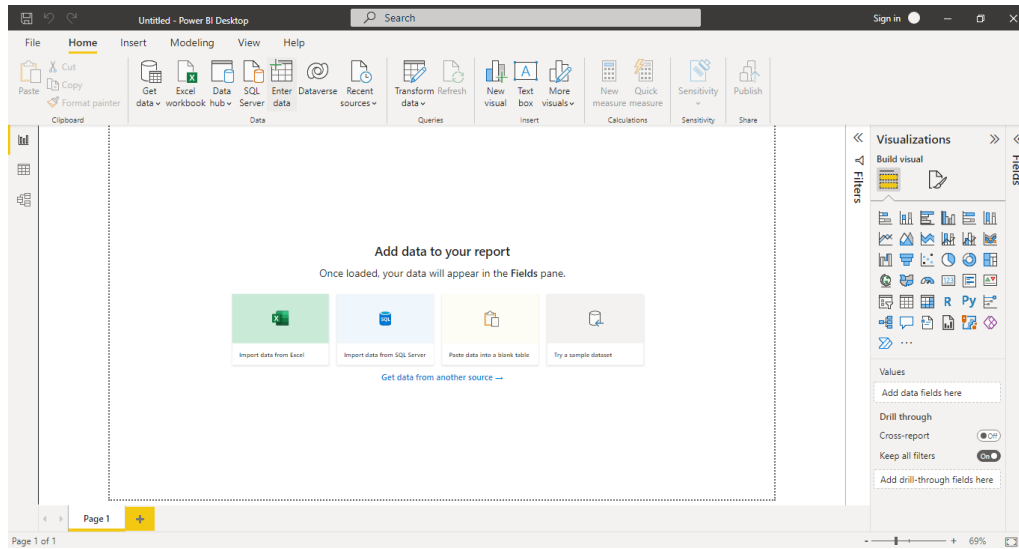
7) After then you can see the downloading the files



8) After downloading the files you will see the final option  
That option represents the successfully downloaded.



9) The final view of the power bi software is below one.



## Task – 3

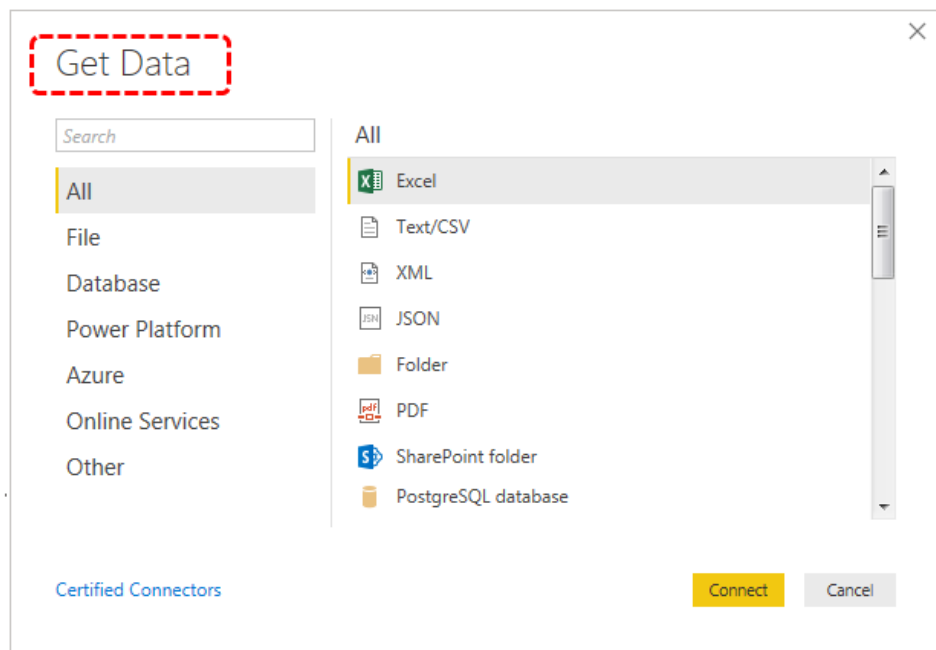
**Aim :** Features of the Power Bi

**Procedure :**

There are many features exists in the Microsoft power bi but some of the most recently used features are listed below ones's

### 1) Data Connection :

Microsoft has developed data source connections with a huge list of sources like SQL, Azure, Excel, Text, CSV, PDF, Cloud, on-premises data. It doesn't matter where the data is and what format it is; we will get a detailed view of the data.

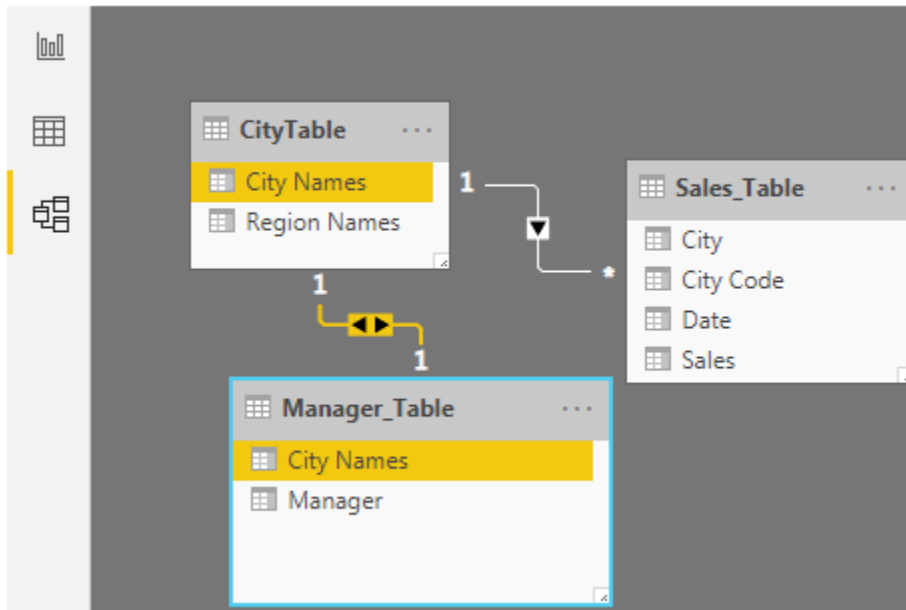


### 2) Data Relationships :

In Power, if you have data in multiple columns, then we can define the relationship between those tables based on at



least one matching column from either table. Below is the screenshot of creating relationships between tables. We call this process as “Data Modelling” in Power BI.

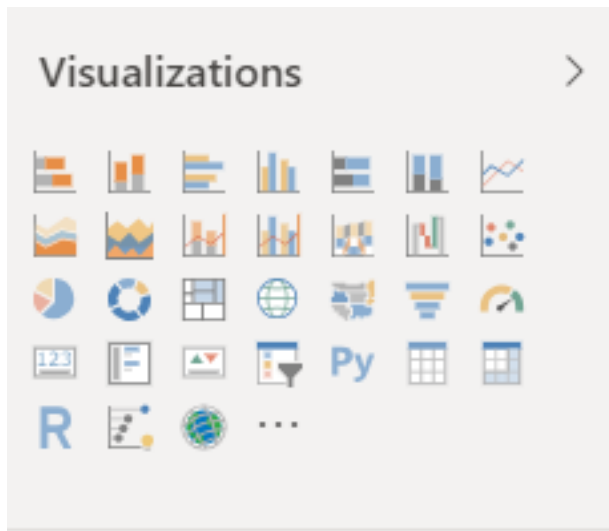


### 3) Power Query and Query Pivot Access :

It is also known as query processing for the data in the power Bi tool and it plays an major role in modelling the data In Power BI, we can edit the data by using “Power Query in Excel ” and “Power Pivot.” These are all different components of Power BI, which helps the user to alter the data in such a way it fits their needs. Power BI Queryis used to data transformation and manipulation tools, and Power Pivot is a memory tool to model the data.

#### 4) Custom Visualizations :

Power BI comes with a lot of built-in visuals to build dashboards and reports. Apart from these built-in visuals, users are allowed to download the custom visuals from market places as per their requirement.



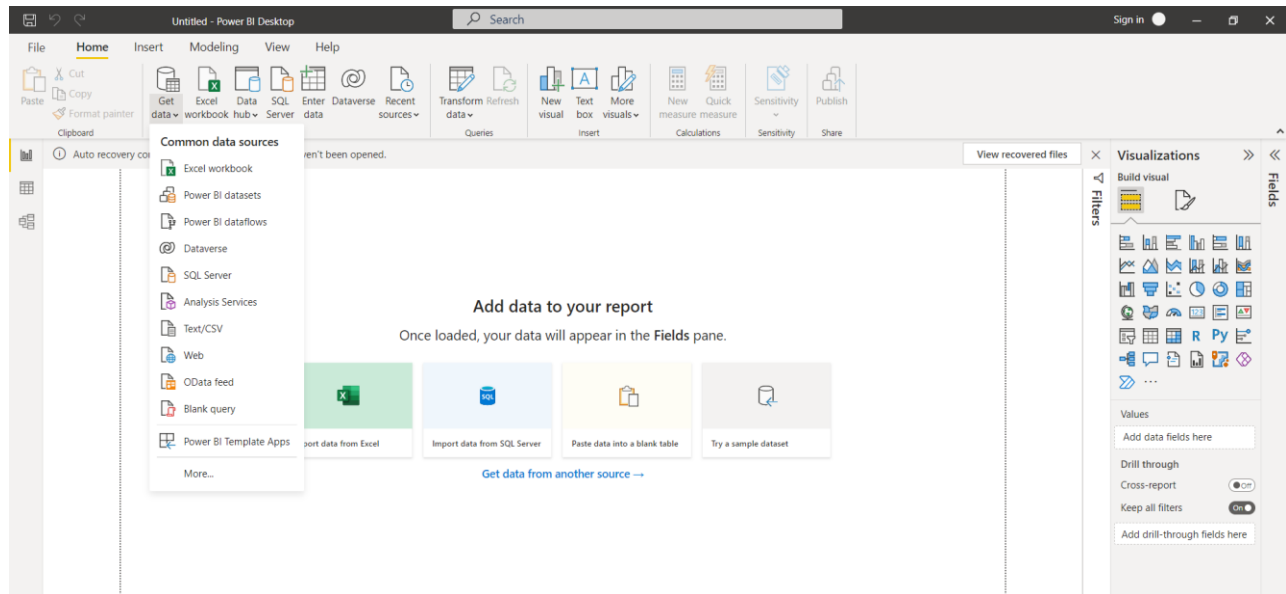
**Result :** Sucessfully Completed the all Tasks.

## Task – 4

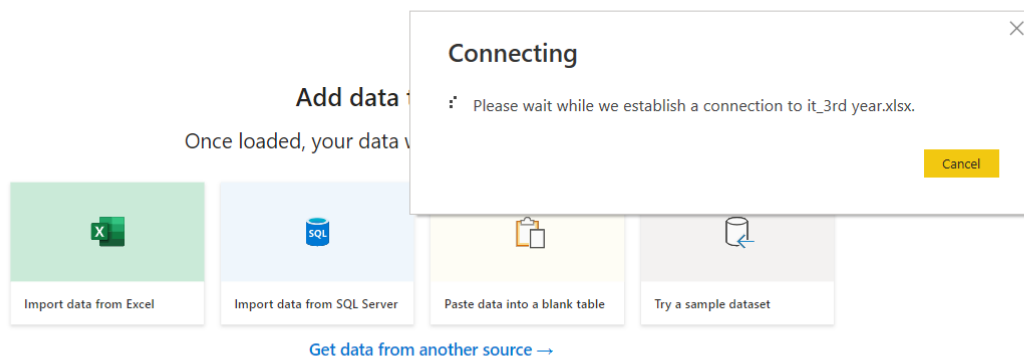
**Aim :** Import a flat file i.e; excel or any csv files and visualize them.

### Procedure :

- 1) Open power bi and click on the Get data button and choose the import data from the excel.

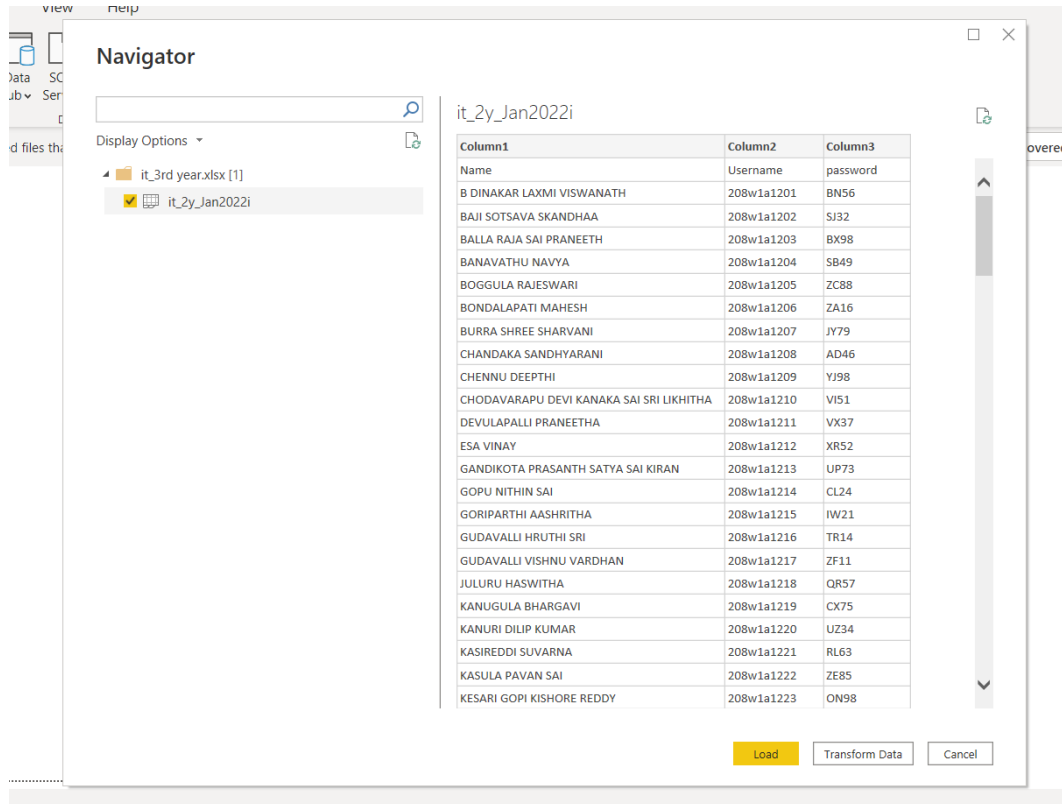


- 2) And then load the data into an power bi.



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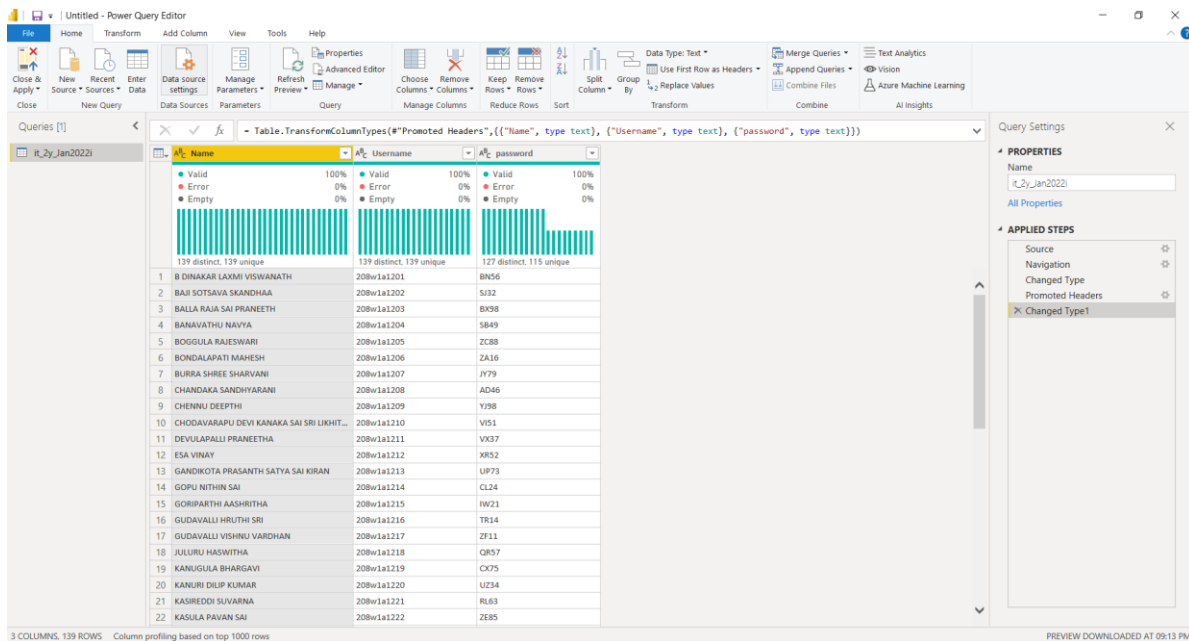
Select the any one the tables in the excel file in which you have loaded .



Now click the Transform data then do some heading changes in the data then apply any other modifications if you like according to your transforming the data .

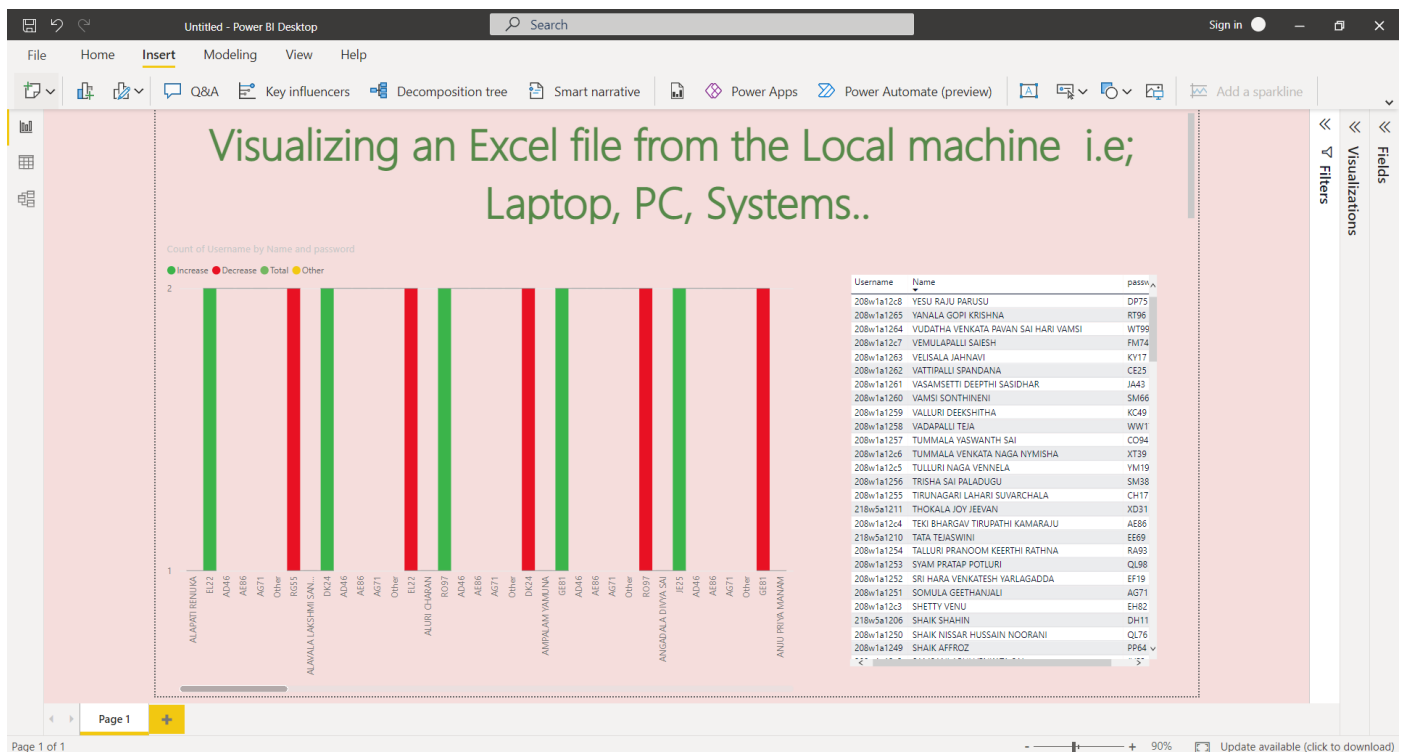
Then you can see any the percentage of the errors and correction in eah and every column of the graph.

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3) Now then visualize the data with different types of visuals like charts, graphs, plots... etc;

Output :



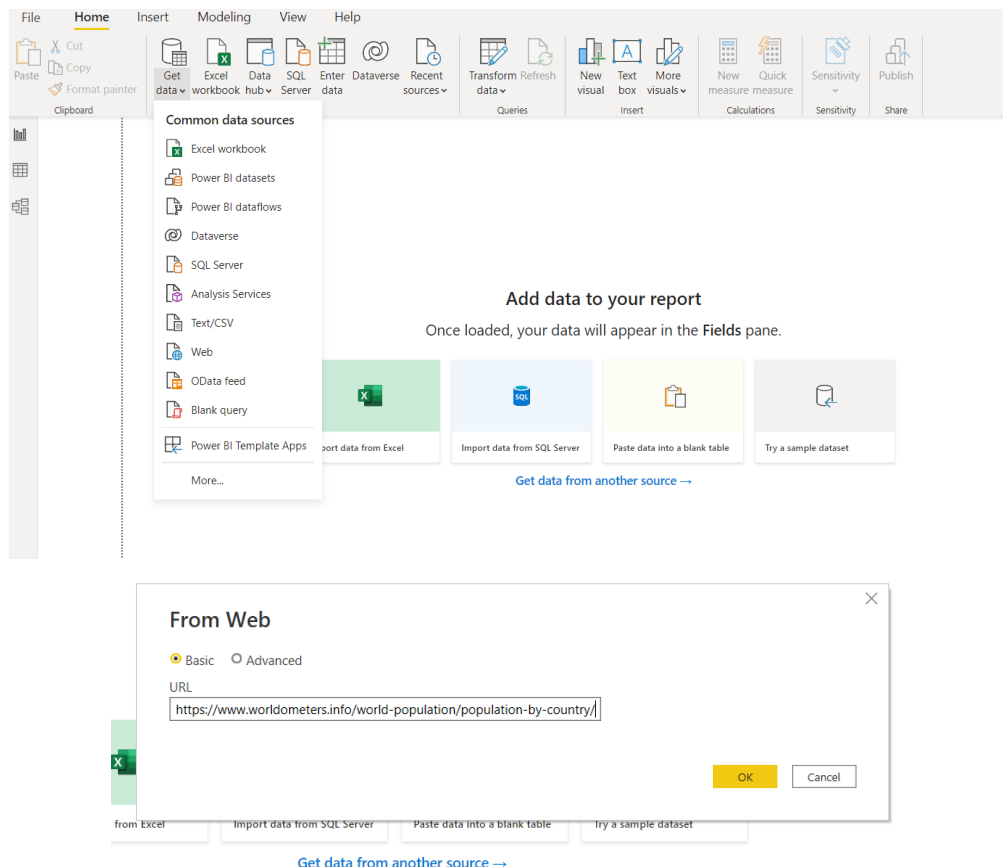
Result : Successfully completed the Aim.

## Task – 5

**Aim :** Get any data From the internet web and visualize in the power bi

### Procedure :

1. Click on the get data button and then click on the web and paste The url which is copied and click on to load the data
2. Then clean the data and do some changes by using the power BI Query editor
3. The next step is Once you complete all the changes then click on save and load option
4. Finally, by using columns generate the different types of visuals in the report or in dashboard



5. Choose the any one of the table and click on the transform button then you can see the query editor

### Navigator

Display Options ▾

- HTML Tables [1]
  - ☐ Table 1
- Suggested Tables [1]
  - ☒ Table 2
- Text [2]
  - ☐ HTML Code
  - ☐ Displayed Text

Table View Web View

Table 2

Column1	Column2	Column3	Column4	Column5	Column6
1	Honduras	9904607	1.63%	158490	
3	Djibouti	988000	1.48%	14440	
5	Seychelles	98347	0.62%	608	
7	Vietnam	97338579	0.91%	876473	
9	Tajikistan	9537645	2.32%	216627	
11	Austria	9006398	0.57%	51296	
13	DR Congo	89561403	3.19%	2770836	
15	Papua New Guinea	8947024	1.95%	170915	
17	Comoros	869601	2.20%	18715	
19	Switzerland	8654622	0.74%	63257	
21	Turkey	84339067	1.09%	909452	
23	Germany	83783942	0.32%	266897	
25	Holy See	801	0.25%	2	
27	Guyana	786552	0.48%	3786	
29	Bhutan	771608	1.12%	8516	
31	Laos	7275560	1.48%	106105	
33	Paraguay	7132538	1.25%	87902	
35	Bulgaria	6948445	-0.74%	-51674	
37	Solomon Islands	686884	2.55%	17061	
39	United Kingdom	67886011	0.53%	355839	

The data in the preview has been truncated due to size limits.

Add Table Using Examples

Load

Transform Data

Cancel

23180 900 2.8 27 79 %

## Replace Values

Replace one value with another in the selected columns.

Value To Find

N.A.

Replace With

0

> Advanced options

OK Cancel

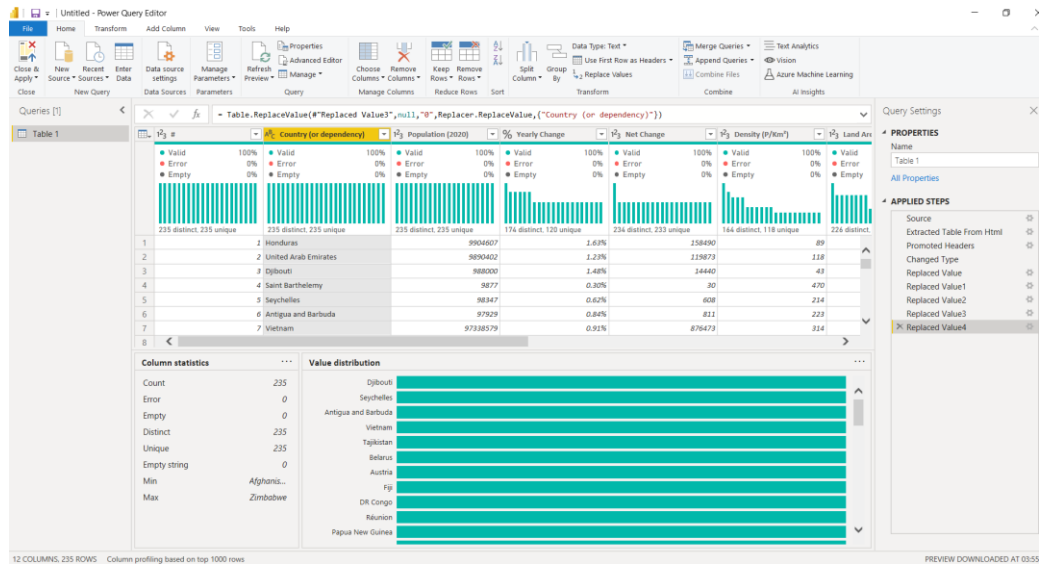
21640 10000 3.0 30 93 %

39516 52000 1.5 43 74 %

570 0 N.A. N.A. 53 %

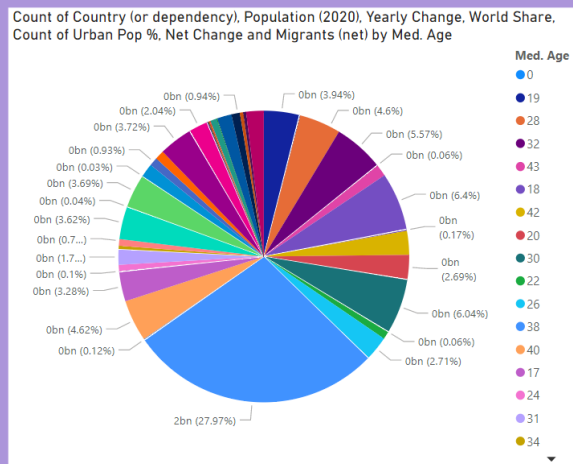
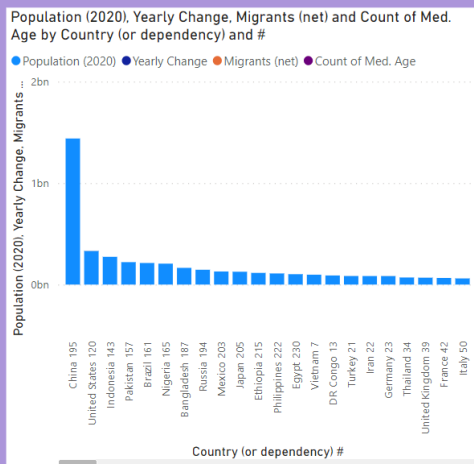
769630 283922 2.1 32 76 %

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Output :

## DashBoard For Population Database

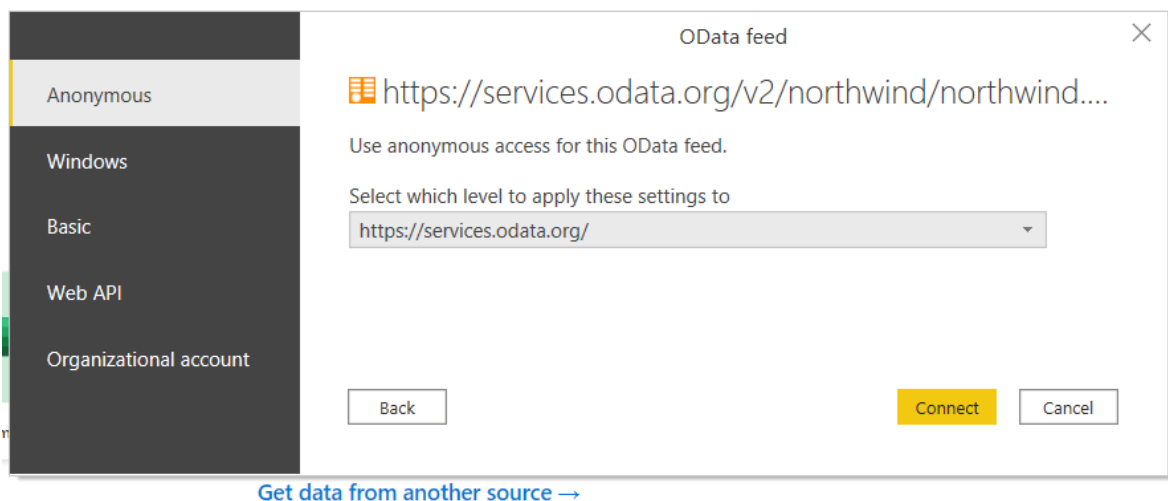




**Aim :** Take any ODATA url from web any analyze and visual in the Power BI dashboard or report

**Procedure :**

1. Now, go to the internet and search for NORTH wind ODATA wind dataset and copy the url
2. Open the power Bi desktop and click on the get data from the ODATA feed and paste the copied url and then click on the Load data .
3. Now visualize the data in different types of charts.



4. Load the data and display in the dashboard

## Navigator

Display Options ▾

https://services.odata.org/v2/northwind/no...

- ☐ Alphabetical\_list\_of\_products
- ☐ Categories
- ☐ Category\_Sales\_for\_1997
- ☐ Current\_Product\_Lists
- ☐ Customer\_and\_Suppliers\_by\_Cities
- ☐ CustomerDemographics
- ☒ Customers
- ☒ Employees
- ☒ Invoices
- ☐ Order\_Details
- ☐ Order\_Details\_Extendeds
- ☐ Order\_Subtotals
- ☐ Orders
- ☐ Orders\_Qries
- ☐ Product\_Sales\_for\_1997
- ☐ Products
- ☐ Products\_Above\_Average\_Prices
- ☐ Products\_by\_Categories
- ☐ Regions

Select Related Tables

## Employees

EmployeeID	LastName	FirstName	Title	TitleOfCourte
1	Davolio	Nancy	Sales Representative	Ms.
2	Fuller	Andrew	Vice President, Sales	Dr.
3	Leverling	Janet	Sales Representative	Ms.
4	Peacock	Margaret	Sales Representative	Mrs.
5	Buchanan	Steven	Sales Manager	Mr.
6	Suyama	Michael	Sales Representative	Mr.
7	King	Robert	Sales Representative	Mr.
8	Callahan	Laura	Inside Sales Coordinator	Ms.
9	Dodsworth	Anne	Sales Representative	Ms.

Load

Transform Data

Cancel

5. Replace the empty cell with the 0 so that it is easy to visualize the column in that table

Empty 0% Empty 0% Empty 0% Empty 66% Err

### Replace Values

Replace one value with another in the selected columns.

Value To Find

null

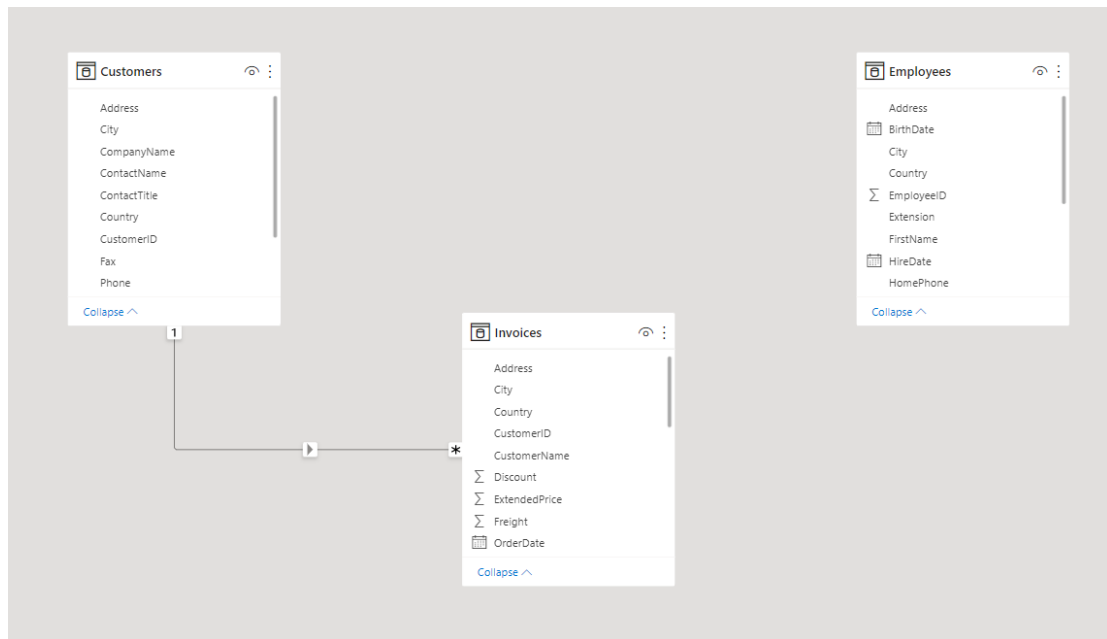
Replace With

0

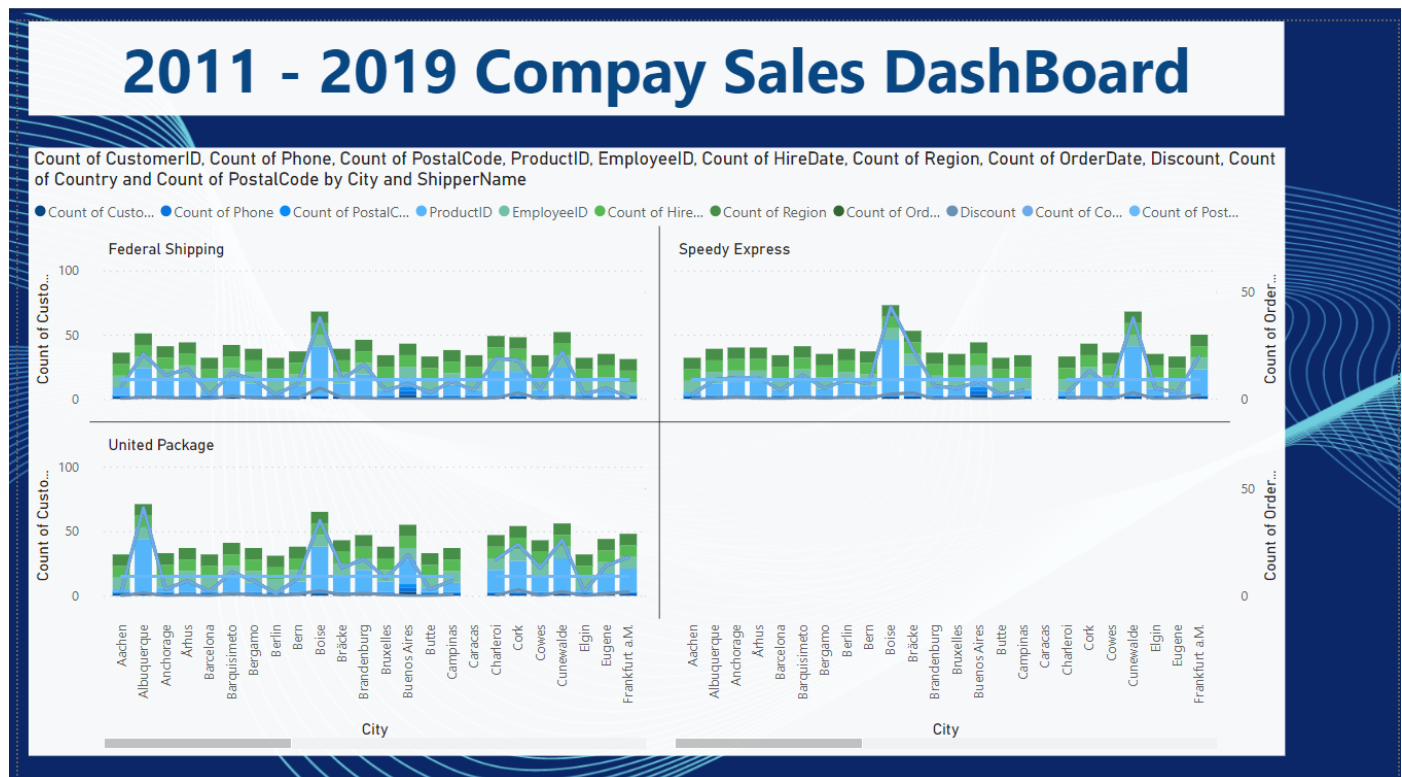
> Advanced options

OK Cancel

2 di				87 dis
les				ull 12209
wne				ull 05021
wne				ull 05023
les				ull WA1 1
rde				ull S-958 :
les				ull 68306
ark				ull 67000
wne				ull 28023
wne				ull 13008
:col				T2F 8M
les representative				ull EC2 5M
les Agent	Cerrito 333	Buenos Aires		null 1010



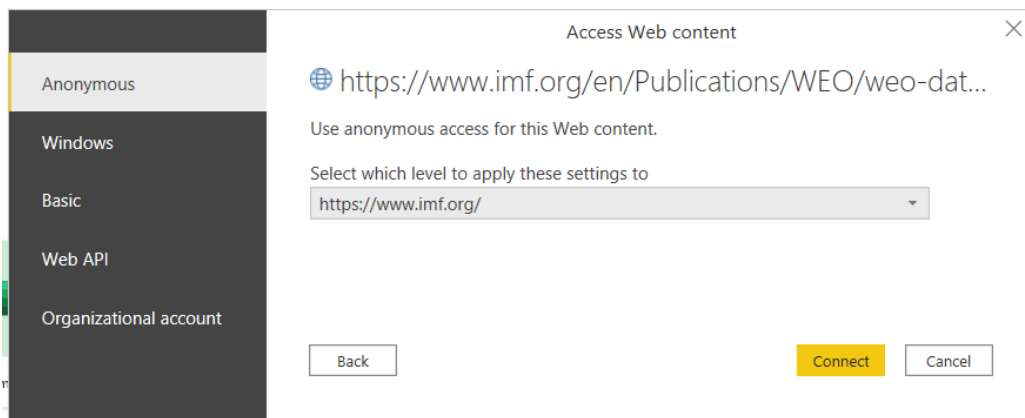
**Output :**



**Aim :** get the data from IMF world database and generate the country Report and copy the url and visualize the data

**Procedure :**

1. First go to the Imf world database and select the Year.
2. click on the first available link and in that site under download.
3. click on All countries ,select All and click on continue.
4. select subject as GDP current prices by US dollars and click and continue.
5. click on prepare Report and copy the URL.
6. open powerbi click on get data and select web and double click on the web connector and paste the URL.
7. in web view select the required table and click on edit,it will opens query editor.



8. Click on the Transform data so that you can edit many thing on the extracted data from the internet.

## Navigator

Display Options ▾

- HTML Tables [2]
  - ☐ Table 1
  - ☒ Table 2
- Text [2]
  - ☐ HTML Code
  - ☐ Displayed Text

Table View Web View

Table 2

Column1	Column2	Column3
Country	Subject Descriptor	Units
Afghanistan	Gross domestic product, current prices	U.S. dollars
Albania	Gross domestic product, current prices	U.S. dollars
Algeria	Gross domestic product, current prices	U.S. dollars
Andorra	Gross domestic product, current prices	U.S. dollars
Angola	Gross domestic product, current prices	U.S. dollars
Antigua and Barbuda	Gross domestic product, current prices	U.S. dollars
Argentina	Gross domestic product, current prices	U.S. dollars
Armenia	Gross domestic product, current prices	U.S. dollars
Aruba	Gross domestic product, current prices	U.S. dollars
Australia	Gross domestic product, current prices	U.S. dollars
Austria	Gross domestic product, current prices	U.S. dollars
Azerbaijan	Gross domestic product, current prices	U.S. dollars
The Bahamas	Gross domestic product, current prices	U.S. dollars
Bahrain	Gross domestic product, current prices	U.S. dollars
Bangladesh	Gross domestic product, current prices	U.S. dollars
Barbados	Gross domestic product, current prices	U.S. dollars
Belarus	Gross domestic product, current prices	U.S. dollars
Belgium	Gross domestic product, current prices	U.S. dollars
Belize	Gross domestic product, current prices	U.S. dollars
Benin	Gross domestic product, current prices	U.S. dollars

Add Table Using Examples

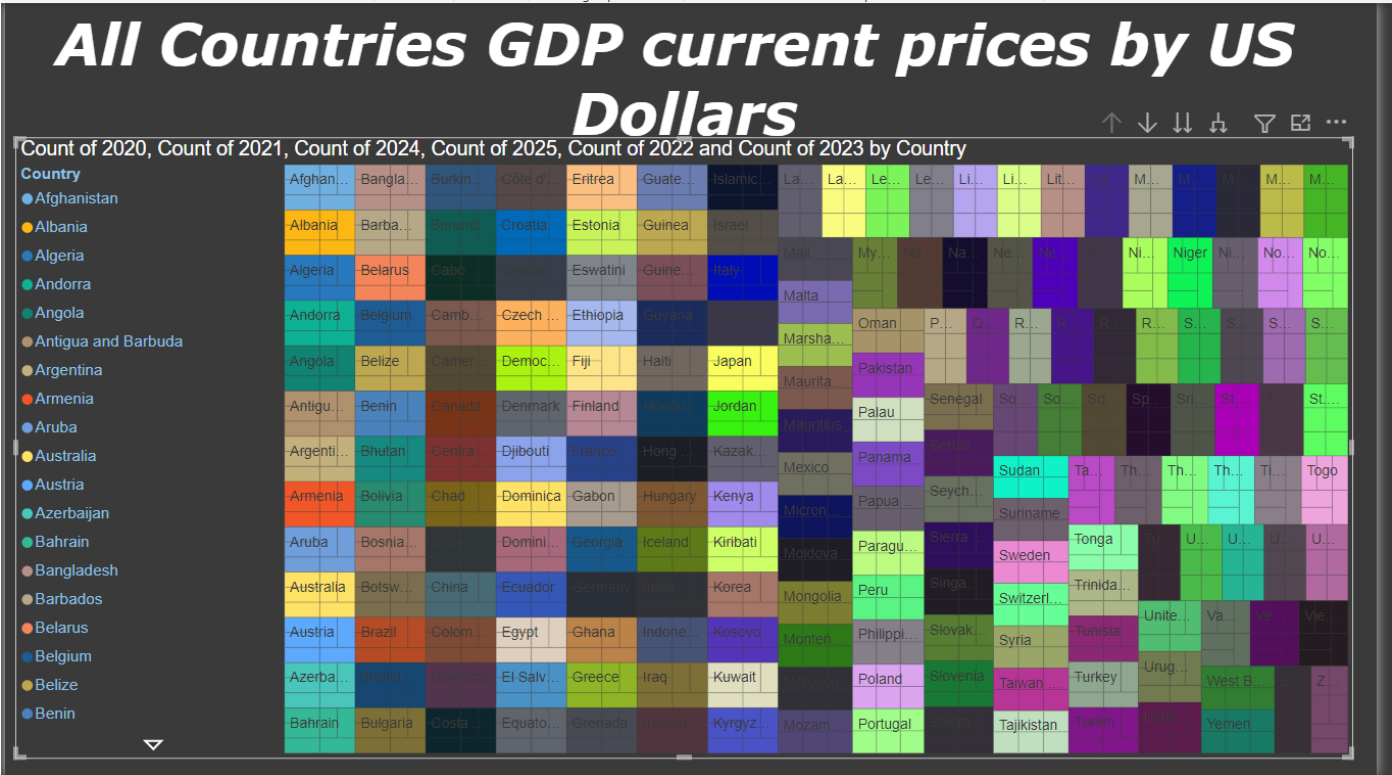
Load

Transform Data

Cancel

- Remove unwanted rows in home tab select reduce rows and then remove rows and then select remove top rows and select number of rows as 1 and click on ok.
- To take the first row as a header click on transform tab and select use first row as header.
- In home tab select manage columns, then select remove columns and then select remove columns which will remove the empty columns.

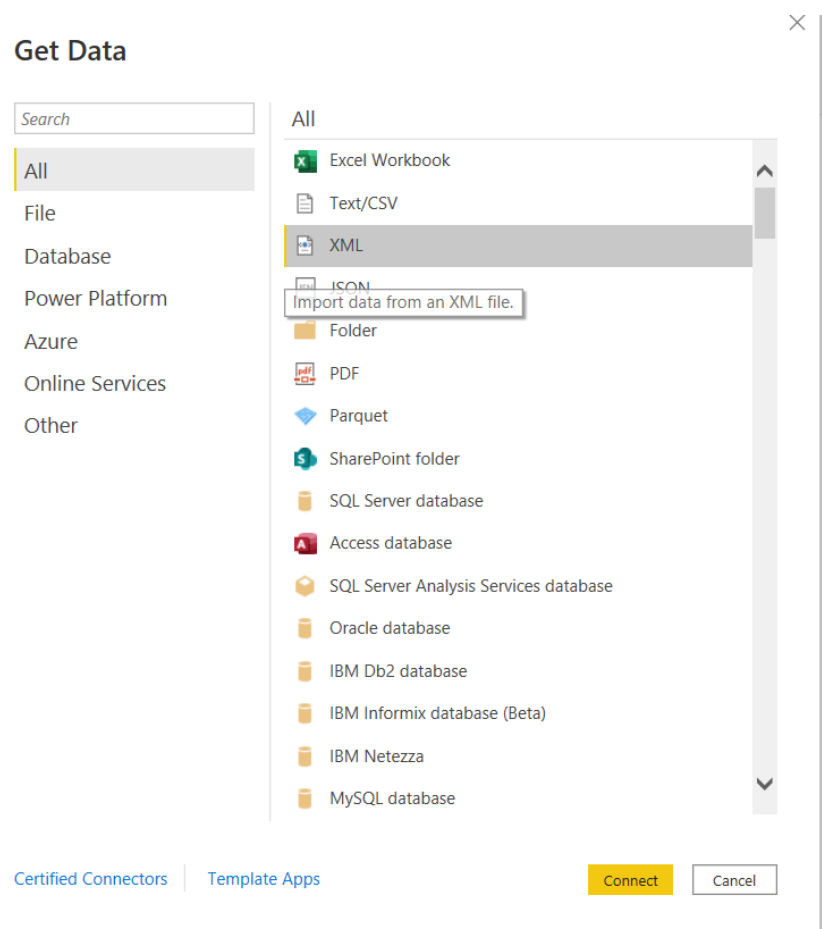
Output :



**Aim :** Download any xml data file and Load in power Bi and display in Dash board

**Procedure :**

1. connect to the .xml and click on edit to open the query editor.
2. it will display first level and for the below levels it displays as table.
3. click on "expand" <> button for every table to get all the levels complete data.
4. click on close and apply and check the data.



6. Now click on the Load data and then draw an hierarchy if there are more than 2 tables.
7. Finally fill your dashboard with the visuals.

## Navigator

Display Options ▾

AEO 2011 Concept Hierarchy.xml [1]

table

table

label	number	name
Table 1. Total Energy Supply, Disposition, and Price Summary	1	Total Er
Table 2. Energy Consumption by Sector and Source - United States	2	Energy
Table 3. Energy Prices by Sector and Source - United States	3	Energy
Table 4. Residential Sector Key Indicators and Consumption	4	Resider
Table 5. Commercial Sector Key Indicators and Consumption	5	Comme
Table 6. Industrial Sector Key Indicators and Consumption	6	Industri
Table 7. Transportation Sector Key Indicators and Delivered Energy Consu	7	Transpo
Table 8. Electricity Supply, Disposition, Prices, and Emissions	8	Electric
Table 9. Electricity Generating Capacity	9	Electric
Table 10. Electricity Trade	10	Electric
Table 11. Liquid Fuels Supply and Disposition	11	Liquid F
Table 12. Petroleum Product Prices	12	Petrole
Table 13. Natural Gas Supply, Disposition, and Prices	13	Natural
Table 14. Oil and Gas Supply	14	Oil and
Table 15. Coal Supply, Disposition, and Prices	15	Coal Su
Table 16. Renewable Energy Generating Capacity and Generation	16	Renewa
Table 17. Renewable Energy Consumption by Sector and Source	17	Renewa
Table 18. Carbon Dioxide Emissions by Sector and Source - United States	18	Carbon
Table 19. Energy-Related Carbon Dioxide Emissions by End Use	19	Energy-
Table 20. Macroeconomic Indicators	20	Macroe
Table 21. International Liquids Supply and Disposition Summary	21	Interna
Table 31. Residential Sector Equipment Stock and Efficiency	31	Resider
Table 32. Commercial Sector Energy Consumption, Floorspace, and Equipr	32	Comme

<>

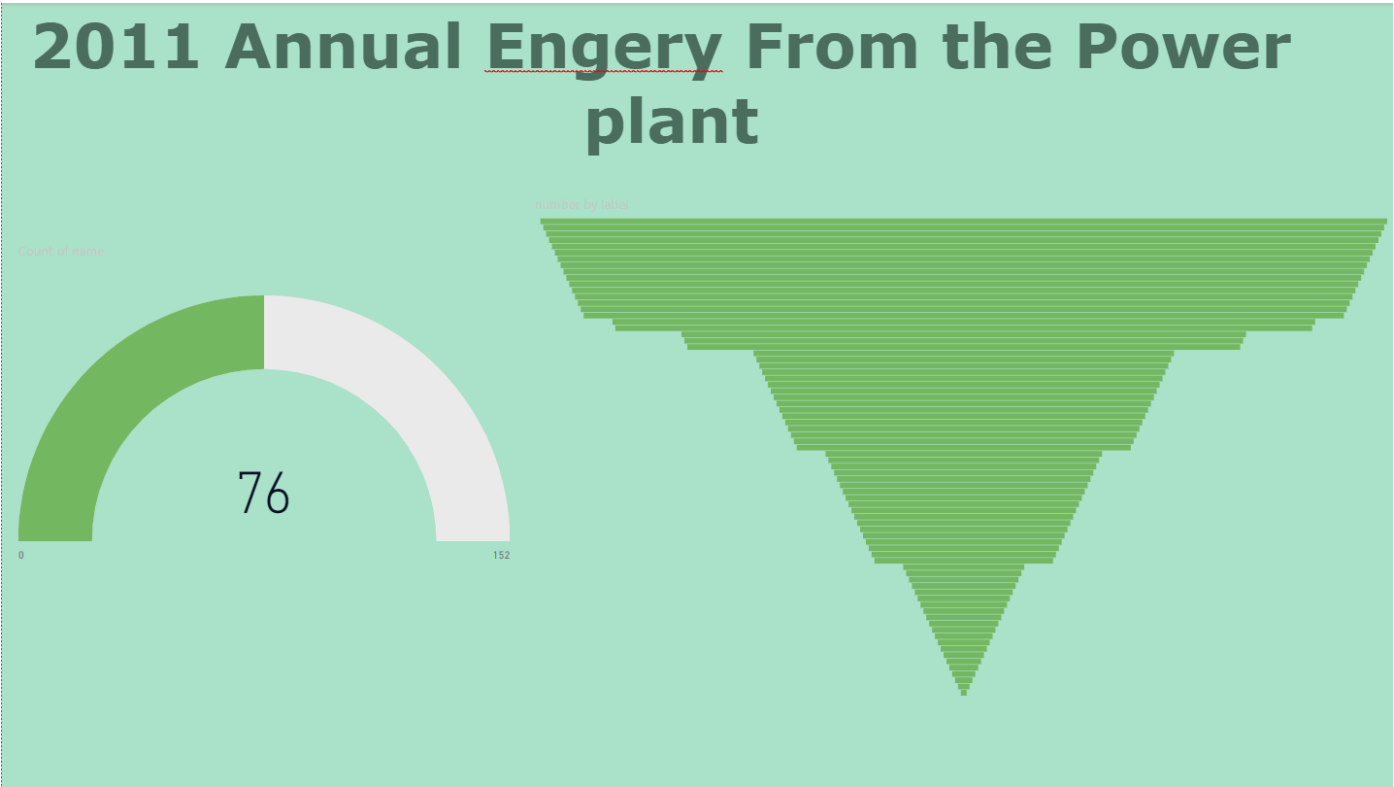
Load

Transform Data

Cancel



Output :



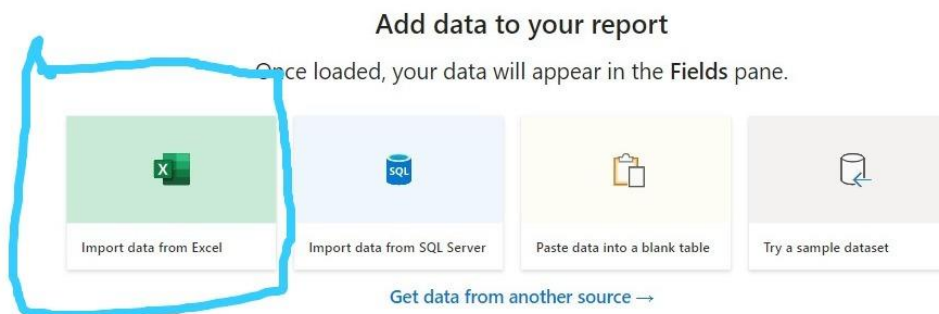
## Task – 6

**Aim :** Apply Round, RoundUp, RoundDown, Even, Odd, Sign functions

On any dataset and visualize it.

### Procedure :

1. First step is to take any dataset based on your domain and dump into Power BI.
2. Open the Power BI and select the data from the excel workbook. And load into the power bi.



3. After loading the data in power bi and select the relations or tables based on your requirements and see the preview of the tables which you have selected and then click on Transform the data to Do some modifications on the Data.

4. After clicking on the transforming the data the next and immediate step is to remove the unwanted and unnecessary columns in the dataset.
5. After removing the columns or attributes now create 6 duplicate columns of the saving account column.

**Navigator**

Display Options ▾

- Webinar 8 - Database -Basic Banking Analytics...
- ☒ Banking\_Clients
- ☐ Clients - Banking

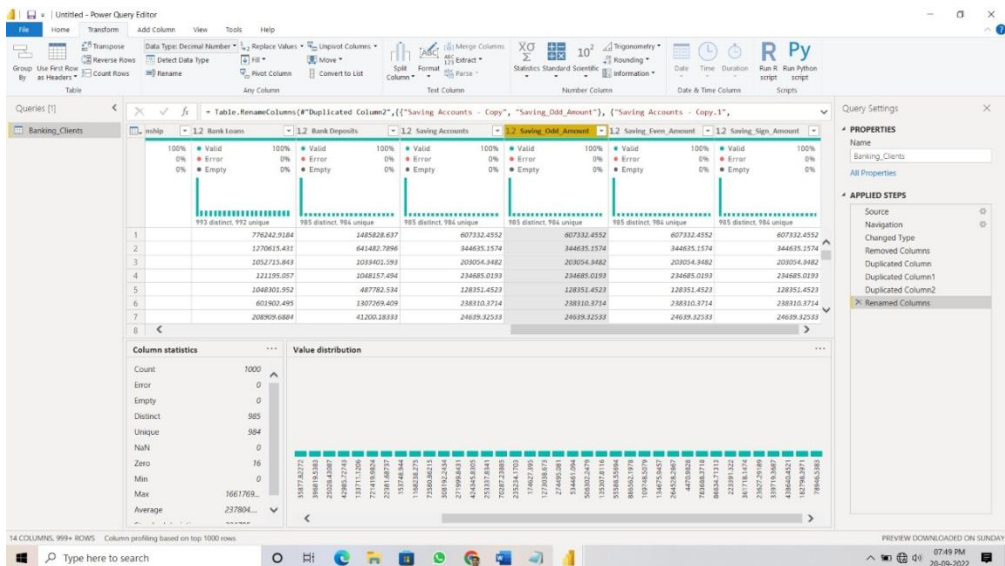
**Banking\_Clients**  
Preview downloaded on Sunday

Client ID	Name	Age	Sex	Location ID	Joined Ba
PKR81288	Raymond Mills	24	Male	34324	
PKR65833	Julia Spencer	23	Male	42205	
PKR47499	Stephen Murray	27	Female	7314	
PKR72498	Virginia Garza	40	Male	34594	
PKR60181	Melissa Sanders	46	Female	41269	
PKR78532	Samuel Hudson	23	Male	13204	
PKR95683	Timothy Alexander	46	Female	42910	
PKR40785	Carl Martin	78	Female	6127	
PKR13570	Philip Day	67	Female	32656	
PKR53299	Jason Sims	51	Male	28340	
PKR76263	Amy Martinez	55	Male	40459	
PKR56452	David Johnston	73	Female	25563	
PKR28766	Wayne Foster	45	Female	35687	
PKR17897	Carlos Moore	44	Female	19554	
PKR86325	Lisa Johnston	36	Male	33368	
PKR74197	Andrew Mills	55	Male	27913	
PKR28503	Jack Coleman	61	Female	9505	
PKR56539	Aaron Day	56	Female	36232	
PKR53604	Kevin Weaver	43	Female	6299	
PKR32064	Mary Fox	63	Female	7694	

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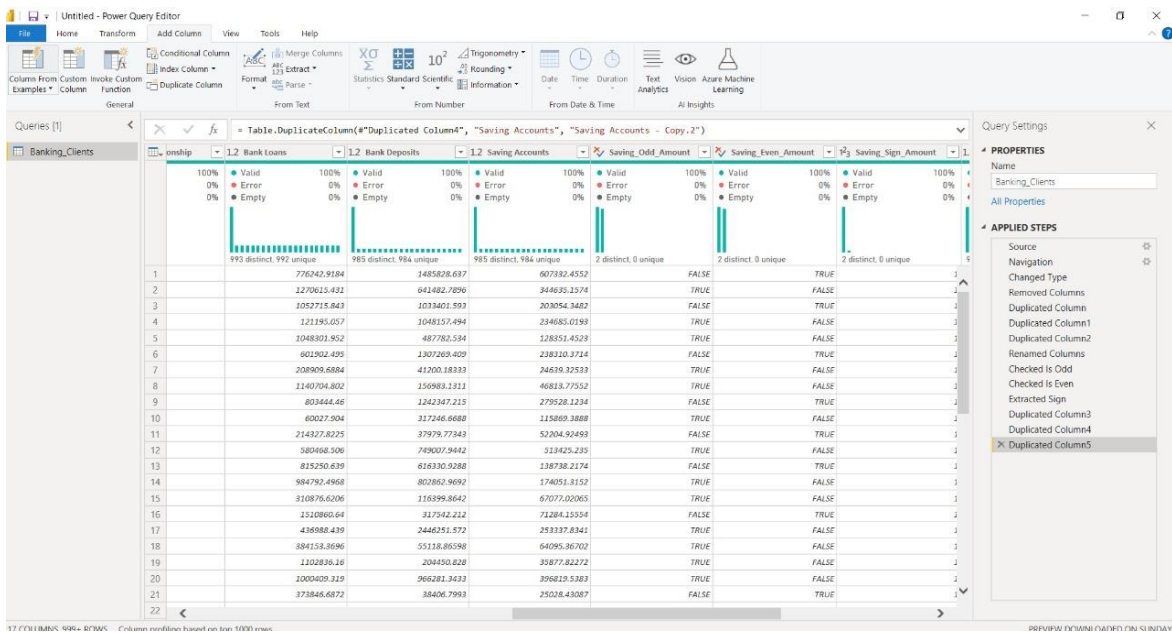
Load Transform Data Cancel

6. Now change the duplicate column names to the odd, even, sign, round, roundup, rounddown names
7. Now navigate to the transform and dropdown the information button and then select the is odd option then the savings account column.

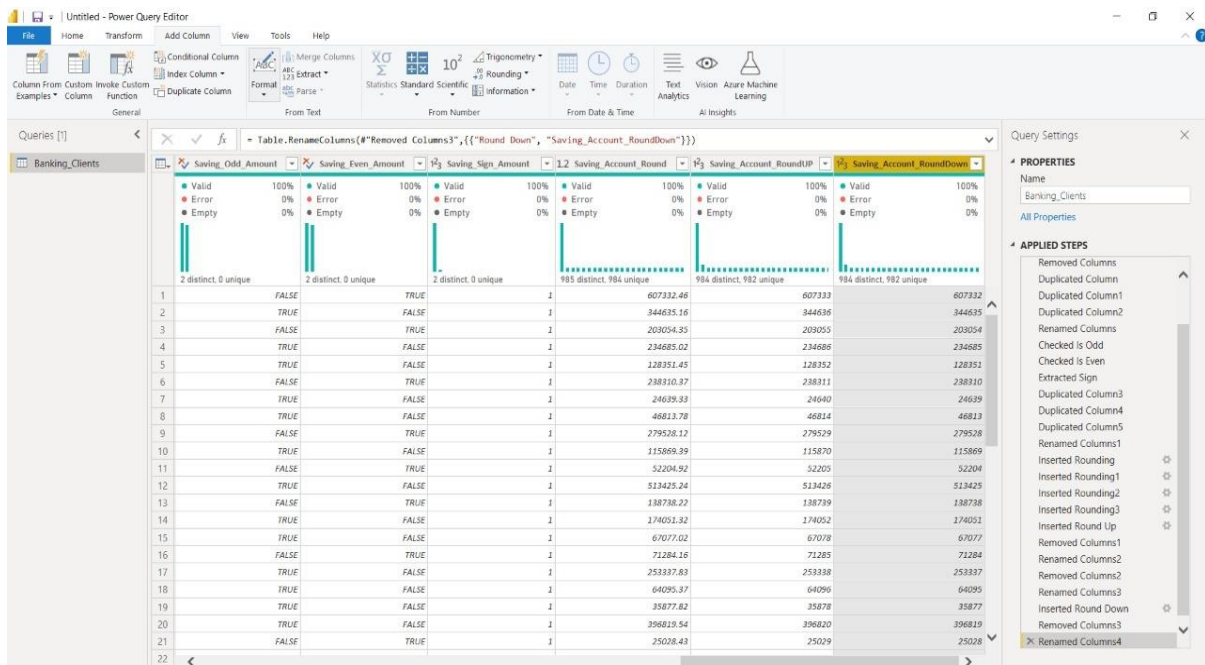


8. Repeat the same process for the ODD, Even, Sign numbers for the savings account.

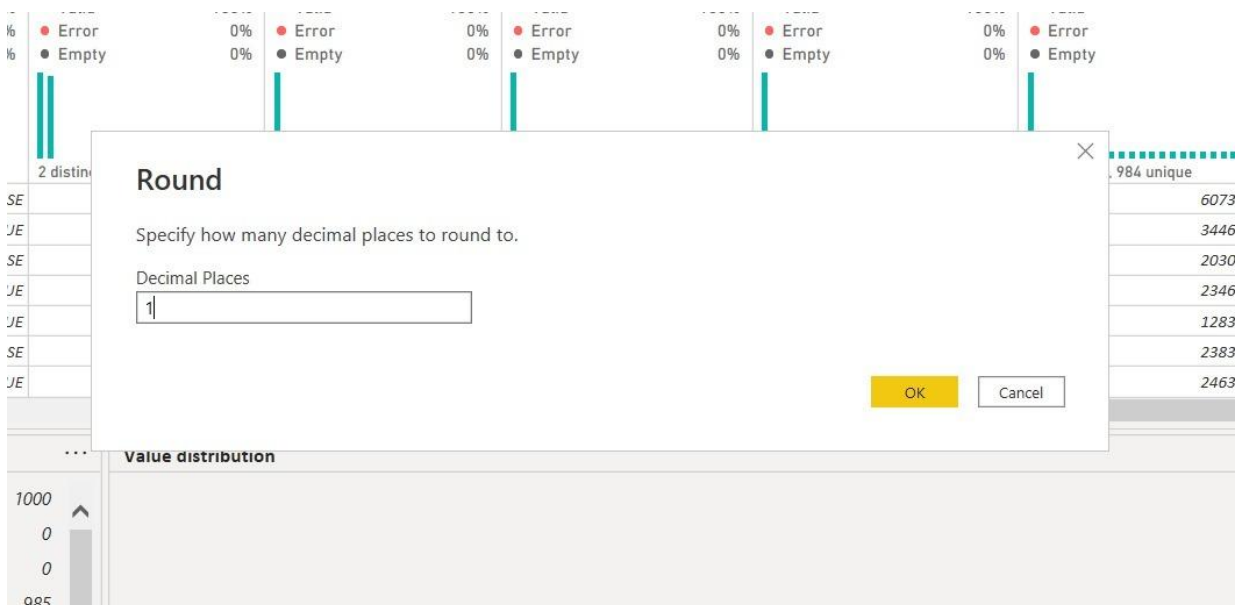
9. And the final output for this columns will be down below one.



10. Now navigate to the ADD Columns and use the “round” DropDown and use this dropdown on the saving account.



11. For calculating the round value in a column it will ask the precision of the decimals and see the below pic



12. The final output values of the column will be like in below pic is calculated for all functions like round, roundup, rounddown also.

Client ID	Name	Age	Sex	Joined Bank	Nationality	Banking Relationship	Bank Deposits	Saving Accounts	Saving_Odd_Amount	Saving_Even_Amount	Saving_Sign_Amount	Saving_Accounts
PKR40785	Carl Martin	78	Female	03 November 2000	European	Retail	156983.121136	46213.77552384	True	False	1	1
PKR61272	Larry Foster	47	Female	10 December 1998	European	Retail	976553.209044	471515.90405472	True	False	1	1
PKR54514	Kevin Gomez	32	Female	01 January 2007	European	Retail	1490773.713375	281227.247907	True	False	1	1
PKR26283	Joshua Hughes	58	Female	21 April 2006	European	Retail	376150.246997	298629.78724558	True	False	1	1
PKR80703	Lillian Bell	41	Female	16 February 2018	European	Retail	38234.0154	7799.7391416	True	False	1	1
PKR91862	Alice Chavez	29	Female	21 February 2019	European	Retail	1144704.011451	570935.87705154	True	False	1	1
PKR76171	Jacqueline Williamson	42	Female	17 June 1996	European	Retail	129332.337552	76867.332696	True	False	1	1
PKR33238	Ruby Oliver	79	Female	07 August 2004	European	Retail	758995.412098	306509.38021848	True	False	1	1
PKR60476	Carolyn Ross	76	Female	08 March 2011	European	Retail	25563.145808	11901.72695712	True	False	1	1
PKR59564	Daniel Harris	71	Female	10 September 2018	European	Retail	542037.00177	156643.720895	True	False	1	1
PKR58681	Andrew Williams	73	Female	06 November 1995	European	Retail	137641.65948	75465.599508	True	False	1	1
PKR28733	Chris Larson	74	Female	09 June 2017	European	Retail	91304.2368	55989.921904	True	False	1	1
PKR49707	Gary Garcia	36	Female	22 December 2012	European	Retail	436763.0396	352249.661284	True	False	1	1
PKR86832	Laura Gray	68	Female	28 May 1994	European	Retail	561714.633216	458435.73815424	True	False	1	1
PKR55402	Howard Simmons	70	Female	25 April 1998	European	Retail	433211.84192	217438.020856	True	False	1	1
PKR32885	Stephanie Mills	77	Female	29 June 2010	European	Retail	288668.827489	128275.25057893	True	False	1	1
PKR95385	Johnny Campbell	79	Female	22 October 2017	European	Retail	395367.858906	386297.12676846	True	False	1	1
PKR27026	Wanda Henderson	57	Female	09 November 2014	European	Retail	284911.57915	73869.8022178	True	False	1	1
PKR17984	Gary Bell	18	Female	18 February 2000	European	Retail	600275.716856	74391.77591584	True	False	1	1
PKR70737	Russell Moore	74	Female	15 June 1998	European	Retail	2677607.1	696177.846	True	False	1	1
PKR62569	Karen Reynolds	20	Female	08 April 2014	European	Retail	225096.121016	51117.75864468	True	False	1	1
PKR87900	Joan Martinez	22	Female	10 August 2019	European	Retail	201141.119376	45653.740911	True	False	1	1
PKR42135	Kevin Kelley	30	Female	04 May 2013	European	Retail	357418.79	240571.0125	True	False	1	1
PKR64186	Timothy Austin	25	Female	23 May 2008	European	Retail	2918088.548712	534798.37301552	True	False	1	1
PKR64549	Roger Hunter	77	Female	12 September 2013	European	Retail	116494.445632	60669.8503728	True	False	1	1
PKR85958	Kelly Grant	42	Female	09 April 2000	European	Retail	2118447.012417	589129.90237083	True	False	1	1
PKR35302	Jessica Black	78	Female	31 May 2015	European	Retail	349744.2816	72397.0662912	True	False	1	1

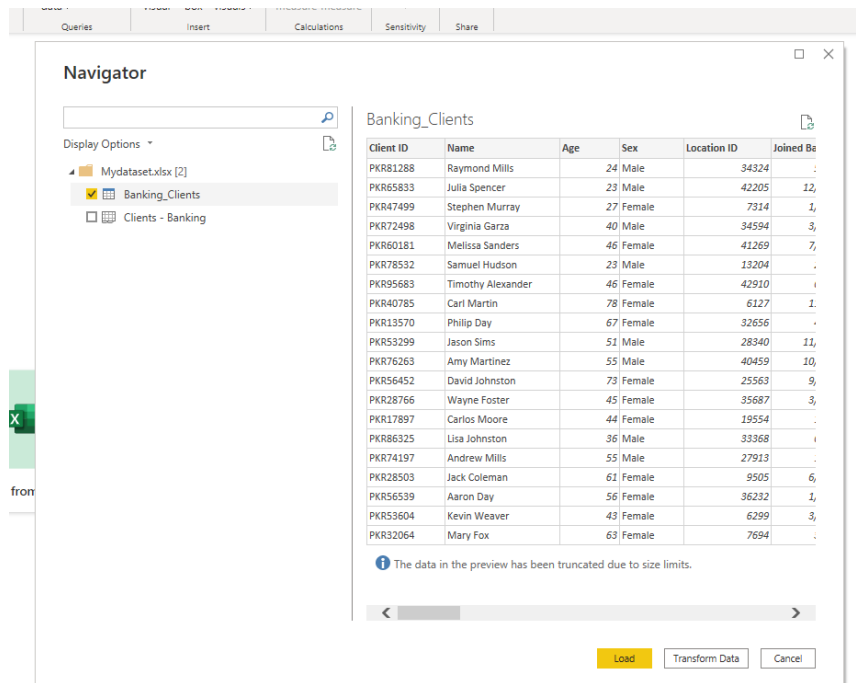
Output :

Saving_Account_Round	Saving_Account_RoundDown	Saving_Account_RoundUP	Saving_Even_Amount	Saving_Odd_Amount	Saving_Sign_Amount	Saving Accounts
17,24,118.36	1724118	1724119	True	False	1	17,24,118.36
17,12,270.28	1712270	1712271	True	False	1	17,12,270.28
16,61,769.83	1661769	1661770	False	True	1	16,61,769.83
15,74,475.78	1574475	1574476	False	True	1	15,74,475.78
15,66,778.15	1566778	1566779	True	False	1	15,66,778.15
15,49,728.93	1549728	1549729	True	False	1	15,49,728.93
15,07,703.66	1507703	1507704	False	True	1	15,07,703.66
14,52,705.47	1452705	1452706	False	True	1	14,52,705.47
14,26,470.71	1426470	1426471	True	False	1	14,26,470.71
14,22,244.37	1422244	1422245	True	False	1	14,22,244.37
14,14,641.84	1414641	1414642	False	True	1	14,14,641.84
13,85,917.65	1385917	1385918	False	True	1	13,85,917.65
13,71,926.94	1371926	1371927	True	False	1	13,71,926.94
13,68,697.46	1368697	1368698	False	True	1	13,68,697.46
13,49,469.29	1349469	1349470	False	True	1	13,49,469.29
<b>Total</b>					<b>2966</b>	<b>69,87,25,060.31</b>

**Aim :** Generation of Dates based on present date and then add a index Column to it and visualize the data.

### Procedure :

1. Take any bank dataset and then load into the power bi and then click on Transform data to do some modifications.

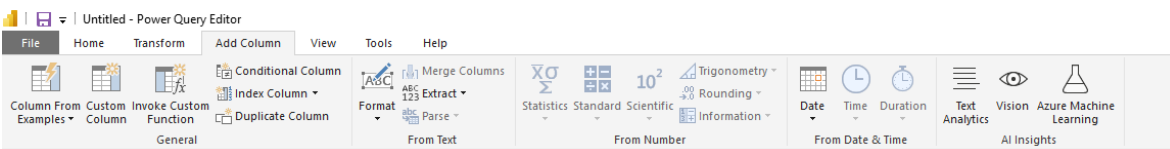


2. After loading the file in to query editor the next step is to remove the unnecessary columns or attributes so that our task to execute and easy to analyze the data.



Name	Age	Date
1 Raymond Mills	24	5/6/2023
2 Julia Spencer	21	11/20/2001
3 Stephen Murray	27	1/20/2020
4 Virginia Garcia	40	3/26/1993
5 Melissa Sanders	40	7/20/2022
6 Samuel Hudson	23	2/2/2020
7 Timothy Alexander	49	6/2/2002
8 Carl Martin	70	11/7/2000
9 Philip Day	67	4/2/2021
10 Jason Sims	51	11/20/1995
11 Amy Martinez	50	10/16/2014
12 David Johnson	70	6/2/2006
13 Wayne Foster	43	3/3/2018
14 Carlos Moore	44	3/2/1996
15 Lisa Johnson	56	6/2/2006
16 Andrew Mills	53	1/6/1997
17 Jack Coleman	61	4/22/2014
18 Aaron Day	56	1/20/2004
19 Kevin Weaver	43	3/3/2023
20 Mary Fox	63	3/7/2009
21 Carlos Little	41	4/2/2006
22 Roger Boyd	58	12/21/2025
23 Aaron Mitchell	20	1/4/2021
24 Cheryl Bennett	21	5/22/2002
25 Anne Nguyen	41	8/26/1997
26 Christopher Evans	36	3/20/2019
27 Maria Diaz	34	1/20/2014
28 Jimmy Simpson	52	1/6/2018
29 Louise Sanders	70	5/24/2001
30 Angela Alvarez	34	6/2/2006
31 Henry Grant	70	4/6/2023
32 Larry Foster	47	11/20/1996

3. Now, navigate to the ADD Column there you can see the how to add a custom column and click on it.



4. Now, write a query to get the list o dats which are subtracted from the joined dates. And then click on OK.

**Custom Column**

Add a column that is computed from the other columns.

New column name:

Custom column formula:

Available columns:

- Name
- Age
- Joined Bank

<< Insert

Learn about Power Query formulas

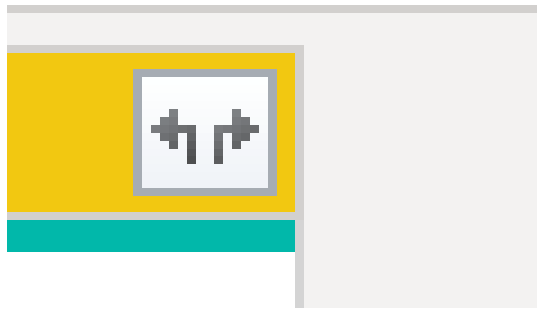
✓ No syntax errors have been detected.

OK Cancel

3/9/2009

5. After clicking the ok, see at the top left in the column header in which you have added newly and click on the expanding rows then the data will be converted to table.





6. Navigate to the add column and click on the add a conditional column option now you can apply the condition on columns and fill the required fields to get an expected output data in the new column.

**Add Conditional Column**

Add a conditional column that is computed from the other columns or values.

New column name  
Control Dates

Column Name	Operator	Value	Output
If	Joined Bank	equals	Dates
Then	ABC 123	Same	...

Add Clause

Else

ABC 123	Different
---------	-----------

OK Cancel

7. After modifying the all data and applying the conditions difference adding new columns the new modified data will like the below one.

Structure			Formatting		Properties		Sort	Groups	Relat
Name	Age	Joined Bank	Dates		Index	Control Dates			
Angela Lynch	76	Thursday, April 12, 2018	Saturday, January 1, 2022		886555	Different			
Angela Lynch	76	Thursday, April 12, 2018	Sunday, January 2, 2022		886556	Different			
Angela Lynch	76	Thursday, April 12, 2018	Monday, January 3, 2022		886557	Different			
Angela Lynch	76	Thursday, April 12, 2018	Tuesday, January 4, 2022		886558	Different			
Angela Lynch	76	Thursday, April 12, 2018	Wednesday, January 5, 2022		886559	Different			
Angela Lynch	76	Thursday, April 12, 2018	Thursday, January 6, 2022		886560	Different			
Angela Lynch	76	Thursday, April 12, 2018	Friday, January 7, 2022		886561	Different			
Angela Lynch	76	Thursday, April 12, 2018	Saturday, January 8, 2022		886562	Different			
Angela Lynch	76	Thursday, April 12, 2018	Sunday, January 9, 2022		886563	Different			
Angela Lynch	76	Thursday, April 12, 2018	Monday, January 10, 2022		886564	Different			
Angela Lynch	76	Thursday, April 12, 2018	Tuesday, January 11, 2022		886565	Different			
Angela Lynch	76	Thursday, April 12, 2018	Wednesday, January 12, 2022		886566	Different			
Angela Lynch	76	Thursday, April 12, 2018	Thursday, January 13, 2022		886567	Different			
Angela Lynch	76	Thursday, April 12, 2018	Friday, January 14, 2022		886568	Different			
Angela Lynch	76	Thursday, April 12, 2018	Saturday, January 15, 2022		886569	Different			
Angela Lynch	76	Thursday, April 12, 2018	Sunday, January 16, 2022		886570	Different			
Angela Lynch	76	Thursday, April 12, 2018	Monday, January 17, 2022		886571	Different			
Angela Lynch	76	Thursday, April 12, 2018	Tuesday, January 18, 2022		886572	Different			
Angela Lynch	76	Thursday, April 12, 2018	Wednesday, January 19, 2022		886573	Different			
Angela Lynch	76	Thursday, April 12, 2018	Thursday, January 20, 2022		886574	Different			
Angela Lynch	76	Thursday, April 12, 2018	Friday, January 21, 2022		886575	Different			
Angela Lynch	76	Thursday, April 12, 2018	Saturday, January 22, 2022		886576	Different			
Angela Lynch	76	Thursday, April 12, 2018	Sunday, January 23, 2022		886577	Different			
Angela Lynch	76	Thursday, April 12, 2018	Monday, January 24, 2022		886578	Different			
Angela Lynch	76	Thursday, April 12, 2018	Tuesday, January 25, 2022		886579	Different			
Angela Lynch	76	Thursday, April 12, 2018	Wednesday, January 26, 2022		886580	Different			
Angela Lynch	76	Thursday, April 12, 2018	Thursday, January 27, 2022		886581	Different			
Angela Lynch	76	Thursday, April 12, 2018	Friday, January 28, 2022		886582	Different			
Angela Lynch	76	Thursday, April 12, 2018	Saturday, January 29, 2022		886583	Different			
Angela Lynch	76	Thursday, April 12, 2018	Sunday, January 30, 2022		886584	Different			
Angela Lynch	76	Thursday, April 12, 2018	Monday, January 31, 2022		886585	Different			
Angela Lynch	76	Thursday, April 12, 2018	Tuesday, February 1, 2022		886586	Different			
Angela Lynch	76	Thursday, April 12, 2018	Wednesday, February 2, 2022		886587	Different			
Angela Lynch	76	Thursday, April 12, 2018	Thursday, February 3, 2022		886588	Different			
Angela Lynch	76	Thursday, April 12, 2018	Friday, February 4, 2022		886589	Different			
Angela Lynch	76	Thursday, April 12, 2018	Saturday, February 5, 2022		886590	Different			
Angela Lynch	76	Thursday, April 12, 2018	Sunday, February 6, 2022		886591	Different			
Angela Lynch	76	Thursday, April 12, 2018	Monday, February 7, 2022		886592	Different			

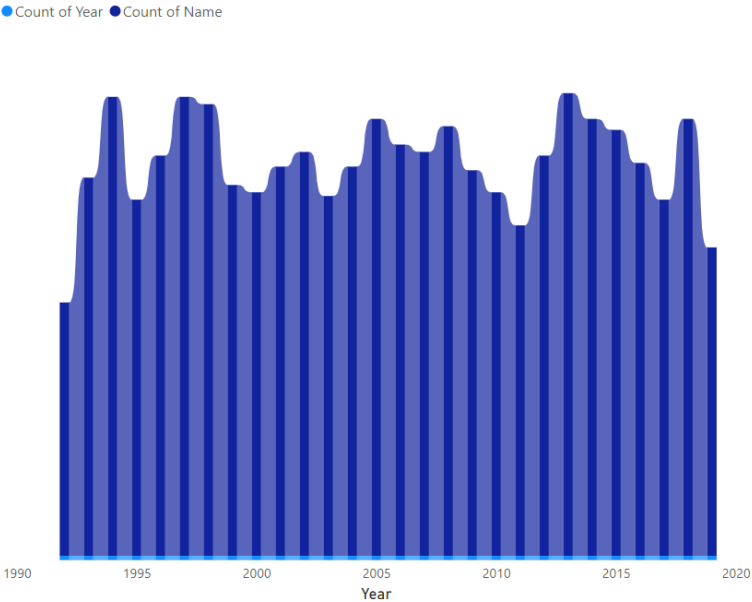
Output :

# Bank Employee's Joining Day Report

Bank Joining Dates

Index	Name	Year	Year	Control Dates
498468090	Aaron Bryant	2009	2022	Different
363351079	Aaron Bryant	2009	2023	Different
349223970	Aaron Burke	2014	2022	Different
254586871	Aaron Burke	2014	2023	Different
394826340	Aaron Cook	1999	2022	Different
287820379	Aaron Cook	1999	2023	Different
3981785	Aaron Day	1994	2022	Different
2985717	Aaron Day	1994	2023	Different
104859755	Aaron Edwards	2000	2022	Different
76502265	Aaron Edwards	2000	2023	Different
469448400	Aaron Evans	2017	2022	Different
342202483	Aaron Evans	2017	2023	Different
682029145	Aaron Ferguson	1999	2022	Different
497124341	Aaron Ferguson	1999	2023	Different
553052745	Aaron George	2017	2022	Different
403130581	Aaron George	2017	2023	Different
530251560	Aaron Gray	2002	2022	Different
386513827	Aaron Gray	2002	2023	Different
1791723553500				

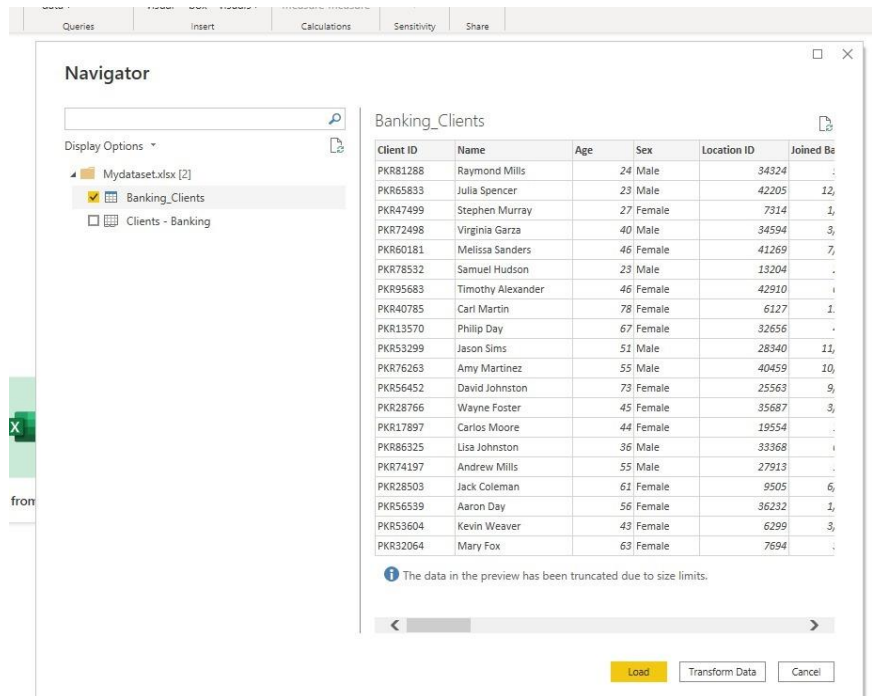
Count of Year and Count of Name by Year



**Aim :** Load any Data and then classify Data by condition column.

**Procedure :**

1. First Load the dataset into the Power bi and click on transform to remove the unwanted attributes or columns in dataset.



2. After clicking on Transform data then remove all unwanted unnecessary columns so that we can perform the operation on the column which we want to visualize them in a dashboard or a report generation.
3. After deleting the column the data will be remained like below one.

Table.TransformColumnTypes(#"Removed Columns",{"Bank Deposits", Int64.Type})

	A <sup>8</sup> C Name	1 <sup>2</sup> 3 Age	A <sup>8</sup> C Fee Structure	1 <sup>2</sup> 3 Bank Deposits
	Valid 100 % Error 0 % Empty 0 %	Valid 100 % Error 0 % Empty 0 %	Valid 100 % Error 0 % Empty 0 %	Valid 100 % Error 0 % Empty 0 %
	989 distinct, 978 unique	69 distinct, 0 unique	3 distinct, 0 unique	985 distinct, 984 unique
1	Raymond Mills		24 High	1485829
2	Julia Spencer		23 High	641483
3	Stephen Murray		27 High	1033402
4	Virginia Garza		40 Mid	1048157
5	Melissa Sanders		46 Mid	487783
6	Samuel Hudson		23 High	1307269
7	Timothy Alexander		46 High	41200
8	Carl Martin		78 Mid	156983
9	Philip Day		67 High	1242347
10	Jason Sims		51 Mid	317247
11	Amy Martinez		55 High	37980
12	David Johnston		73 Mid	749008
13	Wayne Foster		45 Low	616331
14	Carlos Moore		44 High	802863
15	Lisa Johnston		36 High	116400
16	Andrew Mills		55 Mid	317542
17	Jack Coleman		61 High	2446252
18	Aaron Day		56 Low	55119
19	Kevin Weaver		43 Low	204451
20	Mary Fox		63 Mid	966281
21	Carlos Little		41 Low	38407
22	Roger Boyd		58 High	547460
23	Aaron Marshall		26 Mid	103872
24	Cheryl Stewart		21 High	1115098
25	Anne Nguyen		41 High	132961
26	Christopher Evans		36 High	302541
27	Maria Clark		34 High	1724818
28	Jimmy Simpson		52 High	192712
29	Louise Sanders		78 Low	765154
30	Angela Alvarez		34 Low	447805
31	Henry Grant		75 Low	2098820
32	Larry Foster		47 High	976553

4. Now, navigate to the ADD Column there you will find an option called add an conditional column now, click on that and apply condition on that column so that you can filter your data.

**Add Conditional Column**

Add a conditional column that is computed from the other columns or values.

New column name  
Deposit > 100000

Column Name	Operator	Value	Output
If Bank Deposits	is greater than	100000	Good
Else			Okey

OK Cancel

5. After applying the conditions on the column now, can see the change effected on the dataset the below pic is the final dataset which I modified according the requirements of the given Aim.

Name	Age	Fee Structure	Bank Deposits	Deposit > 100000
Raymond Mills	24	High	1485829	Good
Julia Spencer	23	High	641483	Good
Stephen Murray	27	High	1033402	Good
Samuel Hudson	23	High	1307269	Good
Philip Day	67	High	1242347	Good
Carlos Moore	44	High	802863	Good
Lisa Johnston	36	High	116400	Good
Jack Coleman	61	High	2446252	Good
Roger Boyd	58	High	547460	Good
Cheryl Stewart	21	High	1115098	Good
Anne Nguyen	41	High	132961	Good
Christopher Evans	36	High	302541	Good
Maria Clark	34	High	1724818	Good
Jimmy Simpson	52	High	192712	Good
Larry Foster	47	High	976553	Good
Carol GoPKRalez	34	High	828227	Good
Timothy Stanley	79	High	187826	Good
Billy Wilson	73	High	1420246	Good
Philip Fisher	27	High	309362	Good
Mark Mccoy	33	High	1818216	Good
Kathy Wheeler	67	High	295346	Good
Nicholas Gilbert	49	High	202406	Good
Ronald Larson	29	High	1209656	Good
Angela Roberts	22	High	130416	Good
Joshua Hughes	58	High	376150	Good

6. Now, we have to visualize this modified dataset in the dashboard.

## Output :

Bank Deposits		
Name	Bank Deposits	Deposit > 100000
Aaron Bryant	322644	Good
Aaron Burke	227890	Good
Aaron Cook	49529	Okey
Aaron Day	55119	Okey
Aaron Edwards	921893	Good
Aaron Evans	619283	Good
Aaron Ferguson	568966	Good
Aaron George	1917355	Good
Aaron Gray	98533	Okey
Aaron Harvey	302759	Good
Aaron Hawkins	727382	Good
Aaron Jordan	231683	Good
Aaron Marshall	103872	Good
Aaron Palmer	1188541	Good
Aaron Reynolds	58388	Okey
Aaron Rice	153846	Good
Total	2014680589	

## Client Deposited Money

Bank Deposits by Deposit &gt; 100000



## Task – 7

**Aim :** Create a small dataset and perform a group by operation on dataset

And perform visualize them on dashboard.

### Procedure :

1. Open the power bi and click on the get data option and then click on the text /csv format then upload the csv file and click on transform data to perform group by operation.

product.csv

File Origin: 1252: Western European (Windows) | Delimiter: Comma | Data Type Detection: Based on first 200 rows

PRODUCT	TRXN_DATE	SALES
A	11-02-2019	120
A	11-02-2019	140
B	11-02-2019	200
B	11-02-2019	120

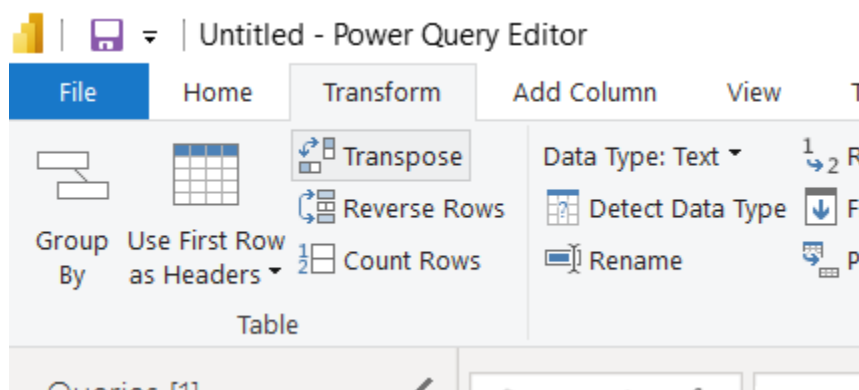
Extract Table Using Examples | Load | Transform Data | Cancel

2. When you click on transform data then you will enter into a new window called power bi query editor which is also known as kitchen of the power bi.

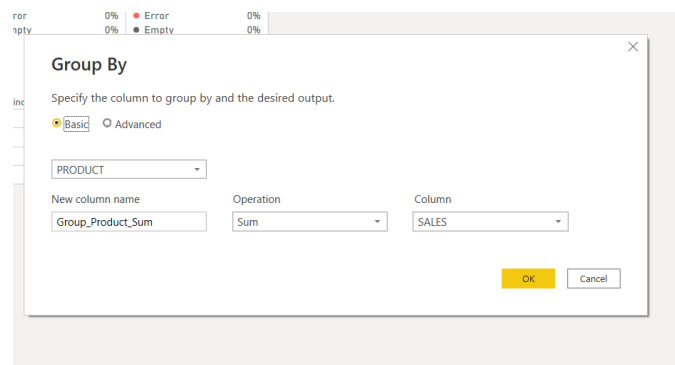
fx = Table.TransformColumnTypes("#Promoted Headers",{{"PRODUCT", type t

	PRODUCT	TRXN_DATE	SALES
	Valid 100%	Valid 100%	Valid 100%
	Error 0%	Error 0%	Error 0%
	Empty 0%	Empty 0%	Empty 0%
	2 distinct, 0 unique	1 distinct, 0 unique	3 distinct, 2 unique
1	A	11-02-2019	120
2	A	11-02-2019	140
3	B	11-02-2019	200
4	B	11-02-2019	120

- Now , navigate to the Transform there you can see the group by option. Click on the option.
- Group by operation means grouping the similar data based on given aggregate operation.



- After clicking on group by option now select the product column i.e data will be grouped by based as product and performs aggregate sum operation also.



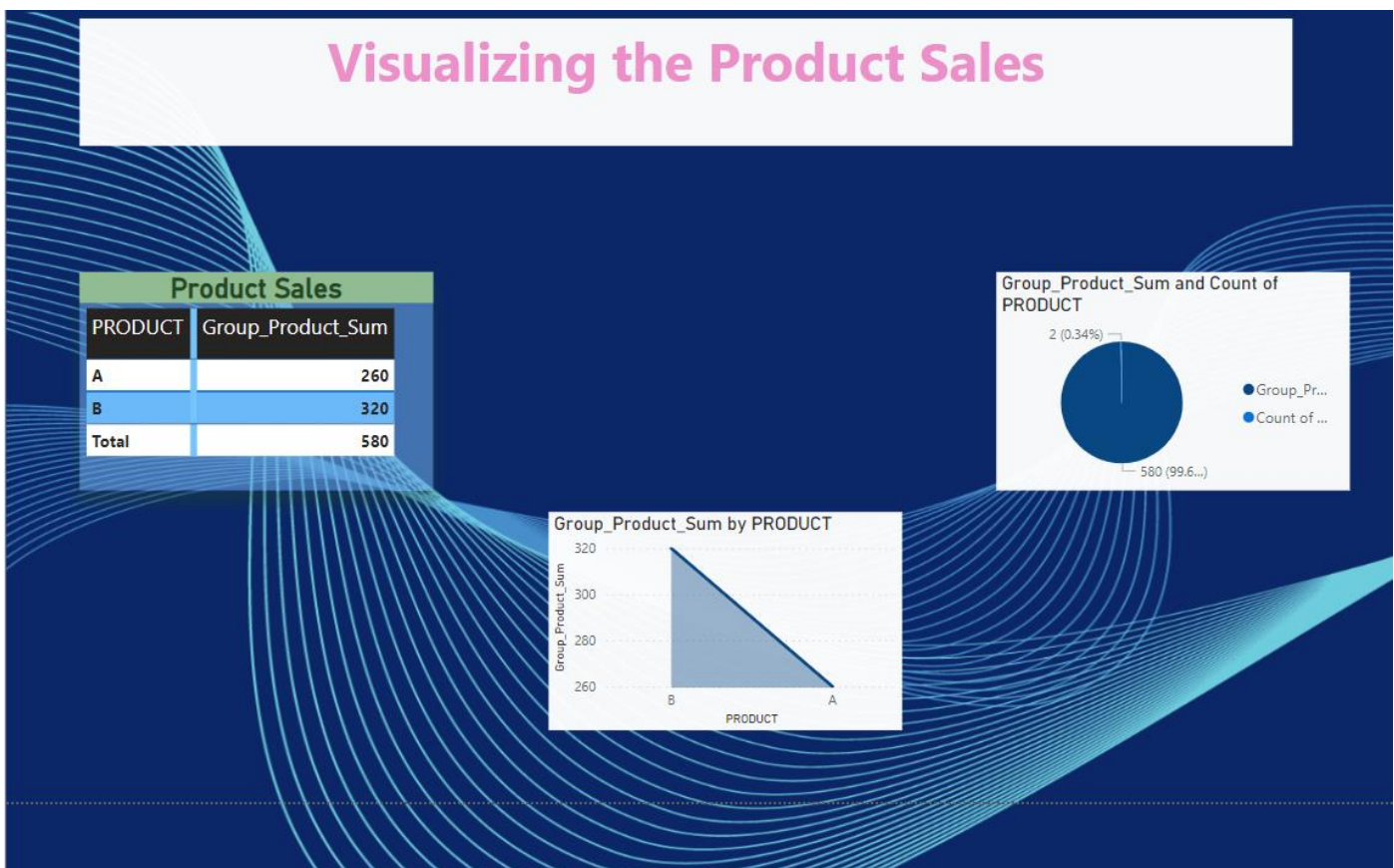


6. This is the final result after performing the group by operation .

✕ ✓ *fx*    = Table.Group("#Changed Type", {"PRODUCT", "Group\_Product\_Sum", ...

	PRODUCT	Group_Product_Sum
Valid	100%	100%
Error	0%	0%
Empty	0%	0%
2 distinct, 2 unique		
1	A	260
2	B	320

Output :



**Aim :** Perform group By operations on Banking dataset and visualize them.

**Procedure :**

1. First Load the dataset into the Power bi and click on transform to remove the unwanted attributes or columns in dataset.

Navigator

Display Options

- Mydataset.xlsx [2]
  - ☒ Banking\_Clients
  - ☐ Clients - Banking

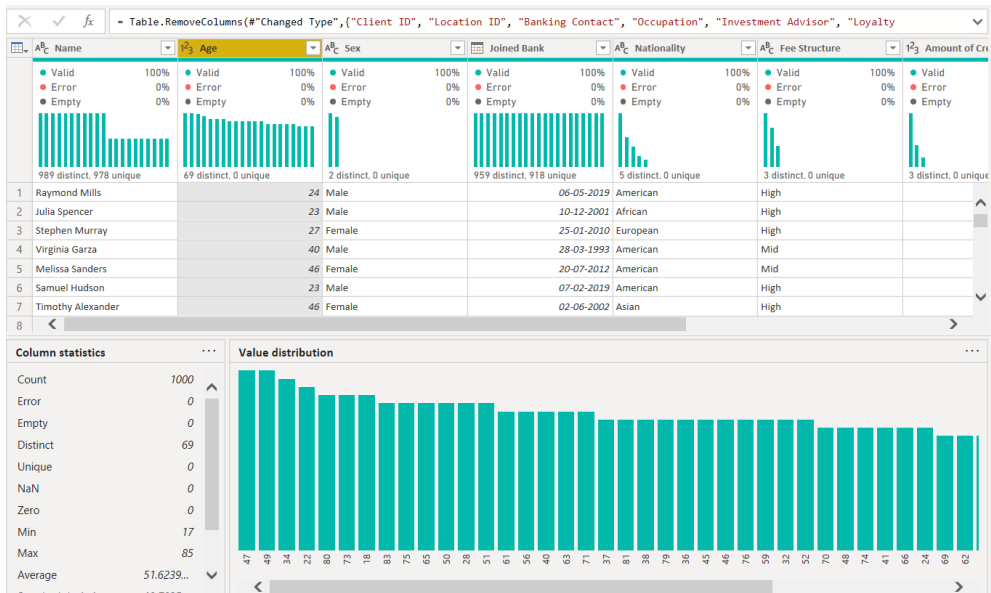
Banking\_Clients

Client ID	Name	Age	Sex	Location ID	Joined
PKR81288	Raymond Mills	24	Male	34324	
PKR65833	Julia Spencer	23	Male	42205	12
PKR47499	Stephen Murray	27	Female	7314	1
PKR72498	Virginia Garza	40	Male	34594	3
PKR60181	Melissa Sanders	46	Female	41269	7
PKR78532	Samuel Hudson	23	Male	13204	
PKR95683	Timothy Alexander	46	Female	42910	
PKR40785	Carl Martin	78	Female	6127	1
PKR13570	Philip Day	67	Female	32656	
PKR53299	Jason Sims	51	Male	28340	11
PKR76263	Amy Martinez	55	Male	40459	10
PKR56452	David Johnston	73	Female	25563	9
PKR28766	Wayne Foster	45	Female	35687	3
PKR17897	Carlos Moore	44	Female	19554	
PKR86325	Lisa Johnston	36	Male	33368	
PKR74197	Andrew Mills	55	Male	27913	
PKR28503	Jack Coleman	61	Female	9505	6
PKR56539	Aaron Day	56	Female	36232	1
PKR53604	Kevin Weaver	43	Female	6299	3
PKR32064	Mary Fox	63	Female	7694	

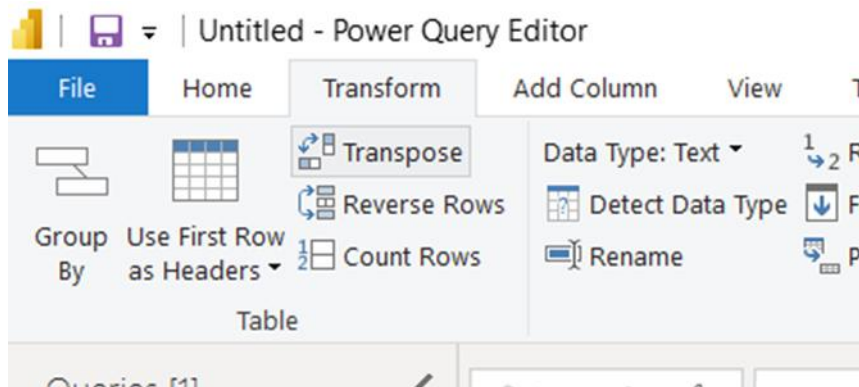
The data in the preview has been truncated due to size limits.

Load Transform Data Cancel

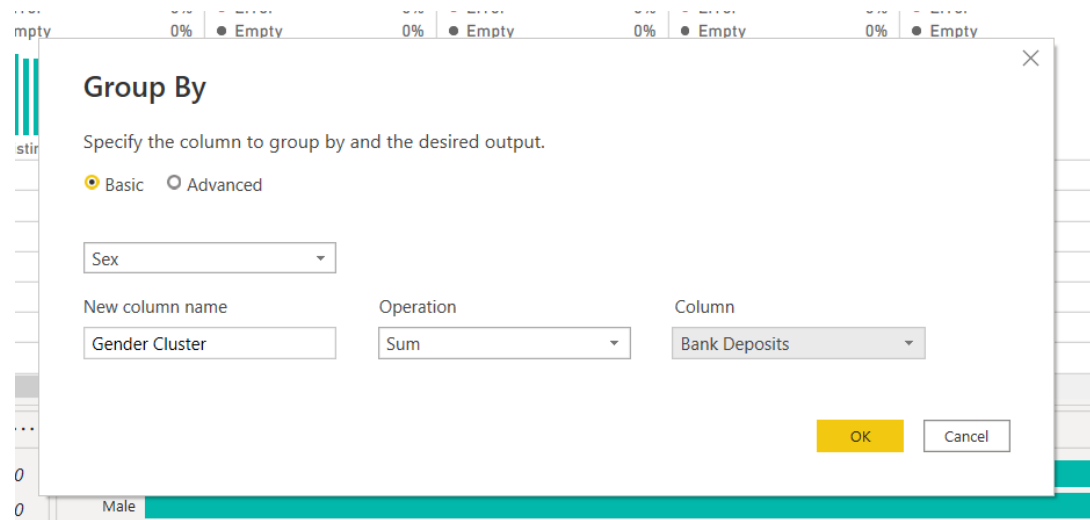
2. After clicking the transform data then you will be entered in to an power bi query editor where you can fully analyze the data now we have to remove the unwanted or unnecessary attributes which are not releated to the present doing Task.
3. After deleting or removing all unwanted attributes in the dataset then the final modified dataset will be like below one.



4. Navigate to the Transform tab there you can find the group by operation click on the option then fill the details in the pop up box and then click ok.



5. Now, do group the sex attribute and apply the aggregate sum operation on bank deposits make sure that attribute should contain labelled data.



6. The final data will be like below pic after grouping the sex attribute.

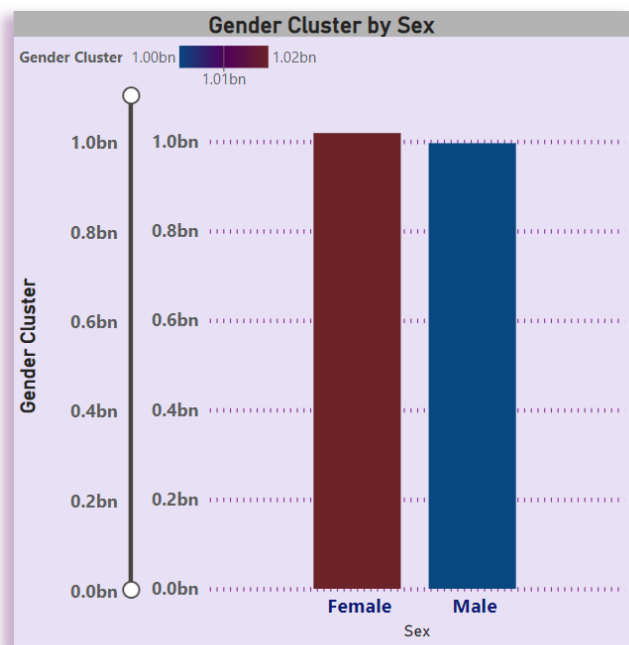
✕ ✓  $fx$  = Table.Group("#Removed Columns", {"Sex"}, {"G

	AB Sex	1.2 Gender Cluster
	<div> <div>Valid 100%</div> <div>Error 0%</div> <div>Empty 0%</div> </div> <div>2 distinct, 2 unique</div>	<div> <div>Valid 100%</div> <div>Error 0%</div> <div>Empty 0%</div> </div> <div>2 distinct, 2 unique</div>
1	Male	996003473.9
2	Female	1018677108

Output :

### Aggregate Sum Of Bank Deposits By Using Group By Gender

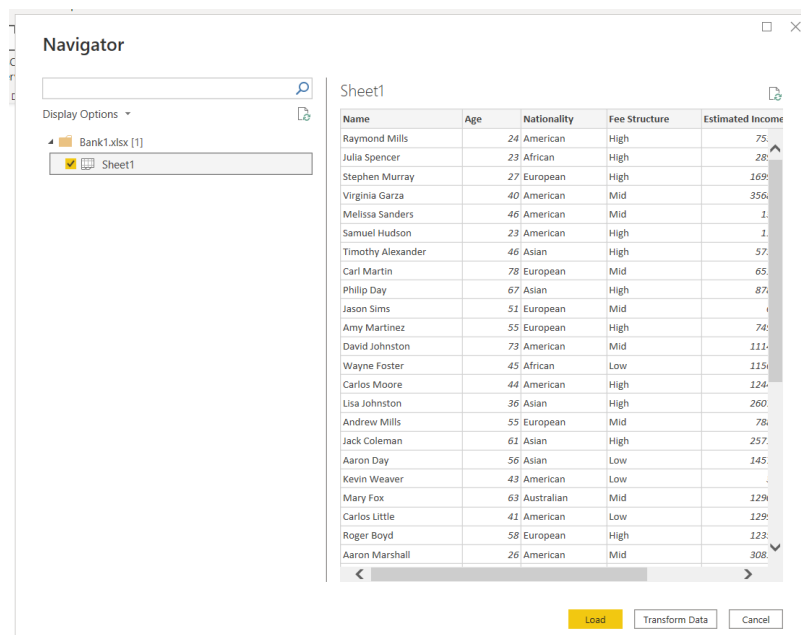
Bank Deposits	
Sex	Gender Cluster
Female	1,01,86,77,107.64
Male	99,60,03,473.89
Total	2,01,46,80,581.53



**Aim :** Apply joins and merging queries topic in any dataset and Visualize it.

**Procedure :**

1. To apply joins we should have atleast 2 Tables or relations.
2. First, we have load the both relations or tables into an power bi.
3. After click on Get Data select the excel option to load the first table into an power bi after then click on Load option.



Navigator

Display Options ▾

Bank1.xlsx [1]

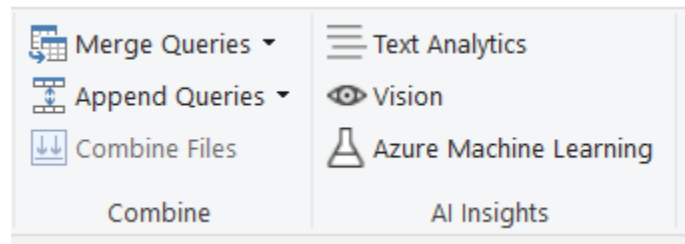
Sheet1

Sheet1

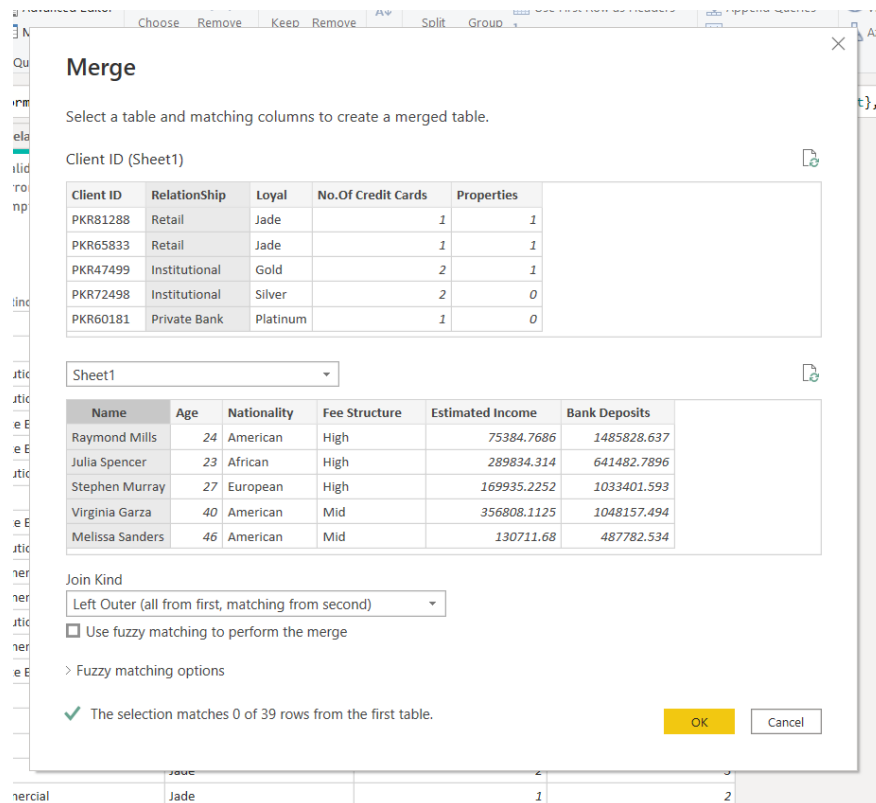
Name	Age	Nationality	Fee Structure	Estimated Income
Raymond Mills	24	American	High	75
Julia Spencer	23	African	High	28
Stephen Murray	27	European	High	169
Virginia Garza	40	American	Mid	356
Melissa Sanders	46	American	Mid	1
Samuel Hudson	23	American	High	1
Timothy Alexander	46	Asian	High	57
Carl Martin	78	European	Mid	65
Philip Day	67	Asian	High	87
Jason Sims	51	European	Mid	0
Amy Martinez	55	European	High	74
David Johnston	73	American	Mid	111
Wayne Foster	45	African	Low	115
Carlos Moore	44	American	High	124
Lisa Johnston	36	Asian	High	260
Andrew Mills	55	European	Mid	78
Jack Coleman	61	Asian	High	257
Aaron Day	56	Asian	Low	145
Kevin Weaver	43	American	Low	0
Mary Fox	63	Australian	Mid	129
Carlos Little	41	American	Low	129
Roger Boyd	58	European	High	123
Aaron Marshall	26	American	Mid	308

Load Transform Data Cancel

4. After click on Get Data select the excel option to load the Second table into an power bi after then click on Load option.
5. The next step is to enter into an power bi query editor where we can perform joins and merging queries at a same time.
6. Navigate to the home tab where you can find the merging queries option now click on that option.



7. Then you will get an pop up window fill the required details to perform the joins operation.



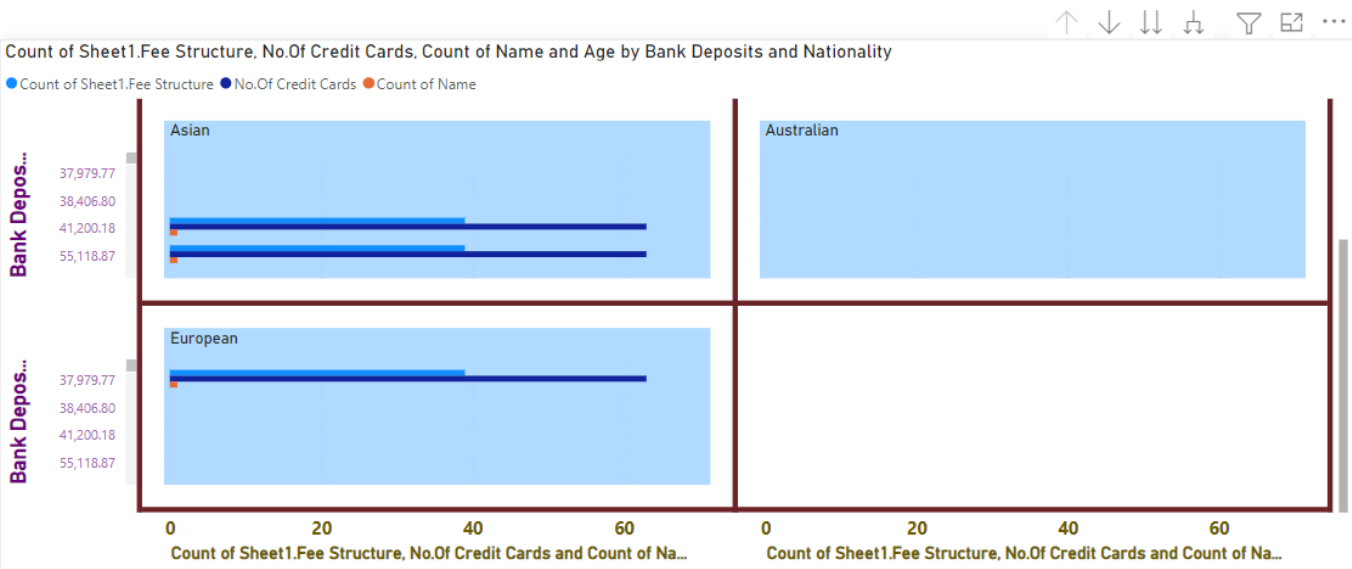
8. After performing the merging operation now save the changes in query editor.

9. The last and final step is visualize them in a interactive dashboard.

Output :



# Bank Deposits By Joining the Countries



**Task – 8**

**Aim :** Explore the different types of charts and graphs in the visualizing  
The data.

**Description :**

- Data from a table can be presented in many ways and they are
  - Charts
  - Graphs

S.no	Chart Name	Parameters	Significance
1	Dot Plot	X : 1 Y : min 1	It is one of the way to visualize the similarity between 2 parameters by using an similarity matrix.
2	Bar Chart	X : 1 Y : 1	This is a very simple chart to understand the status of work and also Compares the 2 variables like day and sales.
3	Floating Bar Chart	X : Category Value Y : 1	They visually show in a very effective at-a-glance way, the overall time line of the project, the current status & progress (or lack thereof) along with the assignment at considerable details. With this custom visual,
4	Pixelated Bar Chart	X : 1 or more Y : 1	The basic idea of a pixel bar chart is to present the data values directly instead of aggregating them into a few data values. The approach is to represent each data item (e.g. a customer) by a single pixel in the bar chart.
5	Histogram	X : 1	By combining a histogram chart with



			points that show the actual data for each range. Easily track where data clusters (points) across your data distribution (bars) to identify patterns, trends, and areas of opportunity.
6	Pie Chart	variables	It displays the status percentage of the work or project in various categories
7	Tree Map Chart	Any number of variables	A treemap chart provides a hierarchical view of your data and makes it easy to spot patterns, such as which items are a store's best sellers. The tree branches are represented by rectangles and each sub-branch is shown as a smaller rectangle.
8	Bubble Chart	Categorical variables	Bubble Chart with categorical Data on X and Y axis will enable the user to visualise categorical data such as date, category or any text field on X-axis and Y-axis simultaneously. This chart will help you to visualise data in three dimensions on X axis, Y axis and size dimension.

**Result :** Sucessfully completed the Aim .