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Execution Summary

In this project, data analysis is carried out for an online shopping portal by developing interactive dashboards using Power BI. At the online portal, the seller provides a platform for users to browse, select, and purchase goods/services online. A wide range of products are offered from various vendors, accessible from anywhere anytime. It includes product category, quantity, discounts, customer identity, location, transaction details, and GST information. This report provides charts and tables to represent all data graphically for easy analysis. It helps companies to broaden their reach and connect with a worldwide audience. It offers convenience, wider selection, and readily available information. It helps to adapt to changing consumer needs and leverages technological innovations.

This dataset is taken from below link (Kaggle online shopping-dataset, 2019) –

<https://www.kaggle.com/datasets/jacksondivakarr/online-shopping-dataset>

We use data for the duration January 1st , 2019 to December 31st , 2019 as shown below-

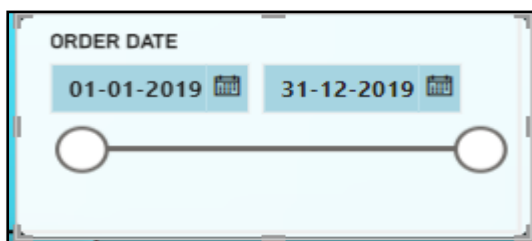


Figure-1: Order Date Slicer

For this duration, the online shopping portal has received 51317 as total number of orders in which 32234 from female customers and 19083 from male customers.

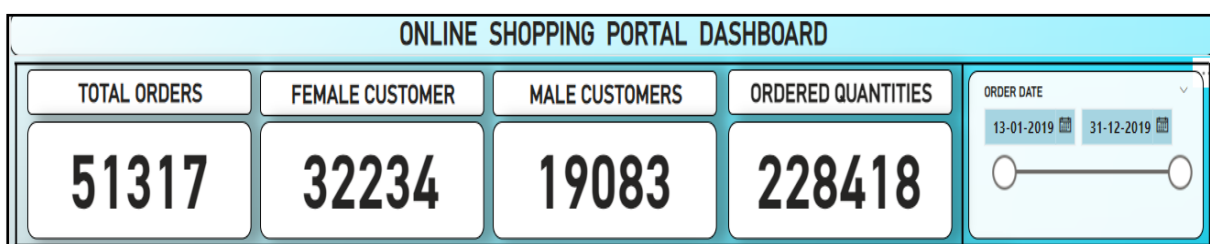


Figure-2: Total Customer Label-Card

The total revenue generated from orders is \$95.87M while the total discount applied across all products is \$1.03M

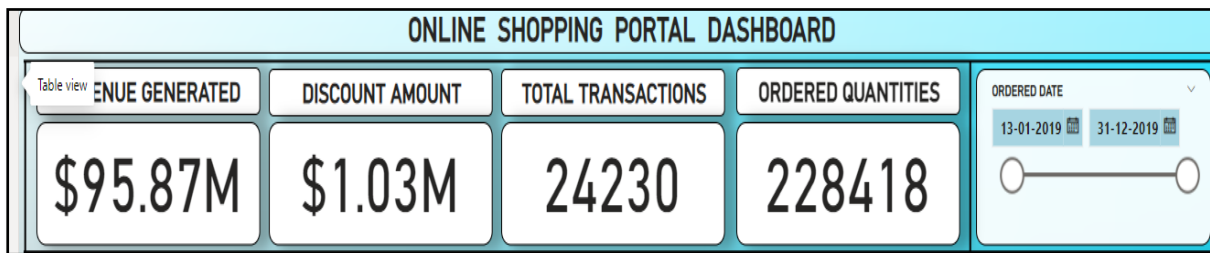


Figure-3: Total Revenue Label-Card

The category of products that generated the highest amount of revenue is Apparel.

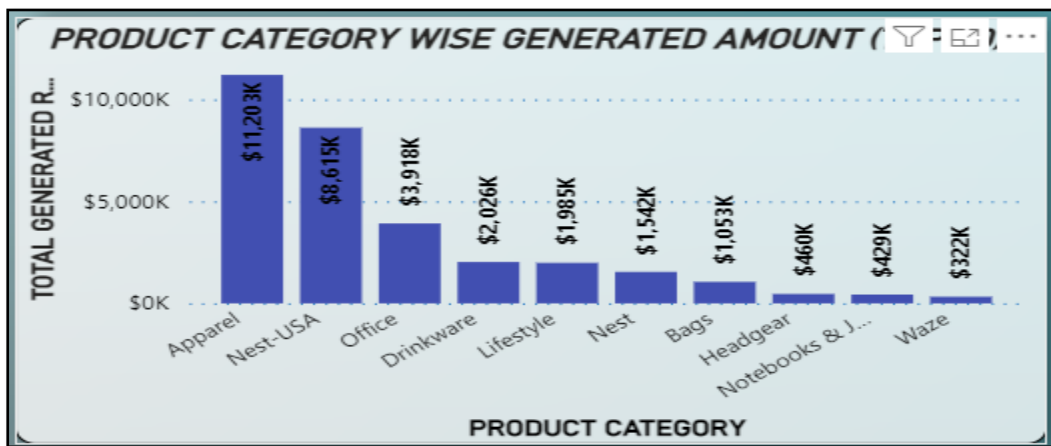


Figure-4: Product Category Wise Amount

The month with the highest number of transactions is December. During this month, 2684 orders were placed.

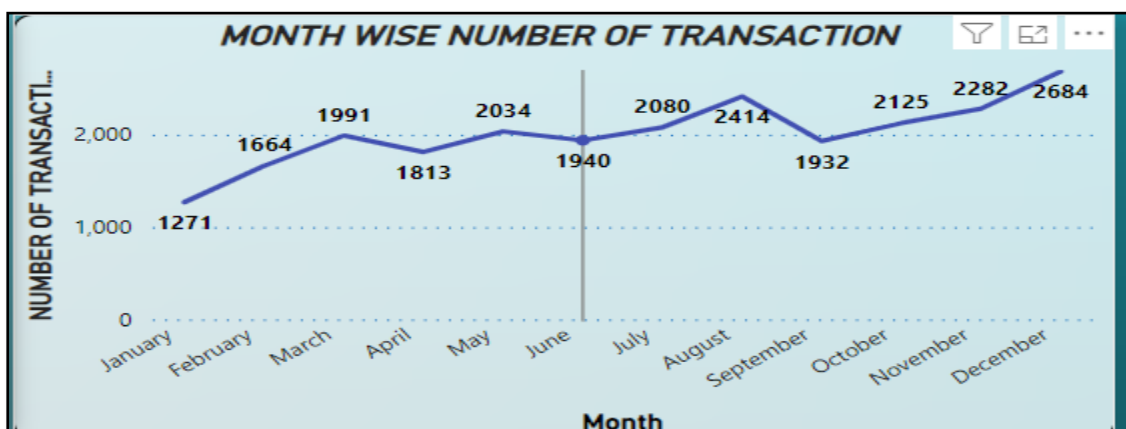


Figure-5: Month Wise Transaction

Chicago is generating the most revenue for the online shopping portal

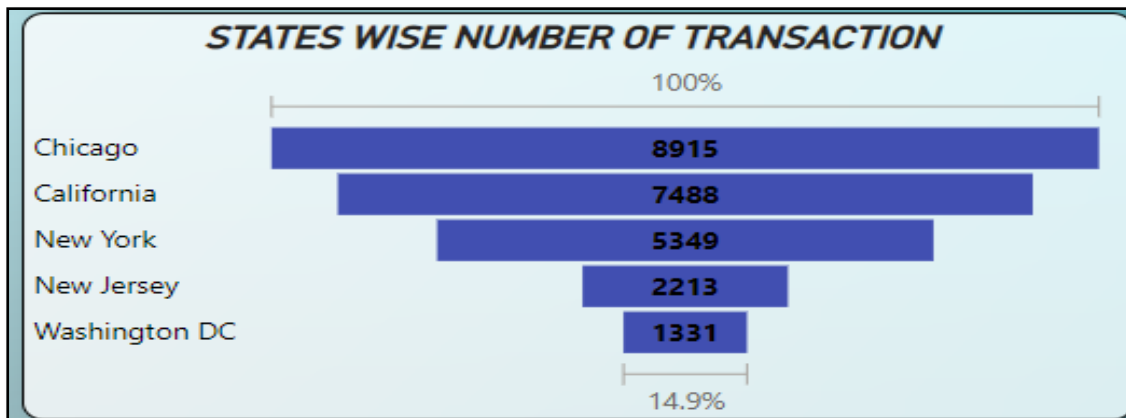


Figure-6: State Wise Transaction

Introduction

This online shopping portal is a digital platform that provides a virtual marketplace for users to browse, select, and purchase goods or services over the internet. It serves as a centralized hub where consumers can explore a wide array of products from various vendors or brands without the constraints of physical location or operating hours.

This online portal gives full information regarding product such as – **product category, quantity of product, discount on particular product**. Information related to Customer such as – **customer identity, gender, location of customer**. All payment related information like – **transaction id, transaction date etc**. Beside this all other information – **GST Number, available discount on particular product etc**. All of the details are represented in graphical form by using Power Bi with number of charts and tables.

The growth of these types of online shopping portals has significantly transformed the retail landscape, allowing businesses to reach a global audience and customers to access products from anywhere at any time (Misra, D.C., 2020; Badyal, S. and Kumar, R., 2021).

Title: “Gaining valuable insights into online sales behavior and identifying areas for improvement”

In this report, all necessary information about Online Shopping such as – **customer id, gender, product details – product description, category, Price details, GST information, Transaction details – date of transaction, transaction id etc.**, are involved. This report examines the sales trends of internet retailers. A dataset from

Kaggle was used, and sales data was studied using the Power BI analytics tool. Interesting results have been obtained, and any internet business can benefit greatly from them.

Data Source Description

This dataset displays all the information required for an online shopping portal. This dataset displays many Power BI charts that illustrate the graphical data of a certain organization, including customer ID, gender, tenure months, location, transaction id, date of transaction, product description, quantity, price, shipping charges, GST, discount percentage, and so on. Furthermore, the information comes from the Kaggle platform. The following link is the URL that was used to access the data's origin.

Link (Kaggle online shopping-dataset, 2019)

<https://www.kaggle.com/datasets/jacksondivakar/online-shopping-dataset>

The data sheet has around 52923 rows and 20 columns. This information is the company's sales history.

Online Shopping Portal Dataset explanation table

ID	COLUMN NAME	DESCRIPTION	DATA TYPE
1	CustomerID	Shows the unique customer identity	Whole Number
2	Gender	Gender of customer	Text
3	Location	Exact location of customer	Text
4	Tenure_Months	Shows the tenure months	Date
5	Transaction_ID	Unique transaction identity	Whole Number
6	Transaction_Date	Date of transaction	Date
7	Product_SKU	Shows the particular product stock keeping unit	Text
8	Product_Description	Full description about product	Text
9	Product_Category	Category of product	Text
10	Quantity	Quantity of particular	Decimal Number

		product	
11	Avg_Price	Shows the average price of product	Decimal Number
12	Delivery_Charges	Shows the delivery charges for product	Decimal Number
13	Coupon_Status	Shows the coupon status (if any)	Text
14	GST	Added GST on price	Whole Number
15	Date	Shows the date	Decimal Number
16	Offline_Spend	Offline spend amount	Decimal Number
17	Online_Spend	Online spend amount	Decimal Number
18	Month	Shows the Month	Date
19	Coupon_Code	Shows the coupon code	Text
20	Discount_pct	Shows the discount percentage of particular product	Whole Number

Related Business Questions

A project on an online shopping portal requires the creation of a theory or framework, which requires an awareness of a variety of business, user experience, technology, and market trends (Zhang, J., Le, T. and Chen, J., 2023; Becker, L.T. and Gould, E.M., 2019). This is a theoretical strategy that you could think about:

- What is the total number of orders received?
- What is the total revenue generated and total discount on all of the products?
- Which category of products generated the highest amount or revenue?
- In which month the highest number of transactions took place?
- Which coupon code was used the most?
- Which state's customer got the least discount?
- Which state is generating the most revenue or amount?
- From which state most orders were received?
- Which category of products received the most orders?

Report Objectives

The following goals should be taken into consideration while writing this project report on online shopping portal:

Industry Analysis: Evaluate the online shopping portal industry in great detail. Provide details regarding rivals, market trends, customer behavior, and room for expansion.

Technical Architecture: Describe the portal's technical features in detail, taking into account the platform, database structure, server setup, security precautions, and scalability.

Functions and Functionality: Enumerate and briefly discuss the functions that the portal provides, including the ability to create an account, browse products, do searches, manage carts, pay using payment gateways, track orders, and get customer service.

Marketing and Promotions: Explain the methods employed to market the portal, such as search engine optimization, social media interaction, email campaigns, and other promotional initiatives.

Analyze sales data: taking into account variables such as average price, delivery charges, discount percentage, coupon codes and the efficiency of various marketing channels in generating sales.

Key Findings

This section will examine the work done on Power Bi and the dataset visualizations in order to solve the business problems and provide relevant results and recommendations.

Revenue Generation and Profit Summary

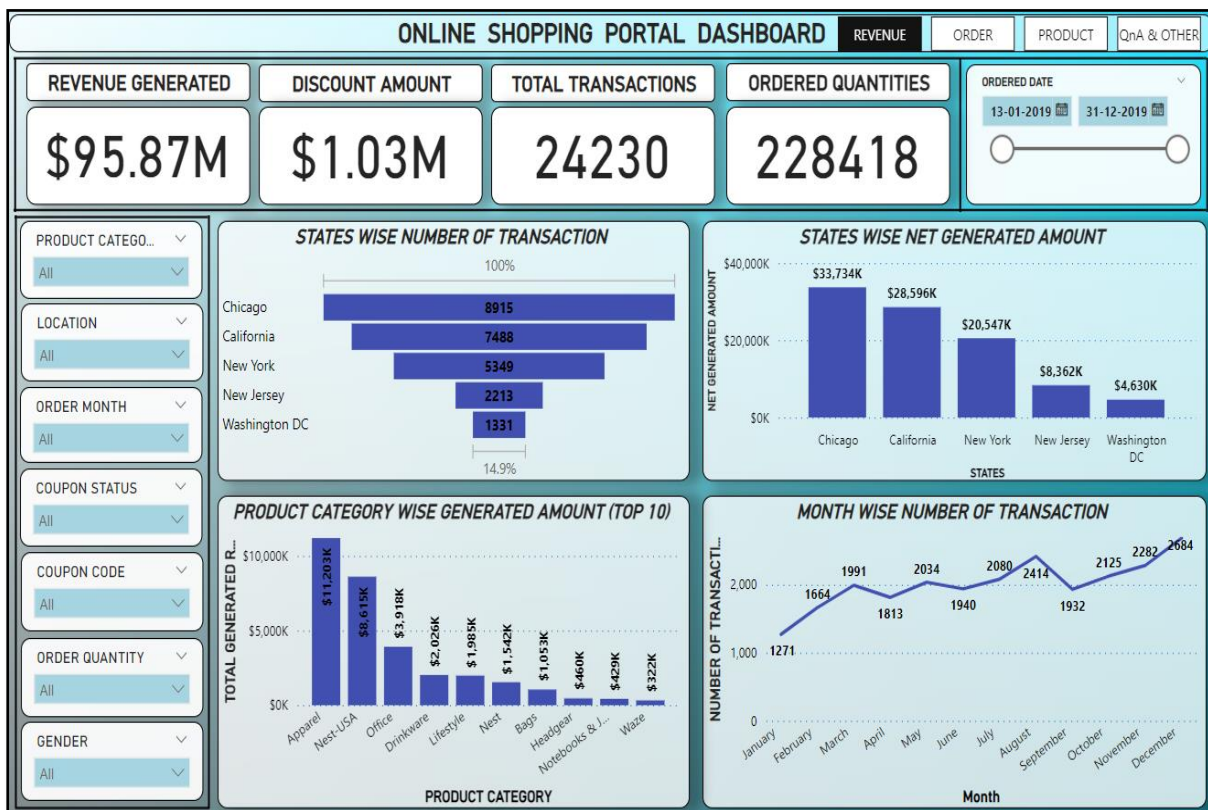


Figure-7: Final View of dashboard Revenue_Dashboard

Product Category wise Revenue:

The highest amount received from 'Apparel' which is \$11,203K according to below stacked column chart in which X-axis shows the product category and Y-axis shows the Net generated amount.

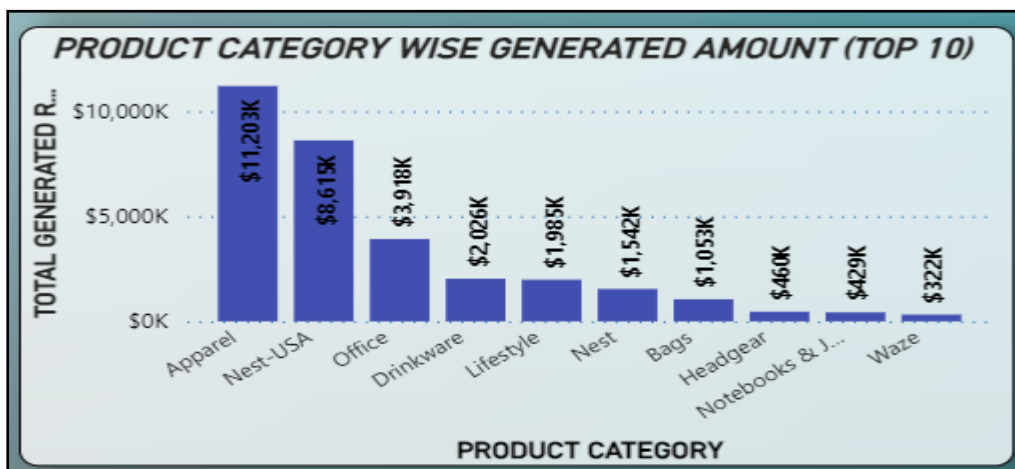


Figure-8: Graph- Product Category wise Revenue

Total Number of Transaction:

Below Funnel chart shows the state wise total number of transactions, here Chicago have the highest number of transactions which is around 8915 and the least number of transactions is for Washington DC.

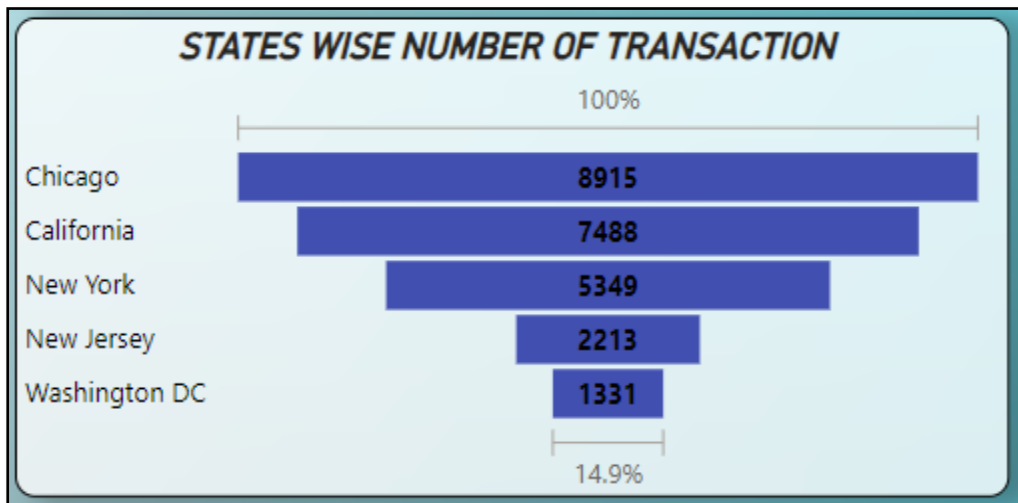


Figure-8: Graph- Product Category wise Revenue

State Wise Generated Revenue Or Amount:

According to below stacked column chart Chicago generated the highest revenue or amount which is around \$33,734K.

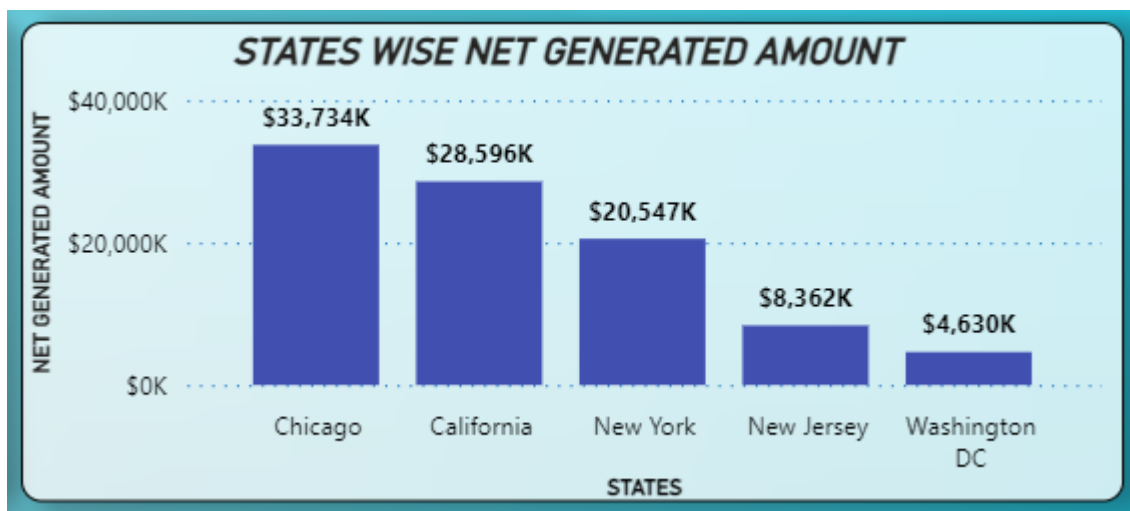


Figure-9: Graph- State Wise Generated Revenue

Order Wise Revenue Generation

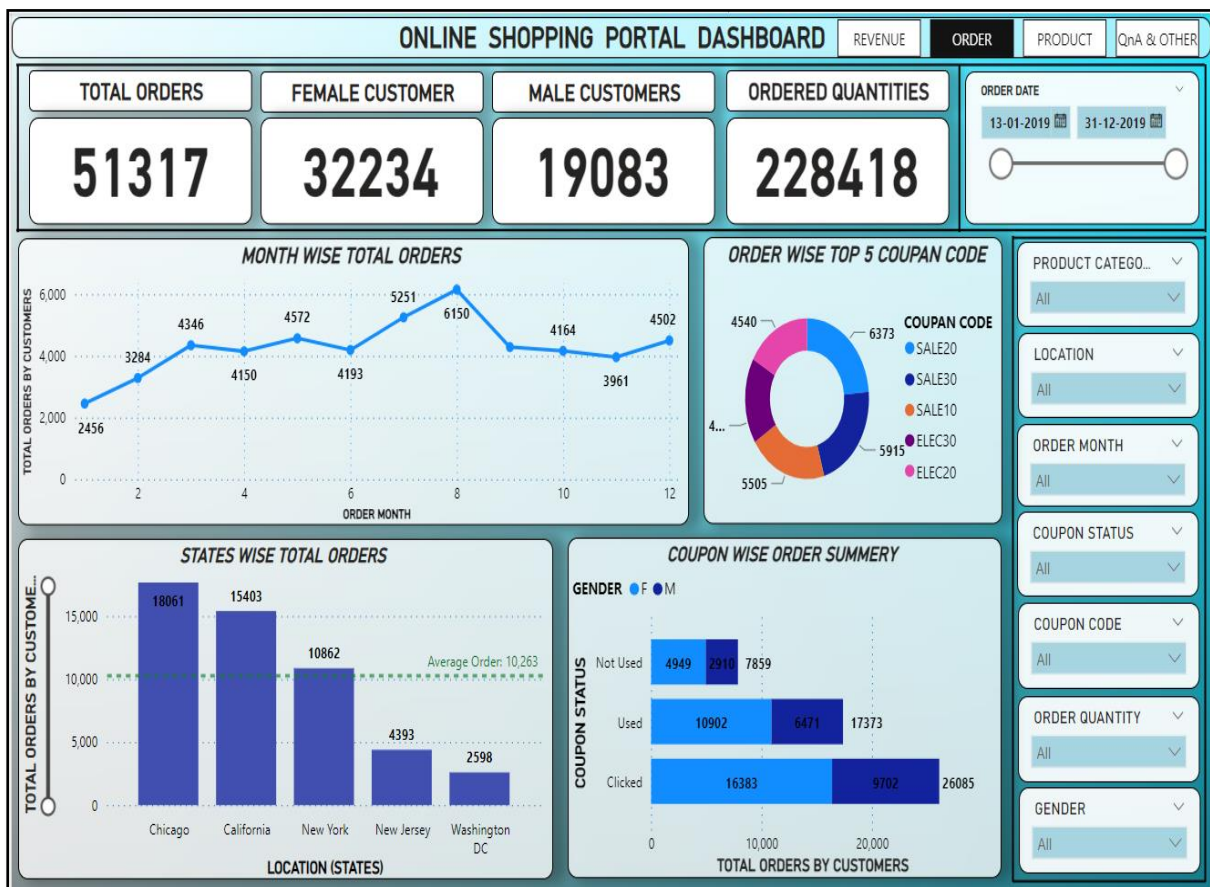


Figure-10: Final View of Dashboard Order_Dashboard

Coupon Code Summary:

Below stacked bar chart shows the status of coupon which is used, not used or clicked by customers. According to this chart representation female customers used the highest number of coupons which is 10902.

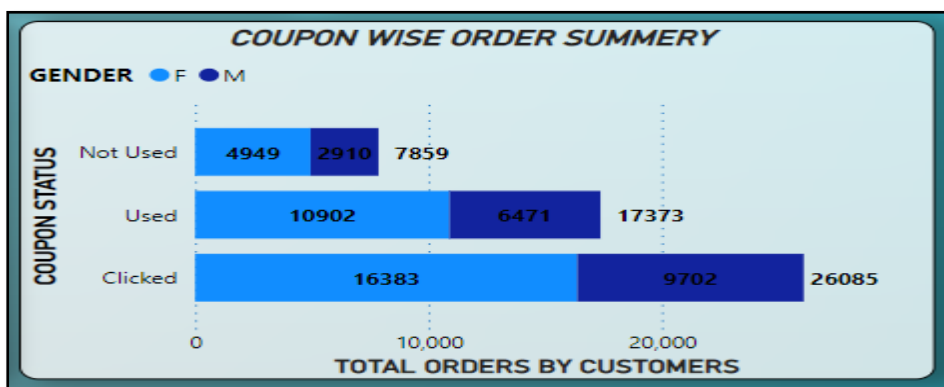


Figure-11: Graph- Coupon Code Summary

Month Wise Number Of Transactions:

According to below line chart, the highest number of transaction took place in the month of December, the transaction amount is 2684.

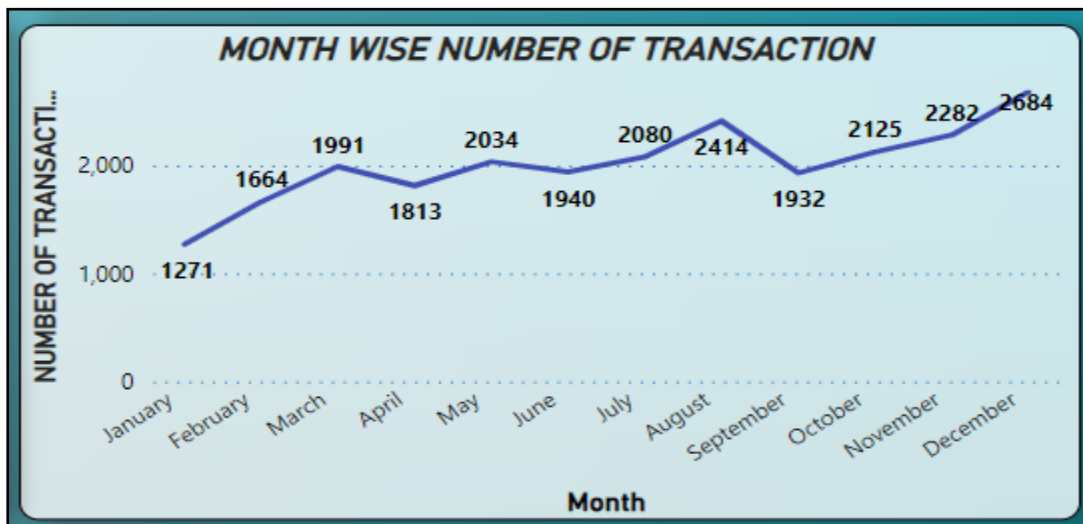


Figure-12: Graph- Month Wise Number of Transactions

Most Used Coupon Code:

The most used coupon code is SALE30, according to below donut chart. Here order wise top 5 coupon code is shown.

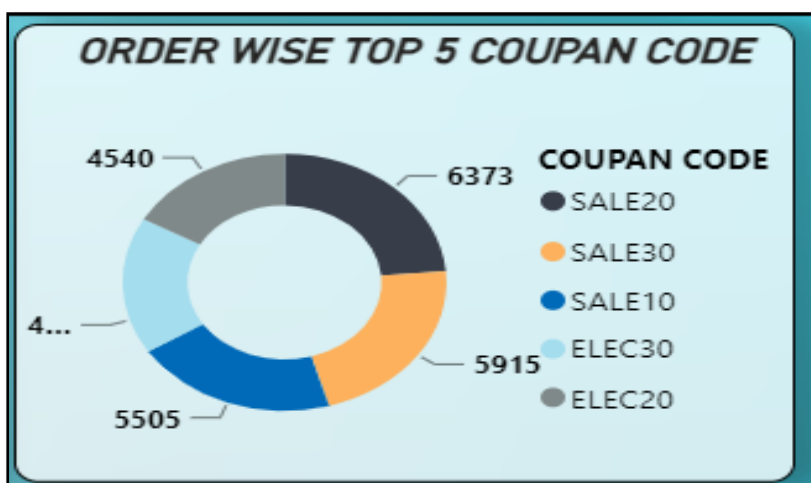


Figure-13: Graph- Most Used Coupon Code

State Wise Total Orders:

Chicago received the highest number of orders and the total number of orders are 18061.

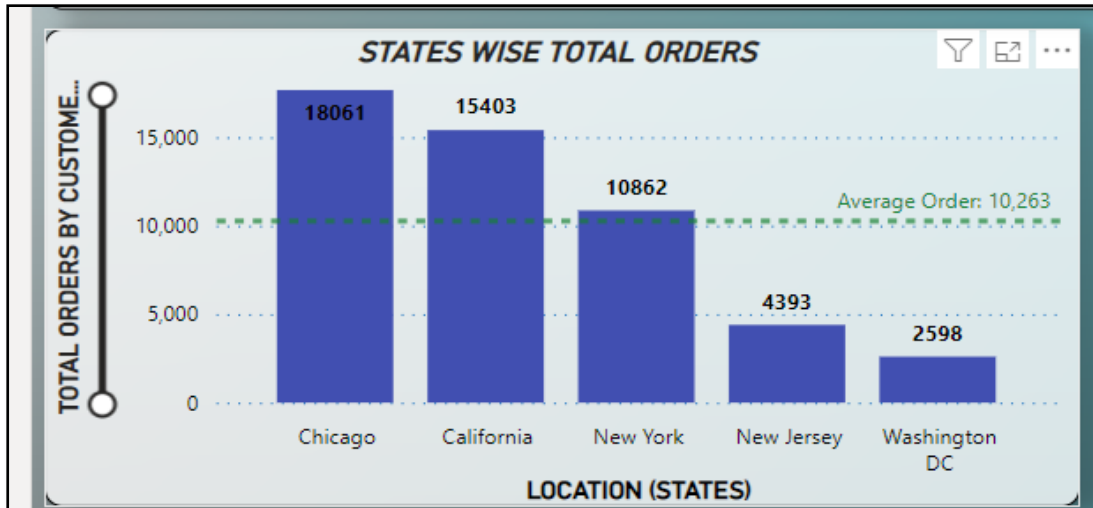


Figure-14: Graph- State Wise Total Orders

Product Wise Revenue Generation

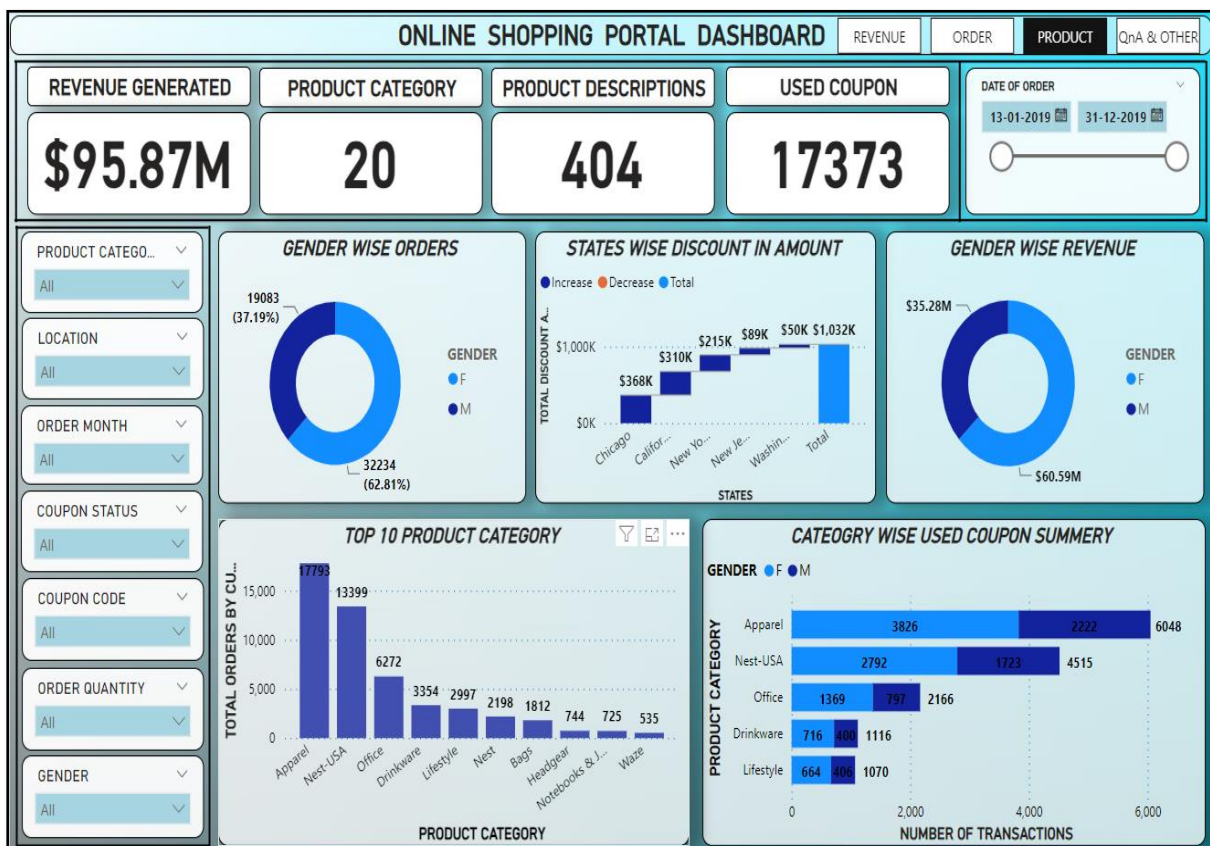


Figure-15: Final View of dashboard Product_Dashboard

Gender Wise Order:

According to below Pie chart the highest order received is from Female category customers which is 32234, 62.81% of total orders.

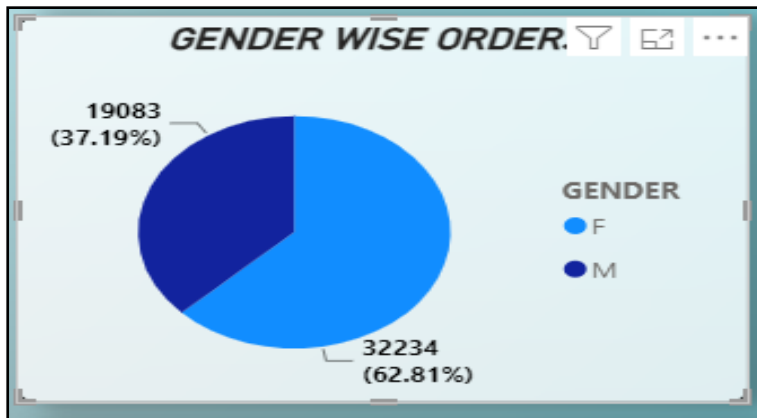


Figure-16: Graph- Gender Wise Order

Most Selling Product Category:

The highest number of order placed by customers is for Apparel and the total number of orders for Apparel is 17793.



Figure-17: Graph- Most Selling Product Category

Category Wise Coupon Summary:

The highest number of coupon used for Apparel product and the number of used coupons is around 3826, as shown in below clustered bar chart.

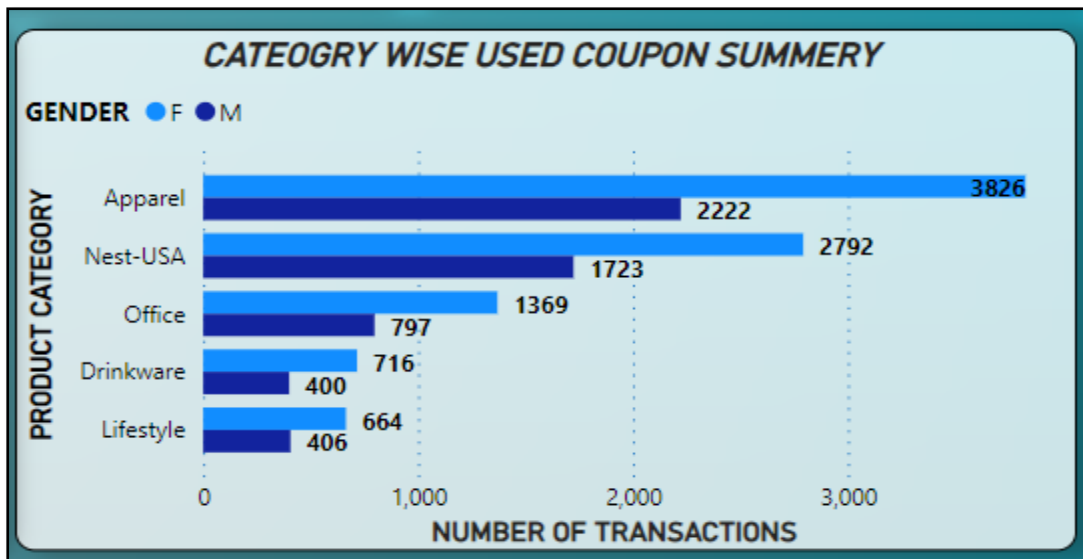


Figure-18: Graph- Category Wise Coupon Summary

State Wise Customer's Discount:

The customers of Chicago state got the least amount of discount according to below waterfall chart, the total discount amount is \$368K.

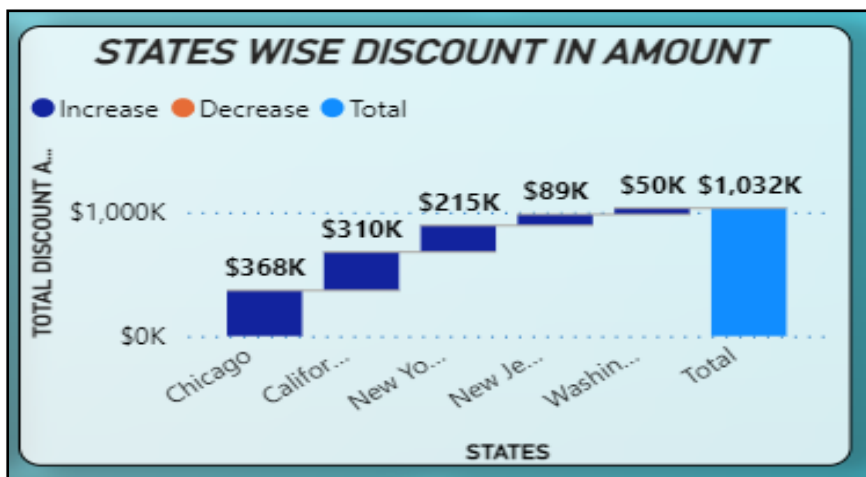
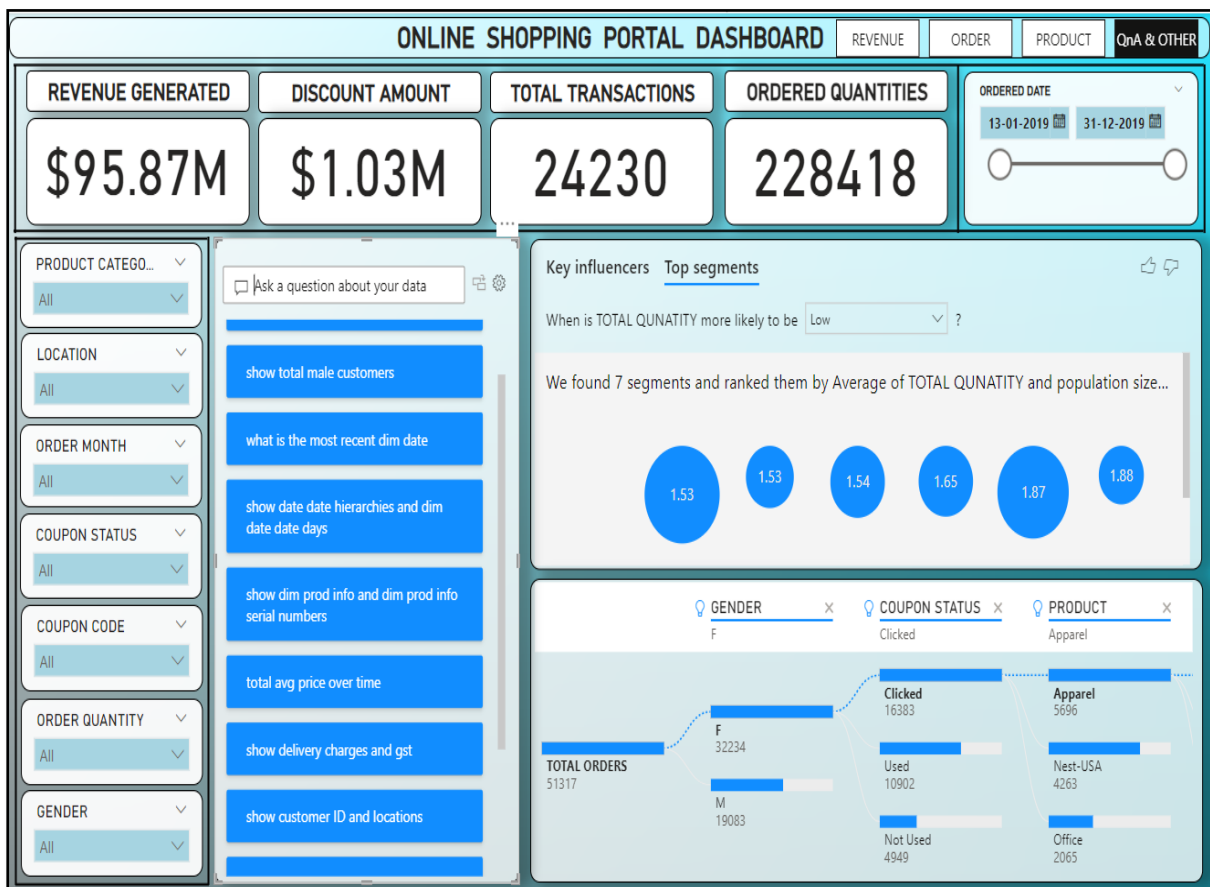


Figure-19: Graph- State Wise Customer's Discount

QnA & OTHER



Conclusions

- Chicago generated the highest revenue which is \$33734K.
- Washington DC customers got the lowest discount which was \$50K.
- According to the product category, 17793 orders were received for apparel which was the highest.
- The coupon code Sale20 is used mostly.
- The revenue generated by female customers is \$60.59M which is greater than from men customers.
- The maximum orders are placed in August Month. Whereas maximum transactions are carried out in December month.

Recommendations

- Chicago should be honored as the state that generates the most revenue.

- Female customers should be recognized for generating 62.85 percent revenue of the total revenue.
- The sales in some states like Washington DC, New Jersey is poor. It is required to promote sales in such states. For this, new offers and varieties need to be introduced. In addition, feedback from customers in such states need to be considered to understand their requirement and issues.
- Some products like waze, notebooks, and bags have limited sales. For such products sales need to be improved by increasing brand awareness and advertisement.

References

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3. Zhang, J., Le, T. and Chen, J., 2023. Investigation of Essential Skills for data analysts: An analysis based on LinkedIn. *Journal of Global Information Management (JGIM)*, 31(1), pp.1-21.
4. Becker, L.T. and Gould, E.M., 2019. Microsoft power BI: Extending excel to manipulate, analyze, and visualize diverse data. *Serials Review*, 45(3), pp.184-188.
5. The online shopping portal dataset (2019). Available from: <https://www.kaggle.com/datasets/jacksondivakarr/online-shopping-dataset>.

Appendix

Importing Data-Sheet in power bi desktop

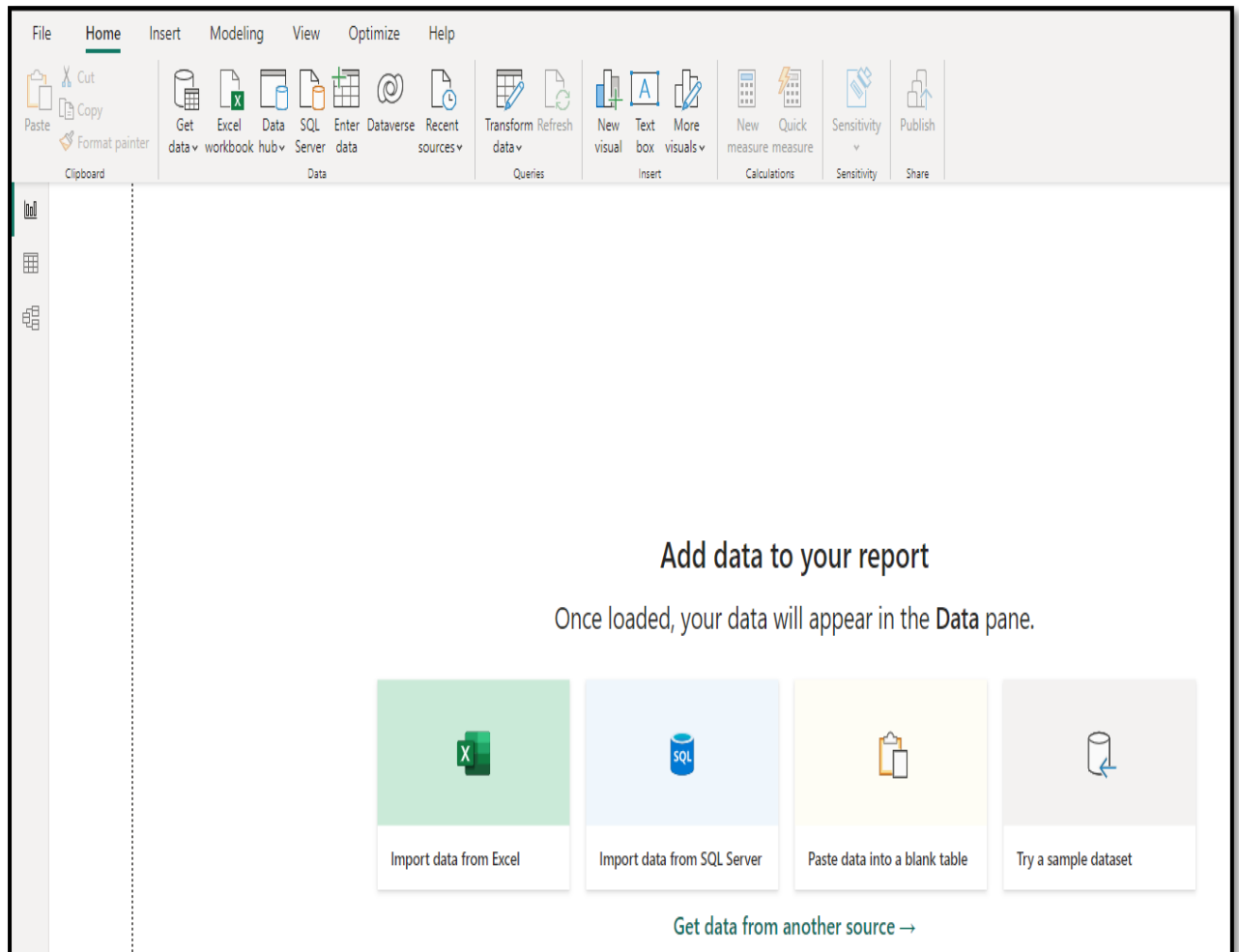


Figure-20: Opening Page Of Power-BI

Load the data sheet in power-bi

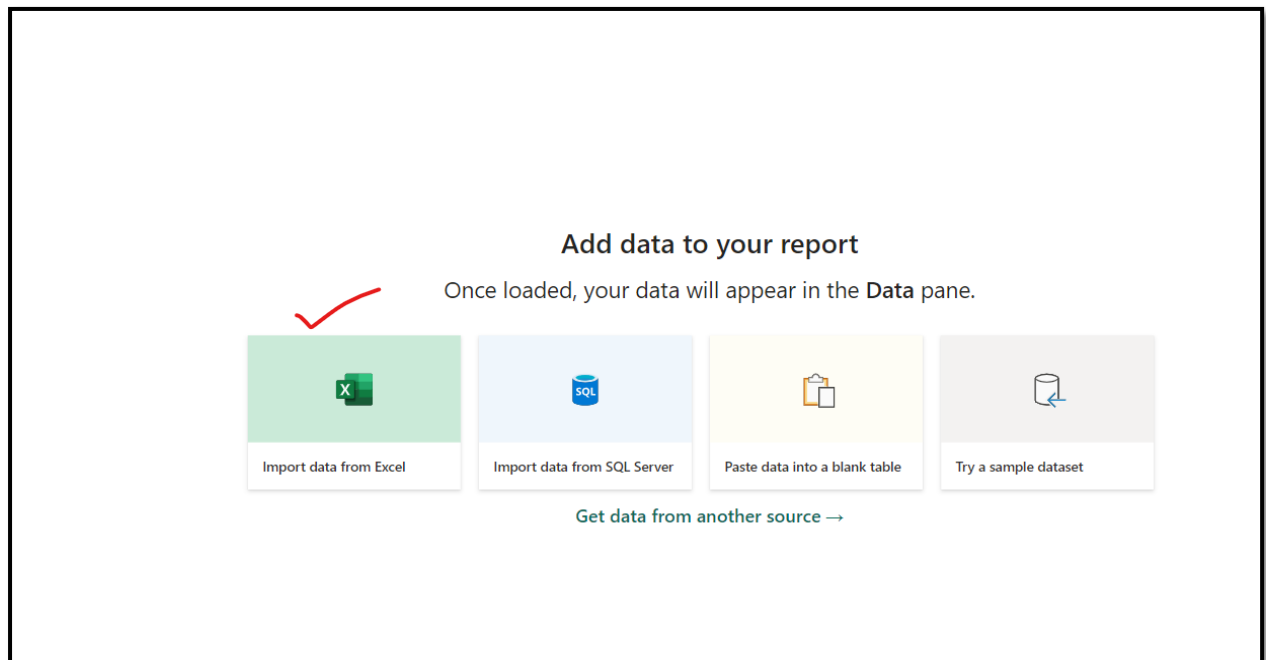


Figure-21: Data Importing Option

- After that, select the file from Excel. And load them.

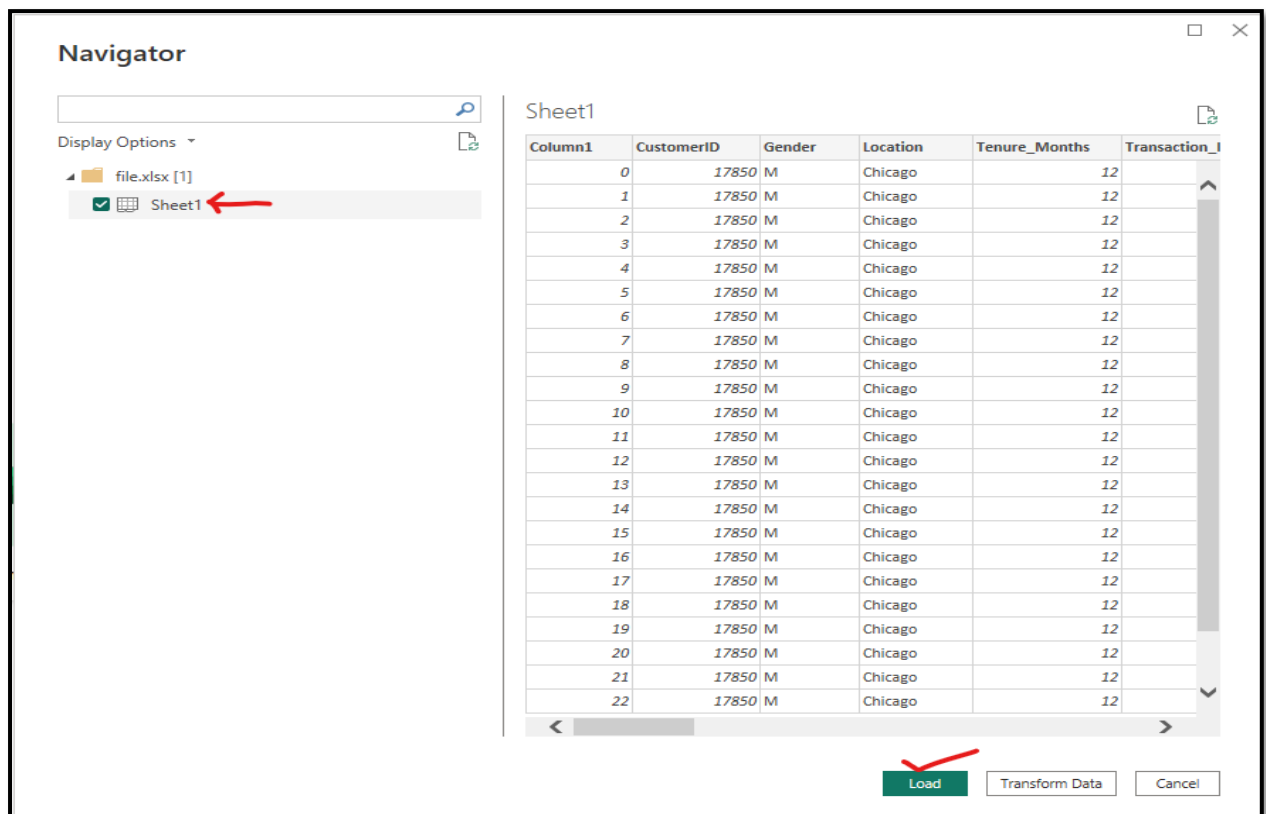


Figure-22: Data Sheet loading

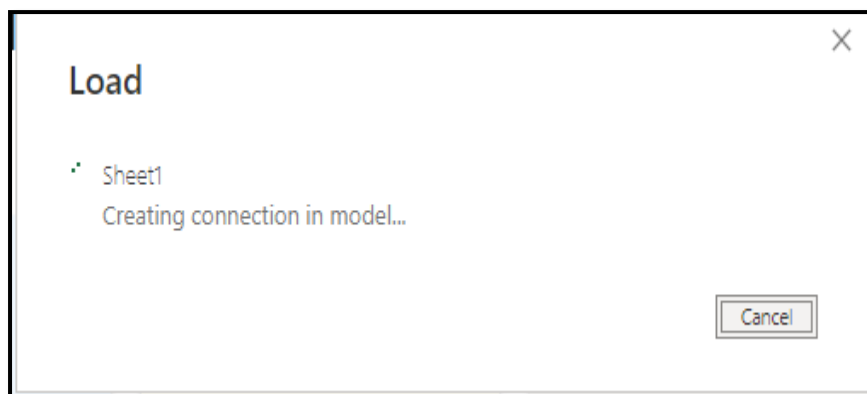


Figure-23: pop up of loading data

- There are 21 columns in the data sheet.

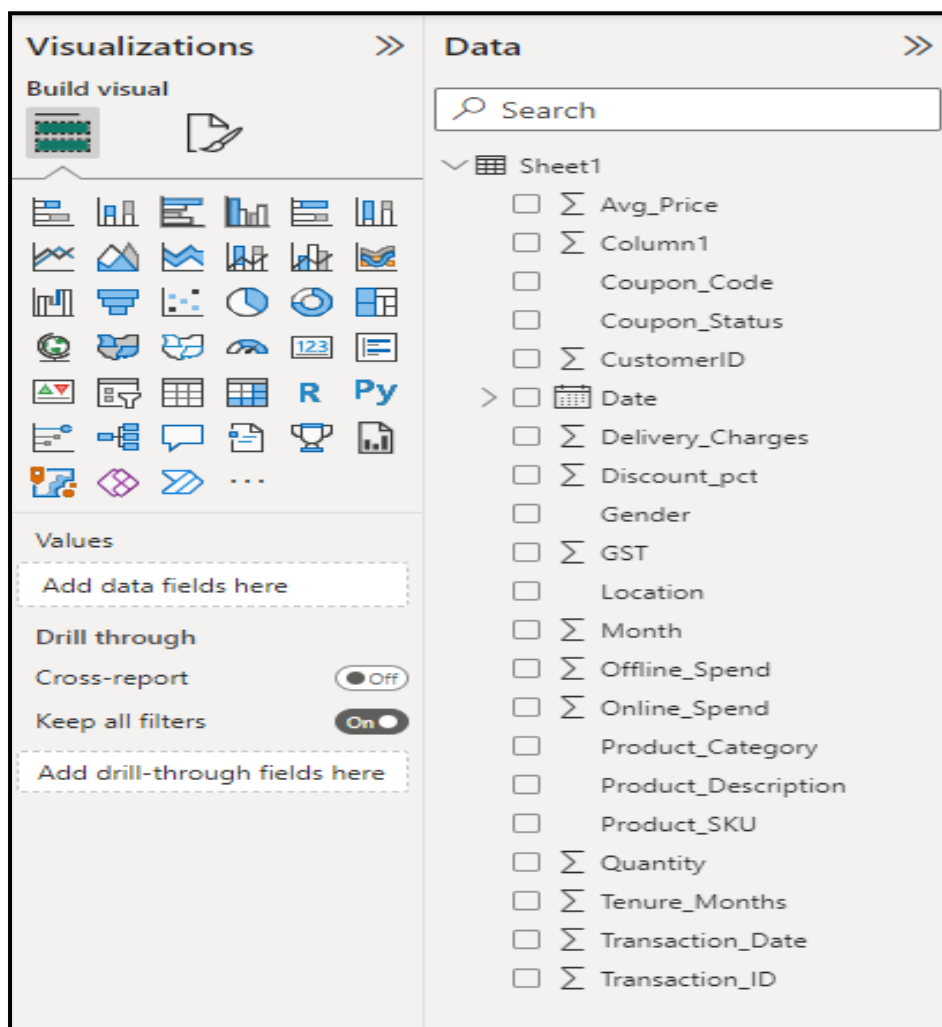


Figure-24: Data View In power BI

Data Cleansing & Transformation Steps in Datasheet

- Click on “Transform data” option in ribbon menu.

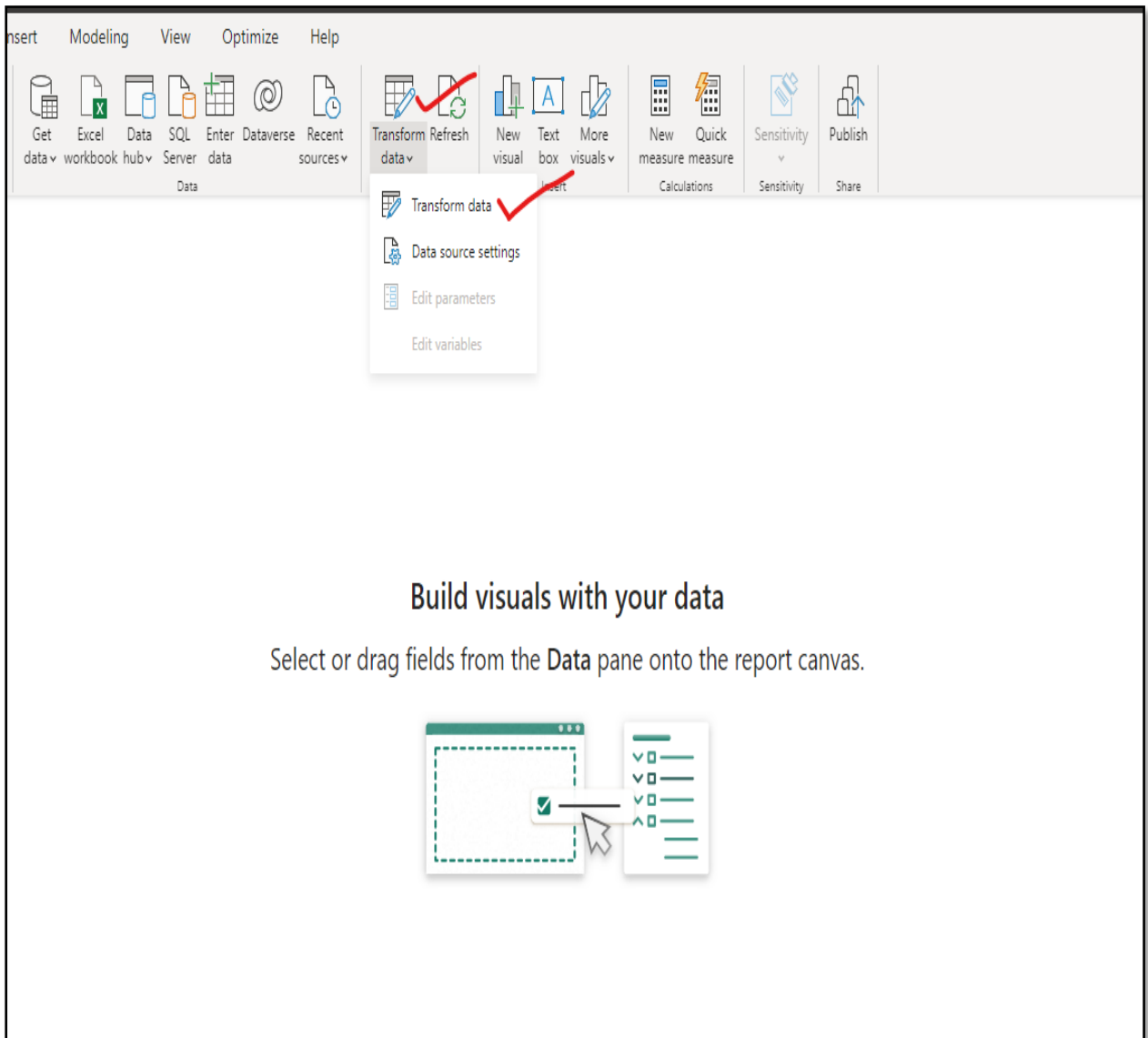


Figure-25: Data Transformation Option

Table.TransformColumnTypes(#"Promoted Headers",{{"Column1", Int64.Type}, {"CustomerID", Int64.Type}, {"Gender", type text}, {"Location", type text}, {"Tenure_Months", Int64.Type}, {"Transaction_ID", Int64.Type}, {"Transaction_Date", Int64.Type}, {"Product_SKU", type text}, {"Product_Description", type text}, {"Product_Category", type text}, {"Quantity", Int64.Type}, {"Avg_Price", type number}, {"Delivery_Charges", type number}, {"Coupon_Status", type text}, {"GST", type number}, {"Date", type date}, {"Offline_Spend", Int64.Type}, {"Online_Spend", type number}, {"Month", Int64.Type}, {"Coupon_Code", type text}, {"Discount_pct", Int64.Type}}})

	Column1	CustomerID	Gender	Location	Tenure_Months	Transaction_ID	Transaction_Date	Product_SKU	Product_Description
1	0	17850	M	Chicago	12	16679	43466	GGOENEBJ079499	Nest Learning Thermostat 3
2	1	17850	M	Chicago	12	16680	43466	GGOENEBJ079499	Nest Learning Thermostat 3
3	2	17850	M	Chicago	12	16696	43466	GGOENEBQ078999	Nest Cam Outdoor Security
4	3	17850	M	Chicago	12	16699	43466	GGOENEBQ079099	Nest Protect Smoke + CO W
5	4	17850	M	Chicago	12	16700	43466	GGOENEBJ079499	Nest Learning Thermostat 3
6	5	17850	M	Chicago	12	16701	43466	GGOENEBJ079499	Nest Learning Thermostat 3
7	6	17850	M	Chicago	12	16702	43466	GGOENEBJ079499	Nest Learning Thermostat 3
8	7	17850	M	Chicago	12	16703	43466	GGOENEBQ079099	Nest Protect Smoke + CO W
9	8	17850	M	Chicago	12	16704	43466	GGOENEBJ079499	Nest Learning Thermostat 3
10	9	17850	M	Chicago	12	16710	43466	GGOENEBJ079499	Nest Learning Thermostat 3
11	10	17850	M	Chicago	12	16713	43466	GGOENEBQ078999	Nest Cam Outdoor Security
12	11	17850	M	Chicago	12	16719	43466	GGOENEBJ079499	Nest Learning Thermostat 3
13	12	17850	M	Chicago	12	16720	43466	GGOENEBJ079499	Nest Learning Thermostat 3
14	13	17850	M	Chicago	12	16720	43466	GGOENEBQ078999	Nest Cam Outdoor Security
15	14	17850	M	Chicago	12	16721	43466	GGOENEBJ079499	Nest Learning Thermostat 3
16	15	17850	M	Chicago	12	16722	43466	GGOENEBJ079499	Nest Learning Thermostat 3
17	16	17850	M	Chicago	12	16722	43466	GGOENEBQ078999	Nest Cam Outdoor Security
18	17	17850	M	Chicago	12	16723	43466	GGOENEBB078899	Nest Cam Indoor Security C
19	18	17850	M	Chicago	12	16723	43466	GGOENEBQ078999	Nest Cam Outdoor Security
20	19	17850	M	Chicago	12	16724	43466	GGOENEBB078899	Nest Cam Indoor Security C
21	20	17850	M	Chicago	12	16725	43466	GGOENEBB078899	Nest Cam Indoor Security C
22	21	17850	M	Chicago	12	16727	43466	GGOENEBB078899	Nest Cam Indoor Security C
23	22	17850	M	Chicago	12	16731	43466	GGOENEBQ078999	Nest Cam Outdoor Security
24	23	13047	M	California	43	16684	43466	GGOENEBQ078999	Nest Cam Outdoor Security
25	24	13047	M	California	43	16684	43466	GGOENEBQ079199	Nest Protect Smoke + CO W
26	25	13047	M	California	43	16688	43466	GGOENEBB078899	Nest Cam Indoor Security C
27	26	13047	M	California	43	16689	43466	GGOENEBJ079499	Nest Learning Thermostat 3
28	27	12583	M	Chicago	33	16694	43466	GGOENEBB078899	Nest Cam Indoor Security C
29	28	15100	M	California	49	16712	43466	GGOENEBJ079499	Nest Learning Thermostat 3
30	29	14688	F	New York	46	16732	43466	GGOENEBJ079499	Nest Learning Thermostat 3
31	30	14688	F	New York	46	16733	43466	GGOENEBB078899	Nest Cam Indoor Security C
32	31	14688	F	New York	46	16736	43466	GGOENEBJ079499	Nest Learning Thermostat 3
33	32	17850	M	Chicago	12	16879	43468	GGOENEBJ079499	Nest Learning Thermostat 3
34	33	17850	M	Chicago	12	16880	43468	GGOENEBQ078999	Nest Cam Outdoor Security
35	34	17850	M	Chicago	12	16881	43468	GGOENEBJ079499	Nest Learning Thermostat 3
36	35	17850	M	Chicago	12	16882	43468	GGOENEBJ079499	Nest Learning Thermostat 3

Figure-26: View of Data Transformation

```
= Table.TransformColumnTypes(#"Promoted Headers",{{"Serial Number",
Int64.Type}, {"CustomerID", Int64.Type}, {"Gender", type text}, {"Location", type
text}, {"Tenure_Months", Int64.Type}, {"Transaction_ID", Int64.Type},
{"Transaction_Date", Int64.Type}, {"Product_SKU", type text},
{"Product_Description", type text}, {"Product_Category", type text}, {"Quantity",
Int64.Type}, {"Avg_Price", type number}, {"Delivery_Charges", type number},
{"Coupon_Status", type text}, {"GST", type number}, {"Date", type date},
{"Offline_Spend", Int64.Type}, {"Online_Spend", type number}, {"Month",
Int64.Type}, {"Coupon_Code", type text}, {"Discount_pct", Int64.Type}}})
```

Removing Null Columns from Data Sheet

- If the datasheet has any column completely null then it can be removed from the data sheet.

The screenshot shows a data table with 37 rows and 7 columns. All data cells are null. The formula bar at the top displays the following formula: `= Table.TransformColumnTypes("#Promoted Headers",{{"Attrition", type text}, {"Business Travel", type text}, {"CF_age band", type text}, {"CF_attri`

	ABC 123 Column42	ABC 123 Column43	ABC 123 Column44	ABC 123 Column45	ABC 123 Column46	ABC 123 Column47
1	null	null	null	null	null	null
2	null	null	null	null	null	null
3	null	null	null	null	null	null
4	null	null	null	null	null	null
5	null	null	null	null	null	null
6	null	null	null	null	null	null
7	null	null	null	null	null	null
8	null	null	null	null	null	null
9	null	null	null	null	null	null
10	null	null	null	null	null	null
11	null	null	null	null	null	null
12	null	null	null	null	null	null
13	null	null	null	null	null	null
14	null	null	null	null	null	null
15	null	null	null	null	null	null
16	null	null	null	null	null	null
17	null	null	null	null	null	null
18	null	null	null	null	null	null
19	null	null	null	null	null	null
20	null	null	null	null	null	null
21	null	null	null	null	null	null
22	null	null	null	null	null	null
23	null	null	null	null	null	null
24	null	null	null	null	null	null
25	null	null	null	null	null	null
26	null	null	null	null	null	null
27	null	null	null	null	null	null
28	null	null	null	null	null	null
29	null	null	null	null	null	null
30	null	null	null	null	null	null
31	null	null	null	null	null	null
32	null	null	null	null	null	null
33	null	null	null	null	null	null
34	null	null	null	null	null	null
35	null	null	null	null	null	null
36	null	null	null	null	null	null
37	null	null	null	null	null	null

Figure-27: Null Columns in Dataset

- The null column can be removed by two ways,
 - (a) Either by options “remove Columns” in Ribbon tab or
 - (b) By clicking right column on null column header.

Changing Data Types Of Columns

- Transaction_Date Text → Date
- CustomerID Text → Whole number

The screenshot shows the Microsoft Power BI Desktop interface. The 'Data Type' dropdown menu is open for the 'Transaction_Date' column. The 'Date' option is selected, indicated by a red arrow. The background table shows the following data:

Transaction_ID	Transaction_Date	Product_SKU	Product_Description	Product_Category	Quantity	
1	12	16679	43466	GGOENEBJ079499	Nest Learning Thermostat 3rd Gen	
2	12	16680	43466	GGOENEBJ079499	Nest Learning Thermostat 3rd Gen	
3	12	16696	43466	GGOENEBQ078999	Nest Cam Outdoor Security Camera	
4	12	16699	43466	GGOENEBQ079099	Nest Protect Smoke + CO White Ba	
5	12	16700	43466	GGOENEBJ079499	Nest Learning Thermostat 3rd Gen	
6	12	16701	43466	GGOENEBJ079499	Nest Learning Thermostat 3rd Gen	
7	12	16702	43466	GGOENEBJ079499	Nest Learning Thermostat 3rd Gen	
8	12	16703	43466	GGOENEBQ079099	Nest Protect Smoke + CO White Battery Alarm-USA	Nest-USA
9	12	16704	43466	GGOENEBJ079499	Nest Learning Thermostat 3rd Gen-USA - Stainless Steel	Nest-USA
10	12	16710	43466	GGOENEBJ079499	Nest Learning Thermostat 3rd Gen-USA - Stainless Steel	Nest-USA
11	12	16713	43466	GGOENEBQ078999	Nest Cam Outdoor Security Camera - USA	Nest-USA
12	12	16719	43466	GGOENEBJ079499	Nest Learning Thermostat 3rd Gen-USA - Stainless Steel	Nest-USA
13	12	16720	43466	GGOENEBJ079499	Nest Learning Thermostat 3rd Gen-USA - Stainless Steel	Nest-USA
14	12	16720	43466	GGOENEBQ078999	Nest Cam Outdoor Security Camera - USA	Nest-USA
15	12	16721	43466	GGOENEBJ079499	Nest Learning Thermostat 3rd Gen-USA - Stainless Steel	Nest-USA
16	12	16722	43466	GGOENEBJ079499	Nest Learning Thermostat 3rd Gen-USA - Stainless Steel	Nest-USA
17	12	16722	43466	GGOENEBQ078999	Nest Cam Outdoor Security Camera - USA	Nest-USA

Figure-30: Data Type of 'Transaction_Date'

File	Home	Transform	Add Column	View	Tools	Help
Close & Apply	New Source	Recent Sources	Enter Data	Data source settings	Manage Parameters	Refresh Preview
Close	New Query	Data Sources	Parameters	Query	Advanced Editor	Manage
					Choose Columns	Remove Columns
					Keep Rows	Remove Rows
					Sort	Split Column
					Group By	Replace Values
						Transform

Queries [1]

×

✓

fx

Table.TransformColumnTypes

("#Renamed Columns2",{{"Transaction_Date", type date}})

Sheet1	Transaction_ID	Transaction_Date	Product_SKU	Product_Description	Product
1	12	16679	01-01-2019	GGOENEBJ079499	Nest Learning Thermostat 3rd Gen-USA - Stainless Steel
2	12	16680	01-01-2019	GGOENEBJ079499	Nest Learning Thermostat 3rd Gen-USA - Stainless Steel
3	12	16696	01-01-2019	GGOENEBQ078999	Nest Cam Outdoor Security Camera - USA
4	12	16699	01-01-2019	GGOENEBQ079099	Nest Protect Smoke + CO White Battery Alarm-USA
5	12	16700	01-01-2019	GGOENEBJ079499	Nest Learning Thermostat 3rd Gen-USA - Stainless Steel
6	12	16701	01-01-2019	GGOENEBJ079499	Nest Learning Thermostat 3rd Gen-USA - Stainless Steel
7	12	16702	01-01-2019	GGOENEBJ079499	Nest Learning Thermostat 3rd Gen-USA - Stainless Steel
8	12	16703	01-01-2019	GGOENEBQ079099	Nest Protect Smoke + CO White Battery Alarm-USA
9	12	16704	01-01-2019	GGOENEBJ079499	Nest Learning Thermostat 3rd Gen-USA - Stainless Steel
10	12	16710	01-01-2019	GGOENEBJ079499	Nest Learning Thermostat 3rd Gen-USA - Stainless Steel
11	12	16713	01-01-2019	GGOENEBQ078999	Nest Cam Outdoor Security Camera - USA
12	12	16719	01-01-2019	GGOENEBJ079499	Nest Learning Thermostat 3rd Gen-USA - Stainless Steel
13	12	16720	01-01-2019	GGOENEBJ079499	Nest Learning Thermostat 3rd Gen-USA - Stainless Steel
14	12	16720	01-01-2019	GGOENEBQ078999	Nest Cam Outdoor Security Camera - USA
15	12	16721	01-01-2019	GGOENEBJ079499	Nest Learning Thermostat 3rd Gen-USA - Stainless Steel
16	12	16722	01-01-2019	GGOENEBJ079499	Nest Learning Thermostat 3rd Gen-USA - Stainless Steel
17	12	16722	01-01-2019	GGOENEBQ078999	Nest Cam Outdoor Security Camera - USA
18	12	16723	01-01-2019	GGOENEBB078899	Nest Cam Indoor Security Camera - USA
19	12	16723	01-01-2019	GGOENEBQ078999	Nest Cam Outdoor Security Camera - USA
20	12	16724	01-01-2019	GGOENEBB078899	Nest Cam Indoor Security Camera - USA
21	12	16725	01-01-2019	GGOENEBB078899	Nest Cam Indoor Security Camera - USA
22	12	16727	01-01-2019	GGOENEBB078899	Nest Cam Indoor Security Camera - USA

Figure-31: Changed Data Type of 'Transaction_Date'

```
= Table.TransformColumnTypes("#Renamed Columns2",{{"Transaction_Date", type date}})
```

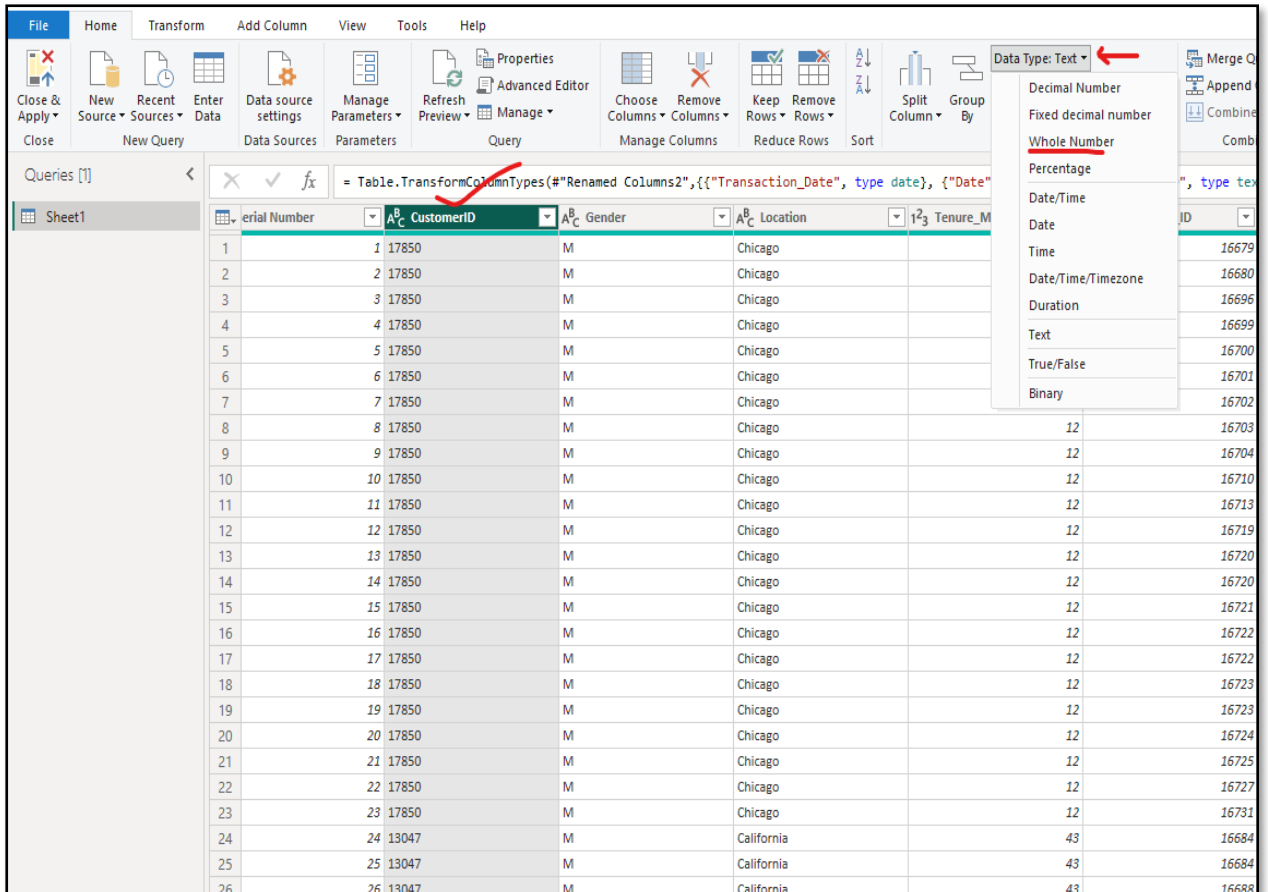


Figure-32: Data Type of 'CustomerID'

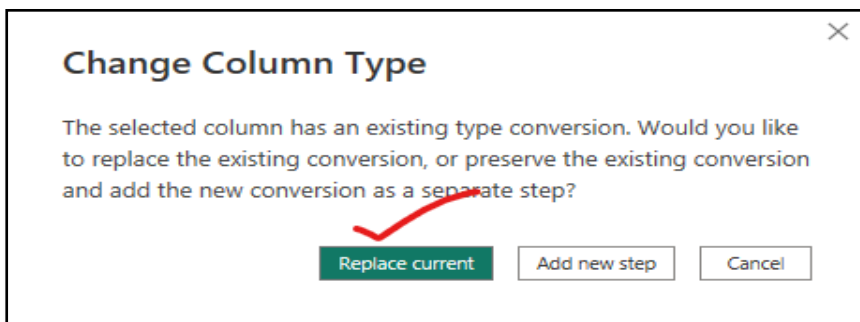


Figure-33: Data Type Changing Pop-up'

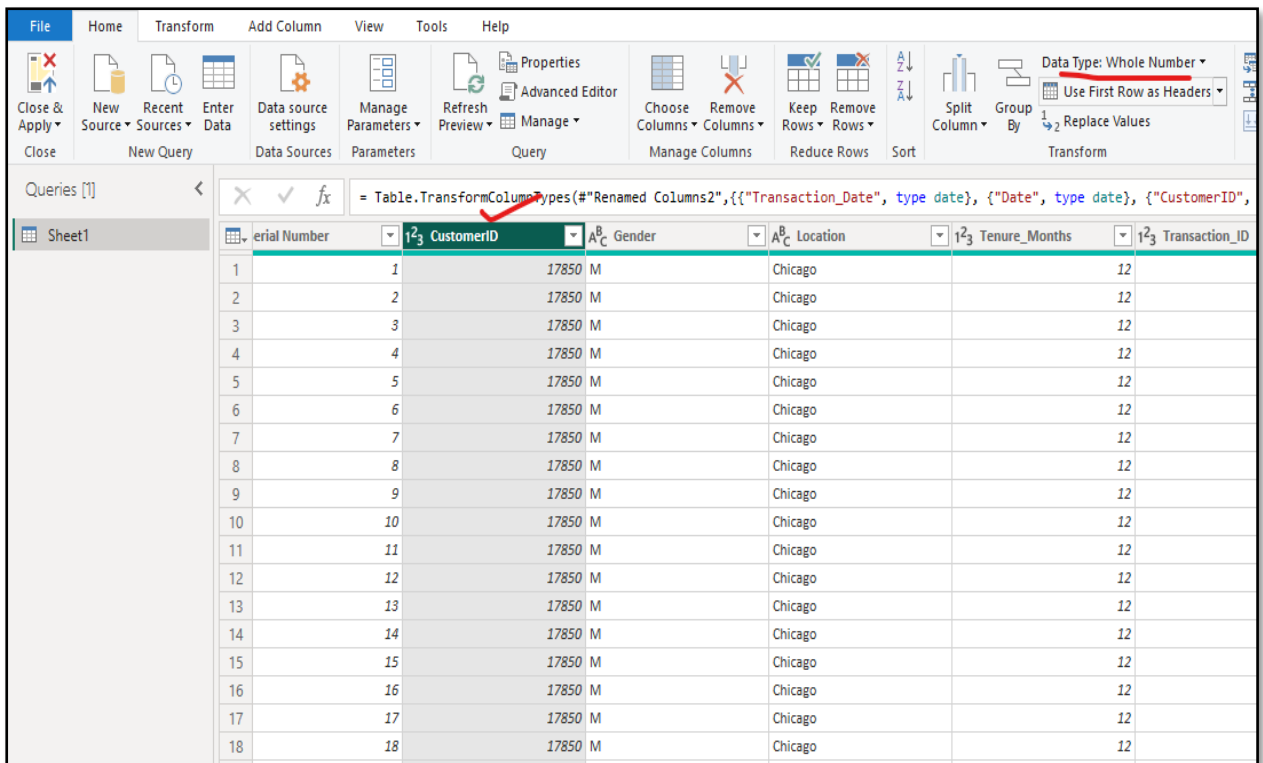


Figure-34: Changed Data Type of 'CustomerID'

```
= Table.TransformColumnTypes(#"Renamed Columns2",{{"Transaction_Date", type date}, {"Date", type date}, {"CustomerID", Int64.Type}})
```

Adding an Index Column

- An index column in Power BI DAX is a calculated column that generates an ordered sequence of integers, starting from 1.
- The index column acts as a unique identifier for each row in the dataset and helps perform different operations like sorting and filtering.
- The index column can be added to any data model table and calculated based on the row context.

The screenshot shows the Power Query Editor interface. The 'Add Column' tab is selected, and the 'Index Column' option is highlighted. The formula bar displays the transformation: `= Table.TransformColumnTypes(#"Removed Columns",{{"Transaction_Date", Int64.Type}})`. The data table below shows columns for CustomerID, Gender, Location, Tenure_Months, Transaction_ID, Transaction_Date, and Pr.

	CustomerID	Gender	Location	Tenure_Months	Transaction_ID	Transaction_Date	Pr
1	17850	M	Chicago	12	16679	43466	GGOEN
2	17850	M	Chicago	12	16680	43466	GGOEN
3	17850	M	Chicago	12	16696	43466	GGOEN
4	17850	M	Chicago	12	16699	43466	GGOEN
5	17850	M	Chicago	12	16700	43466	GGOEN
6	17850	M	Chicago	12	16701	43466	GGOEN
7	17850	M	Chicago	12	16702	43466	GGOEN
8	17850	M	Chicago	12	16703	43466	GGOEN
9	17850	M	Chicago	12	16704	43466	GGOEN
10	17850	M	Chicago	12	16710	43466	GGOEN
11	17850	M	Chicago	12	16713	43466	GGOEN
12	17850	M	Chicago	12	16719	43466	GGOEN
13	17850	M	Chicago	12	16720	43466	GGOEN
14	17850	M	Chicago	12	16720	43466	GGOEN
15	17850	M	Chicago	12	16721	43466	GGOEN
16	17850	M	Chicago	12	16722	43466	GGOEN
17	17850	M	Chicago	12	16722	43466	GGOEN
18	17850	M	Chicago	12	16723	43466	GGOEN
19	17850	M	Chicago	12	16723	43466	GGOEN
20	17850	M	Chicago	12	16724	43466	GGOEN
21	17850	M	Chicago	12	16725	43466	GGOEN
22	17850	M	Chicago	12	16727	43466	GGOEN
23	17850	M	Chicago	12	16731	43466	GGOEN

Figure-35: Index Column Option

`= Table.AddIndexColumn(#"Renamed Columns1", "Index", 1, 1, Int64.Type)`

= Table.RenameColumns("#Removed Columns2",{{"Serial Number", "Serial Number"}})						
	¹²³ Serial Number	¹²³ CustomerID	^{A_B_C} Gender	^{A_B_C} Location	¹²³ Tenure_Mon	
1	1	17850	M	Chicago		
2	2	17850	M	Chicago		
3	3	17850	M	Chicago		
4	4	17850	M	Chicago		
5	5	17850	M	Chicago		
6	6	17850	M	Chicago		
7	7	17850	M	Chicago		
8	8	17850	M	Chicago		
9	9	17850	M	Chicago		
10	10	17850	M	Chicago		
11	11	17850	M	Chicago		
12	12	17850	M	Chicago		
13	13	17850	M	Chicago		
14	14	17850	M	Chicago		
15	15	17850	M	Chicago		
16	16	17850	M	Chicago		
17	17	17850	M	Chicago		
18	18	17850	M	Chicago		
19	19	17850	M	Chicago		
20	20	17850	M	Chicago		
21	21	17850	M	Chicago		
22	22	17850	M	Chicago		
23	23	17850	M	Chicago		
24	24	13047	M	California		
25	25	13047	M	California		
26	26	13047	M	California		
27	27	13047	M	California		
28	28	12583	M	Chicago		
29	29	15100	M	California		
30	30	14688	F	New York		
31	31	14688	F	New York		

Figure-36: Index Column Added

= Table.RenameColumns("#Removed Columns2",{{"Serial Number", "Serial Number"}})

Bi Data Modeling

Fact and Dimension in Datasheet

Dimension Table:

- In a data warehouse, a dimension table is a table that contains dimensions—the descriptive information about the data/information. Time, location, product, customer, and employee are a few examples of dimensions.
- The dimension table is a crucial part of the Star Schema. The dimensions along which the values of the attributes are taken in the fact table are included in a dimension table.

Fact Table:

- A fact table is a table in a data warehouse that stores quantitative data or metrics, also known as facts. These facts are typically numerical measures, such as sales revenue, quantity sold, or profit.
- Fact tables also contain foreign keys that link to the primary keys of related dimension tables. These relationships enable analysts to combine quantitative data with descriptive attributes for comprehensive analysis.

Difference between Fact And Dimension Table

Features	Fact Table	Dimension Table
Basic	It has the values of the dimension table's attributes	It has the attributes that are used to calculate the metric in the fact table.
Records	It stores more records.	It stores fewer records.
Attributes	It has fewer attributes.	It has more attributes.
Creation	The fact table comes after the dimension table.	It comes before the fact table.
Attribute format	The fact table's attribute format is in both numerical and text format.	Dimension table's attribute format is only in text format.
Schema	The fact table has fewer numbers in the schema.	The dimension table has more numbers in the schema.
Key	It has a concatenated key, which is a mixture of all primary keys of the entire dimension table.	It has a primary key that is used to find each and every record in the table.
Purpose	Its main task is to analyse the purpose and decision-making.	Its main task is to hold the data about an organization and its process.
Location	It is situated in the centre of the snowflake or star schema.	It is situated on the edges of the snowflake or star schema.
Table Growth	It grows vertically.	It grows horizontally.

Dimension Dim_Cust_Info

- The “Dim_Cust_Info” table contains the following columns-
 - Serial Number as Unique Key
 - CustomerID
 - Gender
 - Location

Queries [2] ✕ ✓ *f_x* = Table.TransformColumnTypes(#"Renamed Columns2",{{"Transaction_Date", type date}, {"Date", type date}, {"CustomerID", Int64.Type}})

	1 ² Serial Number	1 ² CustomerID	A ^B _C Gender	A ^B _C Location	1 ² Tenure_Months	1 ² Transaction_ID	Tran
1	1	17850	M	Chicago	12	16679	
2	2	17850	M	Chicago	12	16680	
3	3	17850	M	Chicago	12	16696	
4	4	17850	M	Chicago	12	16699	
5	5	17850	M	Chicago	12	16700	
6	6	17850	M	Chicago	12	16701	
7	7	17850	M	Chicago	12	16702	
8	8	17850	M	Chicago	12	16703	
9	9	17850	M	Chicago	12	16704	
10	10	17850	M	Chicago	12	16710	
11	11	17850	M	Chicago	12	16713	
12	12	17850	M	Chicago	12	16719	
13	13	17850	M	Chicago	12	16720	
14	14	17850	M	Chicago	12	16720	
15	15	17850	M	Chicago	12	16721	
16	16	17850	M	Chicago	12	16722	
17	17	17850	M	Chicago	12	16722	
18	18	17850	M	Chicago	12	16723	
19	19	17850	M	Chicago	12	16723	
20	20	17850	M	Chicago	12	16724	
21	21	17850	M	Chicago	12	16725	
22	22	17850	M	Chicago	12	16727	
23	23	17850	M	Chicago	12	16731	
24	24	13047	M	California	43	16684	
25	25	13047	M	California	43	16684	
26	26	13047	M	California	43	16688	
27	27	13047	M	California	43	16689	
28	28	12583	M	Chicago	33	16694	

Figure-37: creation of Dimension Dim_Cust_Info Table

The screenshot displays the Microsoft Power BI Desktop interface. The 'Dim_Cust_Info' table is selected in the left-hand pane. A context menu is open over the table, with the 'Remove Other Columns' option highlighted by a red arrow. The table's columns are: Serial Number, CustomerID, Gender, Location, Tenure_Months, Transaction_ID, and Transaction_Date. The formula bar at the top shows the DAX expression: `= Table.TransformColumnTypes(#'Renamed Columns2',{{"Transaction_Date", type date}, {"Date", type date}, {"CustomerID", Int64.Type}})`.

Serial Number	CustomerID	Gender	Location	Tenure_Months	Transaction_ID	Transaction_Date
1	1	17850	M		12	16679
2	2	17850	M		12	16680
3	3	17850	M		12	16696
4	4	17850	M		12	16699
5	5	17850	M		12	16700
6	6	17850	M		12	16701
7	7	17850	M		12	16702
8	8	17850	M		12	16703
9	9	17850	M		12	16704
10	10	17850	M		12	16710
11	11	17850	M		12	16713
12	12	17850	M		12	16719
13	13	17850	M		12	16720
14	14	17850	M		12	16720
15	15	17850	M		12	16721
16	16	17850	M		12	16722
17	17	17850	M		12	16722
18	18	17850	M	Chicago	12	16723
19	19	17850	M	Chicago	12	16723
20	20	17850	M	Chicago	12	16724
21	21	17850	M	Chicago	12	16725
22	22	17850	M	Chicago	12	16727
23	23	17850	M	Chicago	12	16731
24	24	13047	M	California	43	16684
25	25	13047	M	California	43	16684

Figure-38: Dimension Dim_Cust_Info(Removing extra column)

Queries [2] < X ✓ fx = Table.SelectColumns("#Changed Type2",{"Serial Number", "CustomerID", "Gender", "Location"})

	1 ² 3 Serial Number	1 ² 3 CustomerID	A ⁸ C Gender	A ⁸ C Location
1	1	17850	M	Chicago
2	2	17850	M	Chicago
3	3	17850	M	Chicago
4	4	17850	M	Chicago
5	5	17850	M	Chicago
6	6	17850	M	Chicago
7	7	17850	M	Chicago
8	8	17850	M	Chicago
9	9	17850	M	Chicago
10	10	17850	M	Chicago
11	11	17850	M	Chicago
12	12	17850	M	Chicago
13	13	17850	M	Chicago
14	14	17850	M	Chicago
15	15	17850	M	Chicago
16	16	17850	M	Chicago
17	17	17850	M	Chicago
18	18	17850	M	Chicago
19	19	17850	M	Chicago
20	20	17850	M	Chicago
21	21	17850	M	Chicago
22	22	17850	M	Chicago
23	23	17850	M	Chicago
24	24	13047	M	California
25	25	13047	M	California
26	26	13047	M	California
27	27	13047	M	California
28	28	12583	M	Chicago
29	29	15100	M	California
30	30	14688	F	New York
31	31	14688	F	New York
32	32	14688	F	New York
33	33	17850	M	Chicago
34	34	17850	M	Chicago
35	35	17850	M	Chicago

Figure-39: Dimension Dim_Cust_Info

```
= Table.SelectColumns("#Changed Type2",{"Serial Number", "CustomerID", "Gender", "Location"})
```

Dimension Dim_Prod_Info

- The “Dim_Prod_Info” table contains the following columns-
 - a) Serial Number as Unique Key
 - b) Product_SKU
 - c) Product_Description
 - d) Product_Category

	² ₃ Tenure_Months	¹ ₃ Transaction_ID	¹ ₃ Transaction_Date	¹ ₃ Serial Number	¹ ₃ Product_SKU	¹ ₃ Product_Description	¹ ₃ Product_Category	¹ ₃ Quantity
1	12	16679	01-01-2019	1	GGOENEBJ079499	Nest Learning Thermostat 3rd Gen-USA - Stainless Steel	Nest-USA	
2	12	16680	01-01-2019	2	GGOENEBJ079499	Nest Learning Thermostat 3rd Gen-USA - Stainless Steel	Nest-USA	
3	12	16696	01-01-2019	3	GGOENEBQ078999	Nest Cam Outdoor Security Camera - USA	Nest-USA	
4	12	16699	01-01-2019	4	GGOENEBQ079099	Nest Protect Smoke + CO White Battery Alarm-USA	Nest-USA	
5	12	16700	01-01-2019	5	GGOENEBJ079499	Nest Learning Thermostat 3rd Gen-USA - Stainless Steel	Nest-USA	
6	12	16701	01-01-2019	6	GGOENEBJ079499	Nest Learning Thermostat 3rd Gen-USA - Stainless Steel	Nest-USA	
7	12	16702	01-01-2019	7	GGOENEBJ079499	Nest Learning Thermostat 3rd Gen-USA - Stainless Steel	Nest-USA	
8	12	16703	01-01-2019	8	GGOENEBQ079099	Nest Protect Smoke + CO White Battery Alarm-USA	Nest-USA	
9	12	16704	01-01-2019	9	GGOENEBJ079499	Nest Learning Thermostat 3rd Gen-USA - Stainless Steel	Nest-USA	
10	12	16710	01-01-2019	10	GGOENEBJ079499	Nest Learning Thermostat 3rd Gen-USA - Stainless Steel	Nest-USA	
11	12	16713	01-01-2019	11	GGOENEBQ078999	Nest Cam Outdoor Security Camera - USA	Nest-USA	
12	12	16719	01-01-2019	12	GGOENEBJ079499	Nest Learning Thermostat 3rd Gen-USA - Stainless Steel	Nest-USA	
13	12	16720	01-01-2019	13	GGOENEBJ079499	Nest Learning Thermostat 3rd Gen-USA - Stainless Steel	Nest-USA	
14	12	16720	01-01-2019	14	GGOENEBQ078999	Nest Cam Outdoor Security Camera - USA	Nest-USA	
15	12	16721	01-01-2019	15	GGOENEBJ079499	Nest Learning Thermostat 3rd Gen-USA - Stainless Steel	Nest-USA	
16	12	16722	01-01-2019	16	GGOENEBJ079499	Nest Learning Thermostat 3rd Gen-USA - Stainless Steel	Nest-USA	
17	12	16722	01-01-2019	17	GGOENEBQ078999	Nest Cam Outdoor Security Camera - USA	Nest-USA	
18	12	16723	01-01-2019	18	GGOENEBB078899	Nest Cam Indoor Security Camera - USA	Nest-USA	
19	12	16723	01-01-2019	19	GGOENEBQ078999	Nest Cam Outdoor Security Camera - USA	Nest-USA	
20	12	16724	01-01-2019	20	GGOENEBB078899	Nest Cam Indoor Security Camera - USA	Nest-USA	
21	12	16725	01-01-2019	21	GGOENEBB078899	Nest Cam Indoor Security Camera - USA	Nest-USA	
22	12	16727	01-01-2019	22	GGOENEBB078899	Nest Cam Indoor Security Camera - USA	Nest-USA	
23	12	16731	01-01-2019	23	GGOENEBQ078999	Nest Cam Outdoor Security Camera - USA	Nest-USA	
24	43	16684	01-01-2019	24	GGOENEBQ078999	Nest Cam Outdoor Security Camera - USA	Nest-USA	
25	43	16684	01-01-2019	25	GGOENEBQ079199	Nest Protect Smoke + CO White Wired Alarm-USA	Nest-USA	
26	43	16688	01-01-2019	26	GGOENEBB078899	Nest Cam Indoor Security Camera - USA	Nest-USA	
27	43	16689	01-01-2019	27	GGOENEBJ079499	Nest Learning Thermostat 3rd Gen-USA - Stainless Steel	Nest-USA	
28	33	16694	01-01-2019	28	GGOENEBB078899	Nest Cam Indoor Security Camera - USA	Nest-USA	
29	49	16712	01-01-2019	29	GGOENEBJ079499	Nest Learning Thermostat 3rd Gen-USA - Stainless Steel	Nest-USA	
30	46	16732	01-01-2019	30	GGOENEBJ079499	Nest Learning Thermostat 3rd Gen-USA - Stainless Steel	Nest-USA	
31	46	16733	01-01-2019	31	GGOENEBB078899	Nest Cam Indoor Security Camera - USA	Nest-USA	
32	46	16736	01-01-2019	32	GGOENEBJ079499	Nest Learning Thermostat 3rd Gen-USA - Stainless Steel	Nest-USA	

Figure-40: creation of Dimension Dim_Prod_Info Table

123	Serial Number	Product_SKU	Product_Description	Product_Category
1	GGOENEBJ079		en-USA - Stainless Steel	Nest-USA
2	GGOENEBJ079		en-USA - Stainless Steel	Nest-USA
3	GGOENEBQ079		era - USA	Nest-USA
4	GGOENEBQ079		Battery Alarm-USA	Nest-USA
5	GGOENEBJ079		en-USA - Stainless Steel	Nest-USA
6	GGOENEBJ079		en-USA - Stainless Steel	Nest-USA
7	GGOENEBJ079		en-USA - Stainless Steel	Nest-USA
8	GGOENEBQ079		Battery Alarm-USA	Nest-USA
9	GGOENEBJ079		en-USA - Stainless Steel	Nest-USA
10	GGOENEBJ079		en-USA - Stainless Steel	Nest-USA
11	GGOENEBQ079		era - USA	Nest-USA
12	GGOENEBJ079		en-USA - Stainless Steel	Nest-USA
13	GGOENEBJ079		en-USA - Stainless Steel	Nest-USA
14	GGOENEBQ079		era - USA	Nest-USA
15	GGOENEBJ079		en-USA - Stainless Steel	Nest-USA
16	GGOENEBJ079		en-USA - Stainless Steel	Nest-USA
17	GGOENEBQ079		era - USA	Nest-USA
18	GGOENEBB078899		Nest Cam Indoor Security Camera - USA	Nest-USA
19	GGOENEBQ078999		Nest Cam Outdoor Security Camera - USA	Nest-USA
20	GGOENEBB078899		Nest Cam Indoor Security Camera - USA	Nest-USA
21	GGOENEBB078899		Nest Cam Indoor Security Camera - USA	Nest-USA
22	GGOENEBB078899		Nest Cam Indoor Security Camera - USA	Nest-USA
23	GGOENEBQ078999		Nest Cam Outdoor Security Camera - USA	Nest-USA
24	GGOENEBQ078999		Nest Cam Outdoor Security Camera - USA	Nest-USA
25	GGOENEBQ079199		Nest Protect Smoke + CO White Wired Alarm-USA	Nest-USA
26	GGOENEBB078899		Nest Cam Indoor Security Camera - USA	Nest-USA
27	GGOENEBJ079499		Nest Learning Thermostat 3rd Gen-USA - Stainless Steel	Nest-USA
28	GGOENEBB078899		Nest Cam Indoor Security Camera - USA	Nest-USA
29	GGOENEBJ079499		Nest Learning Thermostat 3rd Gen-USA - Stainless Steel	Nest-USA
30	GGOENEBJ079499		Nest Learning Thermostat 3rd Gen-USA - Stainless Steel	Nest-USA
31	GGOENEBB078899		Nest Cam Indoor Security Camera - USA	Nest-USA
32	GGOENEBJ079499		Nest Learning Thermostat 3rd Gen-USA - Stainless Steel	Nest-USA
33	GGOENEBJ079499		Nest Learning Thermostat 3rd Gen-USA - Stainless Steel	Nest-USA
34	GGOENEBQ078999		Nest Cam Outdoor Security Camera - USA	Nest-USA

Figure-41: Dimension Dim_Prod_Info(Removing extra column)

123	Serial Number	Product_SKU	Product_Description	Product_Category
1	GGOENEBJ079499		Nest Learning Thermostat 3rd Gen-USA - Stainless Steel	Nest-USA
2	GGOENEBJ079499		Nest Learning Thermostat 3rd Gen-USA - Stainless Steel	Nest-USA
3	GGOENEBQ078999		Nest Cam Outdoor Security Camera - USA	Nest-USA
4	GGOENEBQ079099		Nest Protect Smoke + CO White Battery Alarm-USA	Nest-USA
5	GGOENEBJ079499		Nest Learning Thermostat 3rd Gen-USA - Stainless Steel	Nest-USA
6	GGOENEBJ079499		Nest Learning Thermostat 3rd Gen-USA - Stainless Steel	Nest-USA
7	GGOENEBJ079499		Nest Learning Thermostat 3rd Gen-USA - Stainless Steel	Nest-USA
8	GGOENEBQ079099		Nest Protect Smoke + CO White Battery Alarm-USA	Nest-USA
9	GGOENEBJ079499		Nest Learning Thermostat 3rd Gen-USA - Stainless Steel	Nest-USA
10	GGOENEBJ079499		Nest Learning Thermostat 3rd Gen-USA - Stainless Steel	Nest-USA
11	GGOENEBQ078999		Nest Cam Outdoor Security Camera - USA	Nest-USA
12	GGOENEBJ079499		Nest Learning Thermostat 3rd Gen-USA - Stainless Steel	Nest-USA
13	GGOENEBJ079499		Nest Learning Thermostat 3rd Gen-USA - Stainless Steel	Nest-USA
14	GGOENEBQ078999		Nest Cam Outdoor Security Camera - USA	Nest-USA
15	GGOENEBJ079499		Nest Learning Thermostat 3rd Gen-USA - Stainless Steel	Nest-USA
16	GGOENEBJ079499		Nest Learning Thermostat 3rd Gen-USA - Stainless Steel	Nest-USA
17	GGOENEBQ078999		Nest Cam Outdoor Security Camera - USA	Nest-USA
18	GGOENEBB078899		Nest Cam Indoor Security Camera - USA	Nest-USA
19	GGOENEBQ078999		Nest Cam Outdoor Security Camera - USA	Nest-USA
20	GGOENEBB078899		Nest Cam Indoor Security Camera - USA	Nest-USA
21	GGOENEBB078899		Nest Cam Indoor Security Camera - USA	Nest-USA
22	GGOENEBB078899		Nest Cam Indoor Security Camera - USA	Nest-USA
23	GGOENEBQ078999		Nest Cam Outdoor Security Camera - USA	Nest-USA
24	GGOENEBQ078999		Nest Cam Outdoor Security Camera - USA	Nest-USA
25	GGOENEBQ079199		Nest Protect Smoke + CO White Wired Alarm-USA	Nest-USA
26	GGOENEBB078899		Nest Cam Indoor Security Camera - USA	Nest-USA
27	GGOENEBJ079499		Nest Learning Thermostat 3rd Gen-USA - Stainless Steel	Nest-USA
28	GGOENEBB078899		Nest Cam Indoor Security Camera - USA	Nest-USA
29	GGOENEBJ079499		Nest Learning Thermostat 3rd Gen-USA - Stainless Steel	Nest-USA
30	GGOENEBJ079499		Nest Learning Thermostat 3rd Gen-USA - Stainless Steel	Nest-USA
31	GGOENEBB078899		Nest Cam Indoor Security Camera - USA	Nest-USA
32	GGOENEBJ079499		Nest Learning Thermostat 3rd Gen-USA - Stainless Steel	Nest-USA
33	GGOENEBJ079499		Nest Learning Thermostat 3rd Gen-USA - Stainless Steel	Nest-USA

Figure-42: Dimension Dim_Prod_Info

```
= Table.SelectColumns("#Reordered Columns2",{ "Serial Number", "Product_SKU",  
"Product_Description", "Product_Category"})
```

Dimension Dim_Coupon

- The “Dim_Coupon” table contains the following columns-
 - Serial Number as Unique Key
 - Coupon_Status
 - Coupon_Code
 - Discount_pct

1.2 Delivery_Charges	1.2 Avg_Price	1.2 ₃ Serial Number	A ₂ ^B Coupon_Status	A ₂ ^B Coupon_Code	1.2 ₃ Discount_pct	1.2 GST	Date
1	6.5	153.71	1 Used	ELEC10	10	0.1	
1	6.5	153.71	2 Used	ELEC10	10	0.1	
2	6.5	122.77	3 Not Used	ELEC10	10	0.1	
1	6.5	81.5	4 Clicked	ELEC10	10	0.1	
1	6.5	153.71	5 Clicked	ELEC10	10	0.1	
1	6.5	153.71	6 Clicked	ELEC10	10	0.1	
2	6.5	153.71	7 Clicked	ELEC10	10	0.1	
2	6.5	81.5	8 Not Used	ELEC10	10	0.1	
1	6.5	256.88	9 Used	ELEC10	10	0.1	
1	28.78	153.71	10 Clicked	ELEC10	10	0.1	
1	6.5	122.77	11 Used	ELEC10	10	0.1	
1	6.5	153.71	12 Not Used	ELEC10	10	0.1	
1	6.5	153.71	13 Used	ELEC10	10	0.1	
1	6.5	122.77	14 Clicked	ELEC10	10	0.1	
1	6.5	153.71	15 Clicked	ELEC10	10	0.1	
1	6.5	153.71	16 Used	ELEC10	10	0.1	
2	6.5	122.77	17 Used	ELEC10	10	0.1	
1	6.5	122.77	18 Used	ELEC10	10	0.1	
1	6.5	122.77	19 Not Used	ELEC10	10	0.1	
1	6.5	122.77	20 Clicked	ELEC10	10	0.1	
1	6.5	122.77	21 Clicked	ELEC10	10	0.1	
1	6.5	122.77	22 Clicked	ELEC10	10	0.1	
2	6.5	122.77	23 Clicked	ELEC10	10	0.1	
2	6.5	122.77	24 Clicked	ELEC10	10	0.1	
1	6.5	81.5	25 Used	ELEC10	10	0.1	
1	6.5	122.77	26 Used	ELEC10	10	0.1	
1	6.5	153.71	27 Used	ELEC10	10	0.1	
1	6.5	122.77	28 Not Used	ELEC10	10	0.1	
1	6.5	153.71	29 Clicked	ELEC10	10	0.1	

Figure-43: creation of Dimension Dim_Coupon Table

1 ² 3	Serial Number	A ^B _C Coupon_Status	A ^B _C Coupon_Code	1 ² 3 Discount_pct	1.2 GST
1	1	Used	ELEC10		
1	2	Used	ELEC10		
7	3	Not Used	ELEC10		
5	4	Clicked	ELEC10		
1	5	Clicked	ELEC10		
1	6	Clicked	ELEC10		
1	7	Clicked	ELEC10		
5	8	Not Used	ELEC10		
8	9	Used	ELEC10		
1	10	Clicked	ELEC10		
7	11	Used	ELEC10		
1	12	Not Used	ELEC10		
1	13	Used	ELEC10		
7	14	Clicked	ELEC10		
1	15	Clicked	ELEC10		
1	16	Used	ELEC10		
7	17	Used	ELEC10		
7	18	Used	ELEC10		
7	19	Not Used	ELEC10		10
7	20	Clicked	ELEC10		10
7	21	Clicked	ELEC10		10
7	22	Clicked	ELEC10		10
7	23	Clicked	ELEC10		10
7	24	Clicked	ELEC10		10
5	25	Used	ELEC10		10
7	26	Used	ELEC10		10
1	27	Used	ELEC10		10
7	28	Not Used	ELEC10		10
1	29	Clicked	ELEC10		10
1	30	Clicked	ELEC10		10
7	31	Clicked	ELEC10		10
1	32	Used	ELEC10		10
1	33	Used	ELEC10		10
	34	Not Used	ELEC10		10

Figure-44: Dimension Dim_Coupon (Removing extra column)

Queries [4]	= Table.SelectColumns("#Reordered Columns2",{"Serial Number", "Coupon_Status", "Coupon_Code", "Discount_pct"})				
Sheet1	1 ² 3	Serial Number	A ^B _C Coupon_Status	A ^B _C Coupon_Code	1 ² 3 Discount_pct
Dim_Cust_Info	1	1	Used	ELEC10	10
Dim_Prod_Info	2	2	Used	ELEC10	10
Dim_Coupon	3	3	Not Used	ELEC10	10
	4	4	Clicked	ELEC10	10
	5	5	Clicked	ELEC10	10
	6	6	Clicked	ELEC10	10
	7	7	Clicked	ELEC10	10
	8	8	Not Used	ELEC10	10
	9	9	Used	ELEC10	10
	10	10	Clicked	ELEC10	10
	11	11	Used	ELEC10	10
	12	12	Not Used	ELEC10	10
	13	13	Used	ELEC10	10
	14	14	Clicked	ELEC10	10
	15	15	Clicked	ELEC10	10
	16	16	Used	ELEC10	10
	17	17	Used	ELEC10	10
	18	18	Used	ELEC10	10
	19	19	Not Used	ELEC10	10
	20	20	Clicked	ELEC10	10
	21	21	Clicked	ELEC10	10
	22	22	Clicked	ELEC10	10
	23	23	Clicked	ELEC10	10
	24	24	Clicked	ELEC10	10
	25	25	Used	ELEC10	10
	26	26	Used	ELEC10	10
	27	27	Used	ELEC10	10
	28	28	Not Used	ELEC10	10
	29	29	Clicked	ELEC10	10
	30	30	Clicked	ELEC10	10
	31	31	Clicked	ELEC10	10

Figure-45: Dimension Dim_Coupon

```
= Table.SelectColumns("#Reordered Columns2",{ "Serial Number", "Coupon_Status",  
"Coupon_Code", "Discount_pct"})
```

Dimension Dim_Date

- The “Dim_Date” table contains the following columns-
 - a) Serial Number as Unique Key
 - b) Tenure_Months
 - c) Month
 - d) Transaction_Date
 - e) Date

= Table.ReorderColumns("#Removed Other Columns",{ "Serial Number", "Date", "Transaction_Date", "Month", "Tenure_Months", "Tenure_Months" })						
	Serial Number	Date	Transaction_Date	Month	Tenure_Months	Tenure_Months
1	1	01-01-2019	01-01-2019	1	12	12
2	2	01-01-2019	01-01-2019	1	12	12
3	3	01-01-2019	01-01-2019	1	12	12
4	4	01-01-2019	01-01-2019	1	12	12
5	5	01-01-2019	01-01-2019	1	12	12
6	6	01-01-2019	01-01-2019	1	12	12
7	7	01-01-2019	01-01-2019	1	12	12
8	8	01-01-2019	01-01-2019	1	12	12
9	9	01-01-2019	01-01-2019	1	12	12
10	10	01-01-2019	01-01-2019	1	12	12
11	11	01-01-2019	01-01-2019	1	12	12
12	12	01-01-2019	01-01-2019	1	12	12
13	13	01-01-2019	01-01-2019	1	12	12
14	14	01-01-2019	01-01-2019	1	12	12
15	15	01-01-2019	01-01-2019	1	12	12
16	16	01-01-2019	01-01-2019	1	12	12
17	17	01-01-2019	01-01-2019	1	12	12
18	18	01-01-2019	01-01-2019	1	12	12
19	19	01-01-2019	01-01-2019	1	12	12
20	20	01-01-2019	01-01-2019	1	12	12
21	21	01-01-2019	01-01-2019	1	12	12
22	22	01-01-2019	01-01-2019	1	12	12
23	23	01-01-2019	01-01-2019	1	12	12
24	24	01-01-2019	01-01-2019	1	43	43
25	25	01-01-2019	01-01-2019	1	43	43
26	26	01-01-2019	01-01-2019	1	43	43
27	27	01-01-2019	01-01-2019	1	33	33
28	28	01-01-2019	01-01-2019	1	49	49
29	29	01-01-2019	01-01-2019	1	46	46
30	30	01-01-2019	01-01-2019	1	46	46
31	31	01-01-2019	01-01-2019	1	46	46

Figure-46: creation of Dimension Dim_Date Table

	123	Serial Number	Date	Transaction_Date	123	Month	123	Tenure_Months	123	Tr
1		1	01-01-2019	01-01-2019						
2		2	01-01-2019	01-01-2019						
3		3	01-01-2019	01-01-2019						
4		4	01-01-2019	01-01-2019						
5		5	01-01-2019	01-01-2019						
6		6	01-01-2019	01-01-2019						
7		7	01-01-2019	01-01-2019						
8		8	01-01-2019	01-01-2019						
9		9	01-01-2019	01-01-2019						
10		10	01-01-2019	01-01-2019						
11		11	01-01-2019	01-01-2019						
12		12	01-01-2019	01-01-2019						
13		13	01-01-2019	01-01-2019						
14		14	01-01-2019	01-01-2019						
15		15	01-01-2019	01-01-2019						
16		16	01-01-2019	01-01-2019						
17		17	01-01-2019	01-01-2019						
18		18	01-01-2019	01-01-2019						
19		19	01-01-2019	01-01-2019						
20		20	01-01-2019	01-01-2019						
21		21	01-01-2019	01-01-2019						
22		22	01-01-2019	01-01-2019						
23		23	01-01-2019	01-01-2019						
24		24	01-01-2019	01-01-2019						
25		25	01-01-2019	01-01-2019						
26		26	01-01-2019	01-01-2019						

Figure-47: Dimension Dim_Date (Removing extra column)

Queries [5]

fx

= Table.SelectColumns(#"Reordered Columns3",{"Serial Number", "Date", "Transaction_Date", "Month", "Tenure_Months"})

i23

Serial Number

Date

Transaction_Date

i23

Month

i23

Tenure_Months

1	1	01-01-2019	01-01-2019	1	12
2	2	01-01-2019	01-01-2019	1	12
3	3	01-01-2019	01-01-2019	1	12
4	4	01-01-2019	01-01-2019	1	12
5	5	01-01-2019	01-01-2019	1	12
6	6	01-01-2019	01-01-2019	1	12
7	7	01-01-2019	01-01-2019	1	12
8	8	01-01-2019	01-01-2019	1	12
9	9	01-01-2019	01-01-2019	1	12
10	10	01-01-2019	01-01-2019	1	12
11	11	01-01-2019	01-01-2019	1	12
12	12	01-01-2019	01-01-2019	1	12
13	13	01-01-2019	01-01-2019	1	12
14	14	01-01-2019	01-01-2019	1	12
15	15	01-01-2019	01-01-2019	1	12
16	16	01-01-2019	01-01-2019	1	12
17	17	01-01-2019	01-01-2019	1	12
18	18	01-01-2019	01-01-2019	1	12
19	19	01-01-2019	01-01-2019	1	12
20	20	01-01-2019	01-01-2019	1	12
21	21	01-01-2019	01-01-2019	1	12
22	22	01-01-2019	01-01-2019	1	12
23	23	01-01-2019	01-01-2019	1	12
24	24	01-01-2019	01-01-2019	1	43
25	25	01-01-2019	01-01-2019	1	43
26	26	01-01-2019	01-01-2019	1	43
27	27	01-01-2019	01-01-2019	1	43
28	28	01-01-2019	01-01-2019	1	33
29	29	01-01-2019	01-01-2019	1	49
30	30	01-01-2019	01-01-2019	1	46
31	31	01-01-2019	01-01-2019	1	46
32	32	01-01-2019	01-01-2019	1	46
33	33	01-03-2019	03-01-2019	1	12
34	34	01-03-2019	03-01-2019	1	12
35	35	01-03-2019	03-01-2019	1	12
36	36	01-03-2019	03-01-2019	1	12

Dim_Cust_Info

Dim_Prod_Info

Dim_Coupon

Fact_Order_Details

Dim_Date

Figure-48: Dimension Dim_Date

```
= Table.SelectColumns("#Reordered Columns3",{ "Serial Number", "Date",  
"Transaction_Date", "Month", "Tenure_Months"})
```

Fact Fact_Order_Details

- The “Fact_Order_Details” table contains the following columns-
 - a) Serial Number as Unique Key
 - b) Delivery_Charges
 - c) Avg_Price
 - d) Quantity
 - e) Transaction_ID
 - f) GST
 - g) Offline_Spend
 - h) Online_Spend

Price	1.2 Delivery_Charges	1.2 GST	Date	Offline_Spend	Tenure_Months	Month	Coupon		
1	153.71	6.5	0.1	01-01-2019	12	1	ELEC10		
2	153.71	6.5	0.1	01-01-2019	12	1	ELEC10		
3	122.77	6.5	0.1	01-01-2019	12	1	ELEC10		
4	81.5	6.5	0.1	01-01-2019	12	1	ELEC10		
5	153.71	6.5	0.1	01-01-2019	12	1	ELEC10		
6	153.71	6.5	0.1	01-01-2019	12	1	ELEC10		
7	153.71	6.5	0.1	01-01-2019	12	1	ELEC10		
8	81.5	6.5	0.1	01-01-2019	12	1	ELEC10		
9	256.88	6.5	0.1	01-01-2019	12	1	ELEC10		
10	153.71	28.78	0.1	01-01-2019	12	1	ELEC10		
11	122.77	6.5	0.1	01-01-2019	12	1	ELEC10		
12	153.71	6.5	0.1	01-01-2019	12	1	ELEC10		
13	153.71	6.5	0.1	01-01-2019	12	1	ELEC10		
14	122.77	6.5	0.1	01-01-2019	12	1	ELEC10		
15	153.71	6.5	0.1	01-01-2019	12	1	ELEC10		
16	153.71	6.5	0.1	01-01-2019	12	1	ELEC10		
17	122.77	6.5	0.1	01-01-2019	12	1	ELEC10		
18	122.77	6.5	0.1	01-01-2019	12	1	ELEC10		
19	122.77	6.5	0.1	01-01-2019	4500	2424.5	12	1	ELEC10
20	122.77	6.5	0.1	01-01-2019	4500	2424.5	12	1	ELEC10
21	122.77	6.5	0.1	01-01-2019	4500	2424.5	12	1	ELEC10
22	122.77	6.5	0.1	01-01-2019	4500	2424.5	12	1	ELEC10
23	122.77	6.5	0.1	01-01-2019	4500	2424.5	12	1	ELEC10
24	122.77	6.5	0.1	01-01-2019	4500	2424.5	43	1	ELEC10
25	81.5	6.5	0.1	01-01-2019	4500	2424.5	43	1	ELEC10
26	122.77	6.5	0.1	01-01-2019	4500	2424.5	43	1	ELEC10
27	153.71	6.5	0.1	01-01-2019	4500	2424.5	43	1	ELEC10
28	122.77	6.5	0.1	01-01-2019	4500	2424.5	33	1	ELEC10
29	153.71	6.5	0.1	01-01-2019	4500	2424.5	49	1	ELEC10
30	153.71	6.5	0.1	01-01-2019	4500	2424.5	46	1	ELEC10
31	122.77	6.5	0.1	01-01-2019	4500	2424.5	46	1	ELEC10
32	153.71	6.5	0.1	01-01-2019	4500	2424.5	46	1	ELEC10
33	153.71	6.5	0.1	01-03-2019	4500	1576.38	12	1	ELEC10
34	122.77	6.5	0.1	01-03-2019	4500	1576.38	12	1	ELEC10
35	153.71	6.5	0.1	01-03-2019	4500	1576.38	12	1	ELEC10
36	153.71	6.5	0.1	01-03-2019	4500	1576.38	12	1	ELEC10

Figure-49: Fact Fact_Order_Details Table (Removing extra column)

Queries [5] ✕ ✓ f_x = Table.RemoveColumns(*"Removed Other Columns",{"Date", "Tenure_Months", "Month", "Transaction_Date"})

	1.2 Serial Number	1.2 Transaction_ID	1.2 Quantity	1.2 Avg_Price	1.2 Delivery_Charges	1.2 GST	1.2 Offline_Spend	1.2 Online_Spend
1	1	16679	1	153.71	6.5	0.1	4500	2424.5
2	2	16680	1	153.71	6.5	0.1	4500	2424.5
3	3	16696	2	122.77	6.5	0.1	4500	2424.5
4	4	16699	1	81.5	6.5	0.1	4500	2424.5
5	5	16700	1	153.71	6.5	0.1	4500	2424.5
6	6	16701	1	153.71	6.5	0.1	4500	2424.5
7	7	16702	2	153.71	6.5	0.1	4500	2424.5
8	8	16703	2	81.5	6.5	0.1	4500	2424.5
9	9	16704	1	256.88	6.5	0.1	4500	2424.5
10	10	16710	1	153.71	28.78	0.1	4500	2424.5
11	11	16713	1	122.77	6.5	0.1	4500	2424.5
12	12	16719	1	153.71	6.5	0.1	4500	2424.5
13	13	16720	1	153.71	6.5	0.1	4500	2424.5
14	14	16720	1	122.77	6.5	0.1	4500	2424.5
15	15	16721	1	153.71	6.5	0.1	4500	2424.5
16	16	16722	1	153.71	6.5	0.1	4500	2424.5
17	17	16722	2	122.77	6.5	0.1	4500	2424.5
18	18	16723	1	122.77	6.5	0.1	4500	2424.5
19	19	16723	1	122.77	6.5	0.1	4500	2424.5
20	20	16724	1	122.77	6.5	0.1	4500	2424.5
21	21	16725	1	122.77	6.5	0.1	4500	2424.5
22	22	16727	1	122.77	6.5	0.1	4500	2424.5
23	23	16731	2	122.77	6.5	0.1	4500	2424.5
24	24	16684	2	122.77	6.5	0.1	4500	2424.5
25	25	16684	1	81.5	6.5	0.1	4500	2424.5
26	26	16688	1	122.77	6.5	0.1	4500	2424.5
27	27	16689	1	153.71	6.5	0.1	4500	2424.5
28	28	16694	1	122.77	6.5	0.1	4500	2424.5
29	29	16712	1	153.71	6.5	0.1	4500	2424.5
30	30	16732	1	153.71	6.5	0.1	4500	2424.5
31	31	16733	1	122.77	6.5	0.1	4500	2424.5
32	32	16736	1	153.71	6.5	0.1	4500	2424.5

Figure-50: Fact_Order_Detail Table

```
= Table.SelectColumns("#Reordered Columns2",{"Serial Number",
"Transaction_ID", "Quantity", "Avg_Price", "Delivery_Charges", "GST",
"Offline_Spend", "Online_Spend"})
```

	Serial Number	Transaction_ID	Quantity	Avg_Price	Delivery_Charges	GST	Offline_Spend
1	1	16679	1	153.71	6.5	0.1	
2	2	16680	1	153.71	6.5	0.1	
3	3	16696	2	122.77	6.5	0.1	
4	4	16699	1	81.5	6.5	0.1	
5	5	16700	1	153.71	6.5	0.1	
6	6	16701	1	153.71	6.5	0.1	
7	7	16702	2	153.71	6.5	0.1	
8	8	16703	2	81.5	6.5	0.1	
9	9	16704	1	256.88	6.5	0.1	
10	10	16710	1	153.71	28.78	0.1	
11	11	16713	1	122.77	6.5	0.1	
12	12	16719	1	153.71	6.5	0.1	
13	13	16720	1	153.71	6.5	0.1	
14	14	16720	1	122.77	6.5	0.1	
15	15	16721	1	153.71	6.5	0.1	
16	16	16722	1	153.71	6.5	0.1	
17	17	16722	2	122.77	6.5	0.1	
18	18	16723	1	122.77	6.5	0.1	
19	19	16723	1	122.77	6.5	0.1	
20	20	16724	1	122.77	6.5	0.1	
21	21	16725	1	122.77	6.5	0.1	
22	22	16727	1	122.77	6.5	0.1	

Figure-51: Saving of Dimension and Fact Table

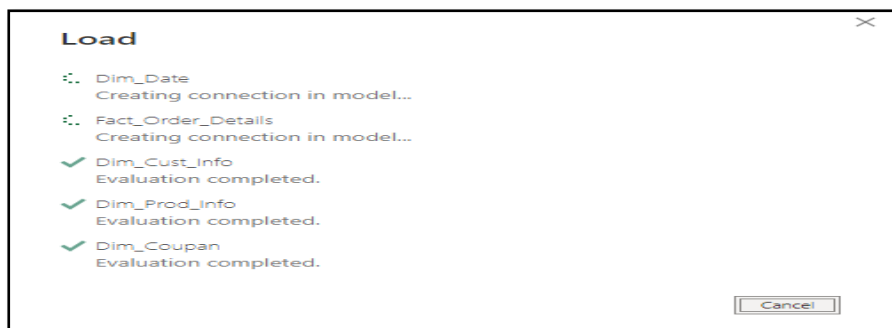


Figure-52: Loading of Dimension and Fact Table

List of Fact And Dimensions Tables

- The list of all fact and dimension tables can be seen in right-top side of the power-bi screen.
- Here in the following image, the list of fact and dimension can be seen.

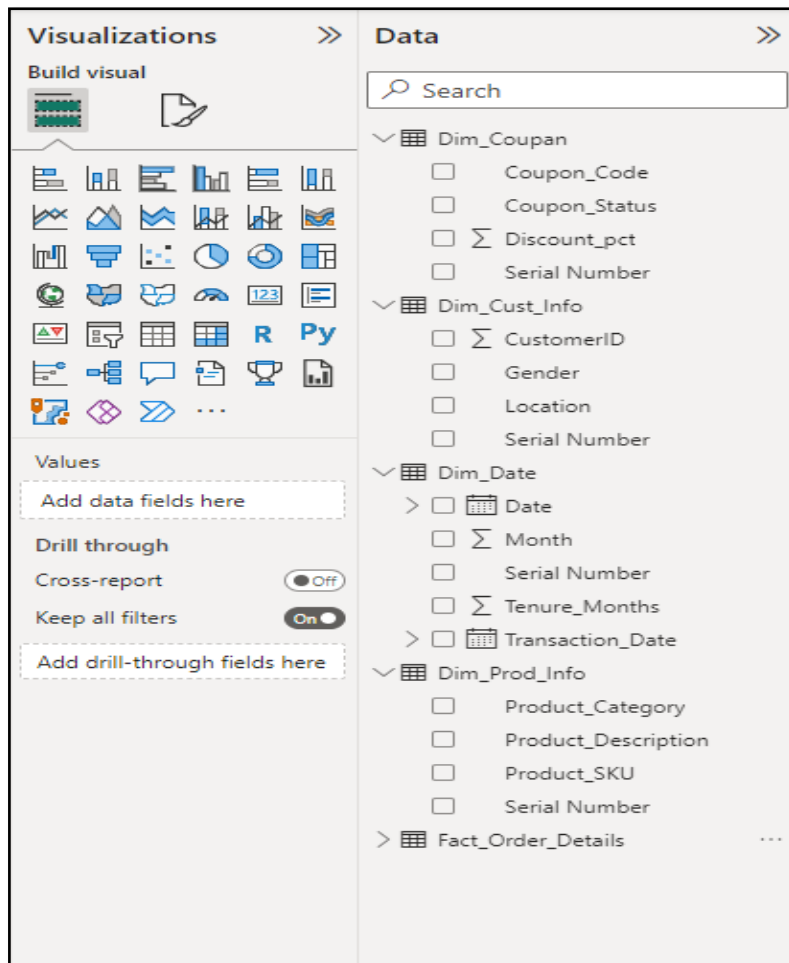


Figure-53: List of fact and dimensions

Data models and relationships

- To visualize the data in power-bi, first the relationship between the fact and dimension should be developed.
- The relationship developed here, is base on the “Star-schema”.

Star Schema [1:1 relationship]

- The Star Schema is a popular data modeling technique used in the design of data.
- It organizes data into a central fact table surrounded by dimension tables.
- The central concept resembles a star, with the fact table at the center and dimension tables radiating out like points on the star.
- This design simplifies querying and reporting, making it easier for analysts to retrieve and analyze information.

Advantages of the Star Schema

- **Simplicity:** The structure is straightforward, making it easy to understand and use.
- **Query Performance:** Queries involving the fact table and one or more dimension tables can be efficient, as the relationships are well-defined.
- **Flexibility:** It allows for easy expansion by adding new dimensions or modifying existing ones without affecting the entire schema.

Manage Relationship

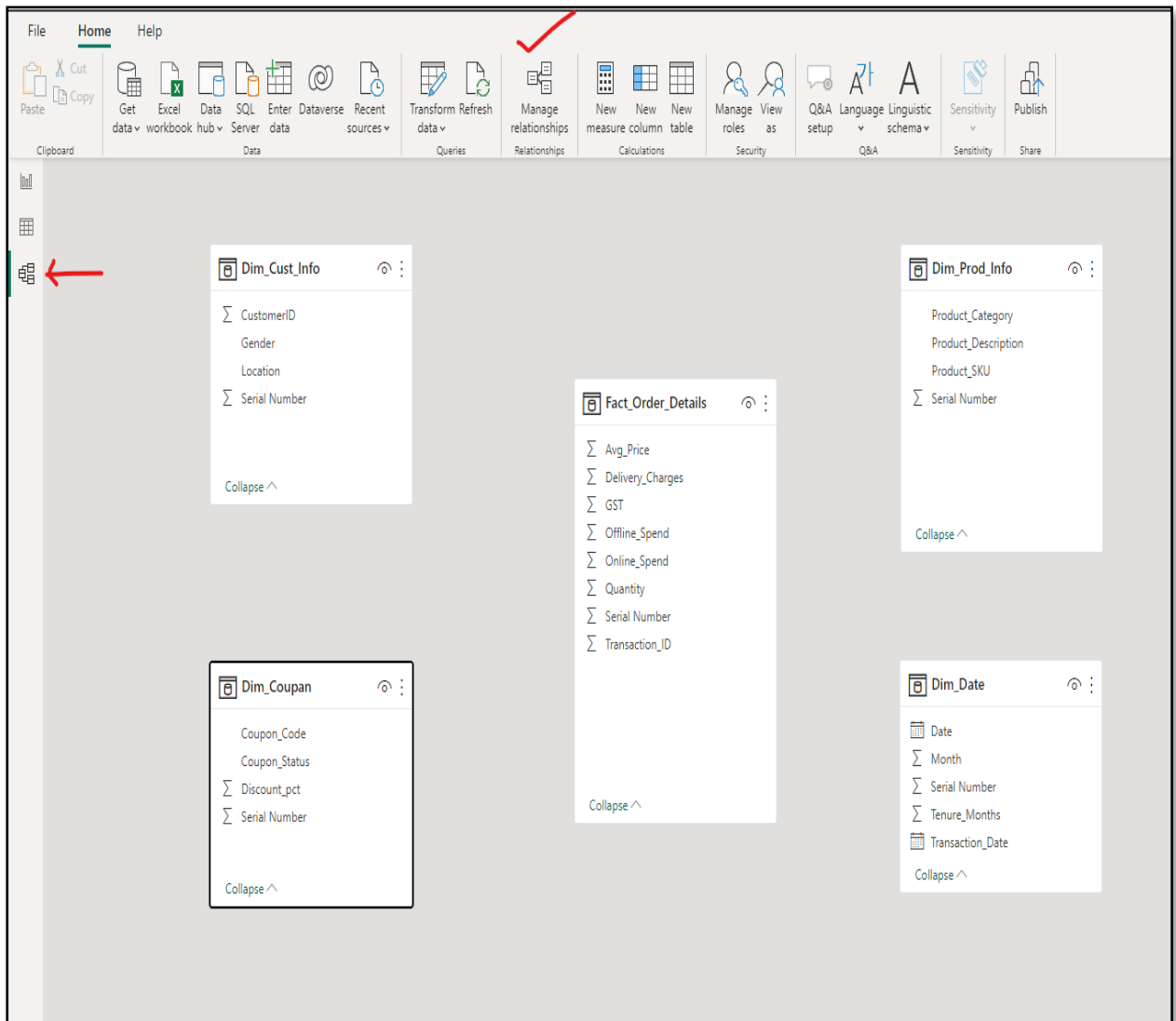


Figure-54: Manage Relationship Option

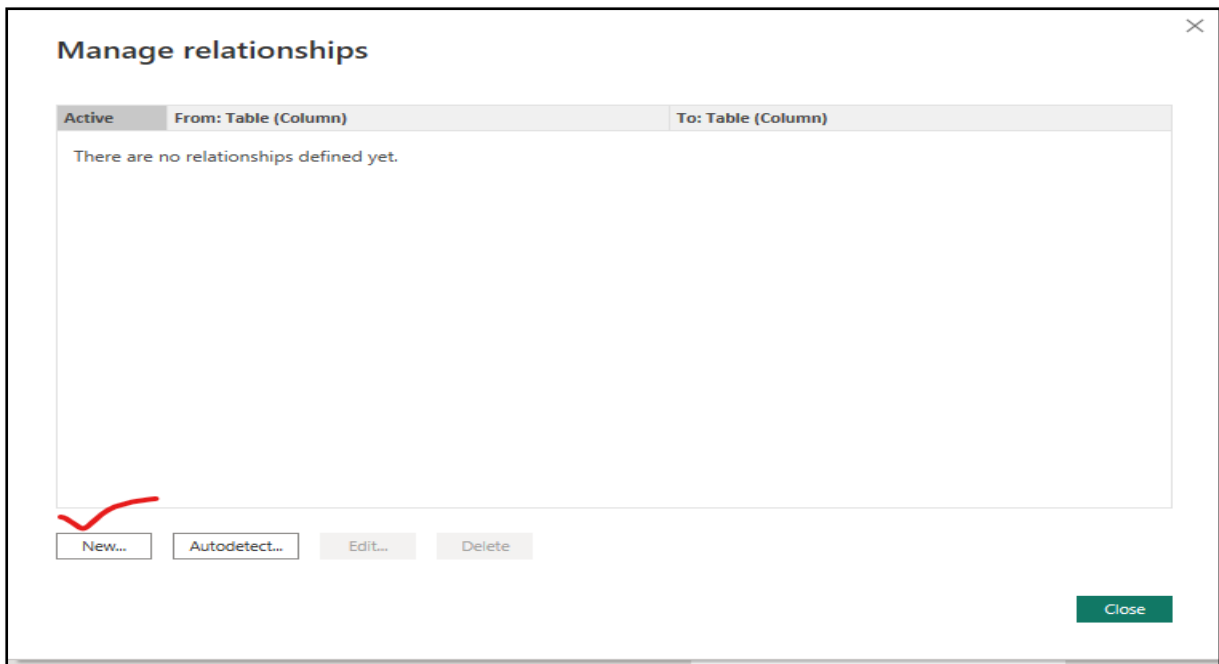
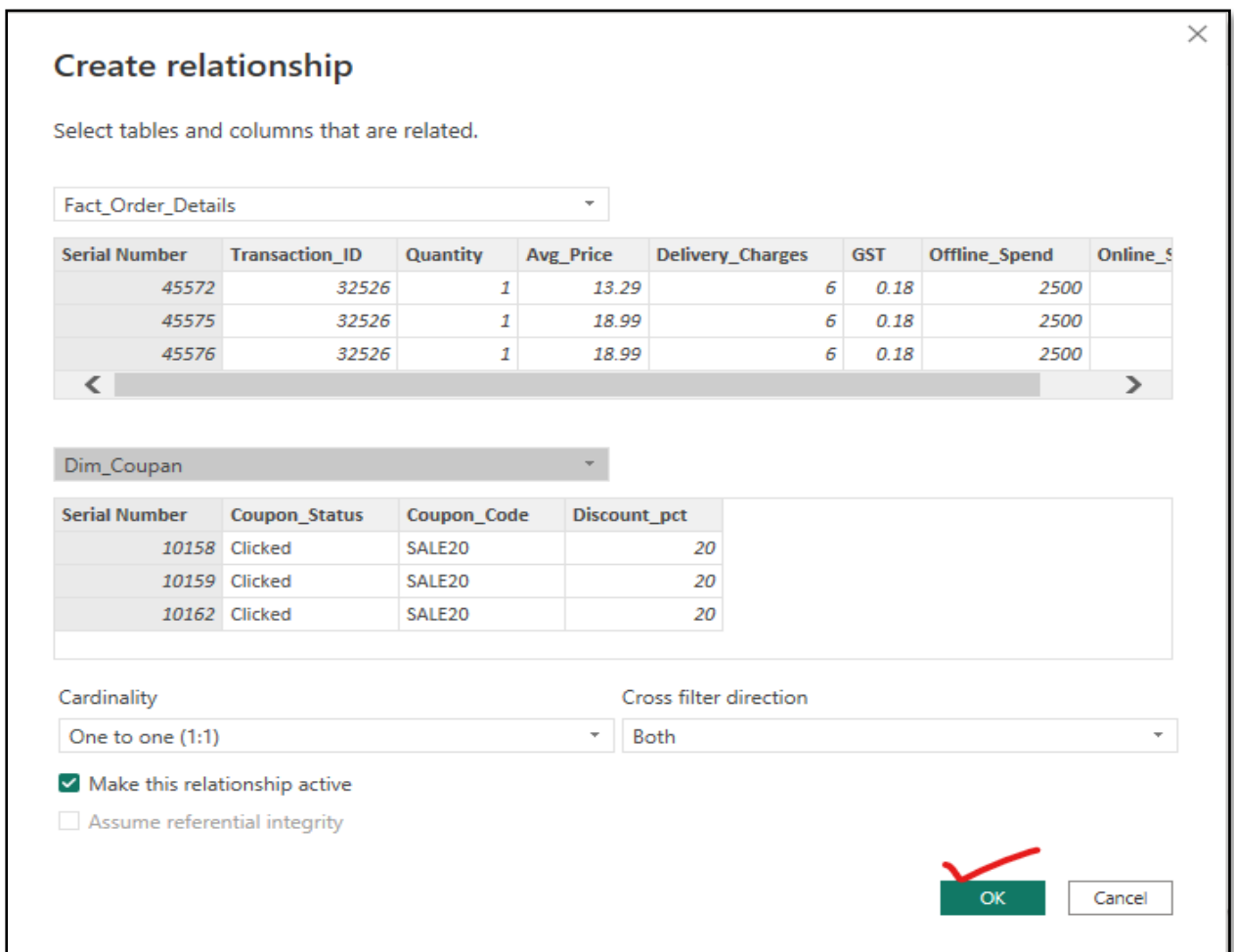


Figure-55: Manage Relationship pop up

Figure-56: Create Relationship b/w Fact_Order_Details & Dim_Coupon



Manage relationships

Active	From: Table (Column)	To: Table (Column)
☒	Fact_Order_Details (Serial Number)	Dim_Coupan (Serial Number)

New...

Autodetect...

Edit...

Delete

Close

Figure-57: View of Relationship b/w Fact_Order_Details & Dim_Coupon

Create relationship

Select tables and columns that are related.

Fact_Order_Details

Serial Number	Transaction_ID	Quantity	Avg_Price	Delivery_Charges	GST	Offline_Spend	Online_Spend
45572	32526	1	13.29	6	0.18	2500	
45575	32526	1	18.99	6	0.18	2500	
45576	32526	1	18.99	6	0.18	2500	

Dim_Cust_Info

Serial Number	CustomerID	Gender	Location
929	12748	F	Chicago
2670	12748	F	Chicago
14630	12748	F	Chicago

Cardinality

One to one (1:1)

Cross filter direction

Both

☒ Make this relationship active
 ☐ Assume referential integrity

OK

Cancel

Figure-58: Create Relationship b/w Fact_Order_Details & Dim_Cust_Info

Manage relationships

Active	From: Table (Column)	To: Table (Column)
☒	Fact_Order_Details (Serial Number)	Dim_Coupan (Serial Number)
☒	Fact_Order_Details (Serial Number)	Dim_Cust_Info (Serial Number)

New...

Autodetect...

Edit...

Delete

Close

Figure-59: View of Relationship b/w Fact_Order_Details & Dim_Cust_Info

Create relationship

Select tables and columns that are related.

Fact_Order_Details

Serial Number	Transaction_ID	Quantity	Avg_Price	Delivery_Charges	GST	Offline_Spend	Online_
45572	32526	1	13.29	6	0.18	2500	
45575	32526	1	18.99	6	0.18	2500	
45576	32526	1	18.99	6	0.18	2500	

Dim_Date

Serial Number	Date	Transaction_Date	Month	Tenure_Months
43298	null	13 July 2019	7	45
43299	null	13 July 2019	7	45
43301	null	13 July 2019	7	45

Cardinality

One to one (1:1)

Cross filter direction

Both

☒ Make this relationship active
 ☐ Assume referential integrity

OK

Cancel

Figure-60: Create Relationship b/w Fact_Order_Details & Dim_Date

Manage relationships

Active	From: Table (Column)	To: Table (Column)
☒	Fact_Order_Details (Serial Number)	Dim_Coupan (Serial Number)
☒	Fact_Order_Details (Serial Number)	Dim_Cust_Info (Serial Number)
☒	Fact_Order_Details (Serial Number)	Dim_Date (Serial Number)

New...

Autodetect...

Edit...

Delete

Close

Figure-61: View of Relationship b/w Fact_Order_Details & Dim_Date

Create relationship

Select tables and columns that are related.

Fact_Order_Details

Serial Number	Transaction_ID	Quantity	Avg_Price	Delivery_Charges	GST	Offline_Spend	Online_S
45572	32526	1	13.29	6	0.18	2500	
45575	32526	1	18.99	6	0.18	2500	
45576	32526	1	18.99	6	0.18	2500	

Dim_Prod_Info

Serial Number	Product_SKU	Product_Description	Product_Category
2206	GGOEGHPB071610	Google Twill Cap	Apparel
2234	GGOEGHPB071610	Google Twill Cap	Apparel
2315	GGOEGHPB071610	Google Twill Cap	Apparel

Cardinality

One to one (1:1)

Cross filter direction

Both

☒ Make this relationship active
 ☐ Assume referential integrity

OK

Cancel

Figure-62: Create Relationship b/w Fact_Order_Details & Dim_Prod_Info

Active	From: Table (Column)	To: Table (Column)
☒	Fact_Order_Details (Serial Number)	Dim_Coupan (Serial Number)
☒	Fact_Order_Details (Serial Number)	Dim_Cust_Info (Serial Number)
☒	Fact_Order_Details (Serial Number)	Dim_Date (Serial Number)
☒	Fact_Order_Details (Serial Number)	Dim_Prod_Info (Serial Number)
☐		



Figure-63: View of Relationship b/w Fact_Order_Details & Dim_Prod_Info

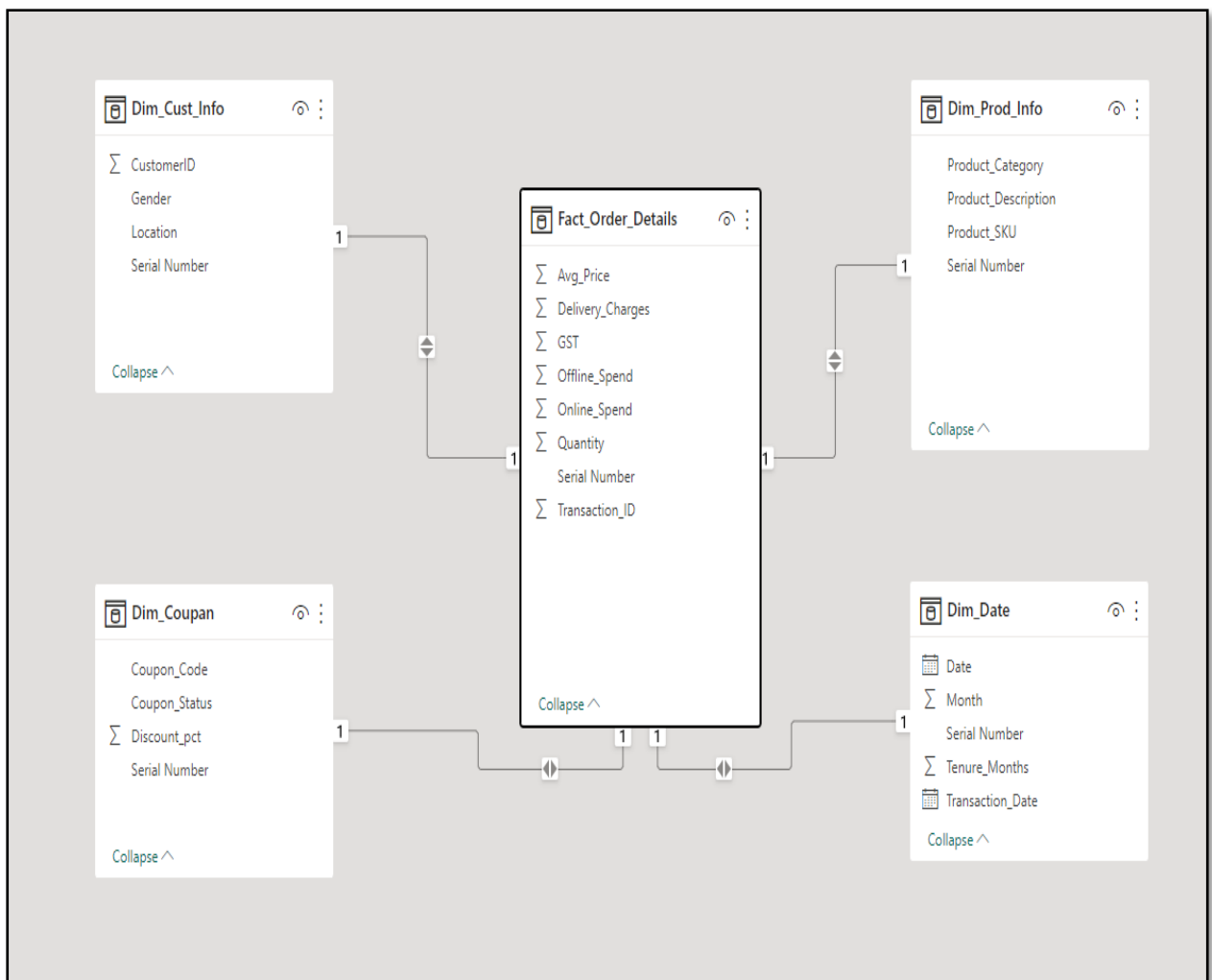


Figure-64: View of Relationship b/w Fact and Dimension Table

Data Visualization

DAX Language

- The measure is a table created by the user according to their needs.

S N o	Name	DAX Command
1	TOTAL COUPON USED BY CUSTOMER	TOTAL COUPAN USED BY CUSTOMER = <code>CALCULATE(count('Dim_Coupan'[Coupon_Status]),CONTAINSSTRING('Dim_Coupan'[Coupon_Status],"Used"))</code>
2	TOTAL FEMALE CUSTOMERS	TOTAL FEMALE CUSTOMERS = <code>CALCULATE(count('Dim_Cust_Info'[Gender]),CONTAINSSTRING('Dim_Cust_Info'[Gender],"F"))</code>
3	TOTAL MALE CUSTOMERS	TOTAL MALE CUSTOMERS = <code>CALCULATE(count('Dim_Cust_Info'[Gender]),CONTAINSSTRING('Dim_Cust_Info'[Gender],"M"))</code>

Adding Canvas Background

- In Power BI, the canvas background refers to the background area of a report or dashboard where visualizations, charts, and other elements are placed.
- The canvas is the space where you design and arrange your data visualizations to convey insights to your audience.
- On the right side of power-bi screen,
- In the visualization tab < Format page < Canvas background, the background can be inserted.

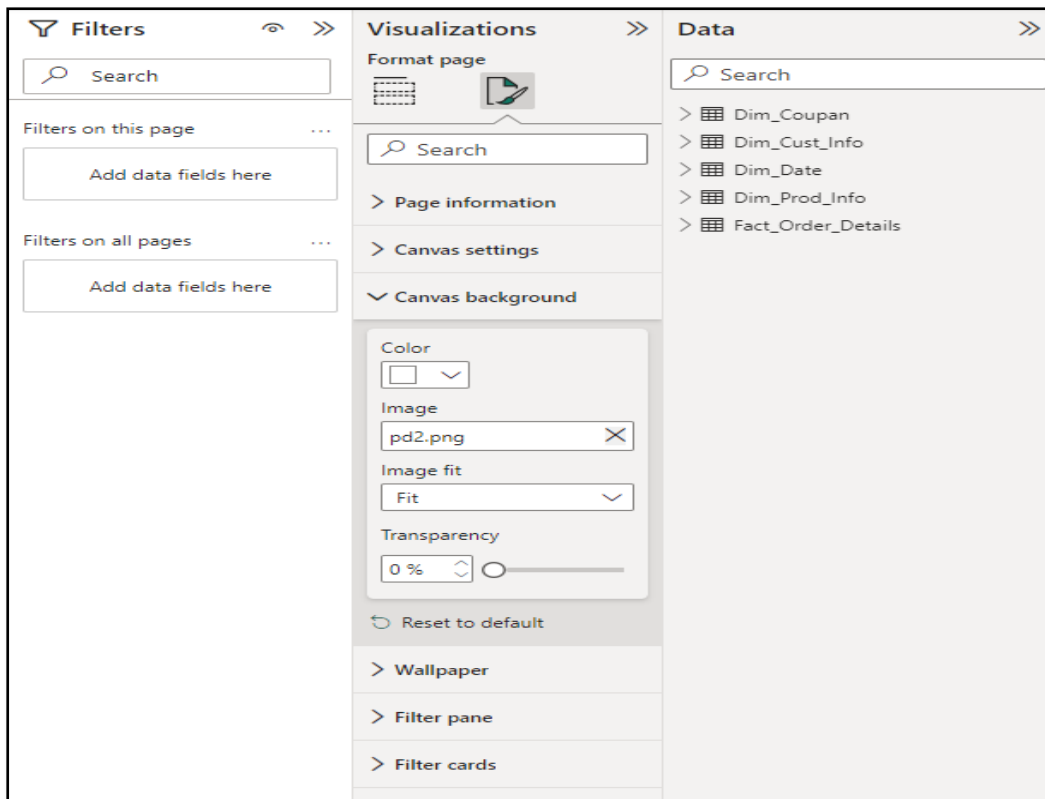


Figure-65: Format of Canvas Background

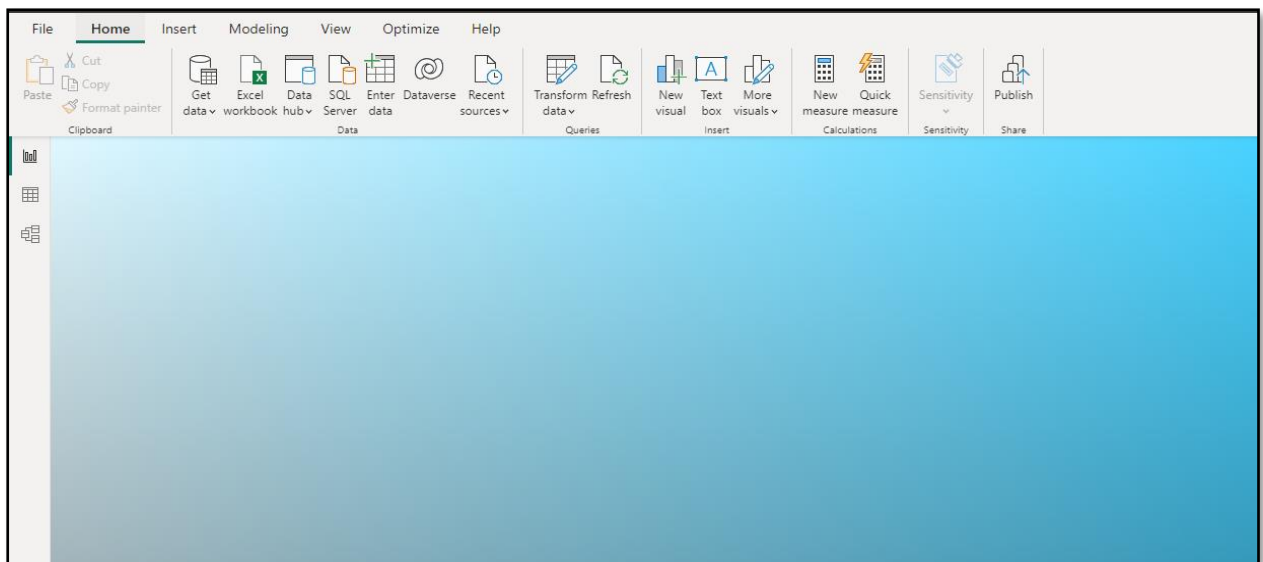


Figure-66: View of Canvas Background

Adding Page Heading

- In the menu bar, Insert < Text box, the text box is added to insert the heading.

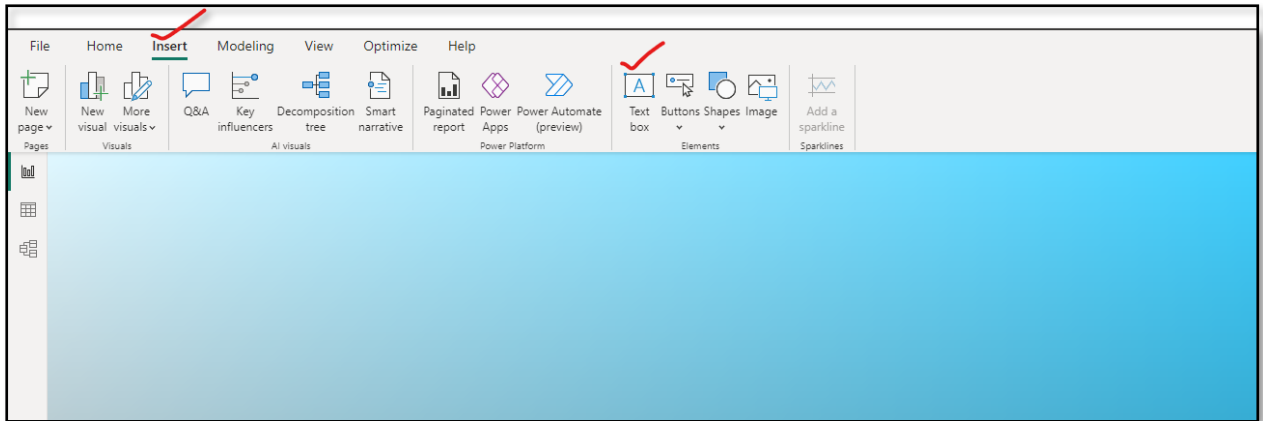


Figure-67: Text Box Option

- The “format” of the text box is set according to following pattern.

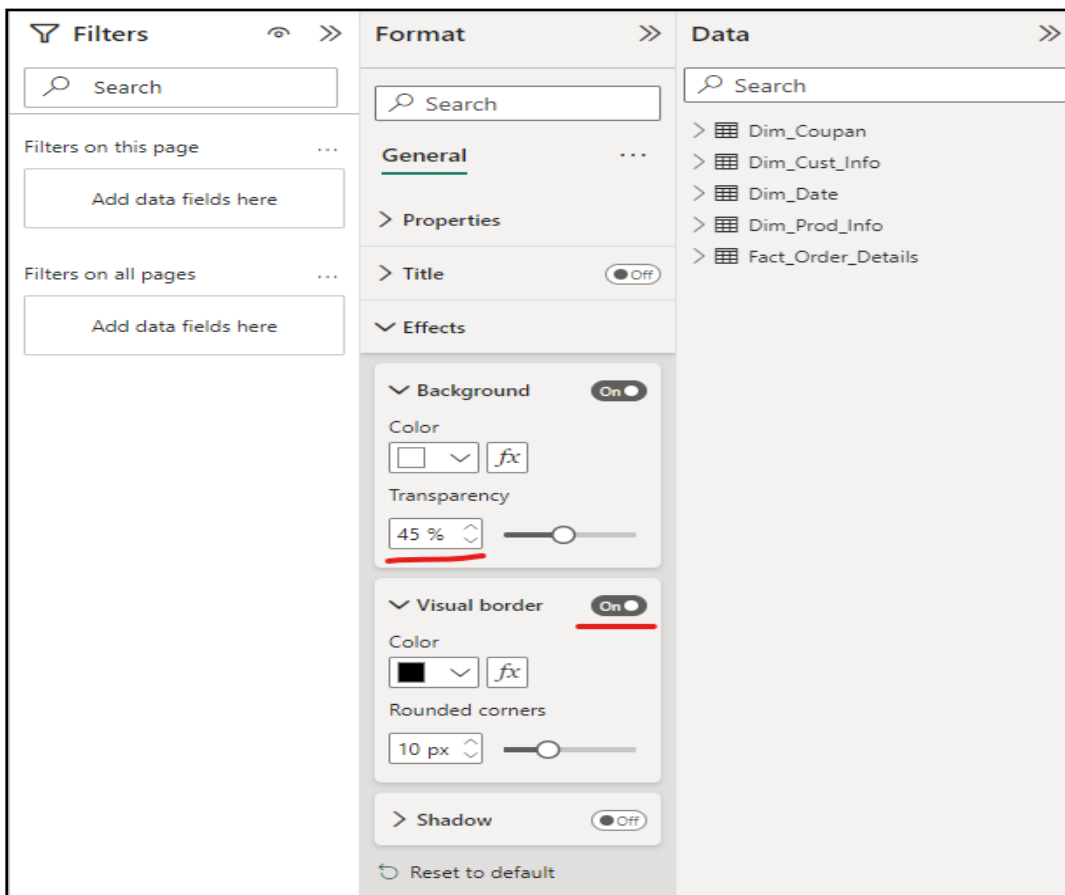


Figure-68: Format of Text Box

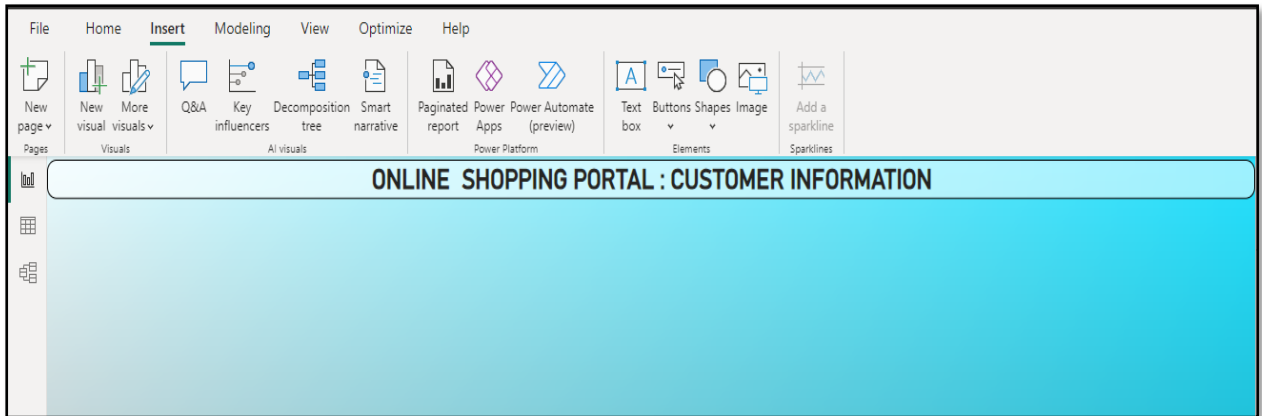


Figure-69: Page Title

Block And Labels For Designing

- In the menu bar, Insert < shapes, insert the lines to make a block.

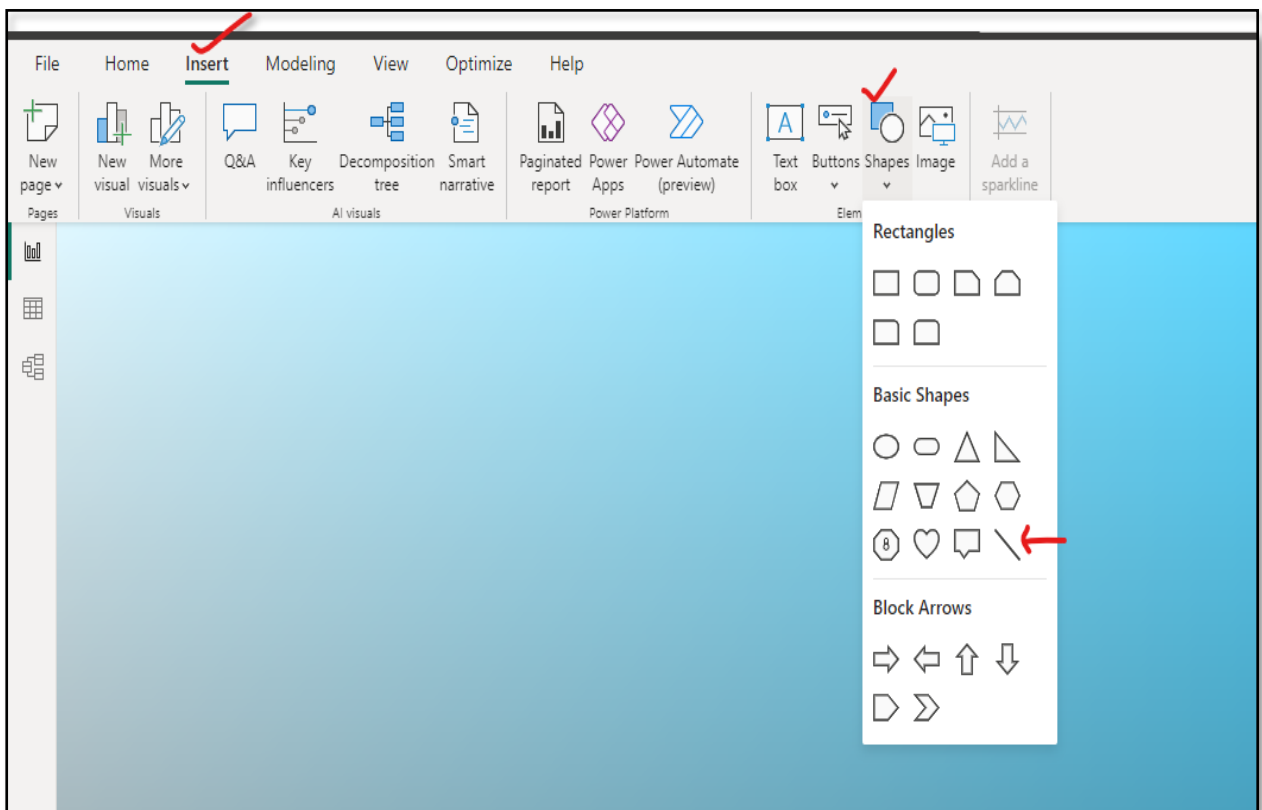


Figure-70: Insertion of Shapes

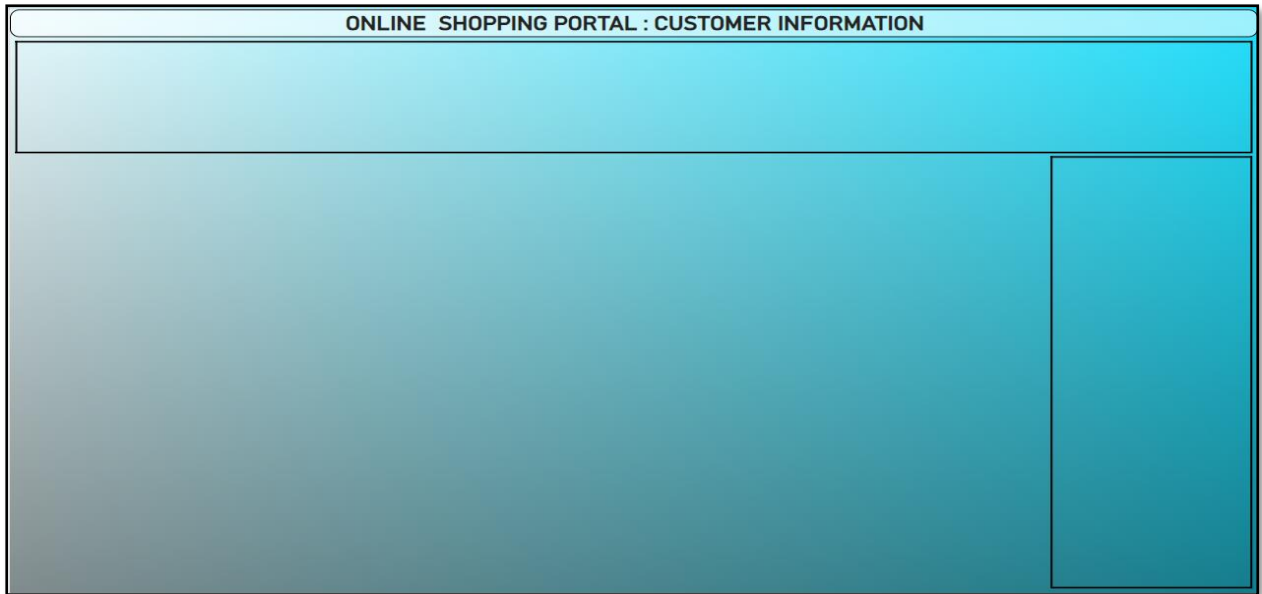


Figure-71: Designing block View

Insert label cards

- The label are an important part of the canvas page. They gives the direct information about the data.
- The measure, which are created earlier, are used to insert into the label card.
- To insert the label card and text,

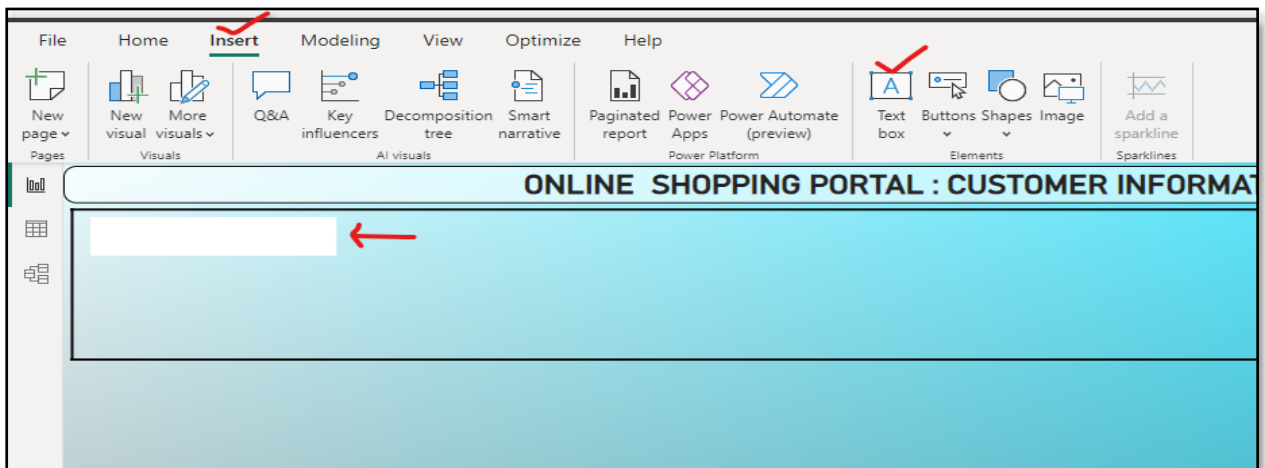


Figure-72: Label-Card Option

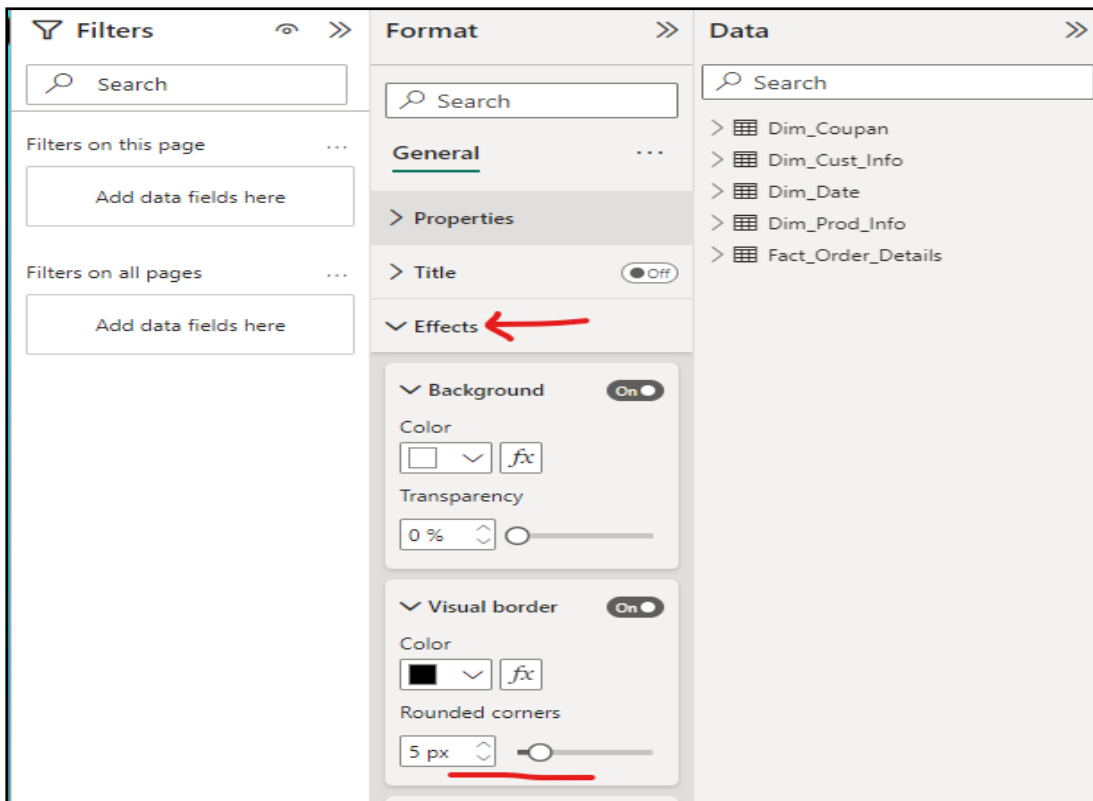


Figure-73: Format of Labels

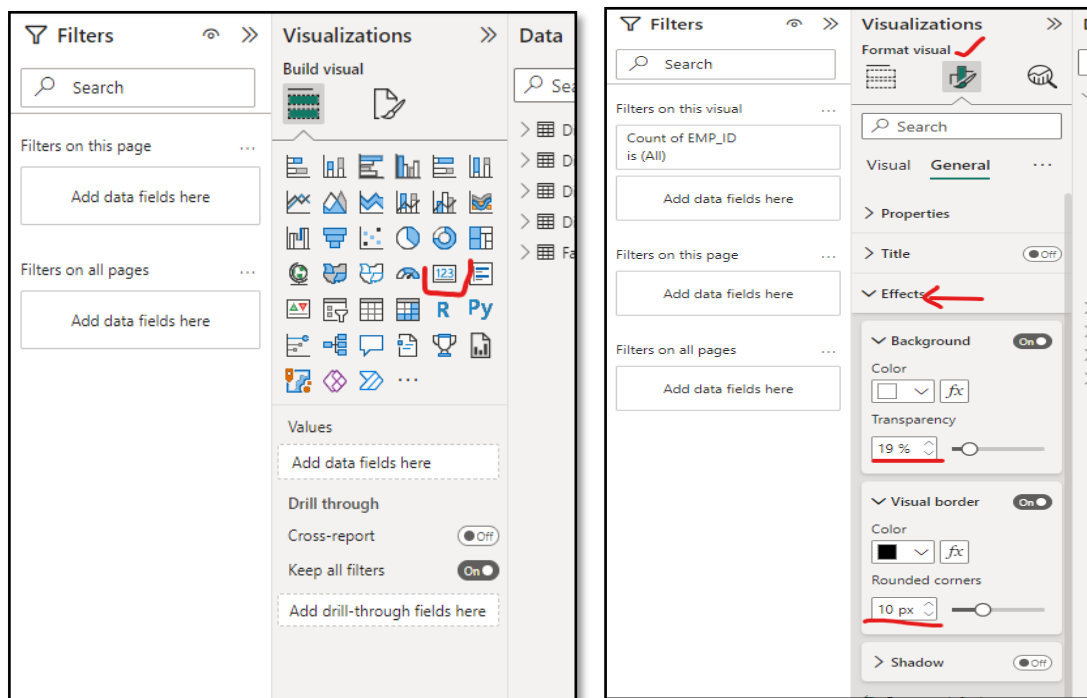


Figure-74: Format & Icon of Card

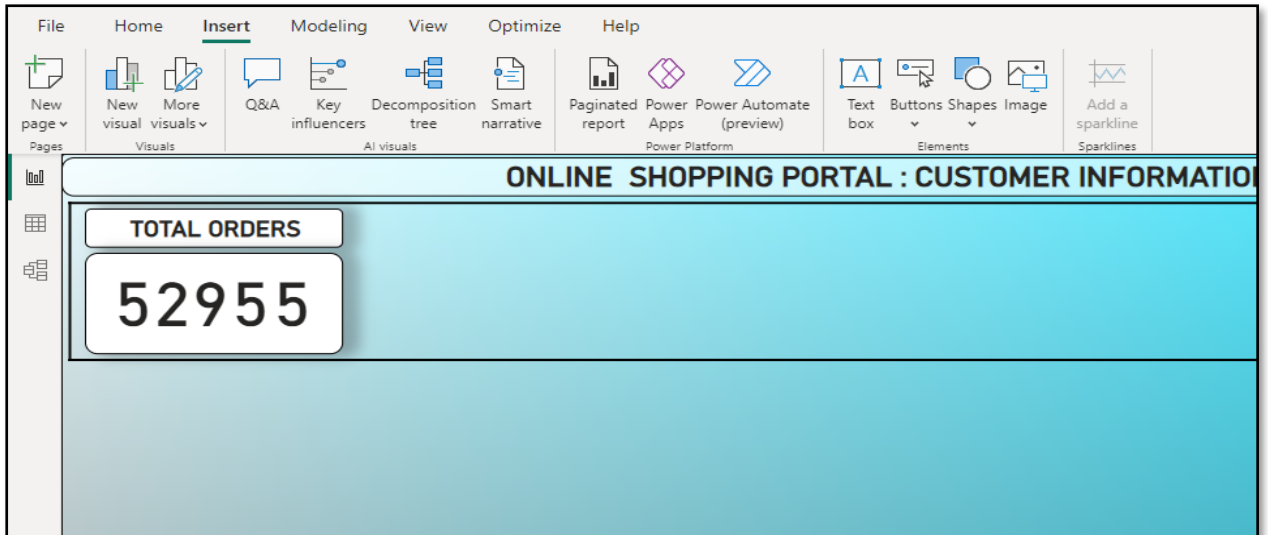


Figure-75: View of Template

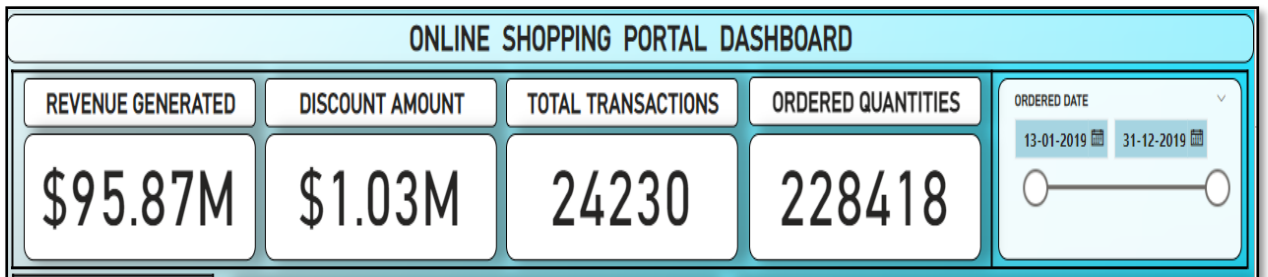


Figure-76: View of Label-Card 1

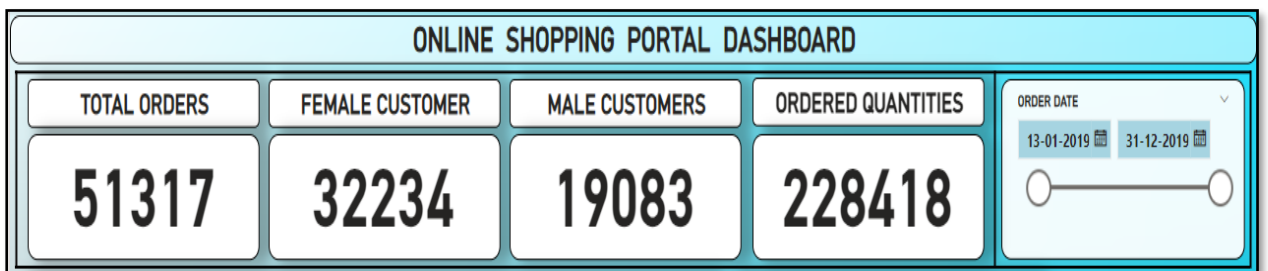


Figure-77: View of Label-Card 2



Figure-77: View of Label-Card 3