

Power BI Project
Sales Analysis of a Supermarket
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Executive Summary:

This is a data visualisation and analysis project created using the powerful tool Power BI by Microsoft. This project showcases the sales analysis of a supermarket using various parameters and metrics. The comprehensive analysis of the data will help in answering various business decision making questions. The aim of the project is to showcase my data visualisation and Power BI skills.

Introduction:

Power BI is a powerful cloud based and On-premises suit of business analytics tools developed by Microsoft to make it easy to combine data from multiple sources, analyse and visualize information and share insights. It also provides self-service business intelligence capabilities, where end users can create reports and dashboards by themselves, without having to depend on information technology staff or database administrators. Power BI allows us to share dashboards and reports with the right people.

Methodology:

This project covers practices like data loading and cleaning using Power Query which offers a wide range of operations to read the data and evaluate each column on its accuracy, data distribution and null values if exists. Basic Measures are created as per use using DAX. Once the data is ready the Visualisations available in the software are used and populated with appropriate data to demonstrate the sales analysis. The interactions between the visualisations are pre-set using the Edit Interaction option. The final interactive and organised interface visible to the end user is called the Dashboard.

About Dataset:

[This dataset is sourced from Kaggle in the CSV format which is then converted to Excel sheet for analysis.]

The growth of supermarkets in most populated cities are increasing and market competitions are also high. The dataset is one of the historical sales of supermarket company which has recorded in 3 different branches for 3 months data.

Attribute information:

Invoice Id: Computer generated sales slip invoice identification number

Branch: 3 branches are available identified by A, B and C

City: Location of supercentres

Customer Type: Type of customers, recorded by Members for customers using member card and Normal for without member card

Gender: Gender type of customer

Product Line: General item categorization groups - Electronic accessories, Fashion accessories, Food and beverages, Health and beauty, Home and lifestyle, Sports and travel.

Unit price: Price of each product in \$

Quantity: Number of products purchased by customer

Tax: 5% tax fee for customer buying

Total: Total price including tax

Date: Date of purchase (Record available from January 2019 to March 2019)

Time: Purchase time (10am to 9pm)

Payment: Payment used by customer for purchase (3 methods are available – Cash, Credit card and Ewallet)

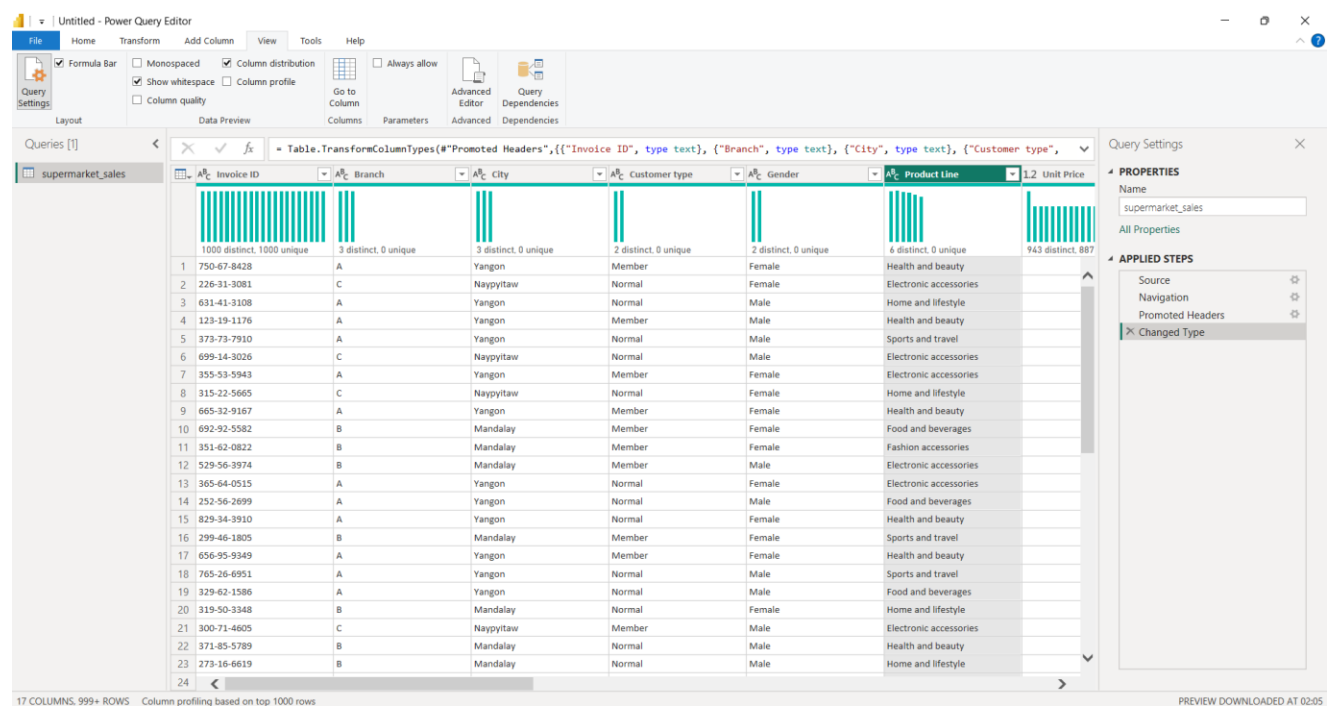
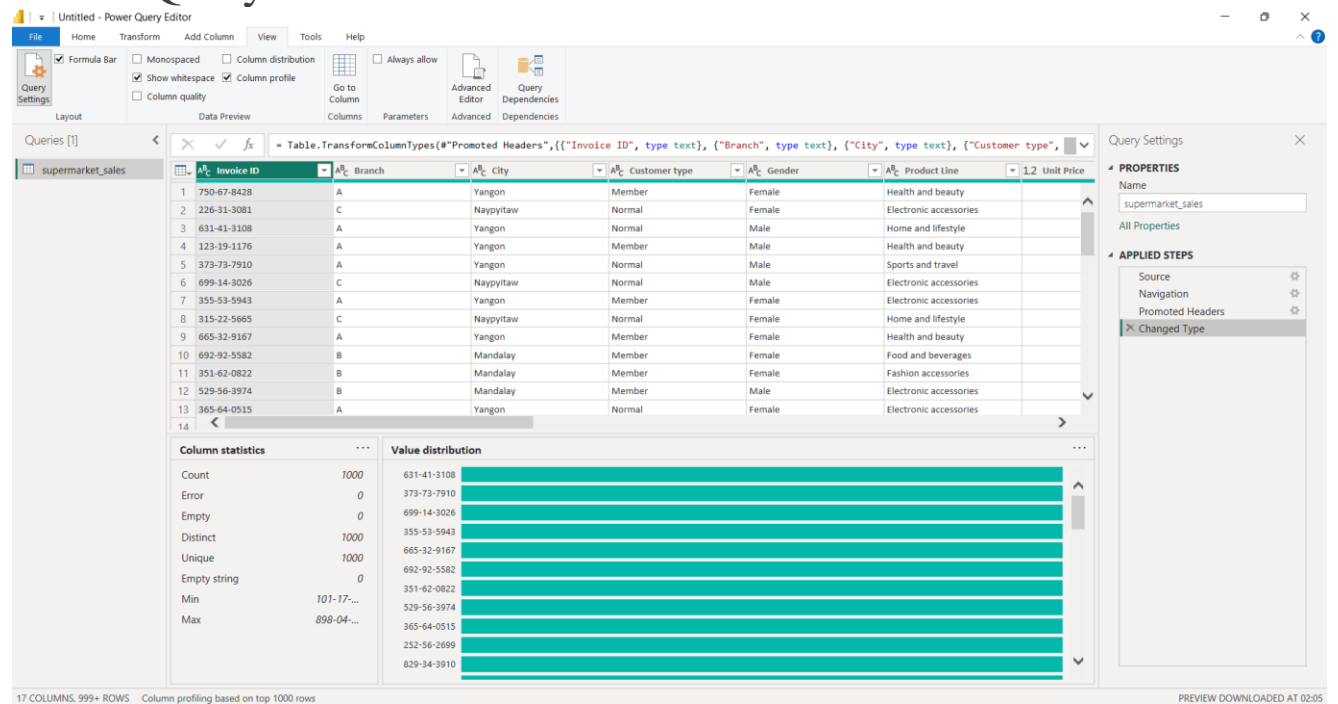
COGS: Cost of goods sold

Gross Margin Percentage: Gross margin percentage [fixed]

Gross Income: Gross income

Rating: Customer stratification rating on their overall shopping experience (On a scale of 1 to 10)

Power Query:



Visualisations Created:

1. Cards (5)
2. Stacked Column Chart
3. Line Chart
4. Donut Chart
5. Stacked Bar Chart
6. Gauge Chart
7. Slicer

Measures Created:

1. `Margin_Value = SELECTEDVALUE(supermarket_sales[gross margin percentage])`
Returns the value when there's only one value in the specified column else returns alternate value.
2. `Avg_Rating = AVERAGE(supermarket_sales[rating])`
Returns the average (arithmetic mean) of all the values in the column.
3. `Min_Rating = VALUE(0)`
Converts text string to number.
4. `Max_Rating = VALUE(10)`
Converts text string to number.

Conclusion:

The end user dashboard created visualises the large dataset into interactive components that help to answer any questions on the sales of the supermarket. The huge dataset is easily represented in a brief view that shows all the important metrics and measures in simple numbers and graphs. Such dashboards are essential tools used in business case discussions and analysis of a business.