



# Tech Saksham

## Case Study Report

### Data Analytics with Power BI

### Supply Chain Analysis of

### Inventories

Government Arts and Science College,  
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### INTRODUCTION:

#### POWER BI:

- Microsoft Power BI is an interactive data visualization software product developed by microsoft with a primary focus on business intelligence.
- Microsoft Power BI is the part of the Microsoft Power Platform.
- Power BI is the collection of the of the Software services, apps, and

connectors that work together to turn various sources of data into static and interacting data visualizations.

- Data may be input by reading directly from a database webpage, PDF or structured files such as spreadsheets, CSV, XML, JSON, XLSL and sharepoint.

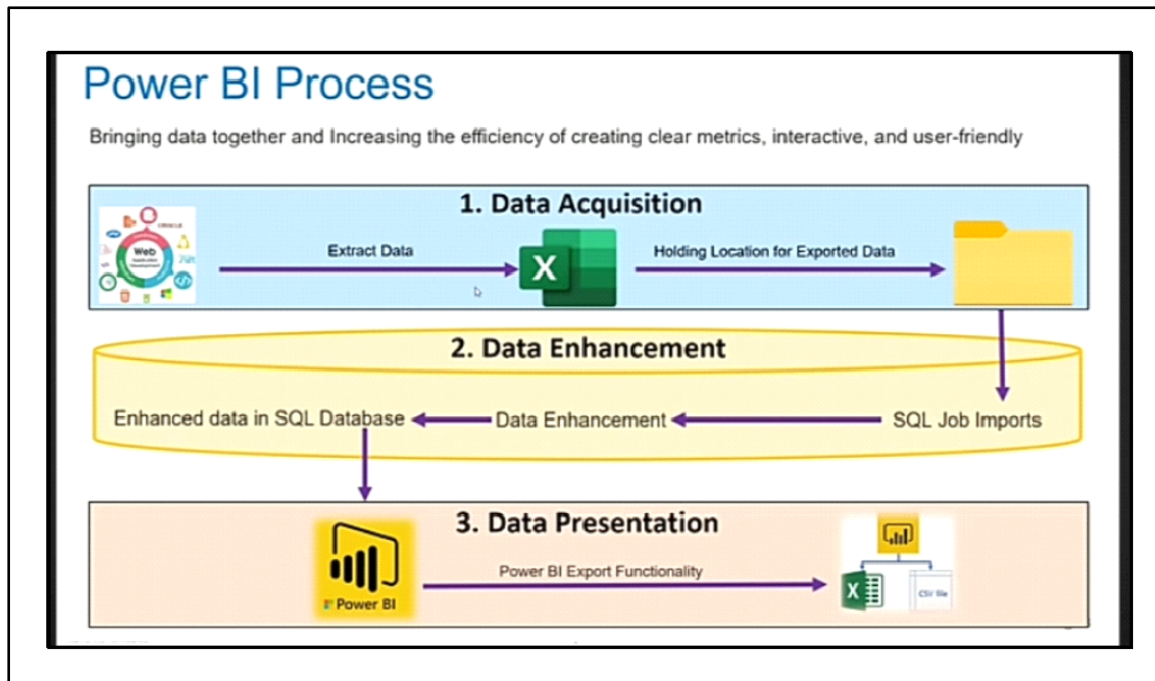
## POWER BI DASHBOARD:

Power BI is Data Visualizations and Business intelligence tool which helps to convert data from different data sources into interactive dashboards and BI reports.

## POWER BI PROCESS:

Bring data together and increasing the efficiency of creating clear metrics, interactive and user-friendly.

1. Data Acquisition
2. Data Enhancement
3. Data Presentation



## POWER QUERY EDITOR:

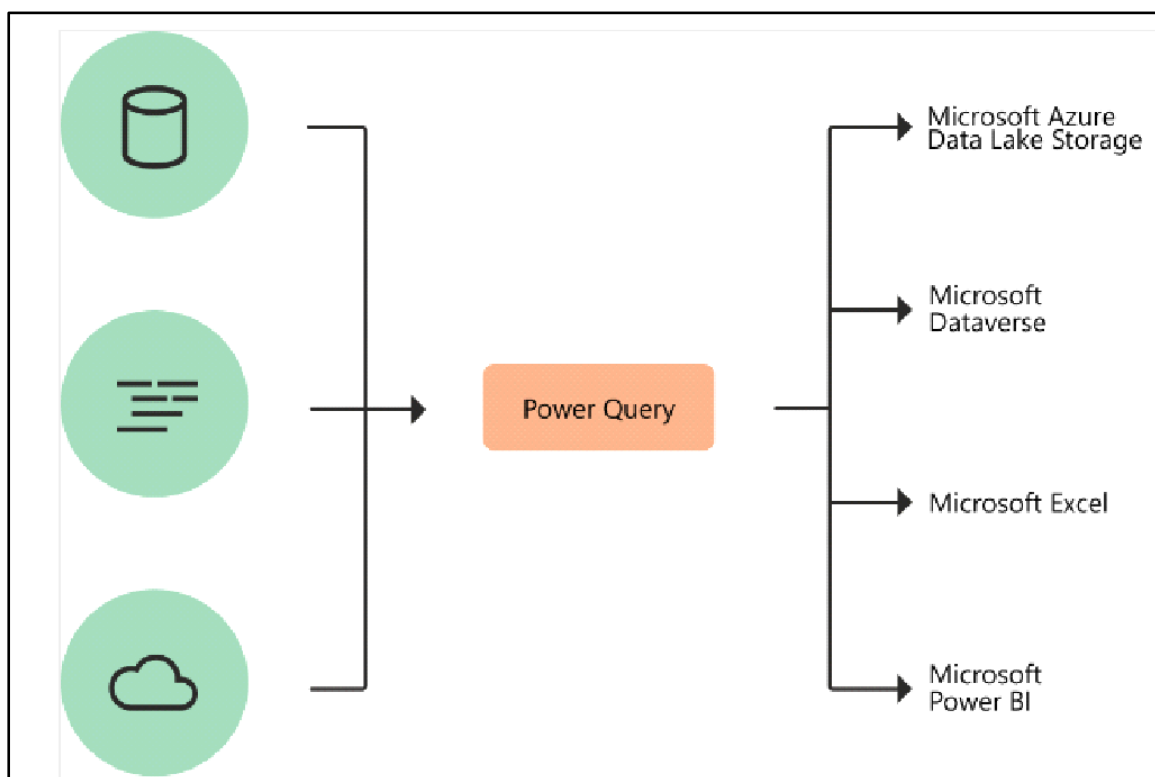
*Power Query: This is a data connection technology that enables you to discover, connect, combine, and refine data across a wide variety of sources.*

## SOFTWARE REQUIREMENTS:

- *Power BI Desktop: This is a Windows application that you can use to create reports and publish them to Power BI.*
- *Power BI Service: This is an online SaaS (Software as a Service) service that you use to publish reports, create new dashboards, and share insights.*
- *Power BI Mobile: This is a mobile application*

that you can use to access your reports and dashboards on the go.

- Power Query is a data transformation and data preparation engine.
- Power Query comes with a graphical interface for getting data from sources and a Power Query Editor for applying transformations. Because the engine is available in many products and services, the destination where the data will be stored depends on where Power Query was used.



- Using Power Query, you can perform the extract, transform, and load (ETL) processing

of data.

- The Power Query Editor is the Primary data preparation experiences, where you can connect to a wide range of data sources and apply hundreds of different data transformations from the UI. These data transformations capabilities are common across all data sources, whatever the underlying data source limitations.
- When you create a new transformation step by interacting with the components of the Power Query interface, Power Query automatically creates M code required to do the transformation so you don't need to write any code.

Currently two Power Query experiences are available:

#### 1. POWER QUERY ONLINE -

Found in integrations such as Power BI data flows, Microsoft Power Platform data flows, Azure Data Factory wrangling data flows, and many more that provides the experience through an online web page.

#### 2. POWER QUERY FOR DESKTOP -

Found in integrations such as Power Query for Excel and Power BI Desktop.

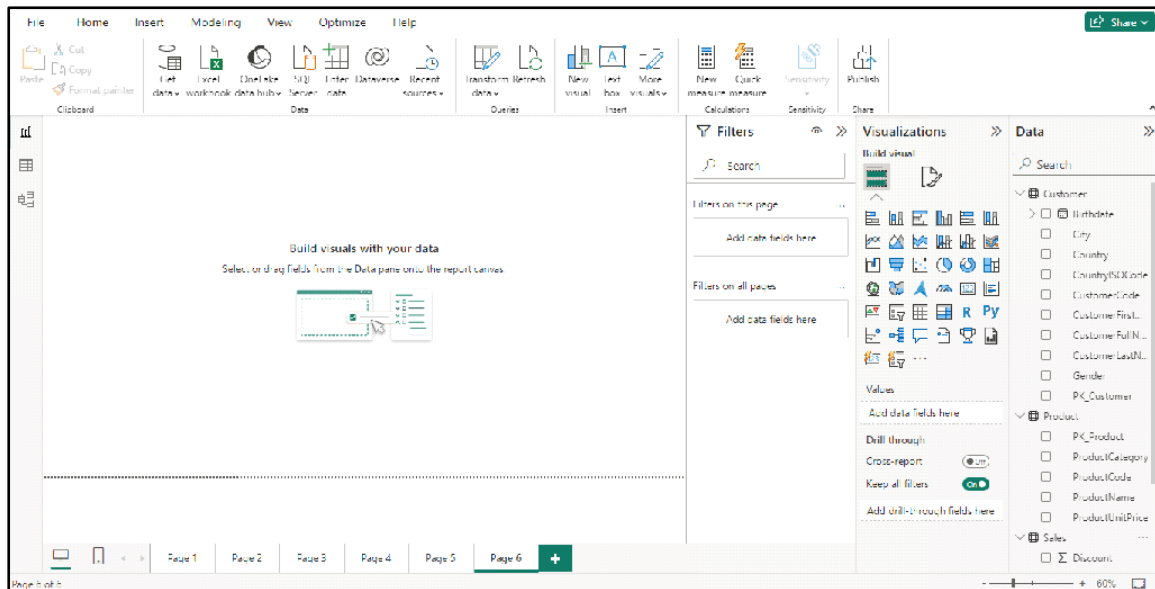
## **NOTE:**

Although two Power Query experiences of the exists, they both provides almost the same user expernices in every scenario.

## **TRANSFORMATION:**

The transformations engine in Power Query includes many prebuilt transformation functions that can be used through the graphical interface of the Power Query Editor. These transformations an be as simple as removing a column or filtering rows, or as common as using the first row as a table header. There are also advanced transformation options such as merge, append, group by, pivot, and unpivot.

All these transformations are made possible by choosing the transformations options in the menu, and then applying the options required for that transformation. The following illustrations shows a few of the transformations available in Power Query.



## USER INTERFACE:

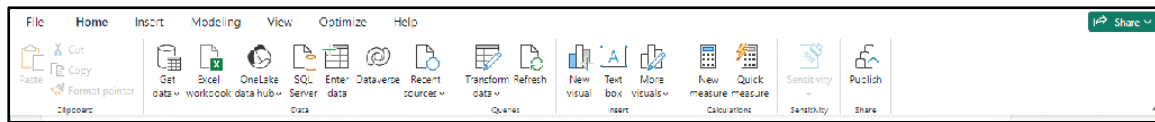
### THE RIBBON:

At the top we have the familiar Microsoft Ribbon. Just like the ribbons in Microsoft Excel, Word, Powerpoint, the Power BI ribbon is filled with tools split up into different tabs.

### RIBBON TABS:

- The HOME tab has tools for adding data sources, accessing Power Query Editor (used for cleaning and transformation data) via the "Transform data" buttons, and adding in visuals and more.





- The INSERT tab lets us insert different visual, text boxes, buttons, shapes and images.



- The MODELING tab lets us create DAX measures, or even now columns and tables, and also let us set up a security model if we need some users to only see some data.



- The VIEW tab lets us set theme for our reports, set up mobile layouts, and access other panes that don't show up by default.



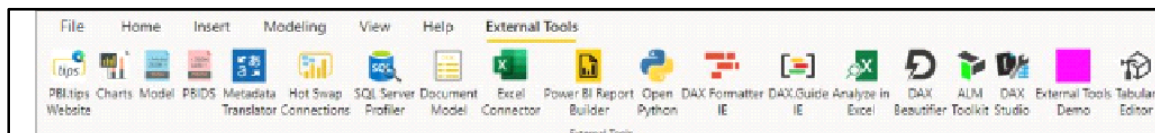
- The OPTIMIZE tab has tools to check the efficiency of our reports., as in if they are loading really slow, we can analyze what parts of the report are loading really slowly.



- The **HELP** tab has links to things like Microsoft forums Power BI blog which has new about new features.



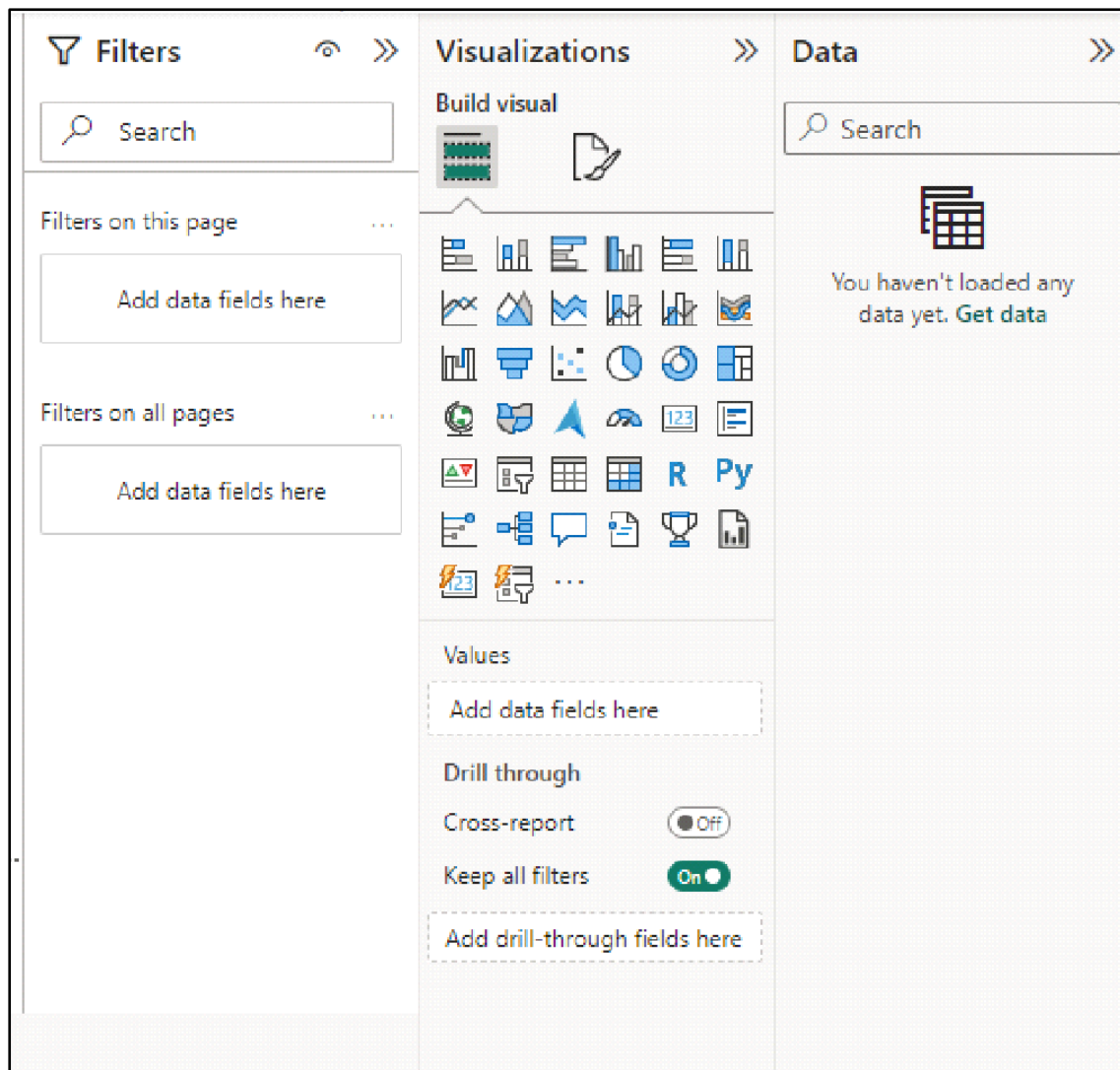
- The **EXTERNAL TOOLS** tab is where 3rd-Party tool live. There are only a few of these okay'd by Microsoft.



## PANES:

On the right of the Power BI interface are 3 Panes that appear by default.

- The **FILTERS** Pane is where we can create filters and control what data is making it form our data to the visual on our Canvas.
- The **VISUALIZATIONS** Pane is where we can choose what visual we want to make, and it also has formatting tools.
- The **DATA** Pane is where we see the tables and columns of data we've added.



## ABOUT MY PROJECT:

Supply Chain Management (SCM) is the handling of the entire production flows of goods and services that include all process for converting raw materials into final products. It involves the streamlining of a business's supply side activities to maximize customer value and gain a competitive advantages in the market.

Supply Chain Managment practice depends heavily on industrial engineering,

system engineering, cooperation management, logistics, procurement information technology, marketing and strives for an integrated approach. It is the board range of control and execute a producted flow from materials to production to distribution in the most economical possible.

Supply Chain Management encompasses the planning and management of all activities involved in sourcing. Procurement, Conversation, and Logistics management activities. Importantly, it also includes coordination and collaboration with channel partners, which can be suppliers, intermediaries, third-party service providers, and customers. In essence, Supply Chain Management integrates supply and demand management with in and across compaines.

## DATA SHEET:

# SUPPLY CHAIN ANALYSIS OF INVENTORIES (DATA SHEETS OF SALES, PRODUCT AND CUSTOMER) IN EXCEL FORMAT

Customer:

[illegible]

Product:

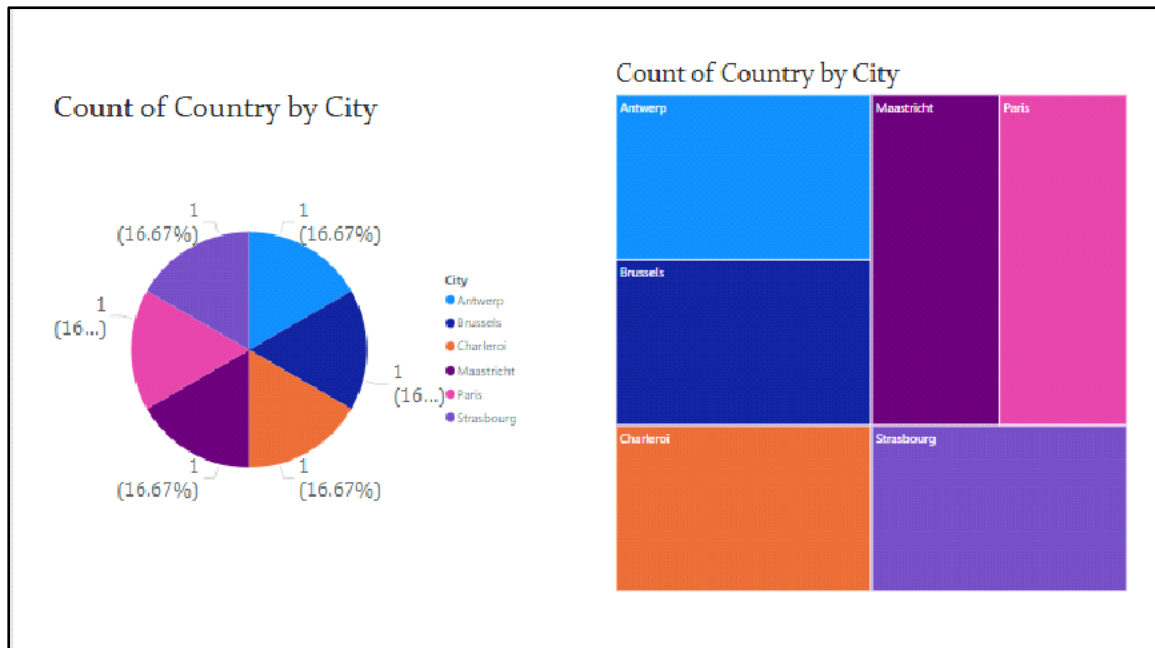
|  | A          | B           | C               | D               | E                |  |
|--|------------|-------------|-----------------|-----------------|------------------|--|
| 1  | PK_Product | ProductCode | ProductName     | ProductCategory | ProductUnitPrice |  |
| 2  | 1          | APP         | Apple           | Fruit           | 1.13             |  |
| 3  | 2          | APR         | Apricot         | Fruit           | 2.2              |  |
| 4  | 3          | BAN         | Banana          | Fruit           | 2.04             |  |
| 5  | 4          | CRA         | Cranberry       | Fruit           | 11.34            |  |
| 6  | 5          | KIW         | Kiwifruit       | Fruit           | 3.24             |  |
| 7  | 6          | LEM         | Lemon           | Fruit           | 1.5              |  |
| 8  | 7          | MAN         | Mango           | Fruit           | 4.58             |  |
| 9  | 8          | ORA         | Orange          | Fruit           | 1.4              |  |
| 10   | 9          | PIN         | Pineapple       | Fruit           | 2.55             |  |
| 11   | 10         | STR         | Strawberry      | Fruit           | 10.52            |  |
| 12   | 11         | PAP         | Papaya          | Fruit           | 1.95             |  |
| 13   | 12         | MEL         | Melon           | Fruit           | 4.93             |  |
| 14   | 13         | RAS         | Raspberry       | Fruit           | 7.32             |  |
| 15   | 14         | TOM         | Tomato          | Fruit           | 1.8              |  |
| 16   | 15         | PEA         | Peach           | Fruit           | 3.88             |  |
| 17   | 16         | ASP         | Asparagus       | Vegetable       | 12.12            |  |
| 18   | 17         | BRO         | Broccoli        | Vegetable       | 3.73             |  |
| 19   | 18         | BRU         | Brussels sprout | Vegetable       | 5.81             |  |
| 20   | 19         | CEL         | Celery          | Vegetable       | 1.3              |  |
| 21   | 20         | LET         | Lettuce         | Vegetable       | 5.95             |  |
| 22   | 21         | ONI         | Onion           | Vegetable       | 0.8              |  |
| 23   | 22         | RHU         | Rhubarb         | Vegetable       | 7.46             |  |
| 24   | 23         | RAD         | Radish          | Vegetable       | 4.13             |  |
| 25   | 24         | CAR         | Carrot          | Vegetable       | 1.79             |  |
| 26   | 25         | KAL         | Kale            | Vegetable       | 2.78             |  |
| <div> <div> <div>&lt;</div> <div>&gt;</div> </div> <div> <div>Sales</div> <div><b>Product</b></div> <div>Customer</div> <div>+</div> </div> </div> |            |             |                 |                 |                  |  |

Sales:

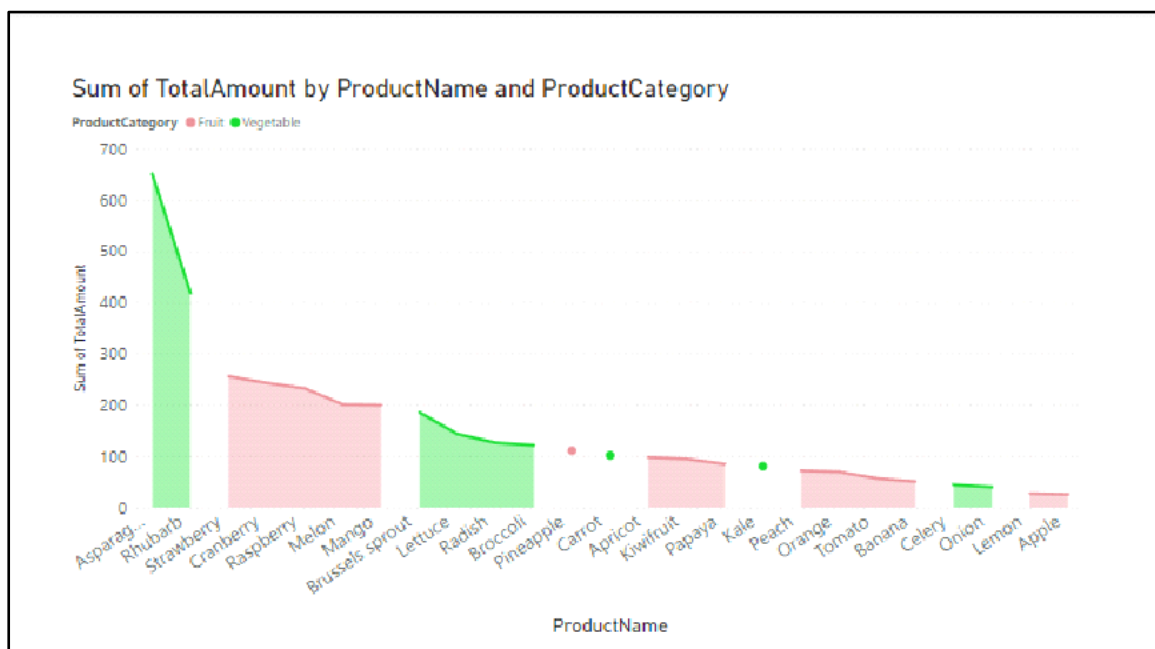
|    | A           | B          | C        | D         | E        | F           |  |
|----|-------------|------------|----------|-----------|----------|-------------|--|
| 1  | FK_Customer | FK_Product | Quantity | UnitPrice | Discount | TotalAmount |  |
| 2  | 6           | 6          | 2        | 1.5       | 0.6      | 2.4         |  |
| 3  | 4           | 24         | 4        | 1.79      | 2.38     | 4.78        |  |
| 4  | 1           | 6          | 1        | 1.5       | 0        | 1.5         |  |
| 5  | 1           | 7          | 1        | 4.58      | 0        | 4.58        |  |
| 6  | 5           | 8          | 4        | 1.4       | 0        | 5.6         |  |
| 7  | 7           | 11         | 5        | 1.95      | 2.43     | 7.32        |  |
| 8  | 9           | 17         | 2        | 3.73      | 0        | 7.46        |  |
| 9  | 11          | 23         | 6        | 4.13      | 0        | 24.78       |  |
| 10 | 2           | 8          | 1        | 1.4       | 0        | 1.4         |  |
| 11 | 12          | 18         | 3        | 5.81      | 0        | 17.43       |  |
| 12 | 1           | 6          | 3        | 1.5       | 0        | 4.5         |  |
| 13 | 8           | 7          | 6        | 4.58      | 0        | 27.48       |  |
| 14 | 9           | 14         | 3        | 1.8       | 0        | 5.4         |  |
| 15 | 4           | 7          | 6        | 4.58      | 5.49     | 21.99       |  |
| 16 | 1           | 12         | 4        | 4.93      | 0        | 19.72       |  |
| 17 | 5           | 21         | 5        | 0.8       | 0        | 4           |  |
| 18 | 9           | 24         | 6        | 1.79      | 0        | 10.74       |  |
| 19 | 9           | 3          | 2        | 2.04      | 0        | 4.08        |  |
| 20 | 5           | 14         | 2        | 1.8       | 0        | 3.6         |  |
| 21 | 2           | 14         | 1        | 1.8       | 0        | 1.8         |  |
| 22 | 11          | 11         | 6        | 1.95      | 0        | 11.7        |  |
| 23 | 5           | 22         | 5        | 7.46      | 0        | 37.3        |  |
| 24 | 9           | 18         | 4        | 5.81      | 0        | 23.24       |  |
| 25 | 4           | 8          | 4        | 1.4       | 1.12     | 4.48        |  |
| 26 | 7           | 13         | 2        | 7.32      | 0        | 14.64       |  |
|    | < >         | Sales      | Product  | Customer  | +        |             |  |

## VISUALISATION:

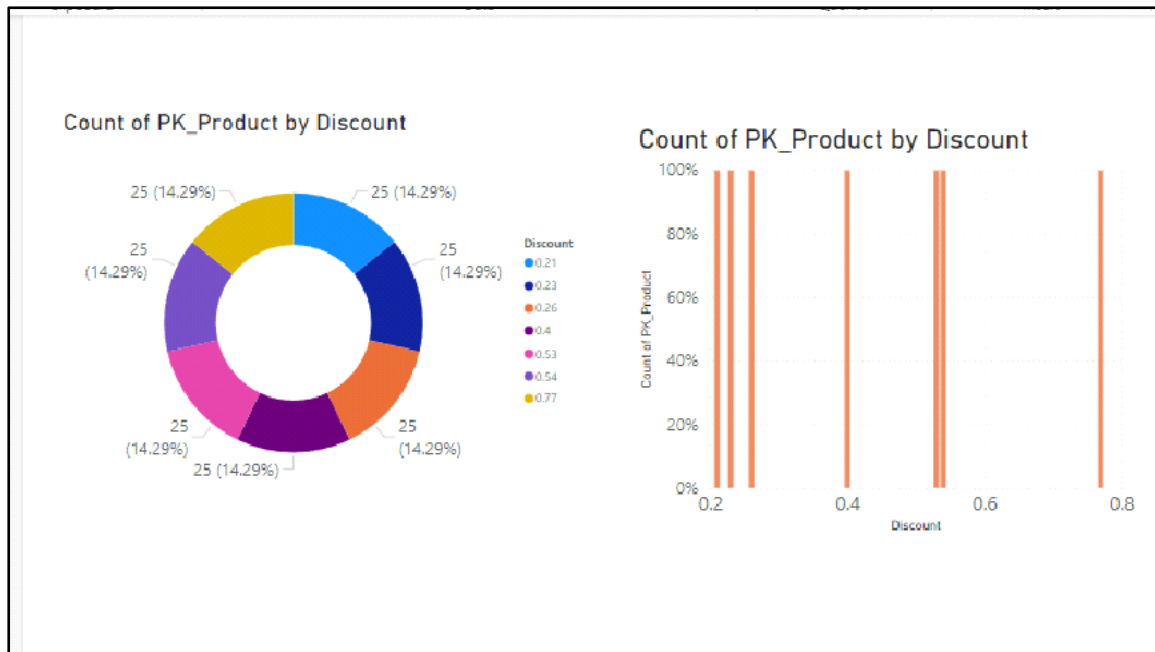
PIE CHART AND TREE CHART: It represent the Count of Country by City



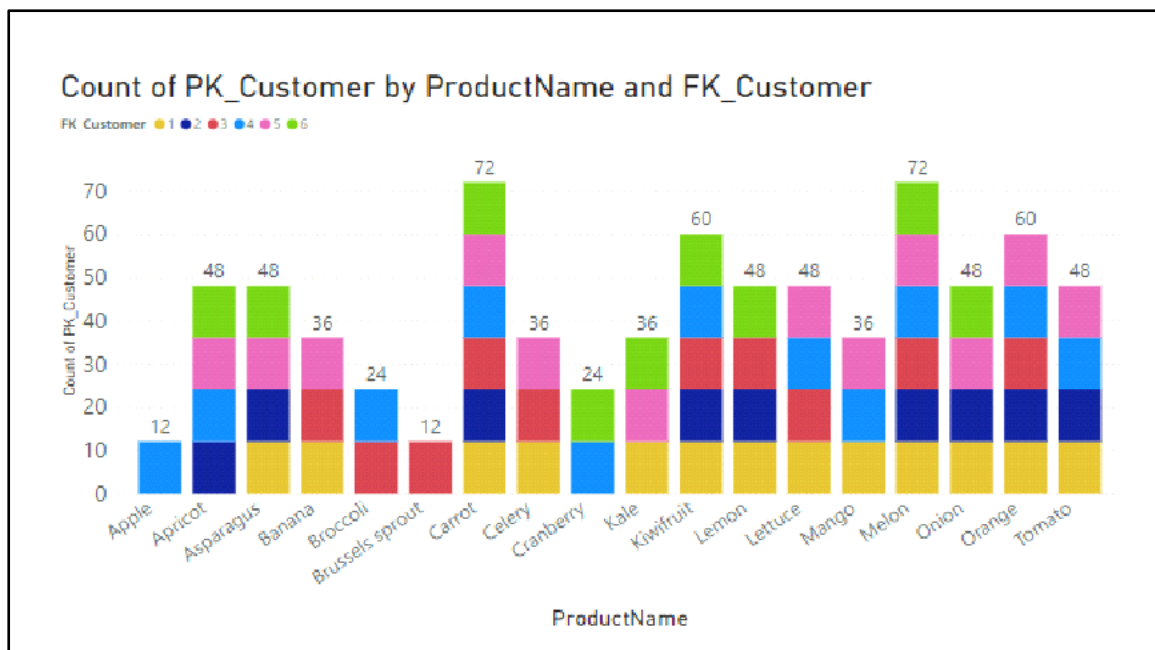
**STACKED AREA CHART:** It shows the Sum of Total Amount by Product Name and Product Category



**DONUT CHART AND STACKED COLUMN CHART:** They both represent the Count of PK---\_Product by Discount



**BAR CHART:** This shows the Count of PK\_Customer by Product Name and FK\_Customer

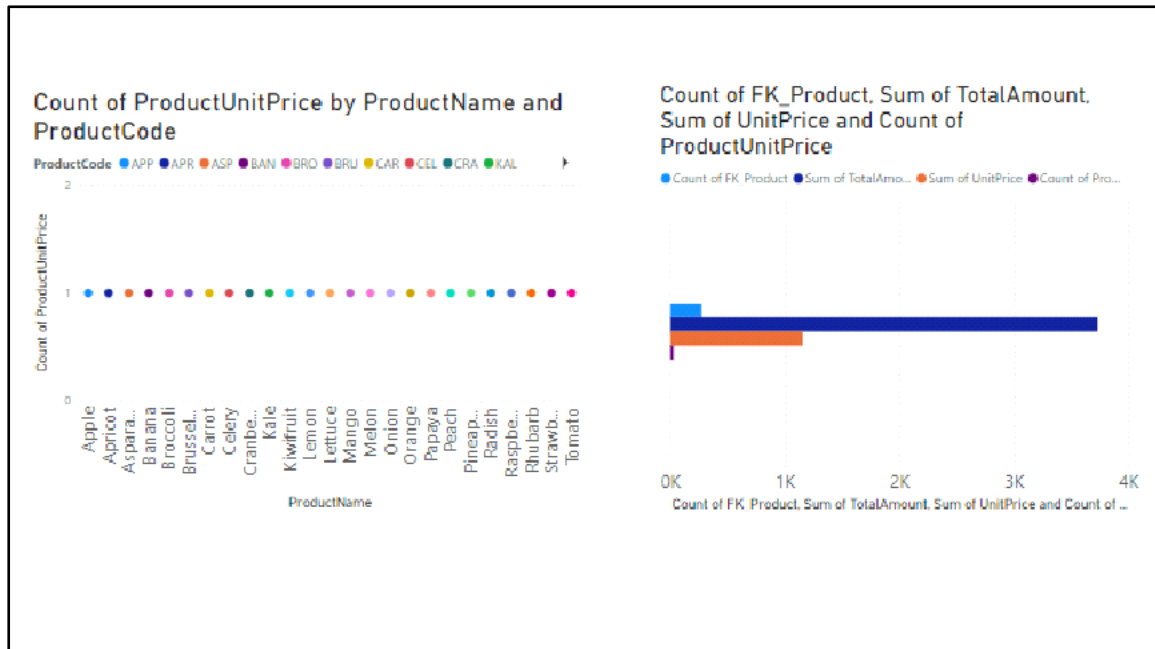


**AREA CHART AND CLUSTERED BAR CHART:**

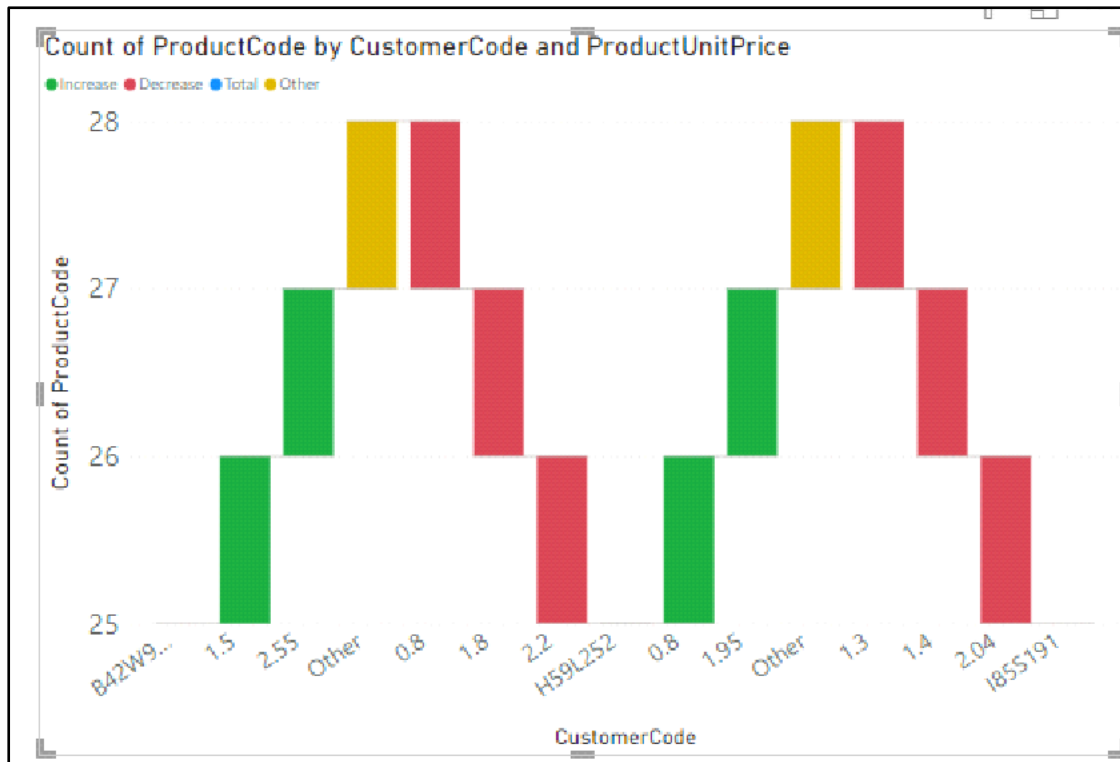
- Area chart that shows the Count of Product Price by Product name and Product code.



- Clustered Bar Chart that shows the Count of FK\_Product, Sum of Unit Price and Sum of Total Amount and Count of Product Unit Price.

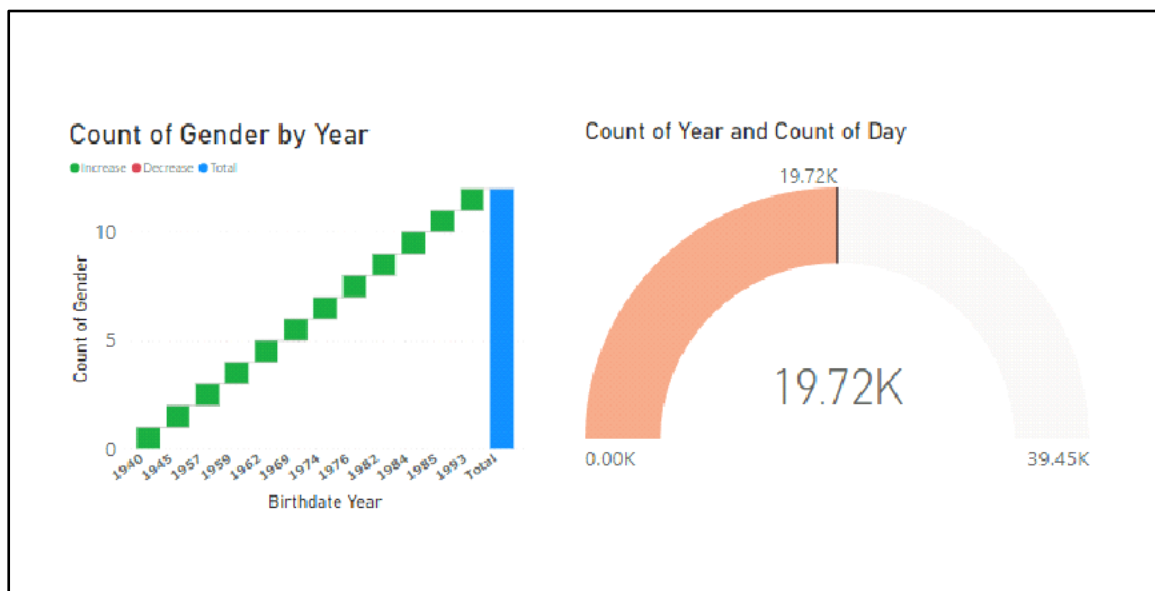


**WATERFALLS CHART:** Its represent the Count of Product code by Customer Code and Product Unit Price



## WATER FALL CHART AND GAUGE CHART:

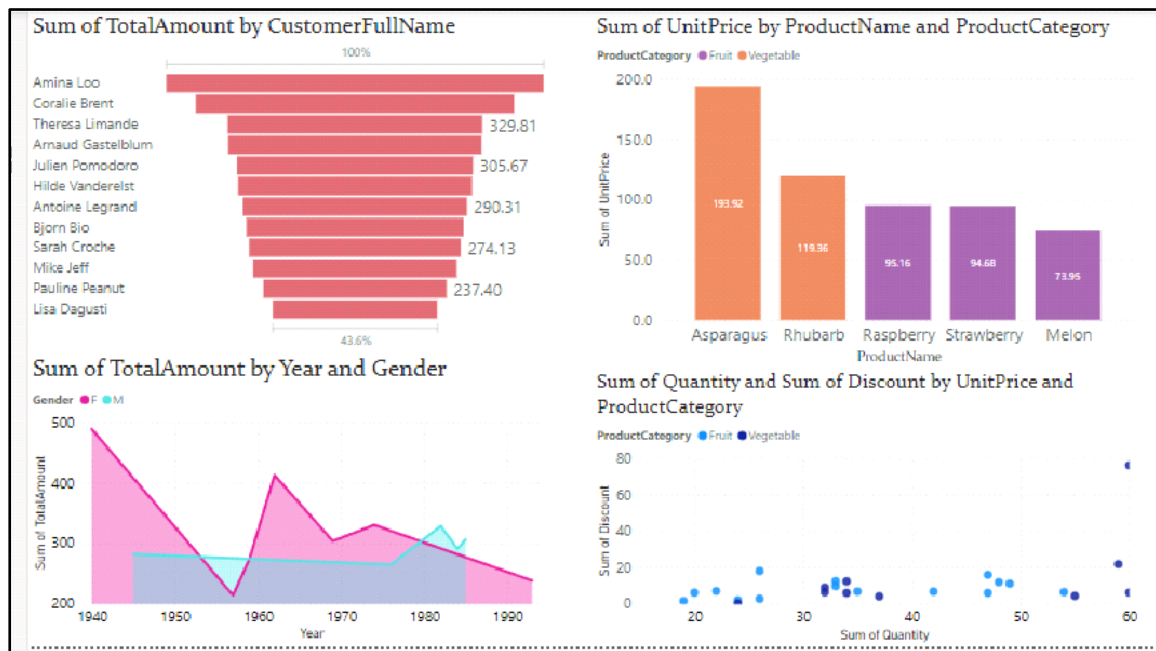
- Waterfall Chart that shows the Count of Gender by Year
- Gauge chart that shows the Count of Year and Count of Day



## DASHBOARD AND REPORT:

### ANALYSIS

## SUPPLY CHAIN



### REPORTS:

Power BI numerous benefits for project tracking.

One of the main advantages is its ability to consolidate data from multiple sources, such as project management tools, financial systems, and spreadsheets. This allows project managers to have a holistic view of the project, making it easier to identify trends, patterns, and anomalies. Power BI's advanced visualizations enable the creation of intuitive dashboards, making it effortless to track project progress at a glance. Furthermore, Power BI's interactive features allow

users to explore and drill into data, gaining deeper insight into the project's performance.

Another Benefit of using Power BI for project tracking is its ability to automata dat refreshes. With Power BI Project managers can set up scheduled refreshes to ensure that the data is always up to data. The eliminates the need for manul data updates and reduce the risk of using outdated information for desicion-making.

In addition, Powr BI offer a wide range of collabration features that enhance team collabration and communication. Project teams can easily share dashboards and reports with stakeholders, enabling real-time annotations to specific data points, facilitating discussion and improving the overall project tracking process.

## CONCLUSION:

Microsoft Power BI is an indispensable tool in te realm of business intelligence. Its robust features, ease of use, and ability to transform raw data into actionable insights make it a top choice for organizations worldwide. As you wrap up you Power BI Project, consider the following key points:

- **DATA CONNECTIVITY:** Power BI's extensive connector library allows seamless integration with various data sources, including google Analytics, SQL database, and more.
- **CUSTOM VISUALISATION:** Leverage Power BI's

pre-designed visualizations to create interactive reports tailored to your specific needs. Additionally, explore third-party solutions like FluenPro's report packs for enhanced intelligence and analytics.

- **PERFORMANCE OPTIMIZATION:** The columnar database engine within Power BI significantly improves performance by compressing large datasets, making it an effective choice for data modeling.