Tech Saksham

Case Study Report

Data Analytics with Power BI

"Supply Chain Analysis of Inventories".

Government Arts and Science College
Aundipatti

NM ID	NAME
0A9395959AB08F4BC30437179C6482A7	M.MAHESWARI

Trainer Name : UMAMAHESHWARI R
Master Trainer: UMAMAHESHWARI R

INDEX:

INTRODUCTION:

1.What is Power BI ?

Microsoft Power BI is a data visualization platform used primarily for business intelligence purposes.Designed to be used by business professionals with varying levels of data knowledge,Power BI's dashboard is capable of reporting and visualizing data in a wide range of different style,including graphs,maps,charts,scatter plots,and more.Power BI's "AI Insights" functionally, meanwhile,uses artificial intelligence to find insights within data sets for users.

Power BI itself is composed of several interrelated applications:Power BI Desktop,Pro,Premium,Mobile,Embedded,and Report Server.While some of these applications are free-to-use,paid subscriptions to the pro and premium versions provide generater analytics capabilities.

Poer BI is also a part of Microsoft's Power Platform, which includes Power Apps,Power pages,Power Automate,and Power Virtual Agents.Created as "low-code-tools",these applications help businesses analyze and visualize data,design business solutions,automate processes,and create no-code chatbots.

Power BI dashboard:

Power BI is a data visualization and business intelligence tool which helps to convert data from different data sources into interactive dashboard and BI reports.

Power BI process:

Bringing day together and increasing the efficiency of creating clear metrics,interactive and user friendly.

- Data Acquistion
- Data enhancement
- Data presentation

POWER QUERY EDITOR:

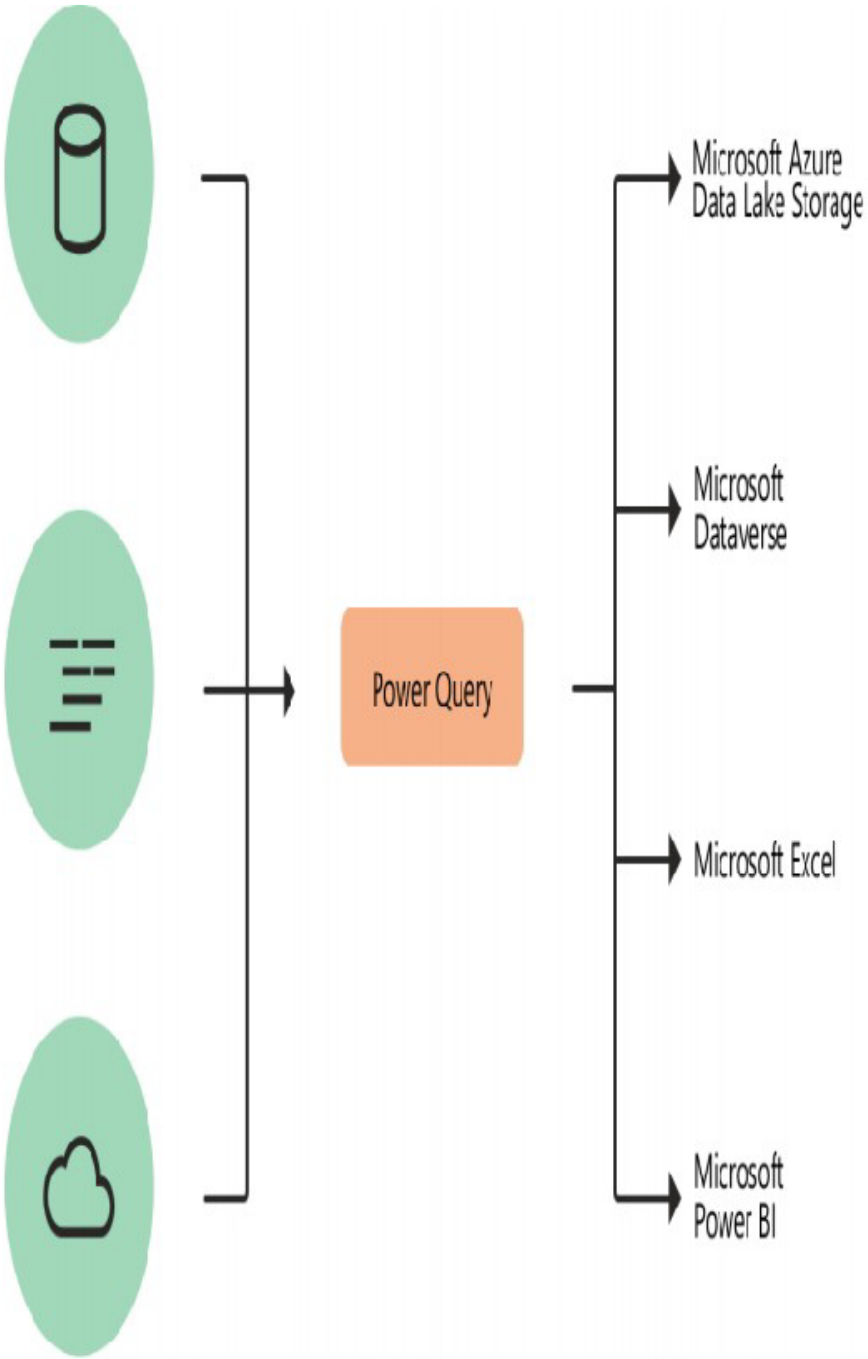
- Power Query: This is a data connection technology that enables you to discover, connect, combine, and refine data across a wide variety of sources.

Software Requirements:

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

🔸 PowerBI 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 experience, where you can connect to a wide range of data sources and apply hundreds of different data transformations by previewing data and selecting transformations from the UI. These data transformation 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 the M code required to do the transformation so you don't need to write any code.

Currently, two Power Query experiences are available:

- Power Query Online—Found in integrations such as Power BI dataflows, Microsoft Power Platform dataflows, Azure Data Factory wrangling dataflows, and many more that provide the experience through an online webpage.
- Power Query for Desktop—Found in integrations such as Power Query for Excel and Power BI Desktop.

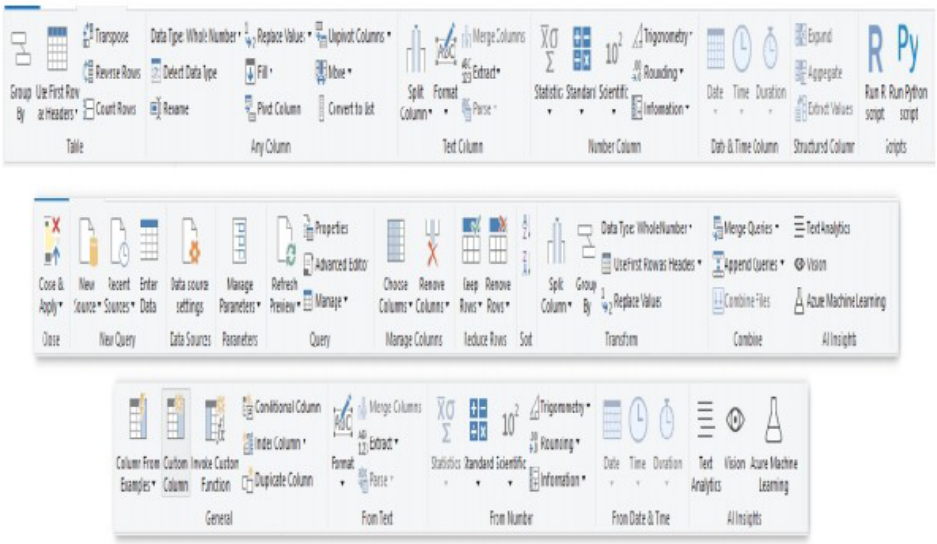
Note:

Although two Power Query experiences exist, they both provide almost the same user experience in every scenario.

Transformation:

The transformation engine in Power Query includes many prebuilt transformation functions that can be used through the graphical interface of the Power Query Editor. These transformations can 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 transformation option in the menu, and then applying the options required for that transformation. The following illustration shows a few of the transformations available in Power Query Editor.



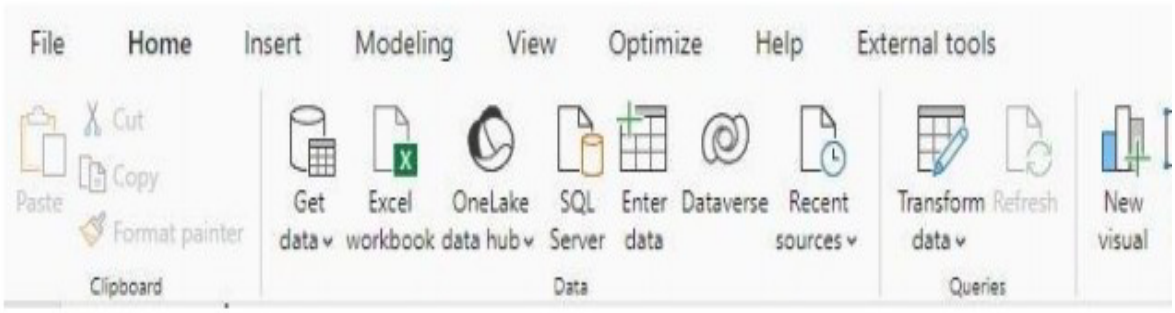
USER INTERFACE :

THE RIBBON:

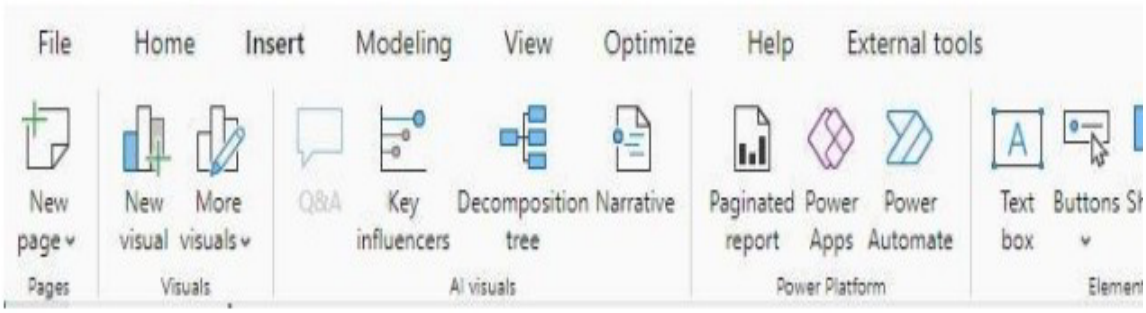
At the top we have the familiar Microsoft Ribbon. Just like the ribbons in Microsoft Excel and Word and Powerpoint, the Power BI ribbon is filled with tools split up into different tabs.

RIBBON TABS:

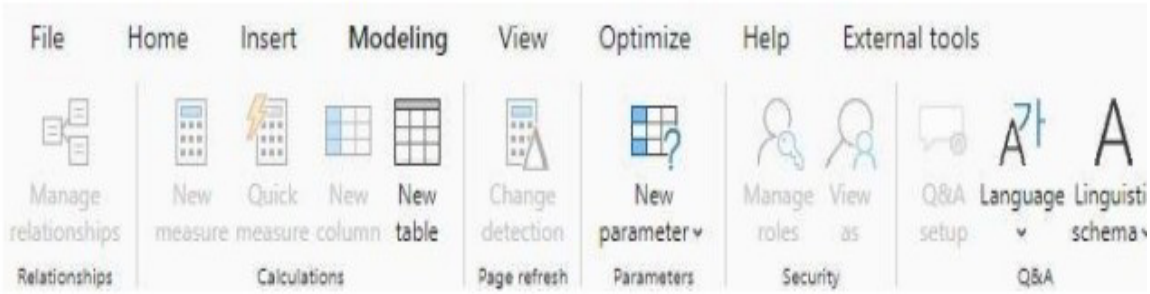
The HOME tab has tools for adding data sources, accessing Power Query Editor (used for cleaning and transforming data) via the “Transform data” buttons, and adding in visuals and more.



🔸 The INSERT tab lets us insert different visuals, text boxes, buttons,shapes, and images.

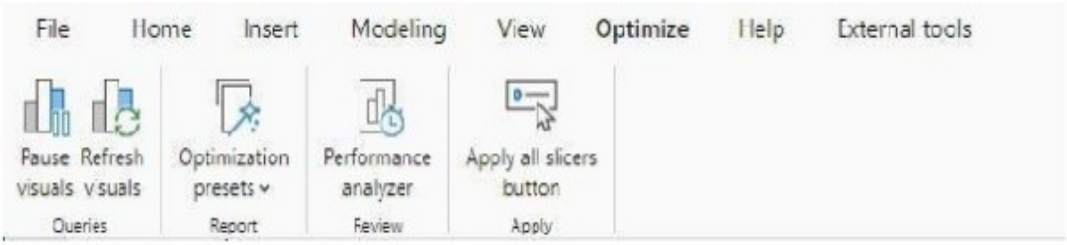


🔸 The MODELING tab lets us create DAX measures, or even new columns and tables, and also lets us set up a security model if we need some users to only see some data.

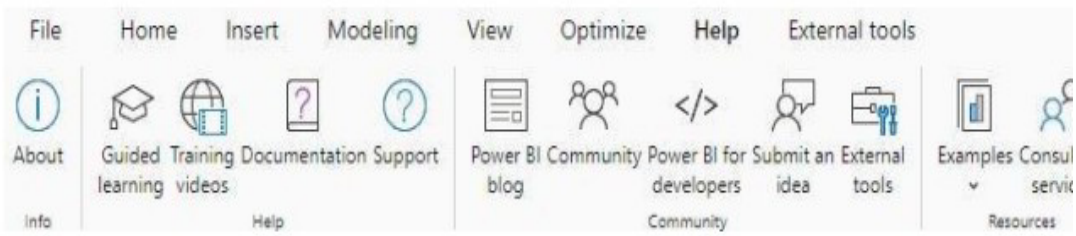


🔸 The VIEW tab lets us set a theme for our reports, set up mobile layouts,and access other panes that don't show up by default.

🔸 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 and the Power BI blog which has news about new features.



🔸 The EXTERNAL TOOLS tab is where 3rd-party tools live. There are only a few of these okay'd by Microsoft, and if you haven't downloaded one, this tab doesn't show up.

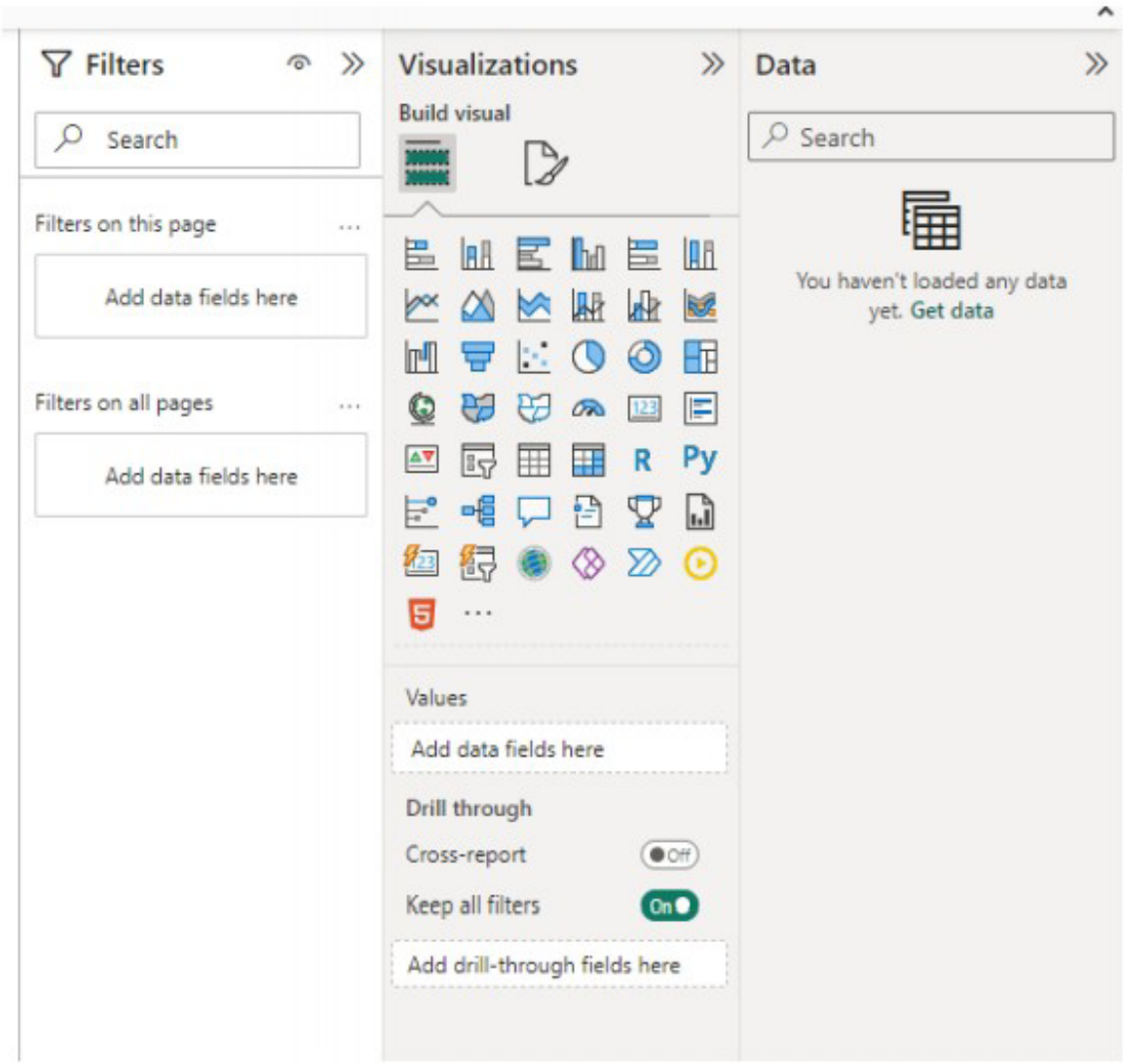
PANES:

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

The DATA Pane is where we see the tables and columns of data we've added.

The VISUALIZATION Pane is where we can choose what visual we want to make, and it also has formatting tools.

🔸 The FILTERS Pane is where we can create filters and control what data is making it from our data to the visuals on our Canvas.



ABOUT MY PROJECT:

2.Supply Chain Analysis of Inventories:

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

Supply Chain Management practice depends heavily on

industrial engneering,systems engneering,operation

Management,logistics,procurement,information technology and marketing,and strives for an integrated approach .It is the broad range of activities required to plan,control and execute a products flow from materials to production to distribution in the most economical possible.

DATA SHEET:

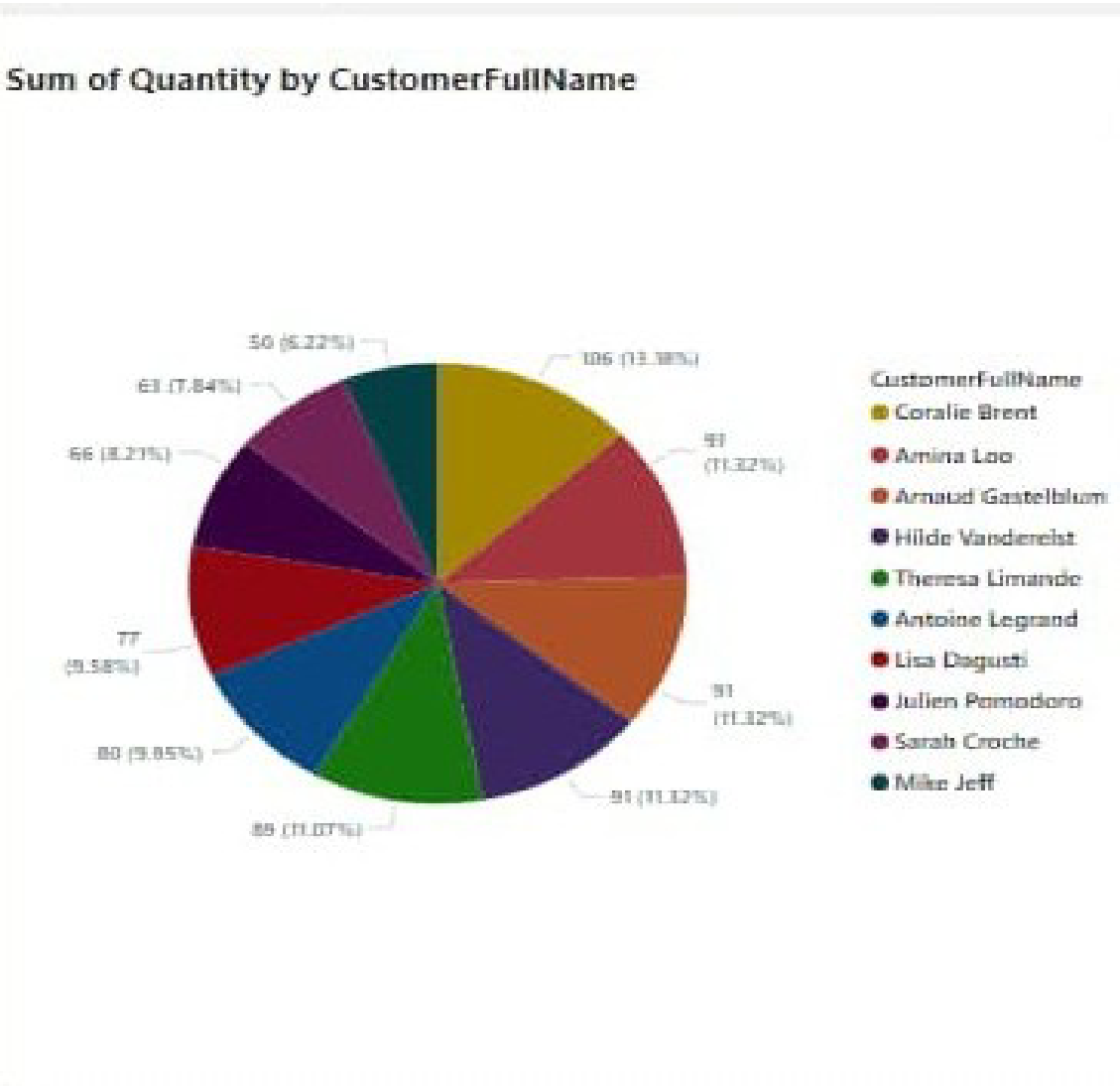
- SUPPLY CHAIN ANALYSIS OF INVENTORIES(Data sheet)in excel format.

Sales | Product | Customer | ...

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
1	PK_Customer	CustomerCode	CustomerFirstName	CustomerLastName	Country	CountryISOCode	City	Gender	Birthdate	CustomerFullName							
2	1	N79H709	Arnaud	Gastelblum	Belgium	BE	Mouscron	M	09-Apr-1982	Arnaud Gastelblum							
3	2	Z92R903	Pauline	Peanut	France	FR	Villefranche sur mer	F	23-Jun-1993	Pauline Peanut							
4	3	H59L252	Antoine	Legrand	Nederland	NL	Rotterdam	M	08-Jun-1984	Antoine Legrand							
5	4	O30R794	Coralie	Brent	Nederland	NL	Maastricht	F	20-Apr-1962	Coralie Brent							
6	5	B42W912	Julien	Pomodoro	France	FR	Roubaix	M	27-Nov-1985	Julien Pomodoro							
7	6	I85S191	Sarah	Croche	France	FR	Paris	F	11-May-1959	Sarah Croche							
8	7	L75A698	Mike	Jeff	Nederland	NL	Amsterdam	M	12-Dec-1976	Mike Jeff							
9	8	K49A336	Amina	Loo	Belgium	BE	Brussels	F	23-Oct-1940	Amina Loo							
10	9	Q44B467	Bjorn	Bio	Belgium	BE	Charleroi	M	23-Aug-1945	Bjorn Bio							
11	10	Z91K849	Lisa	Dagusti	Belgium	BE	Antwerp	F	28-Nov-1957	Lisa Dagusti							
12	11	K74L961	Theresa	Limande	France	FR	Strasbourg	F	12-Jun-1974	Theresa Limande							
13	12	V17E452	Hilde	Vanderelst	Nederland	NL	Amsterdam	F	19-Oct-1969	Hilde Vanderelst							
14																	
15																	
16																	
17																	
18																	
19																	
20																	
21																	
22																	
23																	
24																	
25																	
26																	
27																	
28																	
29																	
30																	
31																	
32																	
33																	

VISUALIZATION IN POWER BI:

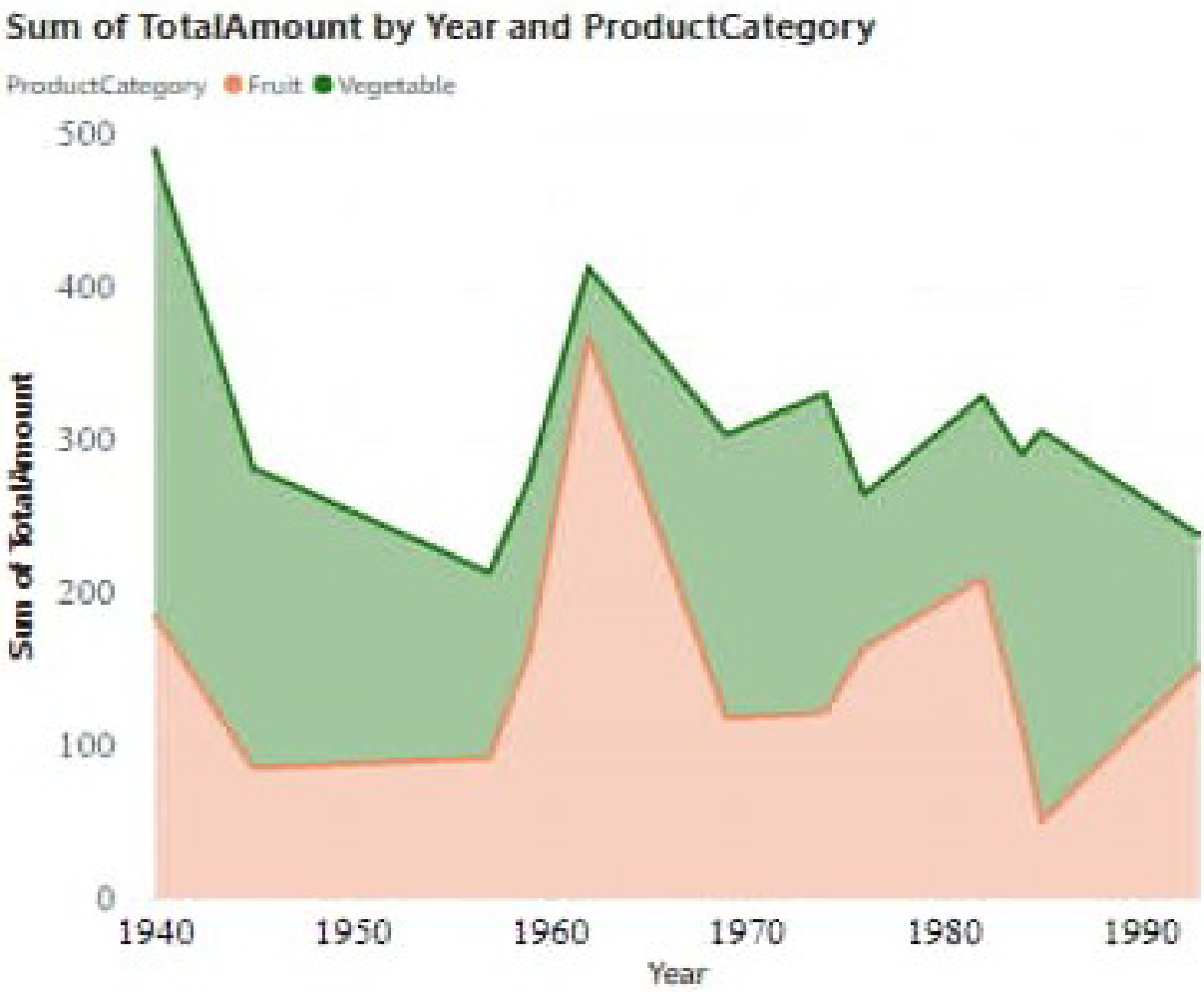
PIE CHART:



🔸 This pie chart show the **Sum of Quantity by Customer Full Name.**

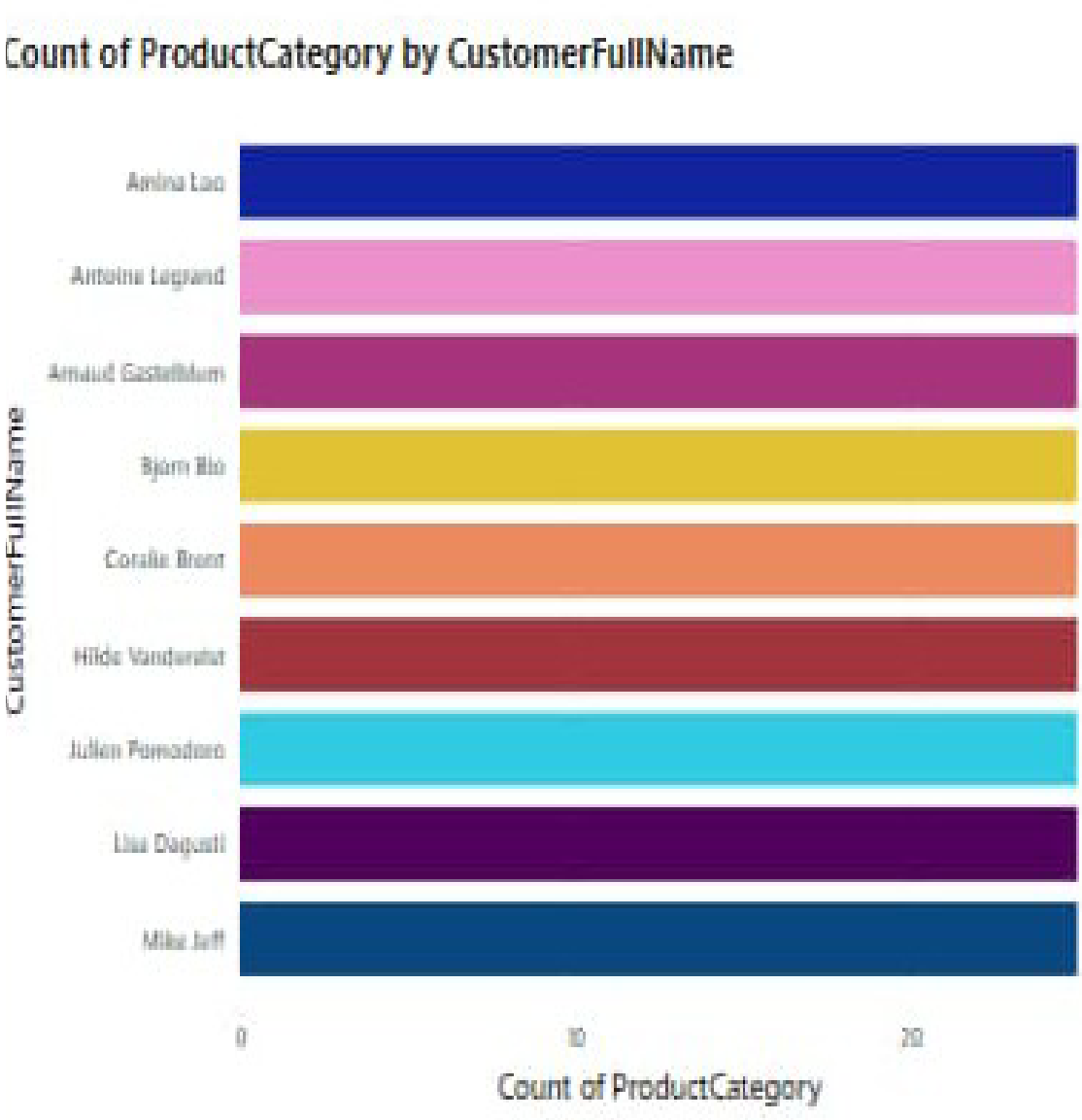
STACKED AREA CHART:

🔸 This chart shows in a **Sum of Total Amount by Year and Product Category.**This is a stacked area chart.



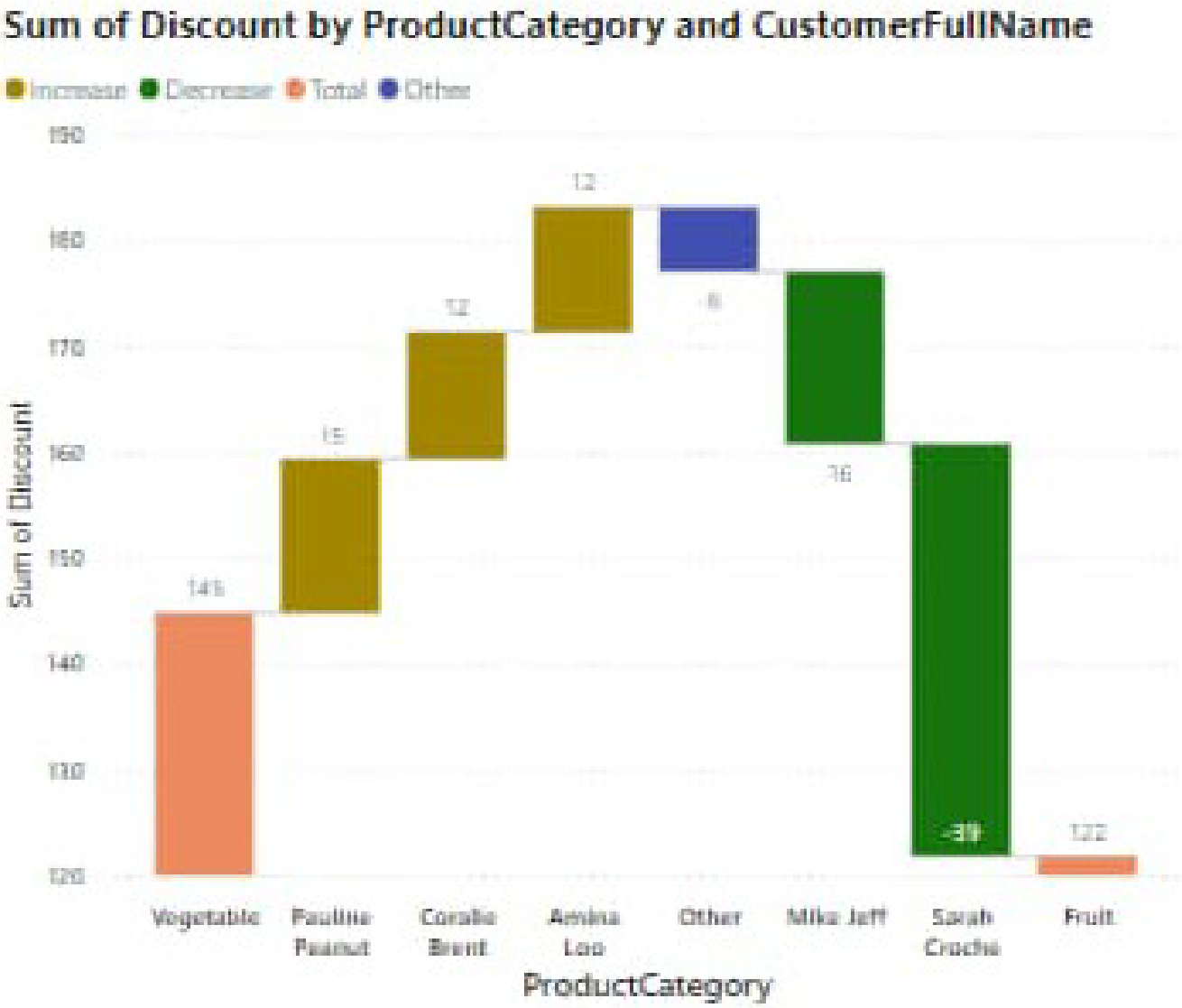
CLUSTERED BAR CHAT:

- This chart shows a **Count of Product Category by Customer Full Name.**



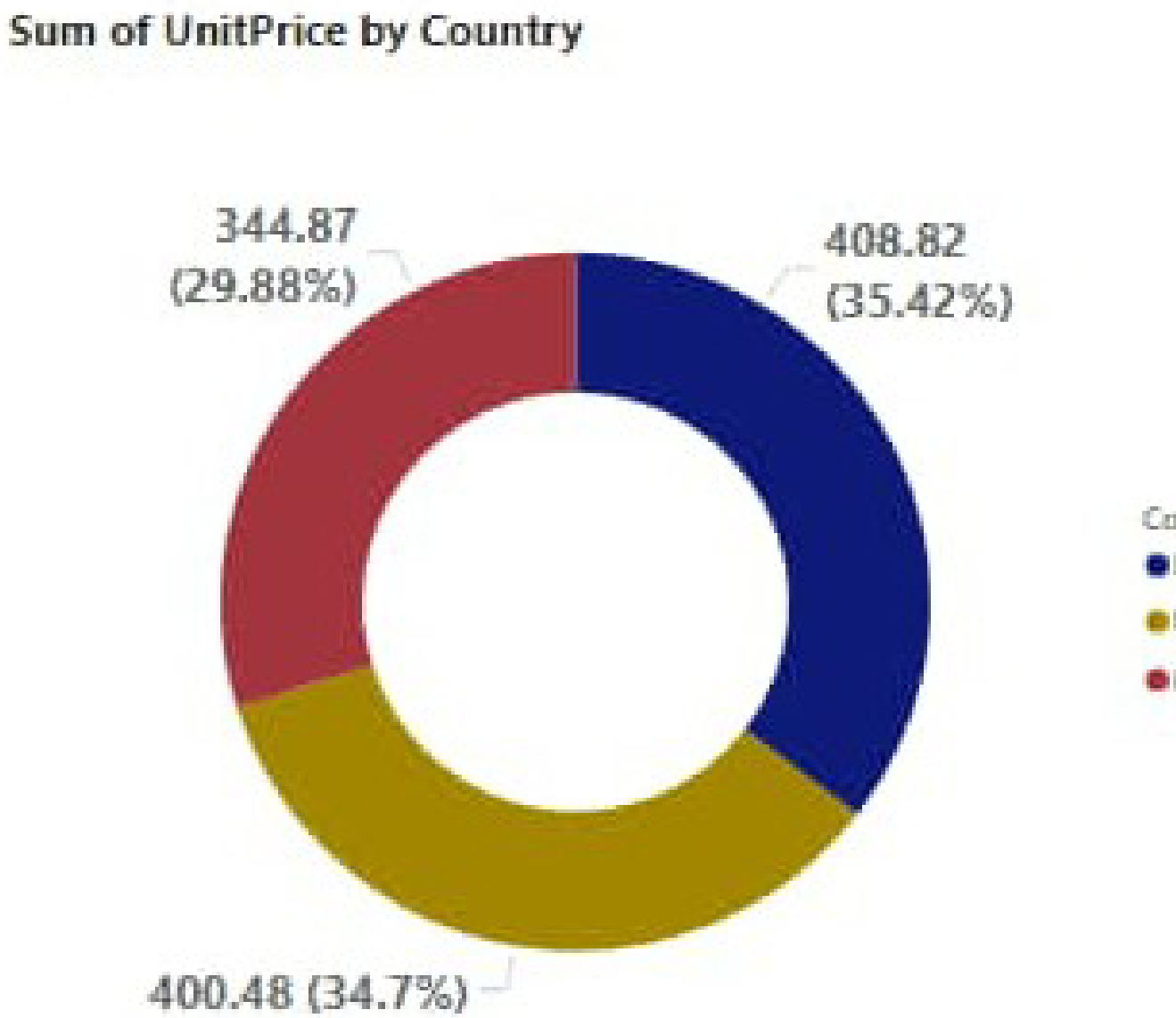
WATERFALL CHART:

- This chart shows in a **Sum of Discount by Product Category and Customer Fullname.**



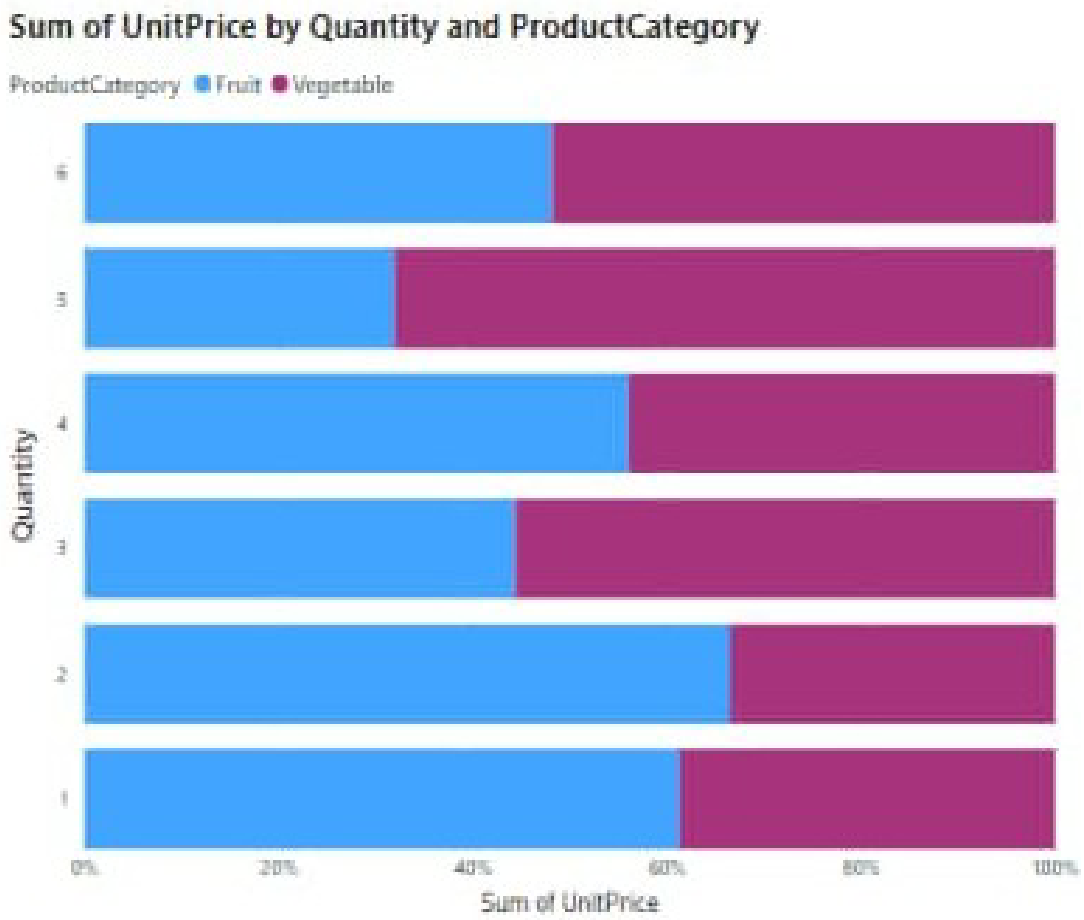
DONUT CHART:

This chart shows in a **Sum of UnitPrice by Country.**



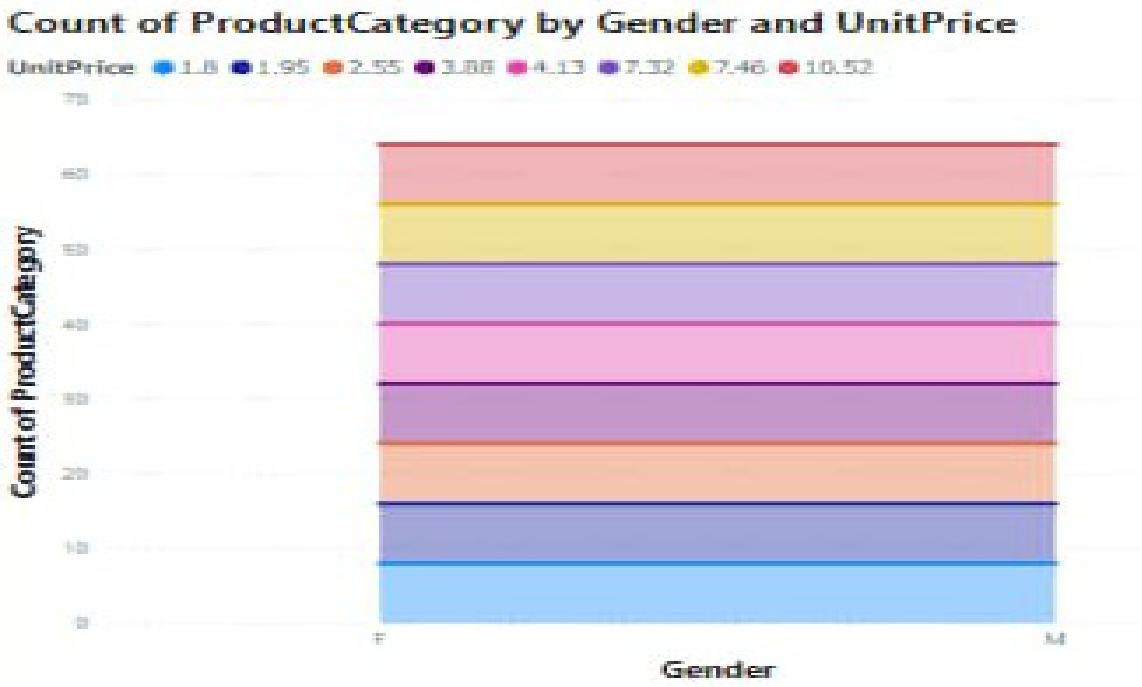
100 stacked bar chat:

- This chart shows in a **Sum of Unitprice by Quantity and Product Category.**



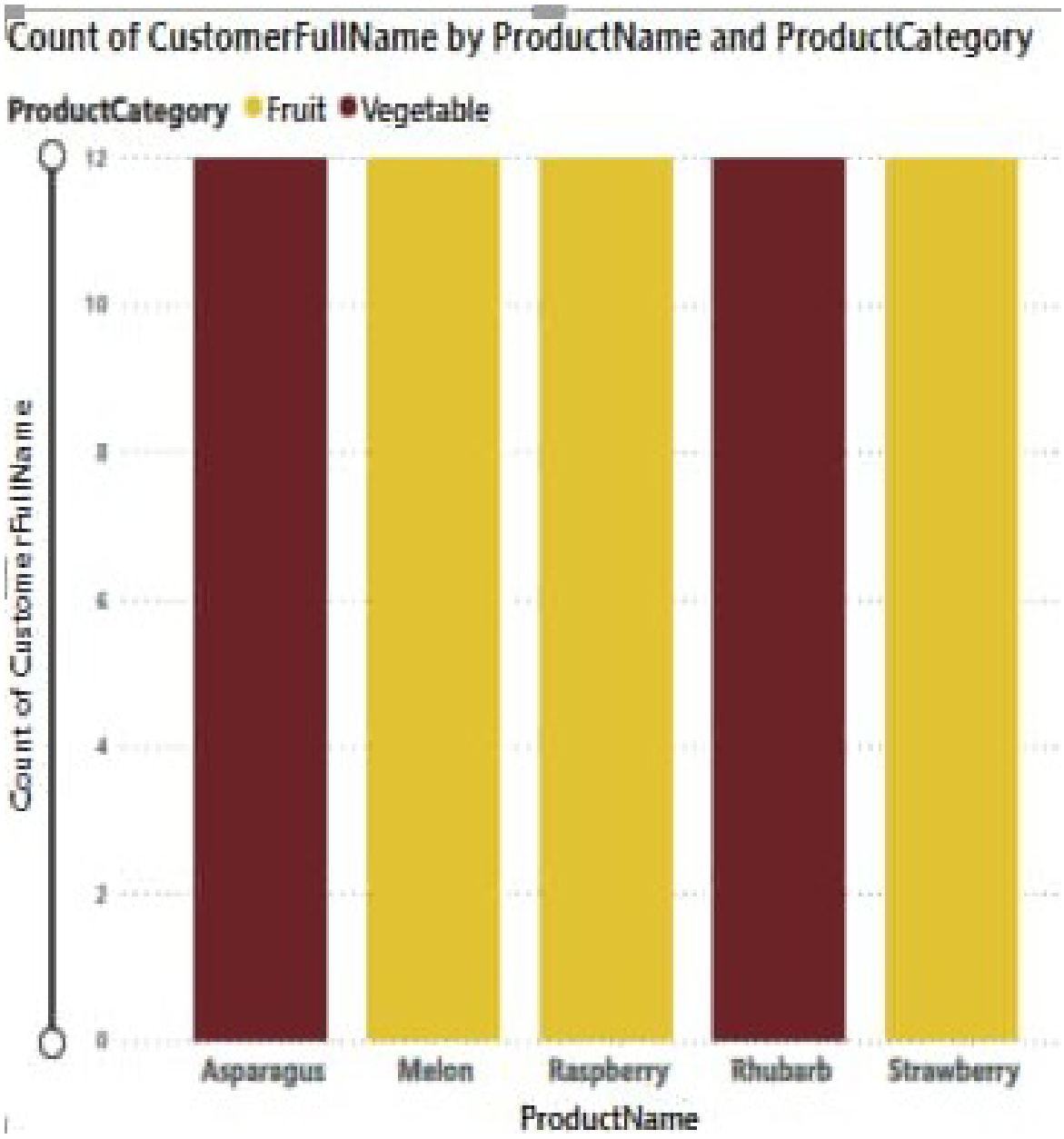
STACKED AREA CHART:

- This chart shows in a **Count of Product Category by Gender and UnitPrice.**

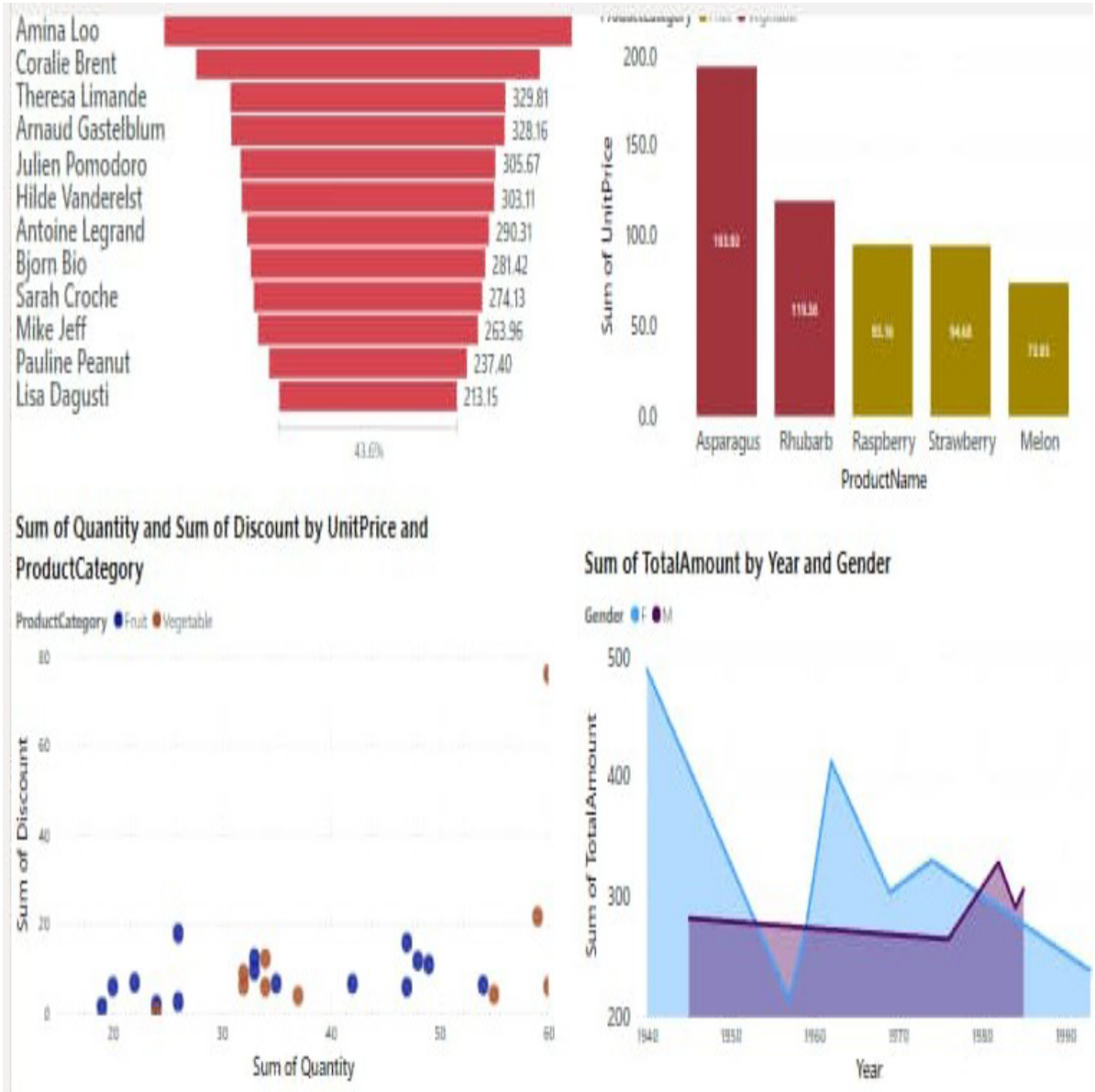


LINE AND STACKED COLUMN CHART:

This chart shows in a **Count of Customer FullName by Product Name And Product Category.**



DASHBOARD AND REPORT:



REPORTS:

Power BI offers 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 down into the data, gaining deeper insights into the project's performance.

Another benefit of using Power BI for project tracking is its ability to automate data refreshes. With Power BI, project managers can set up scheduled refreshes to ensure that the data is always up to date. This eliminates the need for manual data updates and reduces the risk of using outdated information for decision-making.

In addition, Power BI offers a wide range of collaboration features that enhance team collaboration and communication. Project teams can easily share dashboards and reports with stakeholders, enabling real-time collaboration and feedback. Power BI also allows users to add comments and annotations to specific data points, facilitating discussions and improving the overall project tracking process.

CONCLUSION:

Microsoft Power BI is an indispensable tool in the 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 your 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 databases, and more.

Custom Visualization: Leverage Power BI's pre-designed visualizations to create interactive reports tailored to your specific needs. Additionally, explore third-party solutions like FluentPro'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 efficient choice for data modeling.