Tech Saksham

Case Study Report

Data Analytics with Power BI

Supply Chain Analysis of Inventories

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INTRODUCTION

POWER BI:

Power BI is a collection of software services, apps, and connectors that work together to turn your unrelated sources of data into coherent, visually immersive, and interactive insights. Your data might be an Excel spreadsheet, or a collection of cloud-based and on-premises hybrid data warehouses. Power BI lets you easily connect to your data sources, visualize and discover what's important, and share that with anyone or everyone you want.

Microsoft Power BI is an interactive data visualization, Software product developed by Microsoft with a primary focus on business intelligence.

POWER BI DASHBOARD:

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

POWER BI PROCESS:

A technology-driven business intelligence tool provided by Microsoft for analyzing and visualizing raw data to present actionable information.

POWER QUERY EDITOR:

Power BI Desktop also comes with Power Query Editor. Use Power Query Editor to connect to one or many data sources, shape and transform the data to meet your needs, then load that model into Power BI Desktop. (Discover, connect, combine, and refine data).

SOFTWARE REQUIREMENT:

Power BI desktop: Microsoft Power BI Desktop is a data analysis and reporting application that a user can install on a computer to create dashboards and live reports.

Power BI Desktop is a free application you install on your local computer that lets you connect to, transform, and visualize your data.

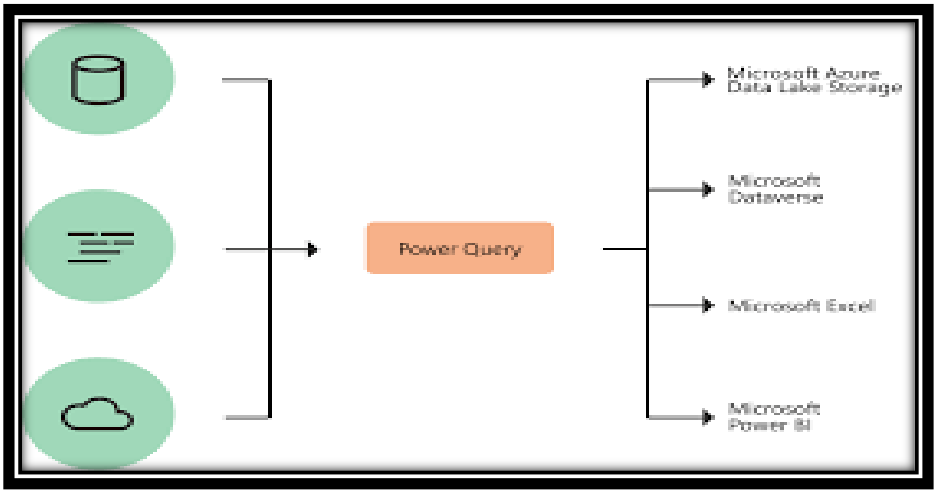
Power BI service: this is an online SaaS (Software as a Service) service that you use to publish reports, create new dashboards, and share insights**.**

Power BI Mobile: Power BI Mobile apps are mobile versions of Power BI for smartphones and tablets. They are available for IOS, Android and Windows devices. An Apple Watch version is also available.

Power Query:

 Power query Icon

Power Query is a data transformation and preparation tool developed by Microsoft. It allows users to extract, transform, and load data from various sources into Excel or Power BI using a visual interface. It is a powerful tool for data preparation and analysis tasks.



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.

When you create a new transformation step by interacting with the components of the power Query interface, Power Query automatically creates code required to do the transformation so you don't need to write any code.

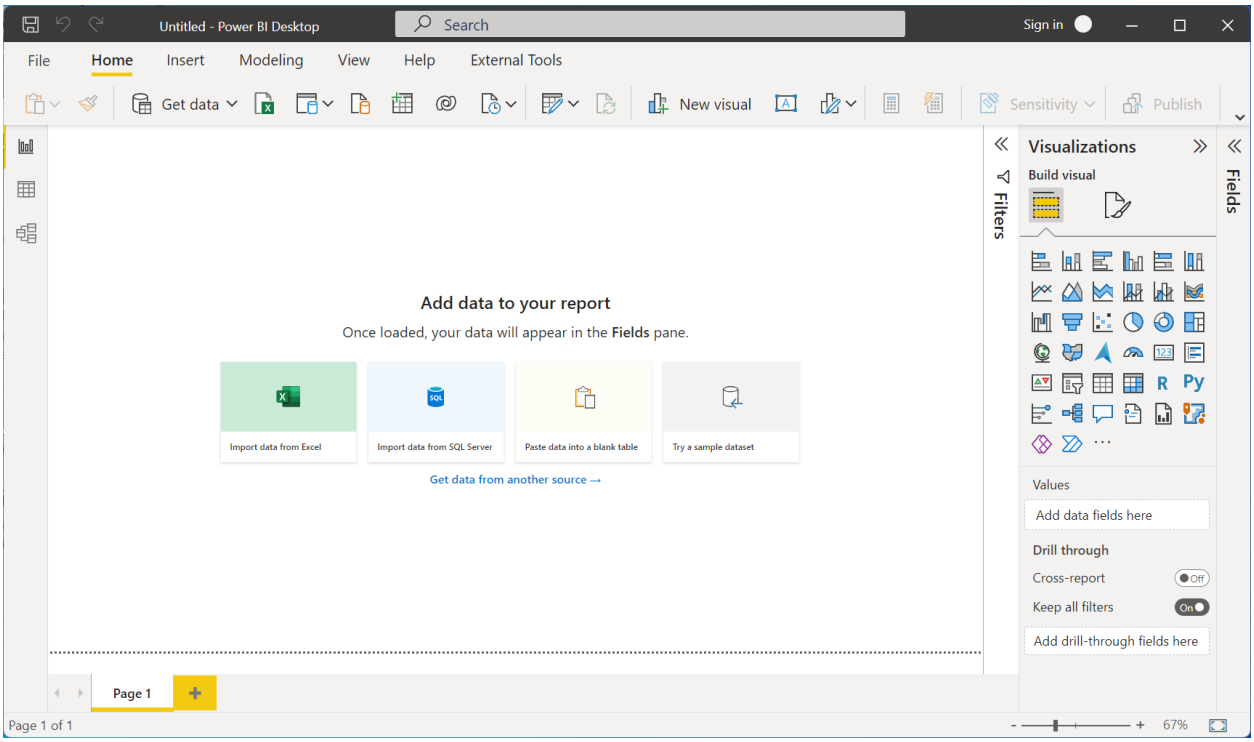
Currently two power queries are available:

- Power query online
- Power query for desktop.

NOTE: Although two power query experiences exists, they both provide almost the same user experience in every scenario.

TRANSFORMATION:

The transformation engine in Power Query includes many rebuilt 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.

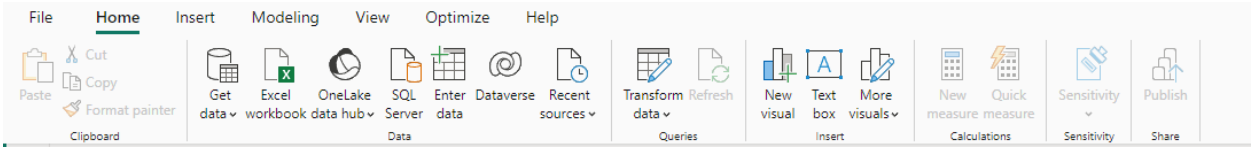


USER INTERFACE:

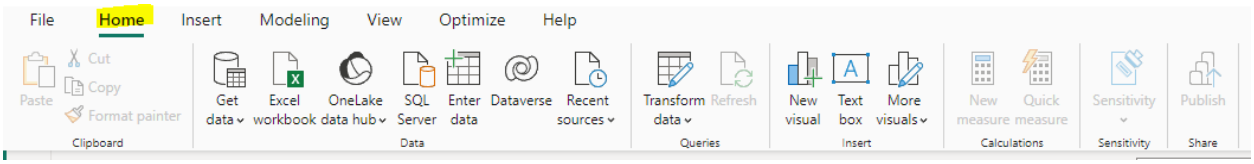
THE RIBBON:

At the top we have the familiar Microsoft Ribbon. Just like the ribbons in Microsoft excel, word and access, the power BI ribbons is filled with tools split up into different tabs.

RIBBON TAB :(menu bar)

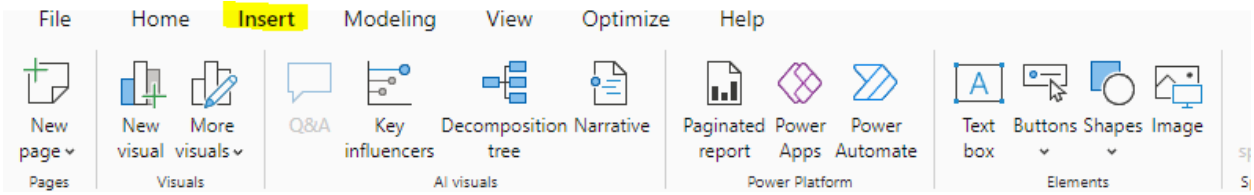


HOME TAB:



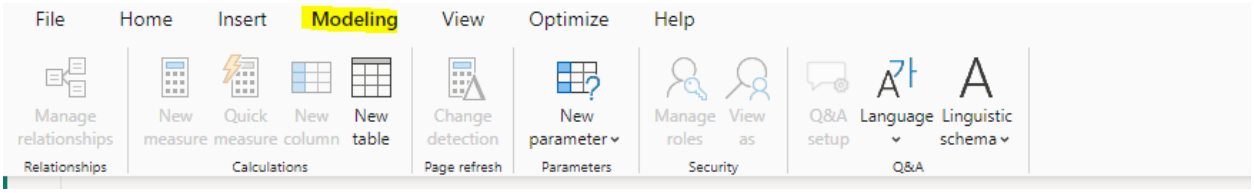
The home tab tools for adding data sources, accessing power Query Editor (used for cleaning and transforming data) via the “transform data” buttons, and adding in visuals and mores.

INSERT TAB:



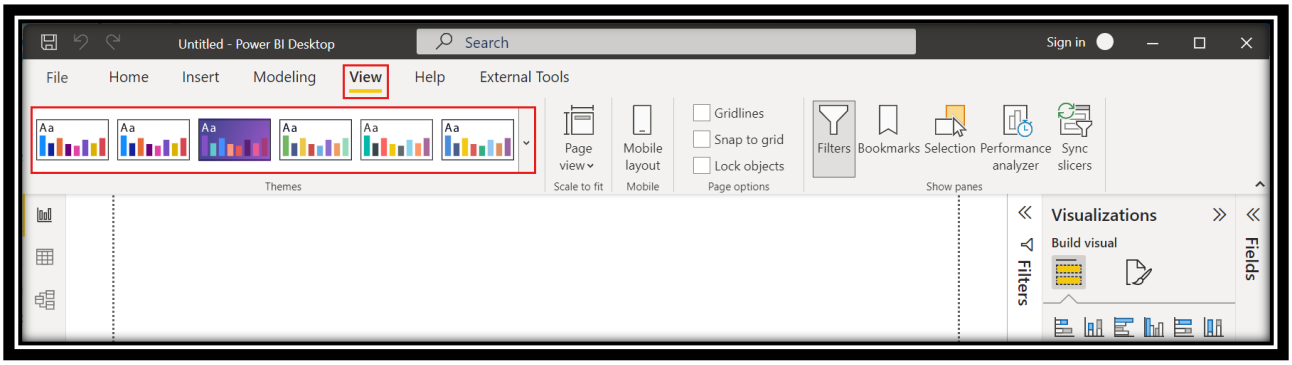
The INSERT tabs let us insert different visuals, text boxes, buttons, shapes and images.

MODELING TAB:

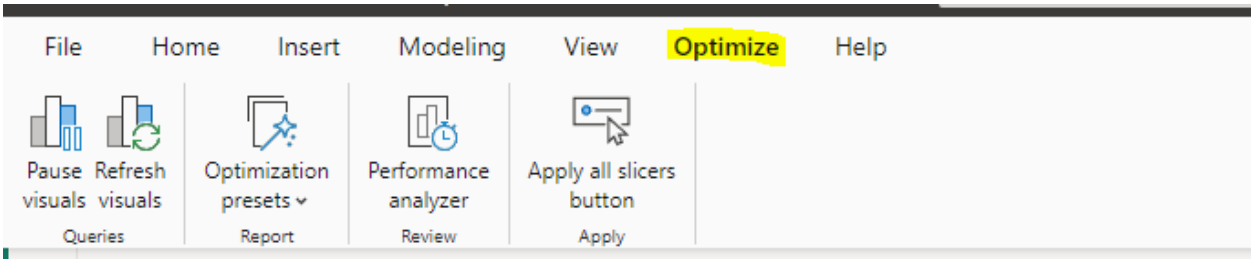


the MODELING tab let us create DAX measures, or even new column sand tables, and also lets us set up a security model if we need some users to only some data.

VIEW TAB: The view tabs let us theme of our reports, set up mobile layouts, and access other panes.

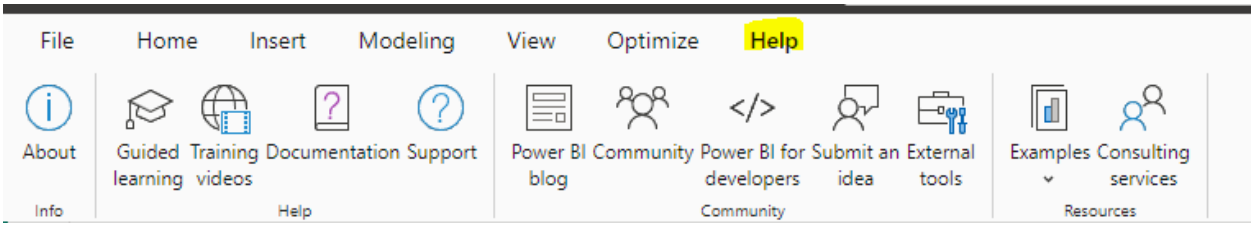


OPTIMIZE TAB:



There is a feature called "Performance Analyzer" which helps optimize report performance by identifying and analyzing bottlenecks in queries and visuals. Additionally, you can optimize your Power BI reports through techniques such as data model optimization, query optimization, and visualization optimization. These practices help improve the efficiency and responsiveness of your reports

HELP:



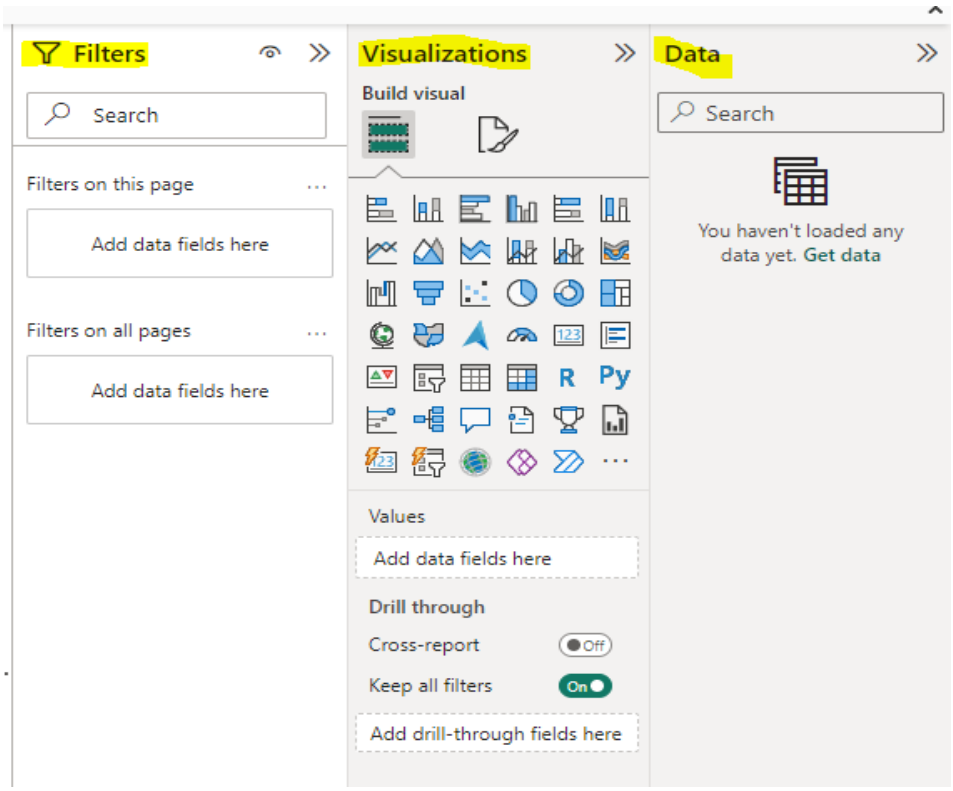
In Power BI Desktop, the Help menu provides various resources and options to assist users in learning about the application, troubleshooting issues, and accessing support. Here's an overview of what you might find in the Help menu:

EXTERNAL TOOLS:

The "External Tools" feature allows users to seamlessly integrate external applications and services with Power BI Desktop. It enhances the capabilities of Power BI by enabling users to perform additional tasks such as data preparation, visualization, and analysis using third-party tools.

PANES:

In Power BI Desktop, there are default panes that are always present and integral to the user interface, such as the Fields pane, Visualizations pane, Filters pane, these default panes serve various purposes like managing data fields, creating visualizations, applying filters, formatting visuals, navigating pages, and optimizing performance.



ABOUT MY PROJECT:

This project focuses on leveraging Power BI to enhance supply chain management through comprehensive analysis and visualization of raw data sourced from Excel. By utilizing sales, product, customer, discount, and unit price data, this case study aims to provide valuable insights into supply chain dynamics and drive informed decision-making.

The primary objective of this case study is to demonstrate the effectiveness of Power BI in analyzing and optimizing supply chain operations. By applying various charts and

visualizations to the raw data, the project seeks to uncover key trends, patterns, and opportunities for improvement within the supply chain ecosystem.

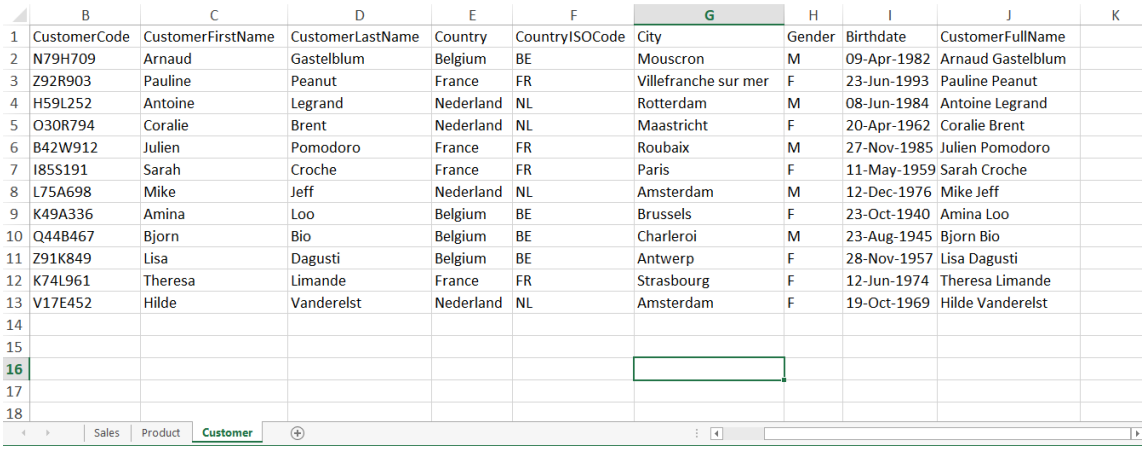
Implementing Power BI for supply chain management offers a transformative approach to streamlining operations and enhancing decision-making processes. By harnessing the power of data visualization, organizations can gain comprehensive insights into every facet of their supply chain. Real-time dashboards provide immediate visibility into key performance indicators (KPIs), enabling proactive responses to potential issues and opportunities. With end-to-end visibility across procurement, production, and distribution channels, companies can identify inefficiencies and bottlenecks, leading to optimized processes and improved resource allocation

Moreover, Power BI's predictive analytics capabilities empower organizations to forecast demand, optimize inventory levels, and mitigate risks effectively. By leveraging historical data and advanced algorithms, businesses can anticipate market trends and adapt their strategies accordingly. Customizable reports tailored to specific supply chain metrics allow stakeholders to delve deeper into performance metrics, enabling informed decision-making at every level of the organization. Additionally, Power BI's seamless integration with various data sources fosters collaboration and knowledge-sharing among teams, promoting alignment and transparency across the supply chain ecosystem.

Furthermore, the cost-efficiency inherent in Power BI implementation cannot be overstated. By identifying areas for improvement and optimizing processes, organizations can significantly reduce costs associated with inventory management, transportation, and procurement. These cost savings translate into improved profitability and competitiveness in the marketplace. Ultimately, leveraging Power BI for supply chain management enables organizations to stay agile, responsive, and resilient in the face of evolving market dynamics, ensuring continued success in today's competitive business landscape.

DATA SHEET:

Supply chain analysis of inventories - datasheets in Excel format.



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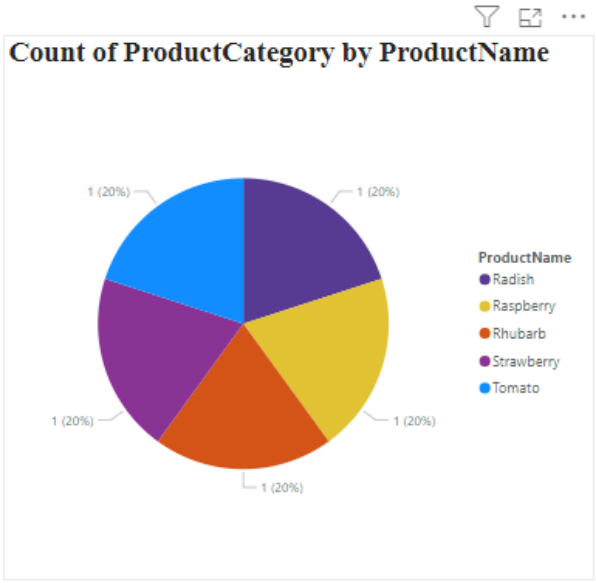
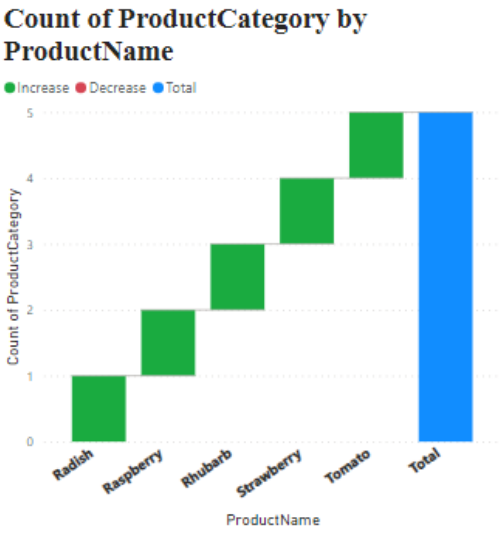
18										

Sales | Product | Customer

VISUALUIZATION:

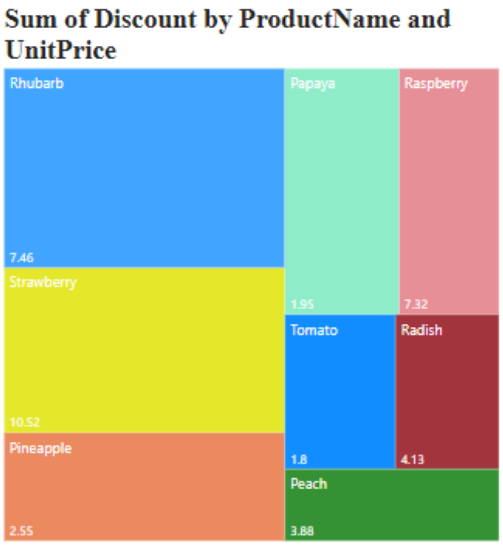
PIE CHART AND WATERFALL CHART:

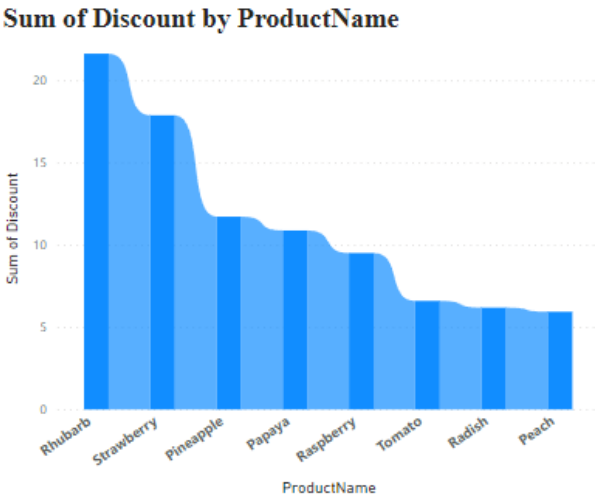




The Both charts represents product name and product category.

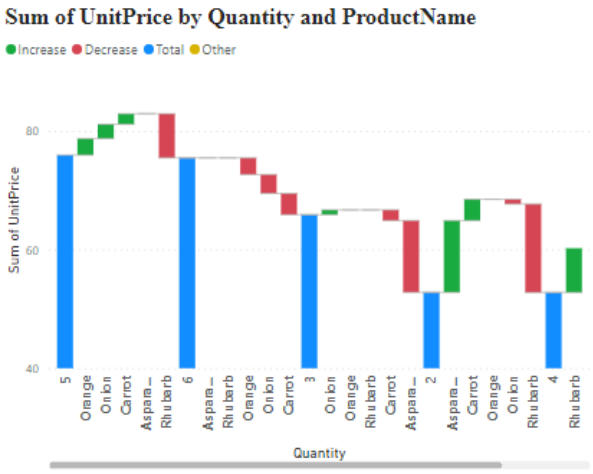
TREEMAP CHART AND RIBBON CHART:

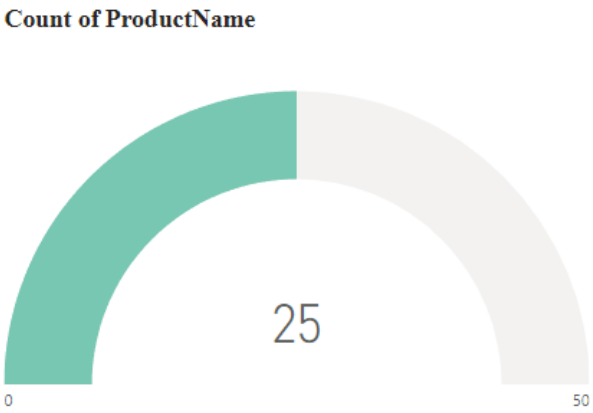




The Tree map charts represents Discount, product name, unit price, the ribbon charts represents Discount and Product name.

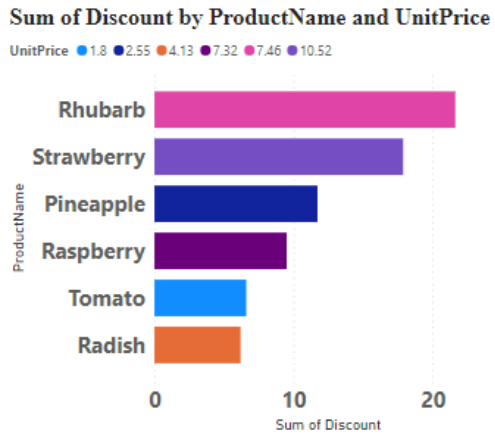
WATERFALL CHART AND GAUGE CHART:

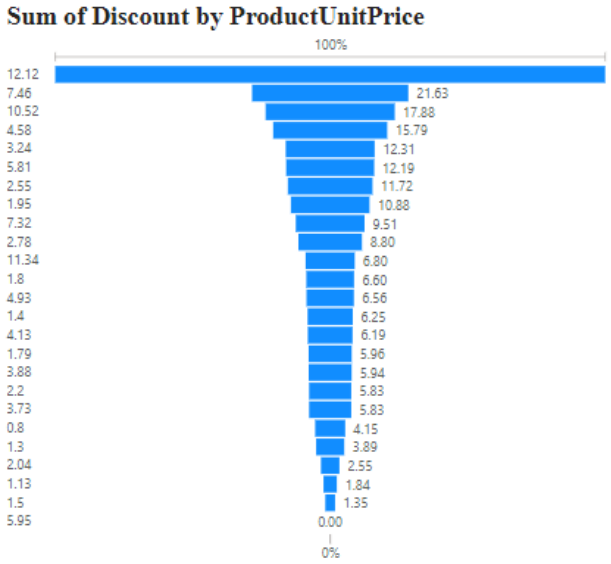




The Waterfall chart represent unit price and product name, The Gauge chart represent count and product name.

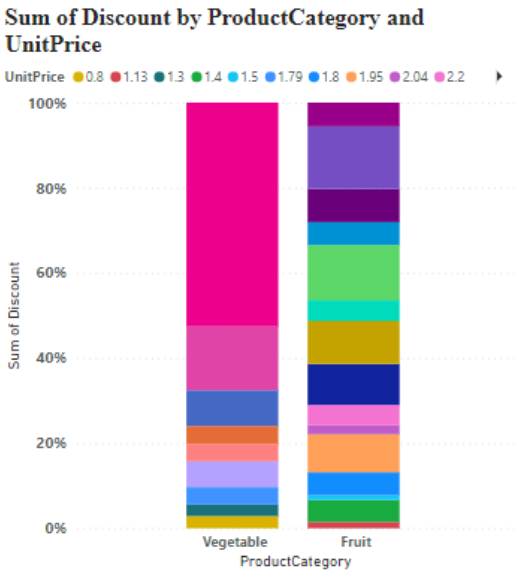
STACKED BAR CHART AND FUNNEL CHART:

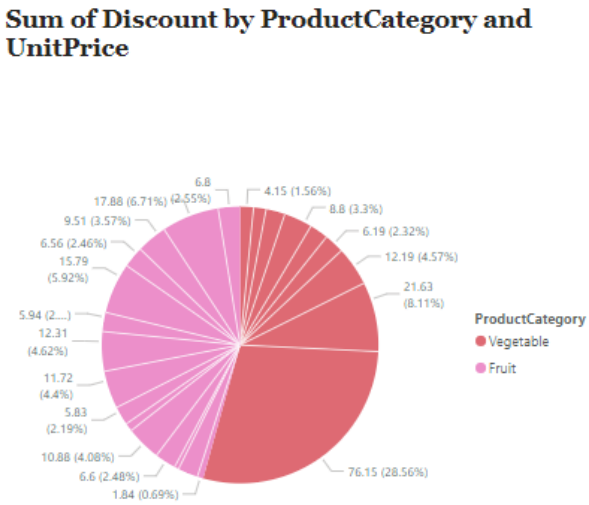




The Stacked bar chart represent sum of discount and product name and unit prize , The Funnel chart represents Discount and product unit prize.

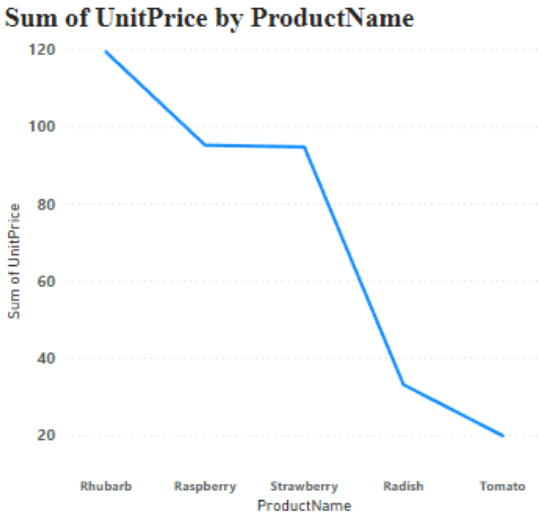
100 % STACKED COLUMN CHART AND PIE CHART:

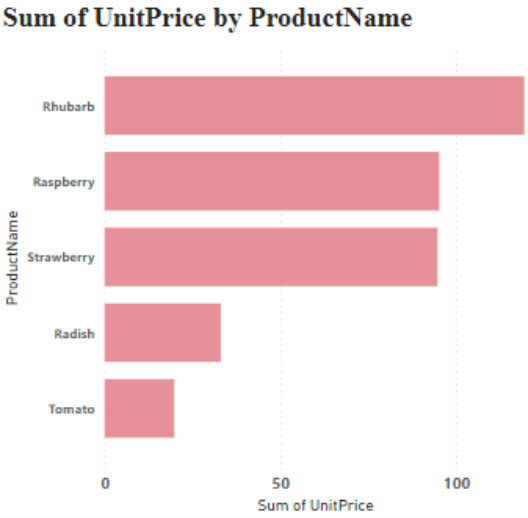




The 100% Stacked column chart represent Sum of Discount by product category , The pie charts represents sum of the discount by product category and unit prize.

LINE CHART AND CLUSTERED BAR CHART:

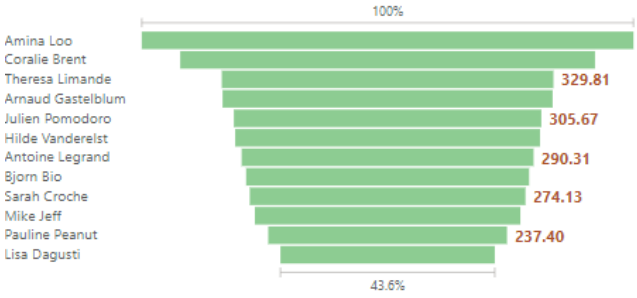


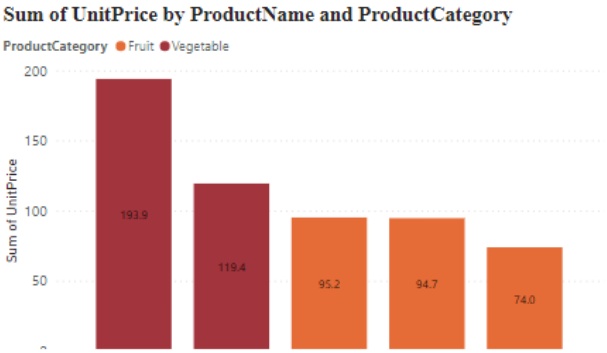


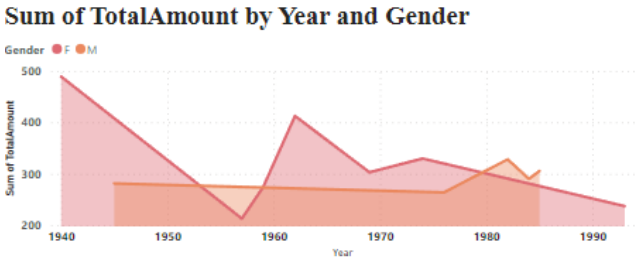
The Line chart represents sum of the unit prize and product name, the clustered bar chart represents sum of the unit prize by product name.

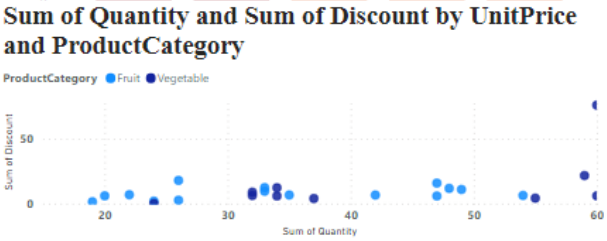
DASHBOARD AND REPORTS:

SUPPLY CHAIN ANALYSIS









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 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 reduce the risk of using outdated information for decision-making.

In addition, Power BI offer 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 annotations to specific data points, facilitating discussion and improving the overall project tracking process.

CONCLUSION:

Power BI is a robust business intelligence tool that offers a multitude of benefits for organizations seeking to gain insights from their data. Here are some key conclusions regarding Power BI
Data-driven Decision Making

Improved Business Performance

Enhanced Data Visibility and Transparency

Cost and Time Savings

Scalability and Flexibility

Empowerment of Users.

Real-time Insights

Compliance and Security

In conclusion, Power BI serves as a powerful tool for organizations looking to unlock the full potential of their data, drive better decision-making, and achieve business success. Its comprehensive features, ease of use, and scalability make it a valuable asset for businesses of all sizes and industries.

GitHub Link:

https://github.com/Santhiya30042003/M-SANTHIYA-power-Bi-project-/commits?author=Santhiya30042003