REPORT

1. INTRODUCTION

1.1 OVERVIEW

This project aims to leverage Qlik Sense, a powerful data analytics and visualization tool, to perform comprehensive business analytics. The primary objective is to transform raw data into meaningful insights that can drive informed decision-making within the organization.

1.2 PURPOSE

The primary purpose of the “Business Analytics Using Qlik Sense” project is to harness the power of data analytics and visualization to enhance business decision-making processes. Use of the Project: Data-Driven Insights, Performance Monitoring, Trend Analysis, Resource Optimization. What Can Be Achieved: Improved Decision-Making, Enhanced Business Performance, Competitive Advantage, Increased Collaboration.

1.3 TECHNICAL ARCHITECTURE

Data Sources: Collect data from various sources such as databases, cloud storage, flat files, and APIs. Data Integration Layer: Use ETL tools and Qlik Sense data load scripts to extract, transform, and load data into a suitable format for analysis. Data Storage: Utilize in-memory storage for fast and interactive data analysis. Client Interfaces: Qlik Sense Hub: Interface for creating and interacting with visualizations. Qlik Sense Management Console: Administrative interface for managing data connections and security.

2 DEFINE PROBLEM/ PROBLEM UNDERSTANDING

2.1 SPECIFY THE BUSINESS PROBLEM

This project aims to revolutionize supply chain management through data-driven insights using Qlik. Leveraging advanced analytics, it seeks to optimize logistics, forecasting, and inventory management, enhancing operational efficiency and responsiveness.
This transformative project endeavors to reshape the landscape of supply chain management by harnessing the power of Qlik's data-driven insights. Employing cutting-edge analytics, it strives to revolutionize key facets such as Customer Experience and Retention Supply Chain and Inventory Optimization, Marketing and Sales Strategy, Operational Efficiency with the overarching goal of elevating operational efficiency and responsiveness to new heights.

2.2 BUSINESS REQUIREMENTS

To achieve this, the project will integrate Qlik with existing data repositories, creating a unified platform for advanced analytics. Customized dashboards and reports will be developed to monitor key performance indicators, enabling real-time decision-making. This initiative will address pivotal business challenges, including augmenting customer retention through tailored experiences derived from behavioral analytics, refining inventory levels using predictive demand modeling to mitigate overstock and stockout scenarios, and sculpting targeted marketing strategies based on segmented customer data to boost conversion rates. Additionally, the project will streamline operational workflows by leveraging shipping and delivery data, ensuring expedient order fulfillment and heightened customer satisfaction. A dynamic pricing strategy, informed by product performance metrics and market demand signals, will be instituted to optimize profit margins. Collectively, these efforts aim to position the ecommerce business at the forefront of market innovation, driving sustainable growth and establishing a benchmark for supply chain excellence.

2.3 LITERATURE SURVEY

A literature survey for a business analyst project in Qlik software for an e-commerce business involves exploring sentiment analysis applications, data pre-processing techniques, and the use of business analytics in e-commerce. It is essential to manage and analyze data from e-commerce websites to enhance decision-making and customer satisfaction, utilizing methodologies like Business Analytics and Big Data Analytics. Additionally, understanding the value and challenges associated with business analytics in e-commerce is crucial for successful project implementation. Furthermore, internationalization strategies for small and medium-sized enterprises entering new markets, such as the British market, emphasize the importance of structured approaches, market analysis, and partner selection . By incorporating insights from these areas, a comprehensive literature survey can guide the business analyst project in Qlik software for optimal outcomes in the e-commerce domain.

3 DATA COLLECTION

3.1 COLEECT THE DATA

Downloading the dataset from kaggle.com:
https://www.kaggle.com/datasets/shashwatwork/dataco-smart-supply-chain-for-big-data-analysis/data

3.2 UNDERSTAND THE DATA

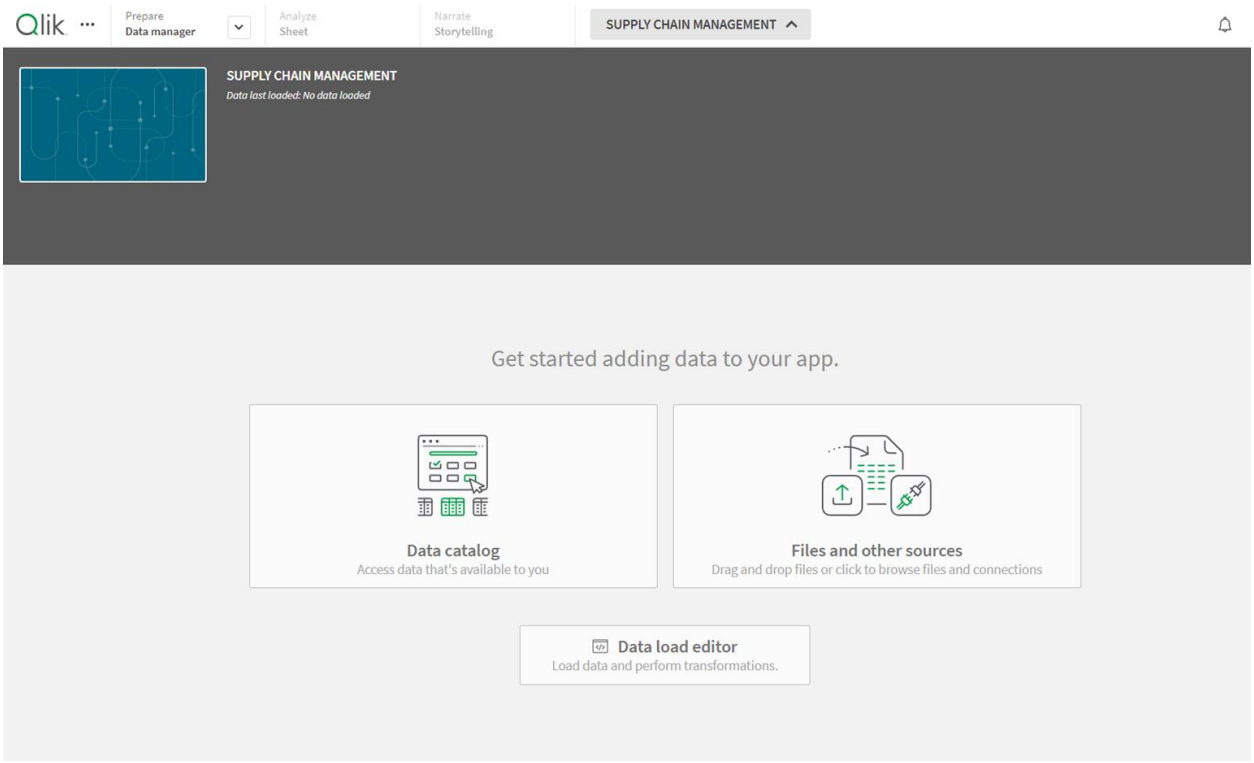
Data contains all the meta information regarding the columns described in the CSV files
Column Description of the Dataset:

- Type: Type Count
- Days for shipping (real): Product shipment days
- Days for shipment (scheduled): product getting prepared for shipment
- Benefit per item: profit earned per product
- Sales per customer: No of products purchased by the customer
- Delivery: Products delivery date.
- Late_delivery_risk: percentage of late delivery risk
- Category Id: product category ID
- Category: product category

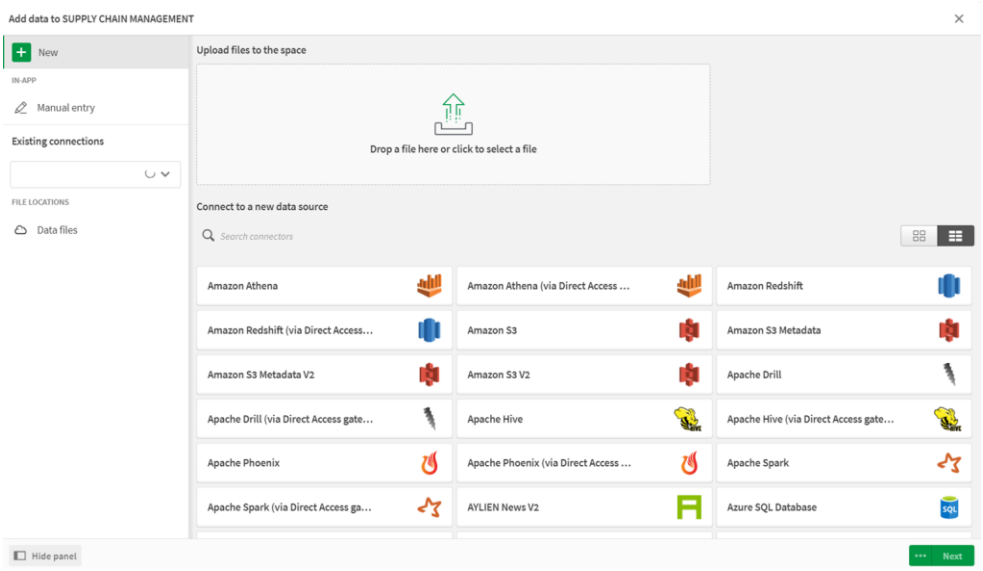
- Customer City: Customer purchase city
- Customer Country: Customer purchase country
- Customer Email: Customer purchase Email
- Customer Fname: Customer First name.
- Customer ID: Customer order ID
- Customer Lname: Customer's last name
- Customer Segment: Types of Customer
- Customer State: Customer order state
- Customer Street: Customer address
- Customer Zipcode: Customer area code.
- Market: top 10 country Market
- Order City: Customer purchase city
- Order Country: Customer purchase country
- Order Customer ID: Customer
- order date (DateOrders): Customer order date
- Order Item Product Price: product price
- Order Item Profit Ratio: profit ratio
- Order Item Quantity: No of orders placed
- Sales: total no of sales
- Order Item Total: total price of the order placed
- Order Profit Per: product
- Order Region: order placed region
- Order State: order placed State
- Order Status: order delivery status
- Order Zipcode: customer area code
- Product Card ID: product number
- Product Category Id: a product whose category belongs to
- Product: what product
- Product Image: image of the product
- Product Price: Price of the product.

3.3 CONNECT DATA WITH QLIK SENSE

There are three ways to upload data into qlik. first we will create an app in the hub. and then we will open the app, we will have three option to load data into the app.

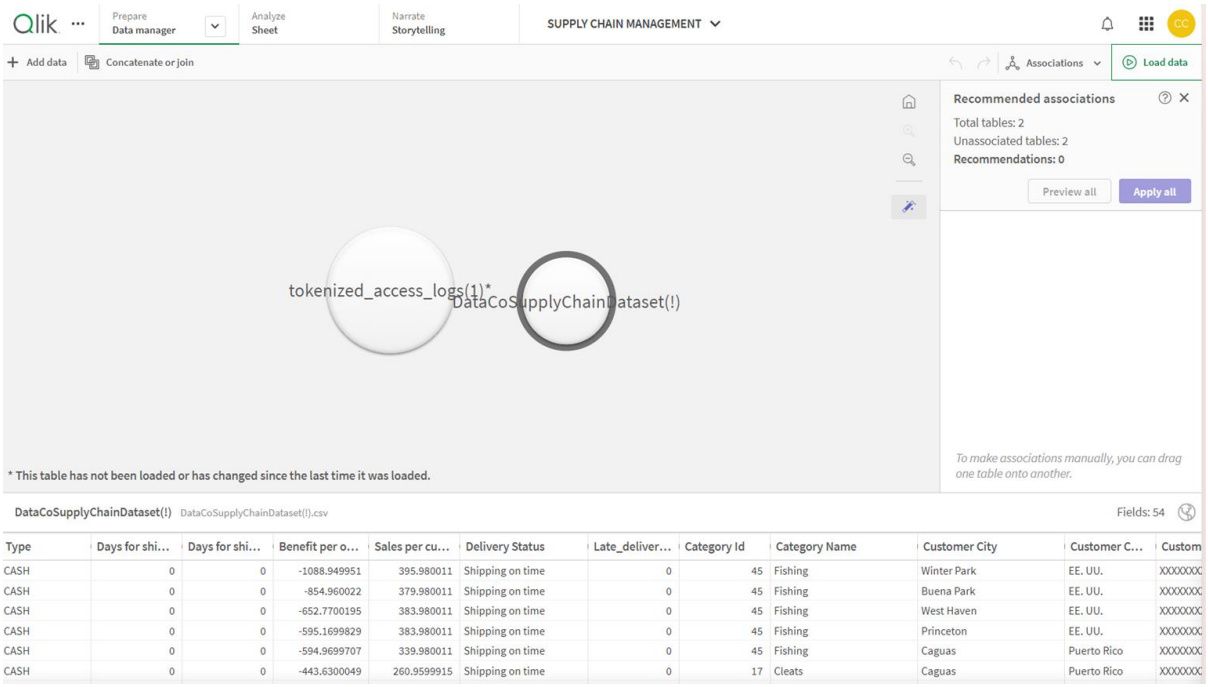


Data catlog, Files and other resources and data load editor. we have CSV file so we will select Files and other resources.



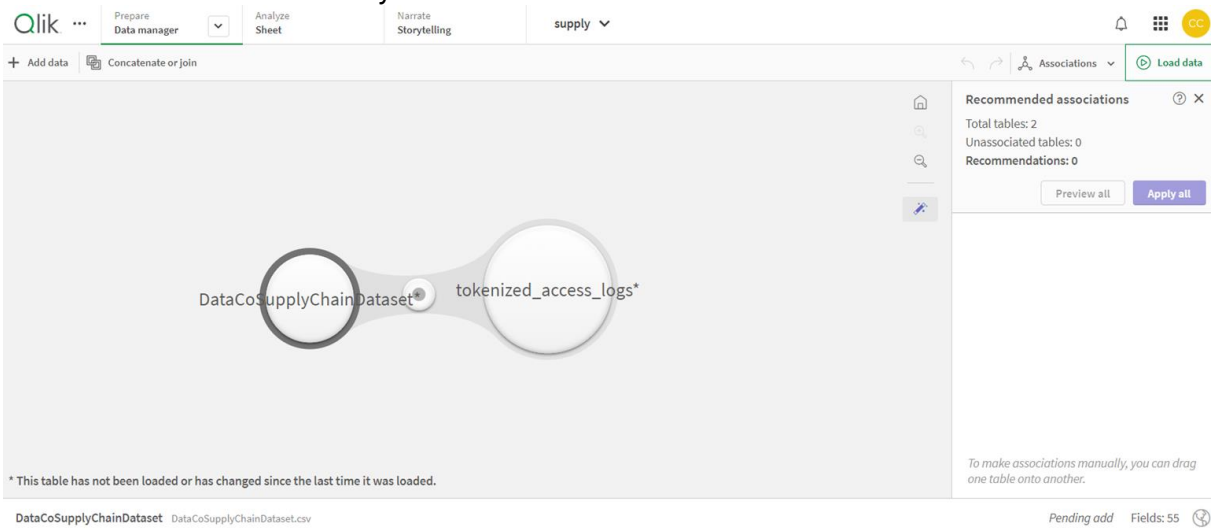
Now drag and drop the file or select the file. After this our datasets are inserted into an app, ready for deriving insights.

4. DATA PREPERATION



Type	Days for shi...	Days for shi...	Benefit per o...	Sales per cu...	Delivery Status	Late_deliver...	Category Id	Category Name	Customer City	Customer C...	Custom
CASH	0	0	-1088.949951	395.980011	Shipping on time	0	45	Fishing	Winter Park	EE. UU.	XXXXXXX
CASH	0	0	-854.960022	379.980011	Shipping on time	0	45	Fishing	Buena Park	EE. UU.	XXXXXXX
CASH	0	0	-652.7700195	383.980011	Shipping on time	0	45	Fishing	West Haven	EE. UU.	XXXXXXX
CASH	0	0	-595.1699829	383.980011	Shipping on time	0	45	Fishing	Princeton	EE. UU.	XXXXXXX
CASH	0	0	-594.9699707	339.980011	Shipping on time	0	45	Fishing	Caguas	Puerto Rico	XXXXXXX
CASH	0	0	-443.6300049	260.9599915	Shipping on time	0	17	Cleats	Caguas	Puerto Rico	XXXXXXX

Now we will navigate to Data manager, when we try to link the two data sets it show an error, it is because there is no common feature to link these datasets, so we create an row of index in both the datasets and then try to link the two datasets.



DataCoSupp...	Type	Days for shi...	Days for shi...	Benefit per o...	Sales per cu...	Delivery Status	Late_deliver...	Category Id	Category Name	Customer City	Custor
1	DEBIT	3	4	91.25	314.6400146	Advance shipping	0	73	Sporting Goods	Caguas	Puerto
2	TRANSFER	5	4	-249.0899963	311.3599854	Late delivery	1	73	Sporting Goods	Caguas	Puerto
3	CASH	4	4	-247.7799988	309.7200012	Shipping on time	0	73	Sporting Goods	San Jose	EE. UU.
4	DEBIT	3	4	22.86000061	304.8099976	Advance shipping	0	73	Sporting Goods	Los Angeles	EE. UU.
5	PAYMENT	2	4	134.2100067	298.25	Advance shipping	0	73	Sporting Goods	Caguas	Puerto
6	TRANSFER	6	4	18.57999992	294.980011	Shipping canceled	0	73	Sporting Goods	Tonawanda	EE. UU.

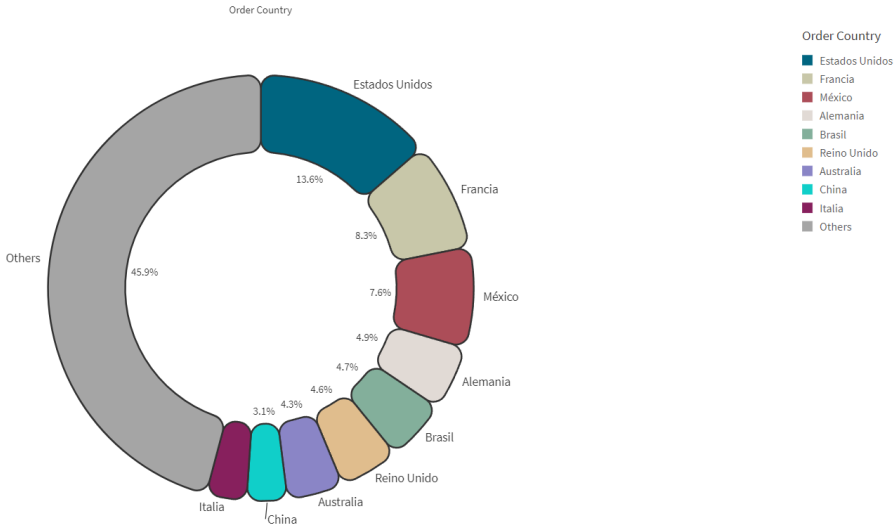
after performing the discussed operations we are ready for visualisations.

5 DATA VISUALISATION

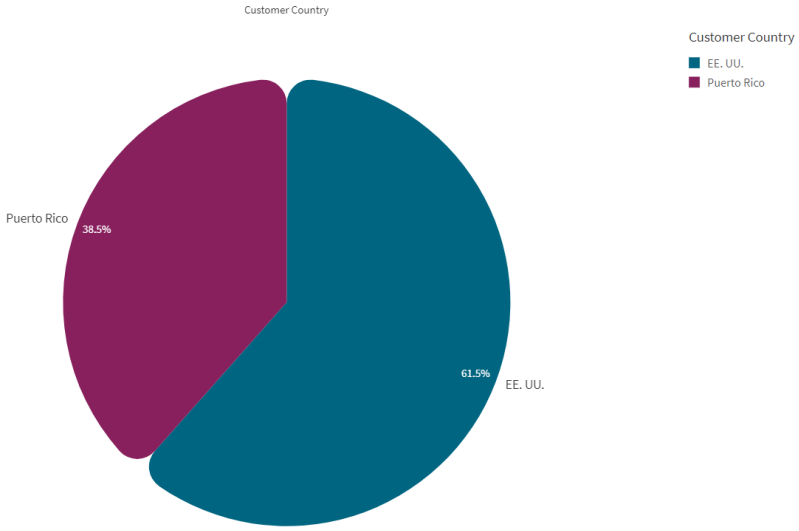
Data visualization is the process of creating graphical representations of data to help people understand and explore the information. The goal of data visualization is to make complex data

sets more accessible, intuitive, and easier to interpret. By using visual elements such as charts, graphs, and maps, data visualizations can help people quickly identify patterns, trends, and outliers in the data.

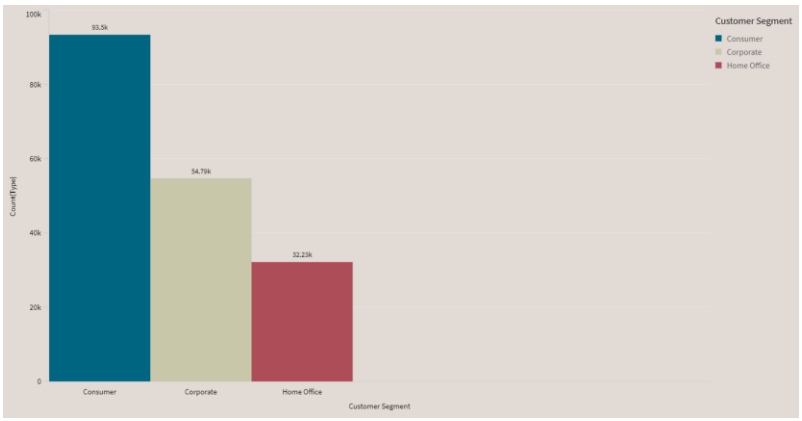
GLOBAL PROFIT RATIO



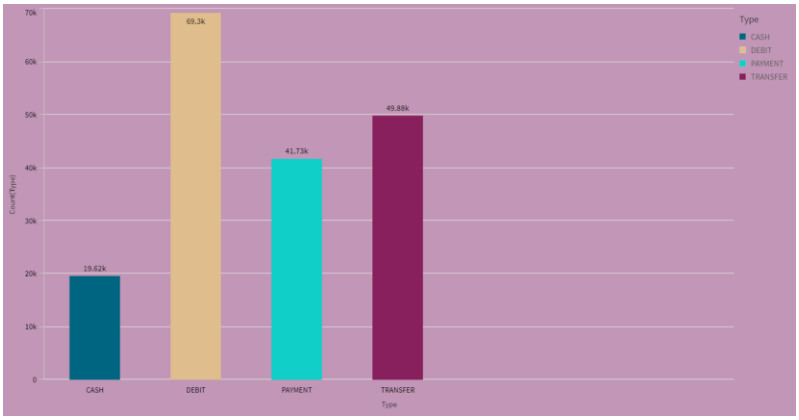
TOTAL ORDER BY CUSTOMER IN THE COUNTRY



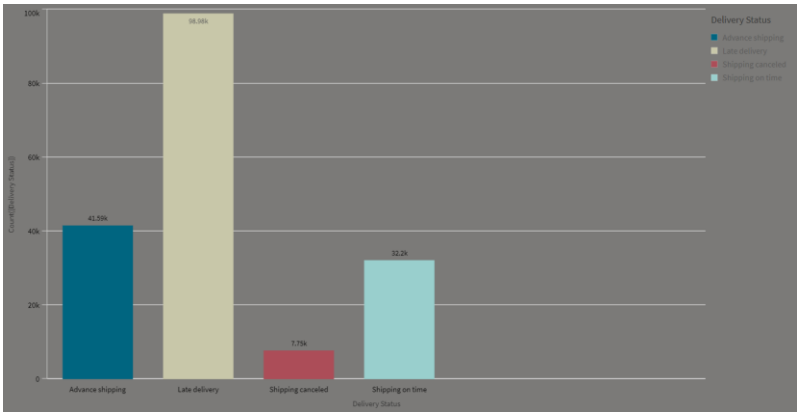
ANALYSYS ON CUSTOMER SEGMENT



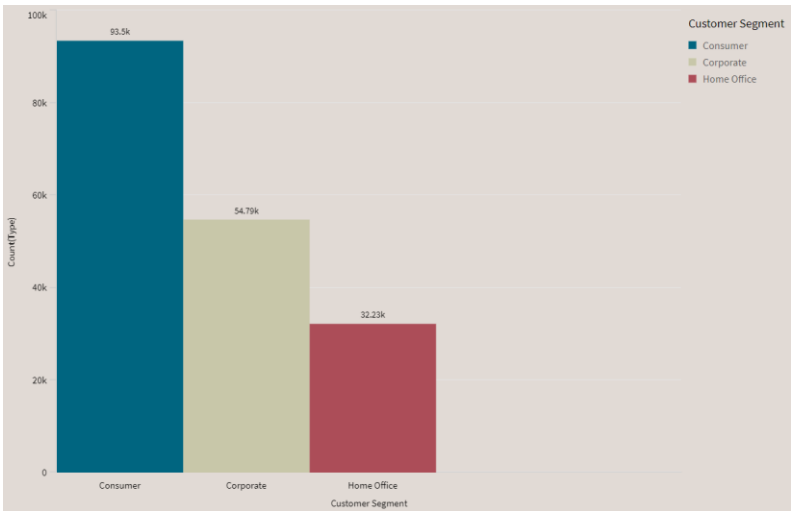
MODE OF PAYMENT



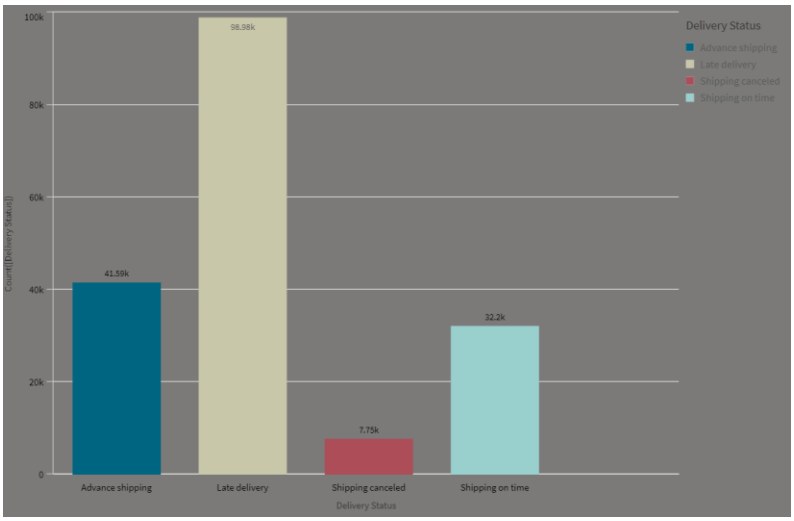
DELIVERY STATUS OF ORDER



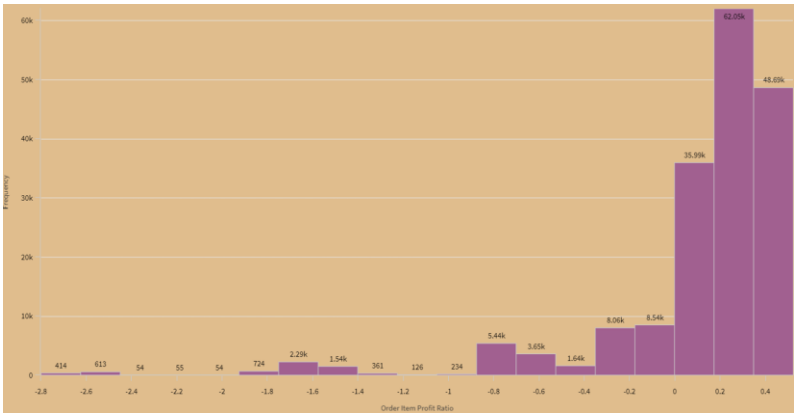
ANALYSYS ON CUSTOMBER SEGMENT



DELIVERY STATUS OF ORDER



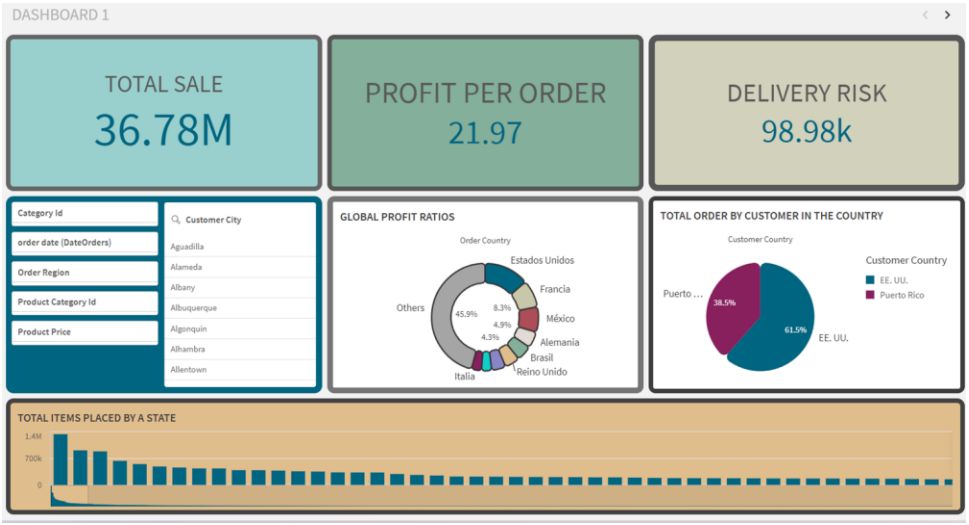
MODE OF PAYMENT



6 DASHBOARD

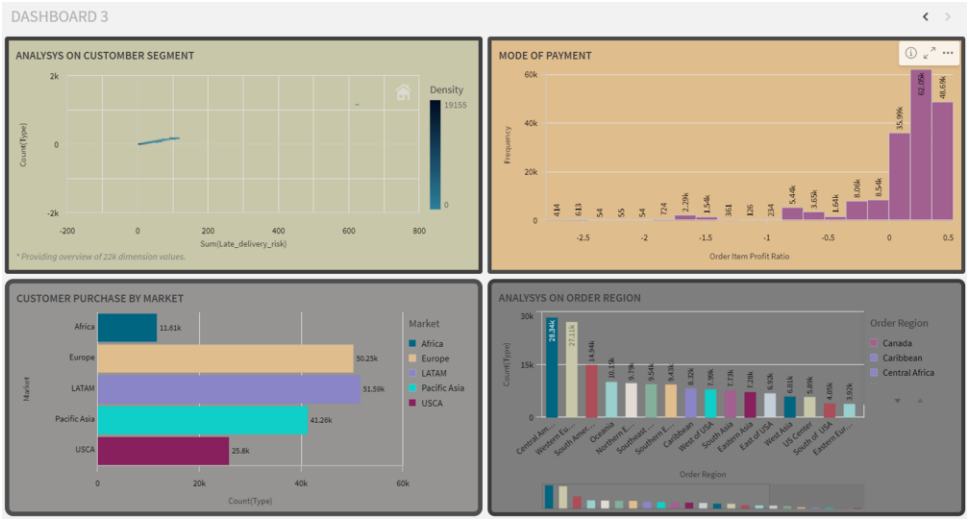
A dashboard is a graphical user interface (GUI) that displays information and data in an organized, easy-to-read format. Dashboards are often used to provide real-time monitoring and analysis of data and are typically designed for a specific purpose or use case. Dashboards can be used in a variety of settings, such as business, finance, manufacturing, healthcare, and many other industries. They can be used to track key performance indicators (KPIs), monitor performance metrics, and display data in the form of charts, graphs, and tables.

DASHBOARD 1



DASHBOARD 2

DASHBOARD 3



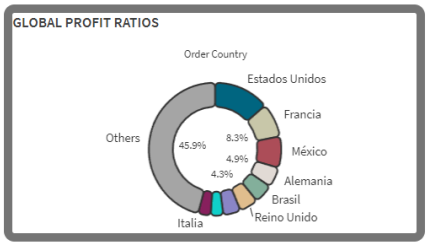
7 STORY

A data story is a way of presenting data and analysis in a narrative format, with the goal of making the information more engaging and easier to understand. A data story typically includes a clear introduction that sets the stage and explains the context for the data, a body that presents the data and analysis in a logical and systematic way, and a conclusion that summarizes the key findings and highlights their implications. Data stories can be told using a variety of mediums, such as reports, presentations, interactive visualizations, and videos.

SUPPLY CHAIN MANAGEMENT ANALYSYS

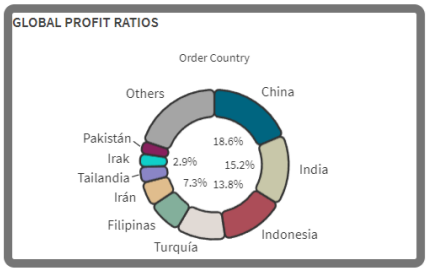
TOTAL SALE	PROFIT PER ORDER	DELIVERY RISK
36.78M	21.97	98.98k

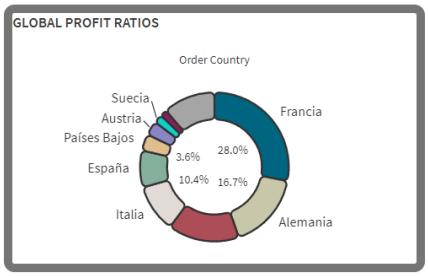
Total sale done in Asian countries	TOTAL SALE 6.26M	Total sale done in European countries	TOTAL SALE 10.87M
Profit per order in Asian countries	PROFIT PER ORDER 21.09	Profit per order in European countries	PROFIT PER ORDER 23.27
Late delivery risk in Asian countries	DELIVERY RISK 17.23k	Late delivery risk in European countries	DELIVERY RISK 27.74k



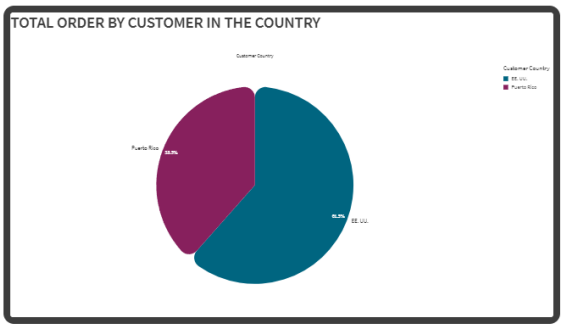
Profit ratios of all the countries in the supply chain management

Profit ratios of Asian countries in the supply chain management

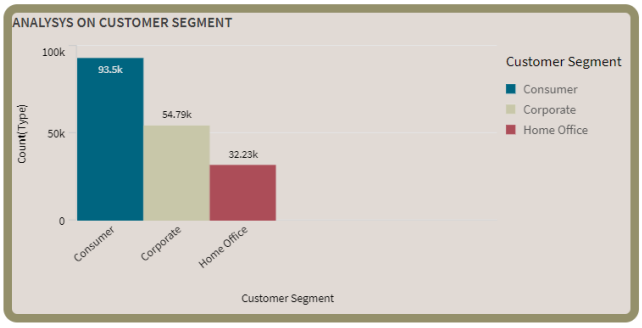




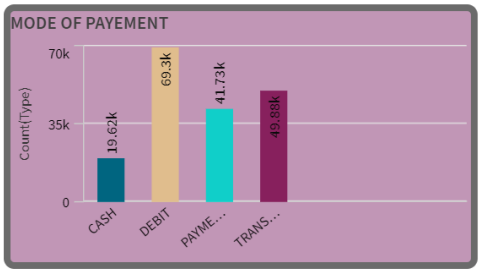
Profit ratios of European countries in the supply chain management



Total order placed by customers in each country

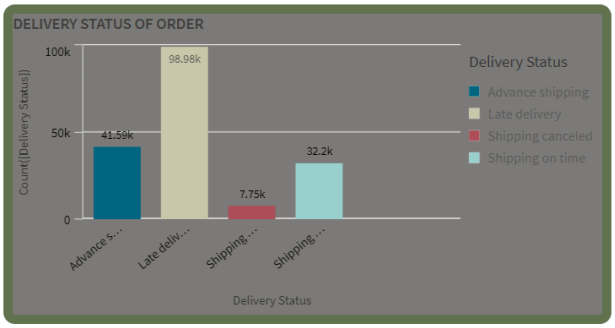


Analysis on customer segment, includes Consumer, Corporate, Home Office



Different mode of payments used by customer to complete the transaction, which includes Cash, Debit, Payment, Transfer.

Count of delivery status, which includes Advance Shipping, Late Delivery, Shipping Canceled, Shipping on time



8 Performance Testing

8.1 Amount Of Data Loaded

"Amount of Data Loaded" refers to the quantity or volume of data that has been imported, retrieved, or loaded into a system, software application, database, or any other data storage or processing environment. It's a measure of how much data has been successfully processed and made available for analysis, manipulation, or use within the system.

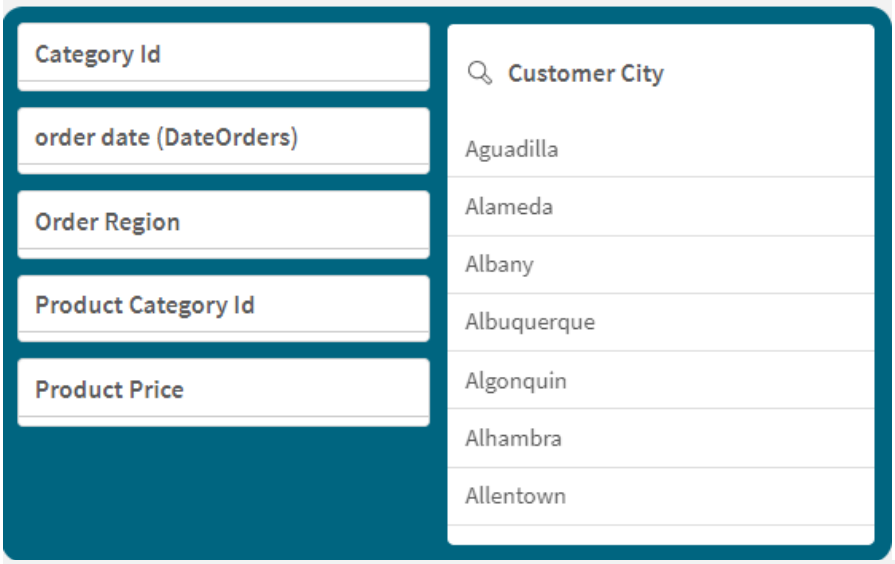
DataCoSupplyChainDataset DataCoSupplyChainDataset.csv *Pending add* Fields: 55

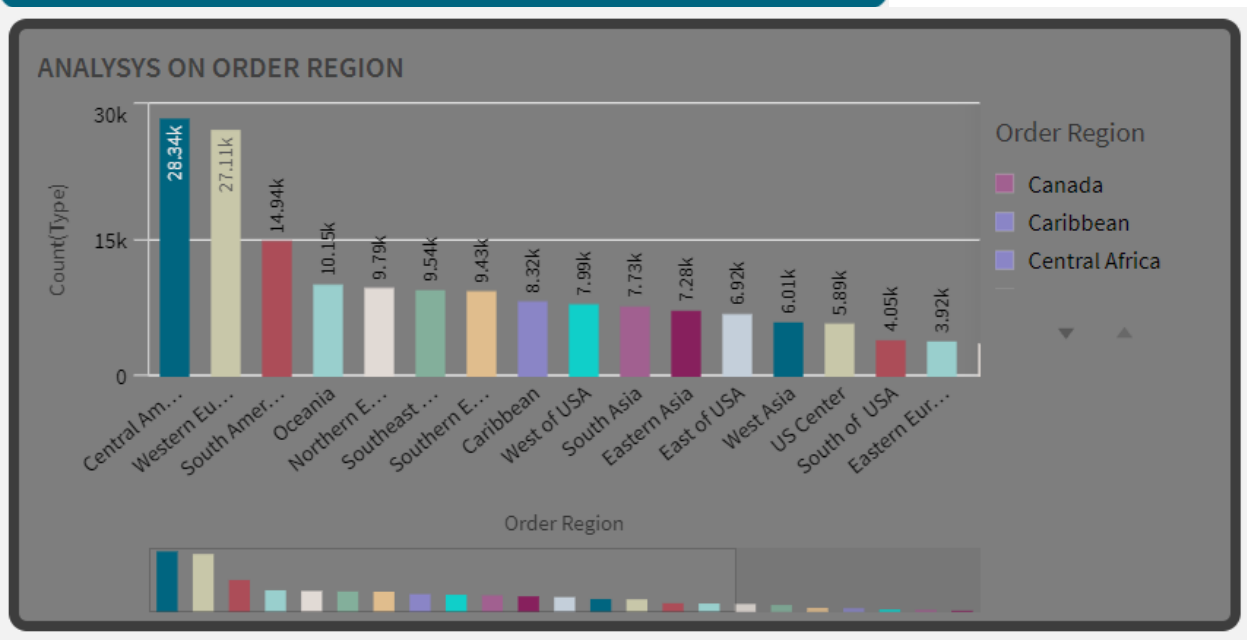
DataCoSupp...	Type	Days for shi...	Days for shi...	Benefit per o...	Sales per cu...	Delivery Status	Late_deliver...	Category Id	Category Name	Customer City	Custom
180514	PAYMENT	3	4	119.9899979	299.9899902	Advance shipping	0	45	Fishing	Lancaster	EE. UU.
180515	CASH	4	4	40	399.980011	Shipping on time	0	45	Fishing	Brooklyn	EE. UU.
180516	DEBIT	3	2	-613.7700195	395.980011	Late delivery	1	45	Fishing	Bakersfield	EE. UU.
180517	TRANSFER	5	4	141.1100006	391.980011	Late delivery	1	45	Fishing	Bristol	EE. UU.
180518	PAYMENT	3	4	186.2299957	387.980011	Advance shipping	0	45	Fishing	Caguas	Puerto R
180519	PAYMENT	4	4	168.9499969	383.980011	Shipping on time	0	45	Fishing	Caguas	Puerto R

DataCoSupplyChainDataset contains 55 fields and 180519 columns and the other documet conatins 9 fields and 180519 columns.

8.2 Utilization Of Data Filters

"Utilization of Filters" refers to the application or use of filters within a system, software application, or data processing pipeline to selectively extract, manipulate, or analyze data based on specified criteria or conditions. Filters are used to narrow down the scope of data, focusing only on the relevant information that meets certain predefined criteria.





8.3 No Of Visualizations/ Graphs

- Global Profit Ratios
- Total Items placed by customer in country
- Total Items placed by a state
- Analysis on customer segment
- Mode of payment
- Customer purchase by city
- Delivery status of orders
- Analysis on benefit per order
- Analysis on profit ratio
- Market Analysis
- Analysis on order region