

# 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 COLECT 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

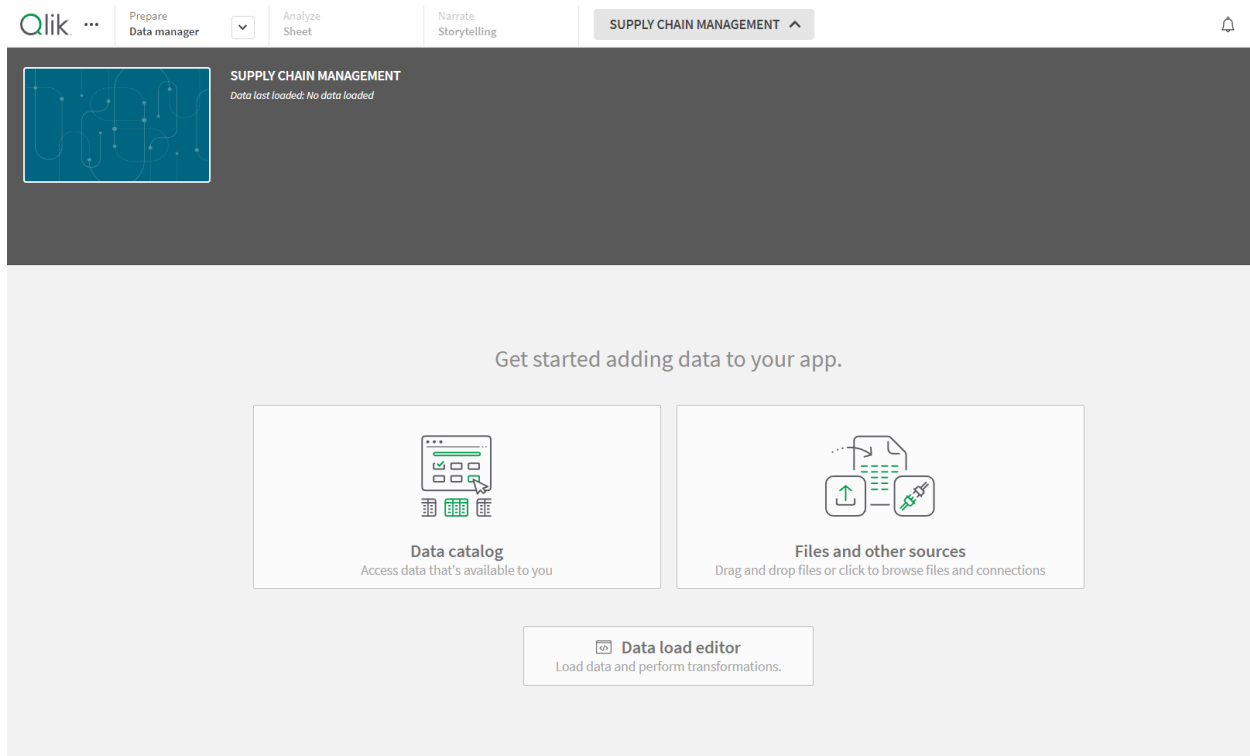
Column Description of the Dataset:

1. Type: Type Count
2. Days for shipping (real): Product shipment days
3. Days for shipment (scheduled): product getting prepared for shipment
4. Benefit per item: profit earned per product
5. Sales per customer: No of products purchased by the customer
6. Delivery: Products delivery date.
7. Late\_delivery\_risk: percentage of late delivery risk
8. Category Id: product category ID
9. Category: product category
10. Customer City: Customer purchase city
11. Customer Country: Customer purchase country
12. Customer Email: Customer purchase Email
13. Customer Fname: Customer First name.
14. Customer ID: Customer order ID
15. Customer Lname: Customer's last name
16. Customer Segment: Types of Customer
17. Customer State: Customer order state
18. Customer Street: Customer address

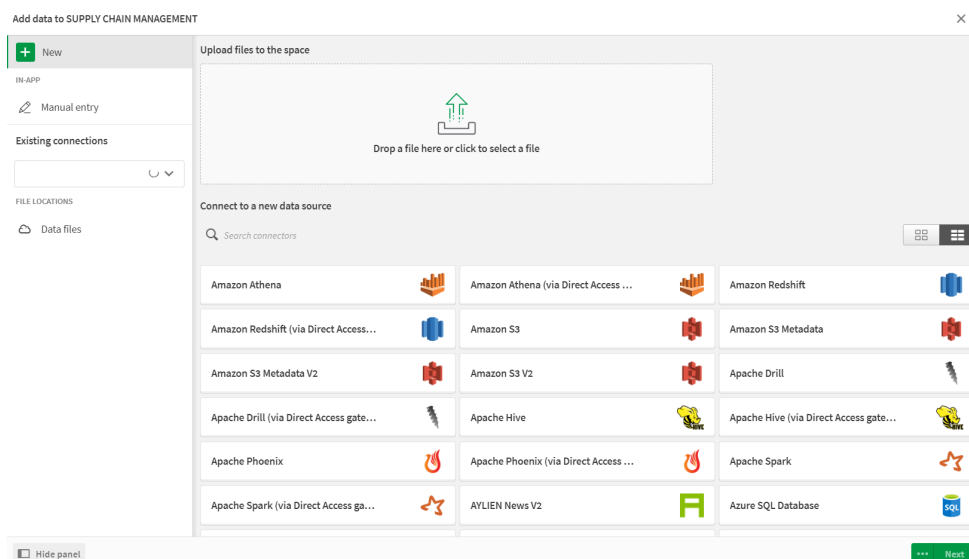
19. Customer Zipcode: Customer area code.
20. Market: top 10 country Market
21. Order City: Customer purchase city
22. Order Country: Customer purchase country
23. Order Customer ID: Customer
24. order date (DateOrders): Customer order date
25. Order Item Product Price: product price
26. Order Item Profit Ratio: profit ratio
27. Order Item Quantity: No of orders placed
28. Sales: total no of sales
29. Order Item Total: total price of the order placed
30. Order Profit Per: product
31. Order Region: order placed region
32. Order State: order placed State
33. Order Status: order delivery status
34. Order Zipcode: customer area code
35. Product Card ID: product number
36. Product Category Id: a product whose category belongs to
37. Product: what product
38. Product Image: image of the product
39. 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 options to load data into the app.



Data catalog, Files and other resources and data load editor. We have a 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

tokenized\_access\_logs(1)\* DataCoSupplyChainDataset(!)

\* This table has not been loaded or has changed since the last time it was loaded.

DataCoSupplyChainDataset(!) DataCoSupplyChainDataset(!).csv Fields: 54

| 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.       | XXXXXXXXXX |
| CASH | 0               | 0               | -854.960022      | 379.980011      | Shipping on time | 0               | 45          | Fishing       | Buena Park    | EE. UU.       | XXXXXXXXXX |
| CASH | 0               | 0               | -652.7700195     | 383.980011      | Shipping on time | 0               | 45          | Fishing       | West Haven    | EE. UU.       | XXXXXXXXXX |
| CASH | 0               | 0               | -595.1699829     | 383.980011      | Shipping on time | 0               | 45          | Fishing       | Princeton     | EE. UU.       | XXXXXXXXXX |
| CASH | 0               | 0               | -594.9699707     | 339.980011      | Shipping on time | 0               | 45          | Fishing       | Caguas        | Puerto Rico   | XXXXXXXXXX |
| CASH | 0               | 0               | -443.6300049     | 260.9599915     | Shipping on time | 0               | 17          | Cleats        | Caguas        | Puerto Rico   | XXXXXXXXXX |

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.

DataCoSupplyChainDataset tokenized\_access\_logs\*

\* This table has not been loaded or has changed since the last time it was loaded.

DataCoSupplyChainDataset DataCoSupplyChainDataset.csv Pending add Fields: 55

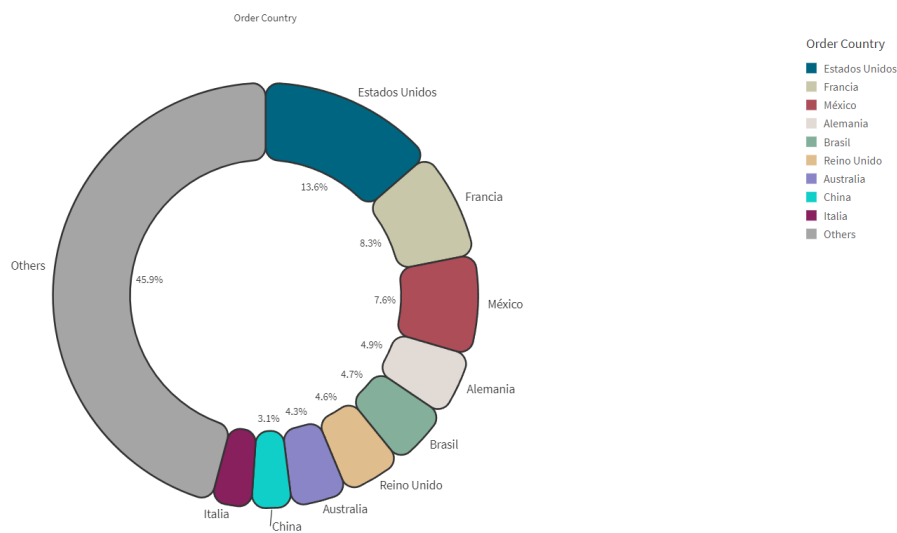
| DataCoSupp... | Type     | Days for shi... | Days for shi... | Benefit per o... | Sales per cu... | Delivery Status   | Late_deliver... | Category Id | Category Name  | Customer City | Custom   |
|---------------|----------|-----------------|-----------------|------------------|-----------------|-------------------|-----------------|-------------|----------------|---------------|----------|
| 1             | DEBIT    | 3               | 4               | 91.25            | 314.6400146     | Advance shipping  | 0               | 73          | Sporting Goods | Caguas        | Puerto I |
| 2             | TRANSFER | 5               | 4               | -249.0899963     | 311.3599854     | Late delivery     | 1               | 73          | Sporting Goods | Caguas        | Puerto I |
| 3             | CASH     | 4               | 4               | -247.7799988     | 309.7200012     | Shipping on time  | 0               | 73          | Sporting Goods | San Jose      | EE. UU.  |
| 4             | DEBIT    | 3               | 4               | 22.8600061       | 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 I |
| 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.

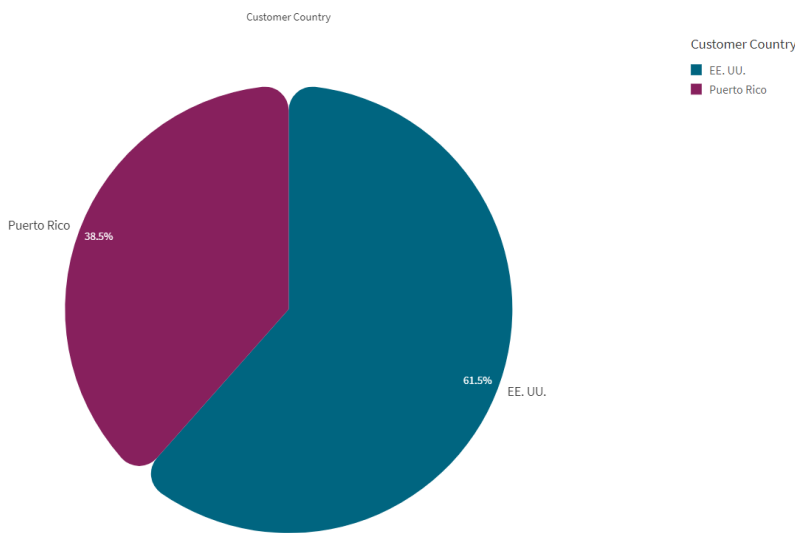
# 5 DATA VISUALISATION

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.

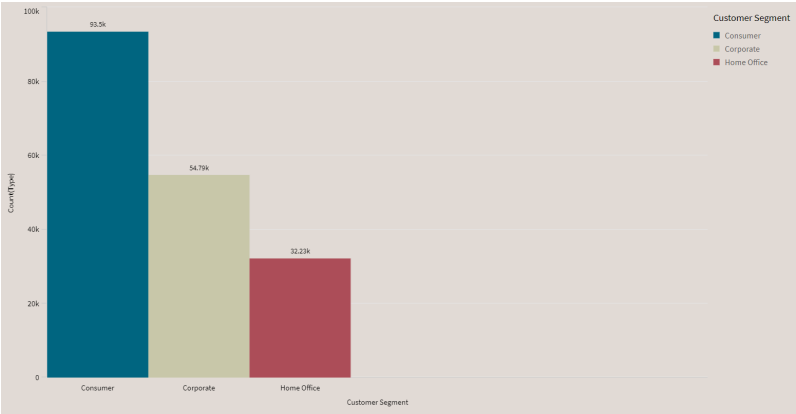
## GLOBAL PROFIT RATIO



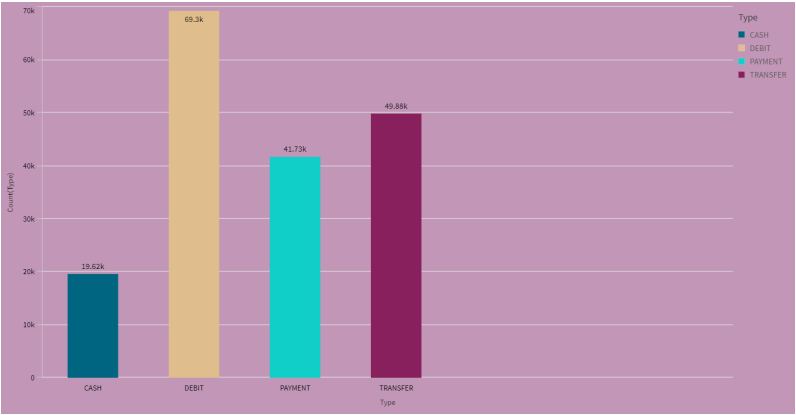
## TOTAL ORDER BY CUSTOMER IN THE COUNTRY



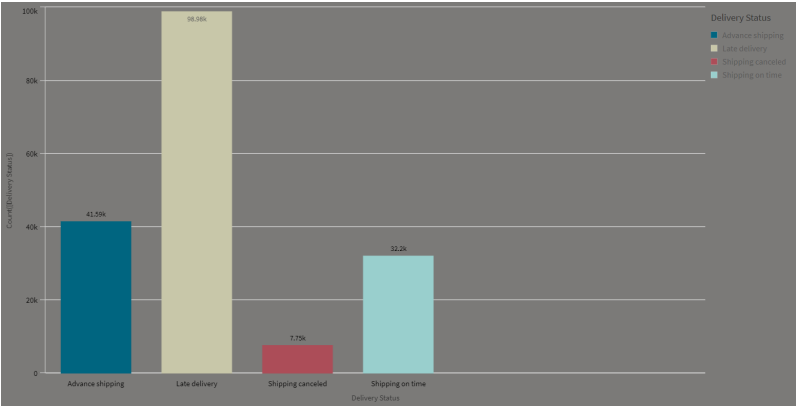
## ANALYSYS ON CUSTOMER SEGMENT



MODE OF PAYMENT

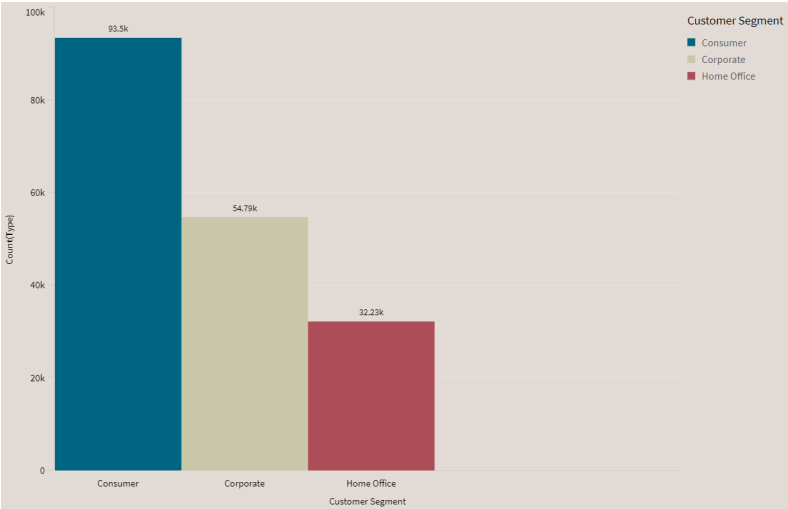


DELIVERY STATUS OF ORDER

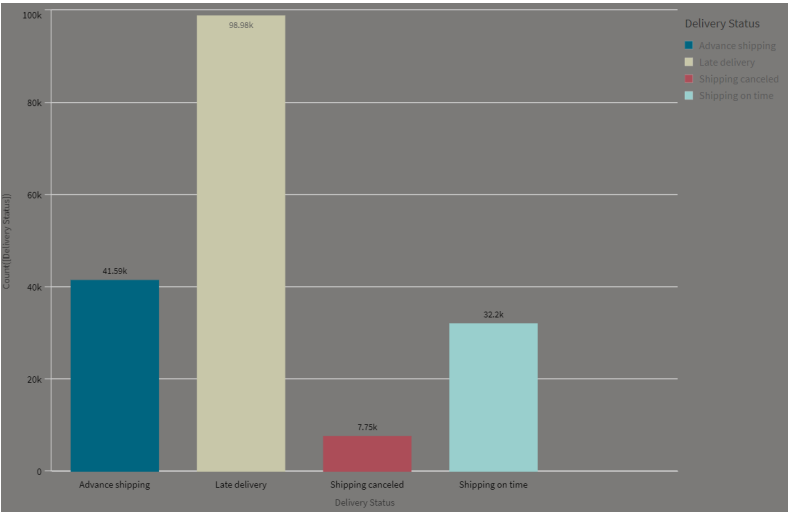


ANALYSYS ON CUSTOMBER SEGMENT

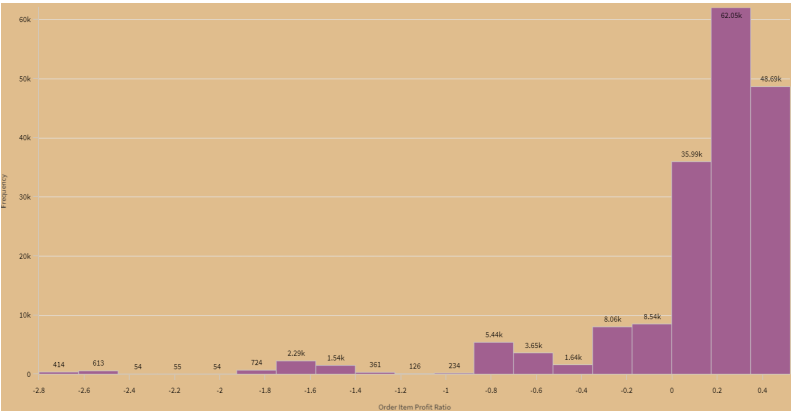




DELIVERY STATUS OF ORDER



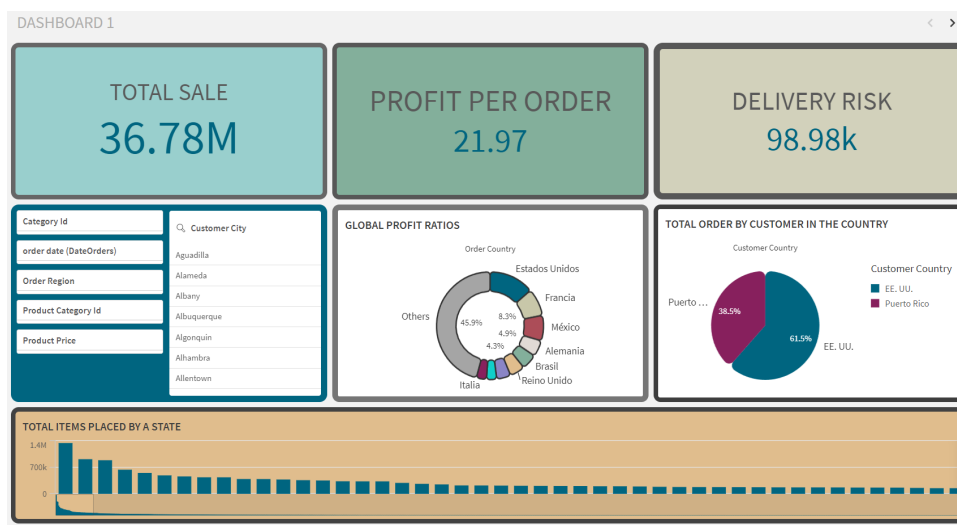
MODE OF PAYMENT



## 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

## &lt; &gt;



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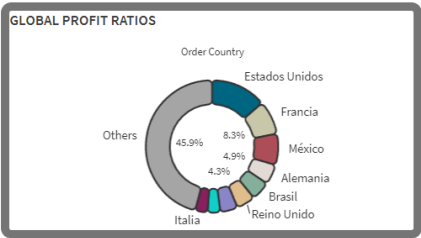
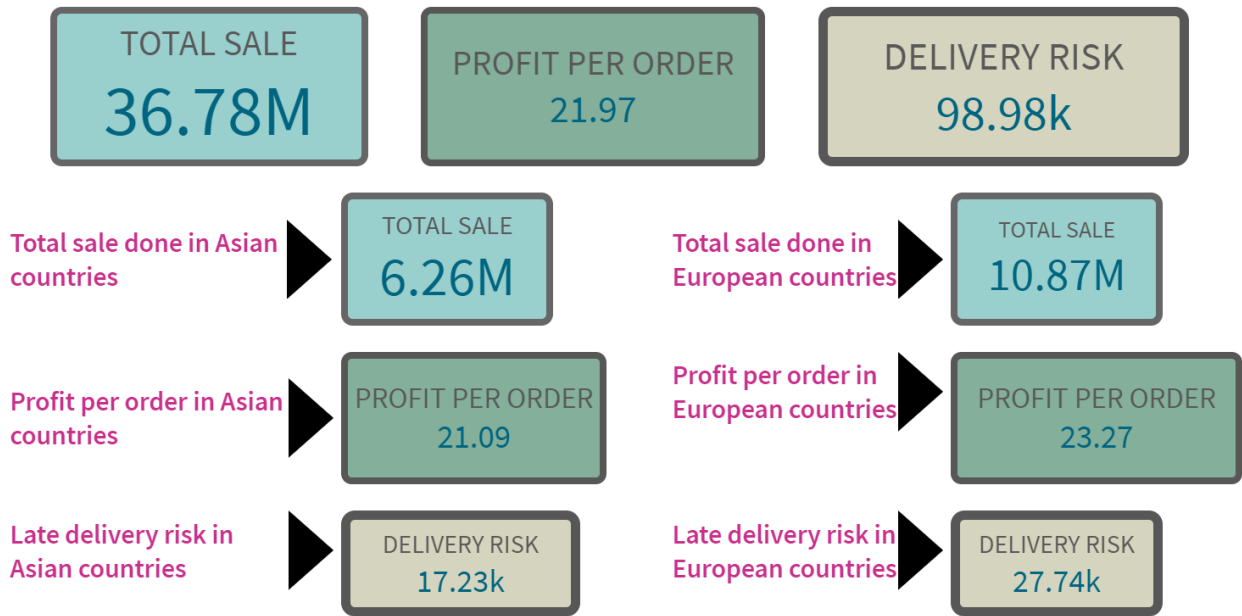
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## 7 STORY

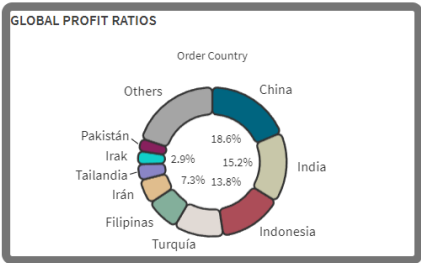
A data story is a way of presenting data and analysis in a narrative format, with the goal of making the information more engaging and easier to understand. A data story typically includes a clear introduction that sets the stage and explains the context for the data, a body that presents the data and 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

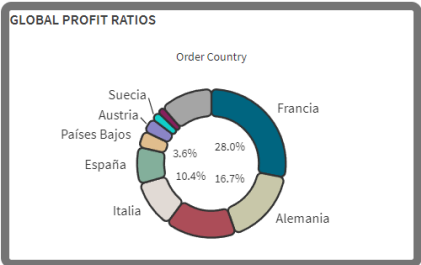


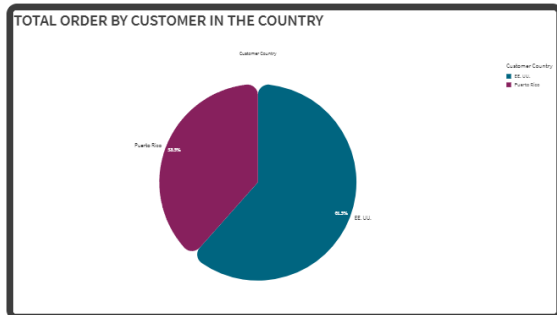
Profit ratios of all the countries in the supply chain management

Profit ratios of Asian countries in the supply chain management

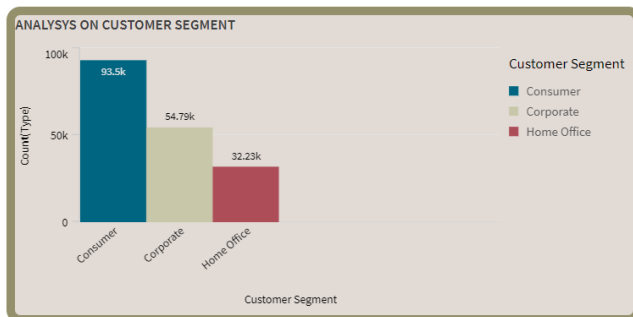


Profit ratios of European countries in the supply chain management

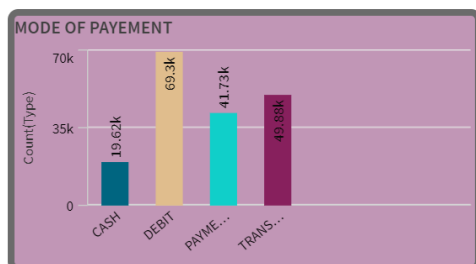




Total order placed by customers in each country

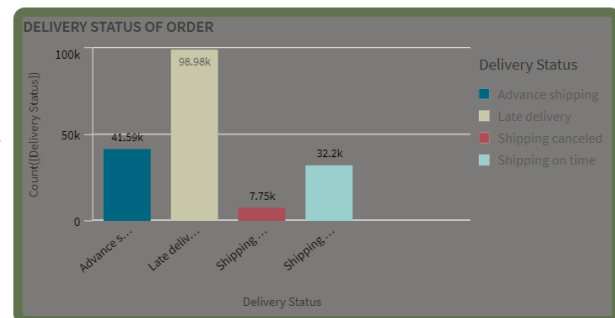


Analysis on customer segment, includes Consumer, Corporate, Home Office



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.

Category Id

order date (DateOrders)

Order Region

Product Category Id

Product Price

Customer City

Aguadilla

Alameda

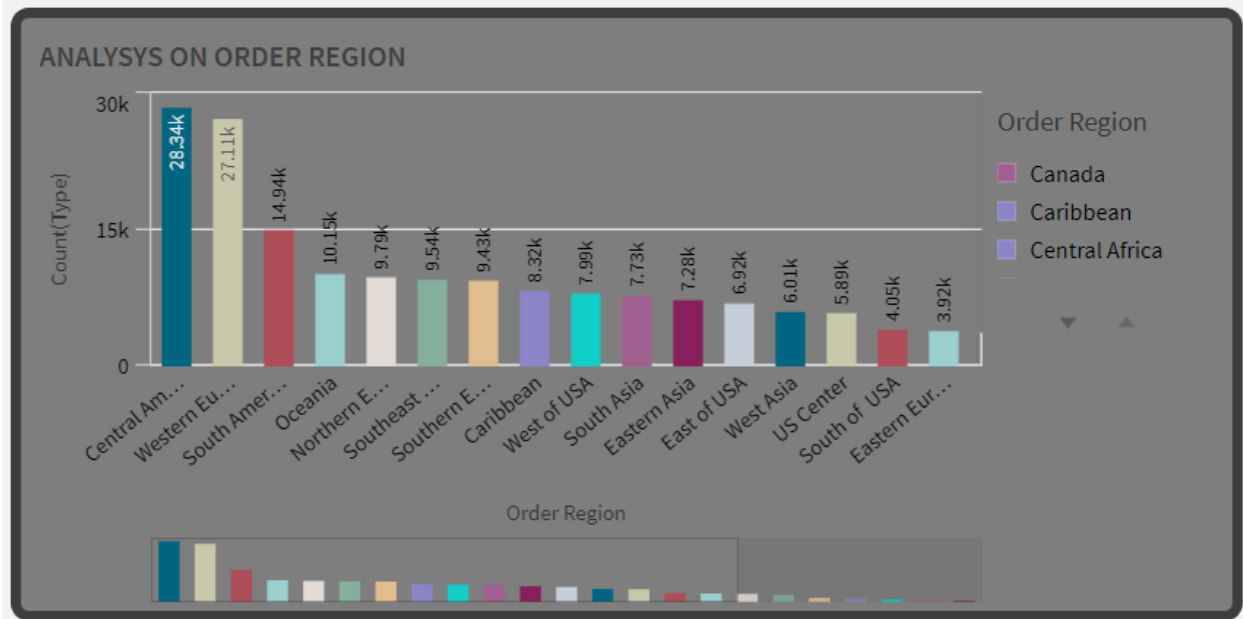
Albany

Albuquerque

Algonquin

Alhambra

Allentown



### 8.3 No Of Visualizations/ Graphs

1. Global Profit Ratios
2. Total Items placed by customer in country
3. Total Items placed by a state
4. Analysis on customer segment
5. Mode of payment
6. Customer purchase by city
7. Delivery status of orders
8. Analysis on benefit per order
9. Analysis on profit ratio
10. Market Analysis
11. Analysis on order region

