# Supply Chain Management With Qlik

Made by: Charvi Gupta

# Acknowledgement

I want to extend my gratitude to everyone who contributed to the "Data-Driven Innovations in Supply Chain Management with Qlik Insights" project.

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Last but not least, I express my gratitude to my families and loved ones for their unwavering support, understanding, and encouragement throughout this journey.

Thank you all for your contributions, support, and encouragement.

Charvi Gupta

# Introduction

## Overview

In this project we need to analyse the supply chain data so as to be able to know the problem of how the products of the company can be managed along with their prepration to sell. We will be using Qlik cloud to help us get through with the analysis and thus find the solution to our problem and questions. We will be presenting our data ain a pleasing yet easy to understand method so that It can be analysed by our clients easily.

## Purpose

This project would help us achive our purpose of:

- **Decision-Making**: This analysis would provide real-time insights and analytics, enabling more informed and timely decisions to optimize supply chain processes and respond to market changes effectively.
- **Increased Efficiency and Cost Reduction**: By leveraging data analytics, organizations can identify inefficiencies, predict demand accurately, and streamline operations, leading to significant cost savings and improved resource utilization.
- **Improved Customer Experience**: This approaches allow for better demand forecasting and inventory management, ensuring that products are available when and where customers need them, thereby enhancing customer satisfaction and loyalty.
- **Risk Management and Resilience**: This analytics helps in identifying potential risks and disruptions in the supply chain, allowing the company to proactively address issues, improve resilience, and maintain continuity in operations.

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# Defining the business problem/ problem explained.

## Business problem explained.

The problem of this set can be determined as:
Through the data provided by the supply chain company we want to get to know the problem of how the products of the company can be managed along with their prepration to sell. We also want to be able to get insights on the way of the optimization of the inventory management and the supply chain insights.

Through this project, we set to transform supply chain management through data-driven insights using Qlik. With the power of advanced analytics, we aim to optimize logistics, forecasting, and inventory management, leading to heightened operational efficiency and responsiveness.

This innovative project would also help us determine the need to reshape the supply chain management landscape by harnessing Qlik's data-driven insights.

Through this analytics, we want to revolutionize logistics, forecasting, and inventory management, ultimately elevating operational efficiency and responsiveness to unprecedented

# Business requirements

The elements required for the same are:

1. Implementing a robust data integration strategy to aggregate and centralize relevant data from diverse supply chain sources.
2. Utilization of Qlik's advanced visualization capabilities to create intuitive and dynamic dashboards, providing stakeholders with clear insights into the entire supply chain ecosystem.
3. Using Qlik's advanced analytics features to analyse historical logistics data and identify patterns.
4. Implement real-time tracking and monitoring solutions to enhance visibility into the movement of goods, reducing lead times and minimizing transportation costs.
5. Implement real-time analytics to facilitate quick decision-making in response to unforeseen events or changes in demand, ensuring a proactive and responsive supply chain.

# Literature survey

A literature survey on the project reveals a growing body of research and scholarly articles focused on similar endeavors.
Studies underscore the increasing recognition of the pivotal role that data analytics plays in transforming traditional supply chain processes.
Research highlights the effectiveness of leveraging advanced analytics tools, such as Qlik, to enhance visibility and decision-making in supply chain operations.

The study emphasizes the positive impact on logistics optimization, forecasting accuracy, and inventory management efficiency.
The findings showcase successful implementations, demonstrating notable improvements in operational efficiency and responsiveness across various industry sectors. In addition, examines the challenges and opportunities associated with the adoption of data-driven insights in supply chain contexts.
The literature emphasizes the need for organizations to develop robust data governance frameworks and cultivate a data-driven culture to fully unlock the potential benefits.

# Social and the Business Impact

## Social impact :-

Optimal utilization of resources can be achived through this analysis thus helping the company in sustainable practices, saving not only the scarce resouces and avoiding wastage but also would assist in the growth of the environment.

## Business impact :-

This would help the business in the following:

1. Saving the business resources
2. Earning greater profits
3. Gaining greater goodwill
4. Environment conservation.

Thus the business will gain better insights on their supply chain management and would also be able to work effectively and efficiently.

# Data Collection & Extraction From Database

Data collection involves gathering and measuring information on variables of interest in a systematic fashion, allowing for answering research questions, testing hypotheses, evaluating outcomes, and generating insights from the data.

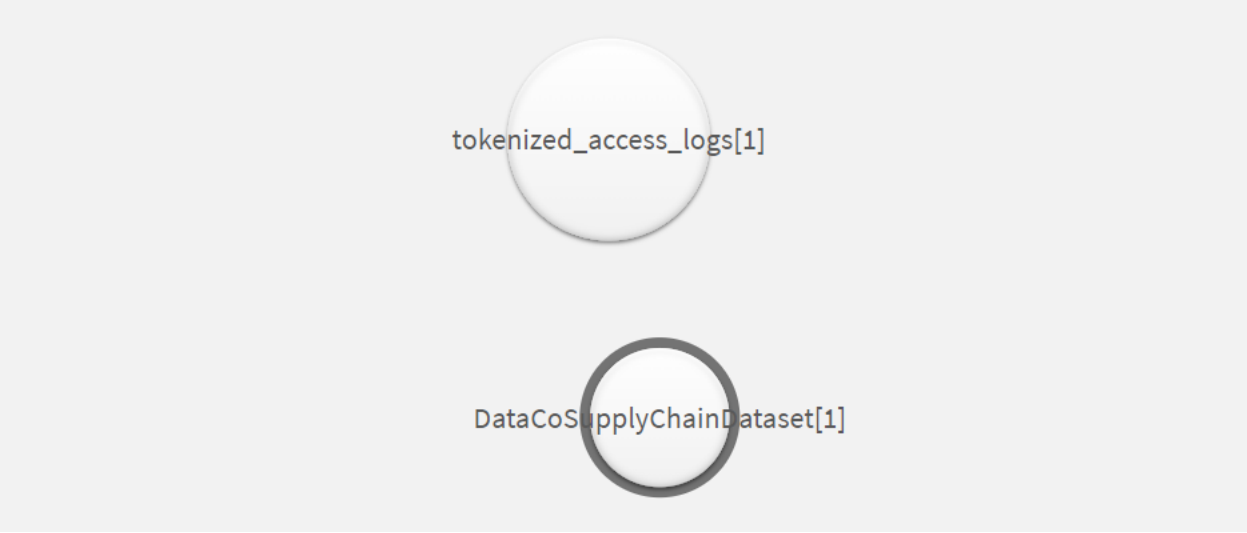
## Downloading the dataset

The dataset has been downloaded from the link given. It is also attached as below.

- https://docs.google.com/spreadsheets/d/1yoNM6cXccYlNWjHtk7R-lxLQxAXqExbA/edit?usp=sharing&ouid=112609356690735450285&rtpof=true&sd=true
- https://docs.google.com/spreadsheets/d/15Upk3k8CJOjQdmDvhvI9-vut0_vfBVuf/edit?usp=sharing&ouid=112609356690735450285&rtpof=true&sd=true

## Understanding the dataset

The dataset was understood with the help of the description csv given in the folder of the link above. We understood the various elements involing the types of payment, the market, the delivery risks and such other important aspects that will used for the further Qlik analysis.



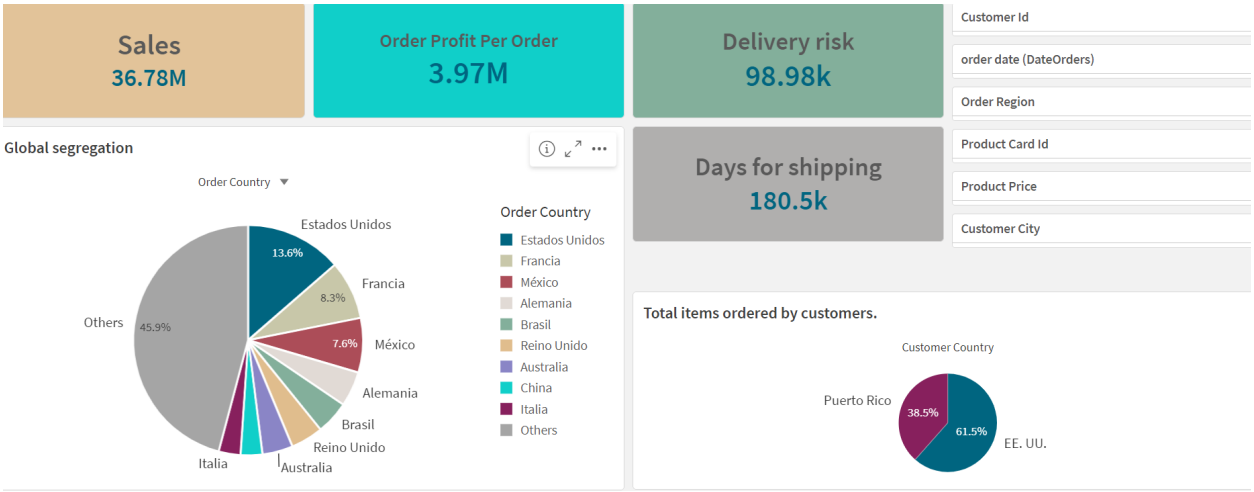
# Data Preparation

Preparing the data for visualization involves cleaning the data to remove irrelevant or missing information, transforming the data into a format suitable for visualization, exploring the data to identify patterns and trends, filtering the data to focus on specific subsets, preparing the data for visualization software, and ensuring it is accurate and complete.
We prepared the data simply by uploading it into the Qlik cloud and looking for any type of errors and missing values and overall cleaning the data.
This process makes the data easily understandable and ready for creating visualizations to gain insights into performance and efficiency. Since the data is already cleaned, we can now move on to visualization

# Data Visualization, Dashboards and Story

## Data Visualization

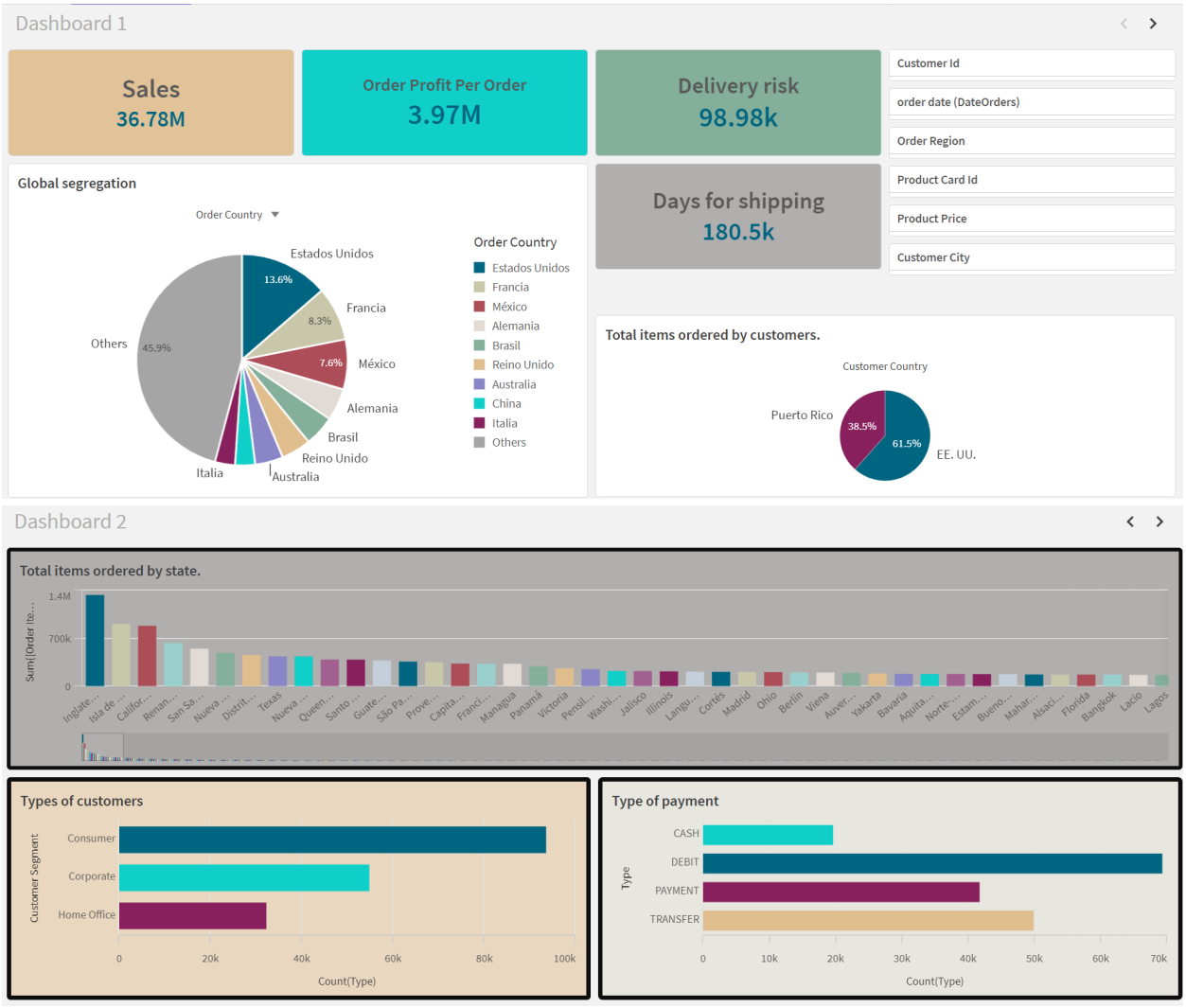
Data visualization involves creating visual representations of data to aid in understanding and exploring information. The aim is to make complex data sets more accessible, intuitive, and easier to interpret. By utilizing visual elements like charts, graphs, and maps, data visualizations can help individuals swiftly identify patterns, trends, and anomalies within the data.
We created various visualizations invloving bar charts, pie charts and such. A snippet of the same is attached as below.

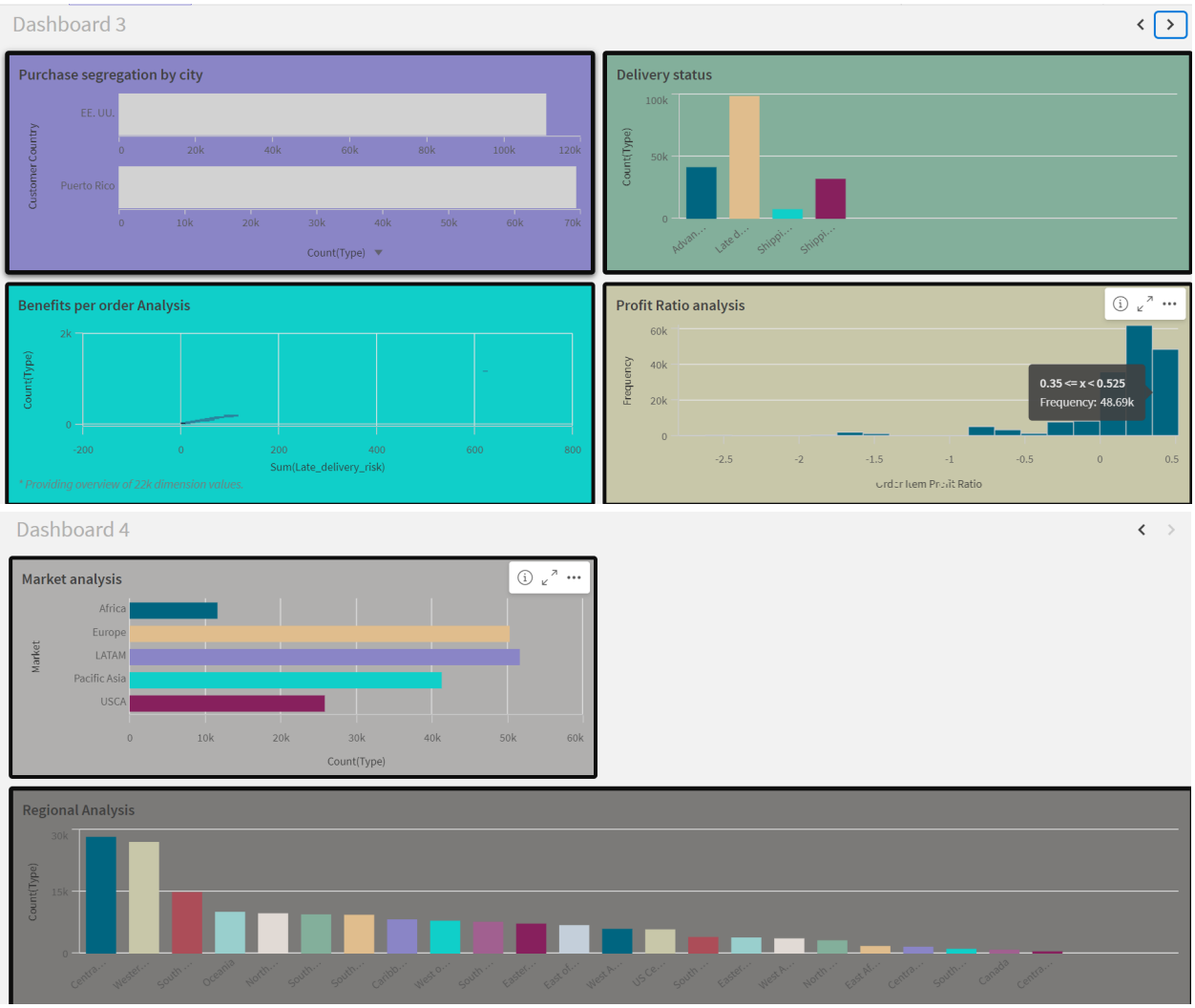


# Dashboards

A dashboard is a graphical user interface (GUI) that presents information and data in an organized, easy-to-read format. Dashboards are commonly utilized for real-time monitoring and data analysis, and are typically tailored for specific purposes or use cases. They find applications in various fields such as business, finance, manufacturing, healthcare, and many other industries. Dashboards are effective for tracking key performance indicators (KPIs), monitoring performance metrics, and visualizing data through charts, graphs, and tables.

For this we have made a total of 4 dashboards, the screenshots of the same are given as follows:





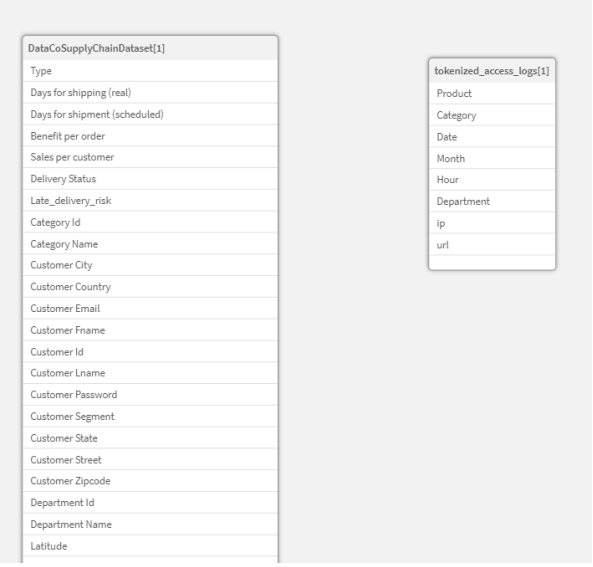

# Story

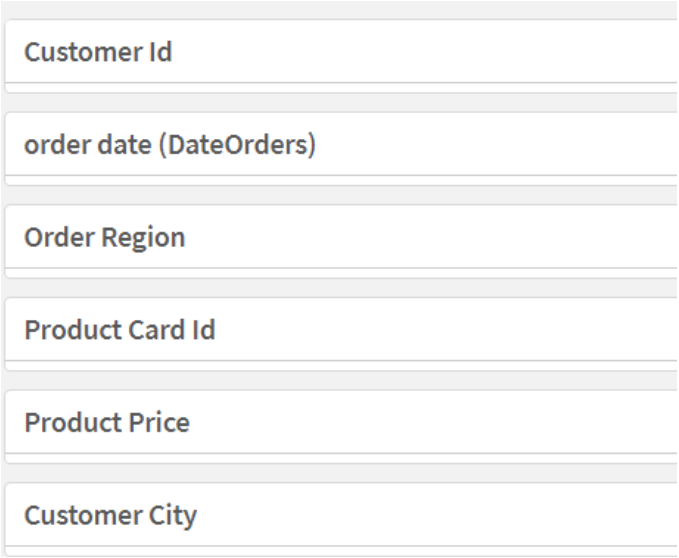

A data story is a way of presenting data and analysis in a narrative format, with the goal of making the information more engaging and easier to understand. A data story typically includes a clear introduction that sets the stage and explains the context for the data, a body that presents the data and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

# Performance Testing

## 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. This measurement indicates how much data has been successfully processed and made available for analysis, manipulation, or use within the system.



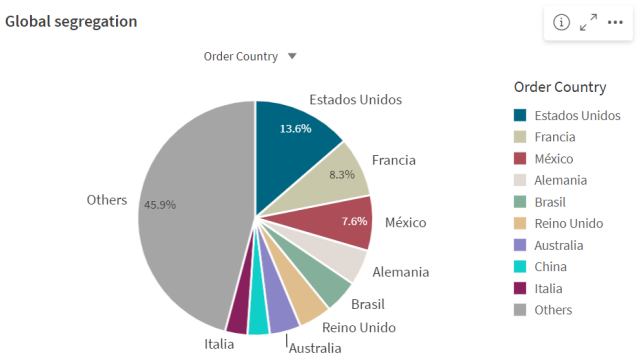

## Utilization of filters

Utilization of Filters refers to the use of filters within a system, software application, or data processing pipeline to selectively extract, manipulate, or analyze data based on specific criteria or conditions. Filters are employed to narrow down the scope of data, focusing only on the relevant information that meets certain predefined criteria.
For eg; In this we could utilise the filter so as to get the regional preference and their outputs that would involve the metrics change in the elements of the dashboard like that of sales, profit margin and the delivery risk.

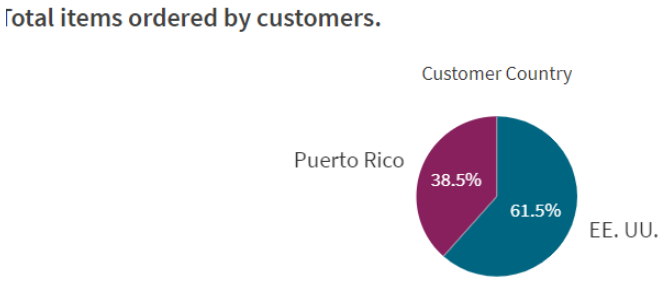
## No. of visualizations

Following are the visualisations presented in this analysis:

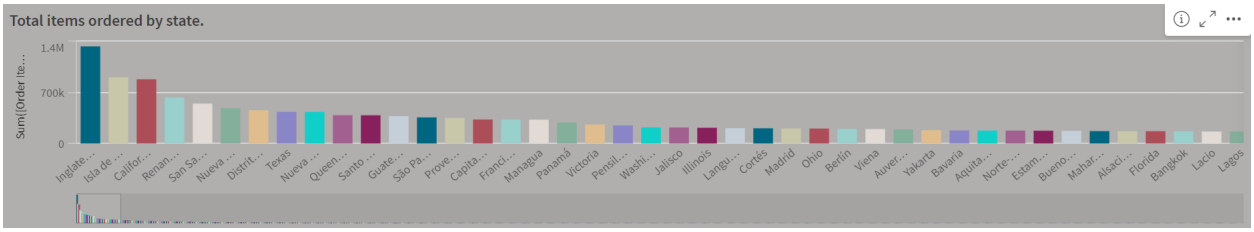
1. Global segregation



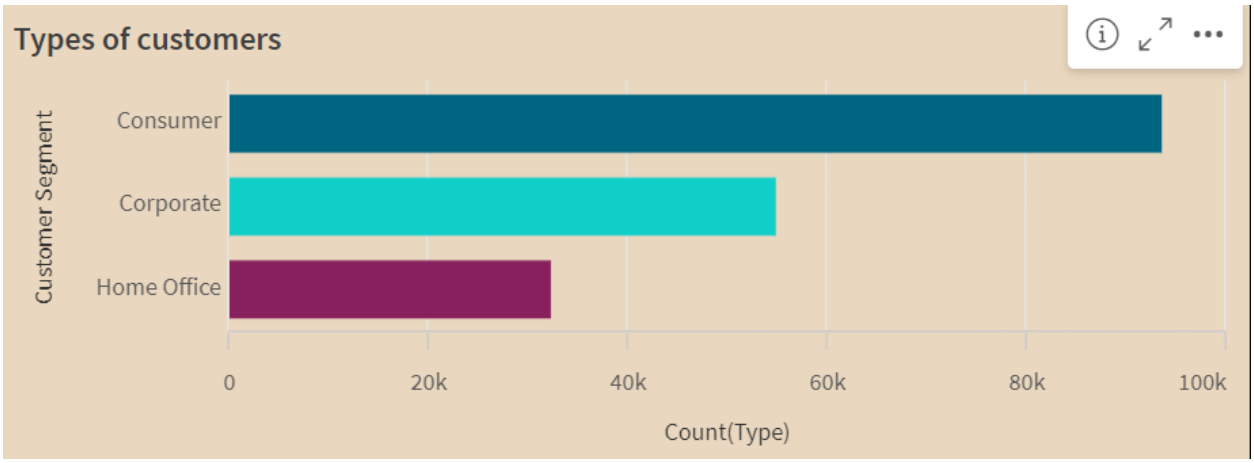
2. Total items ordered by customer



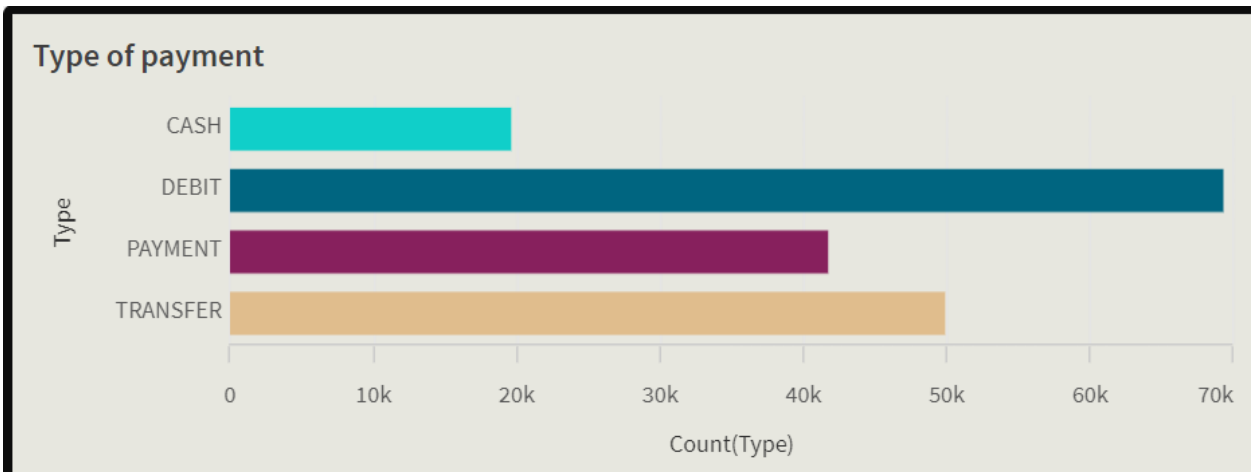

3. Total items ordered by state



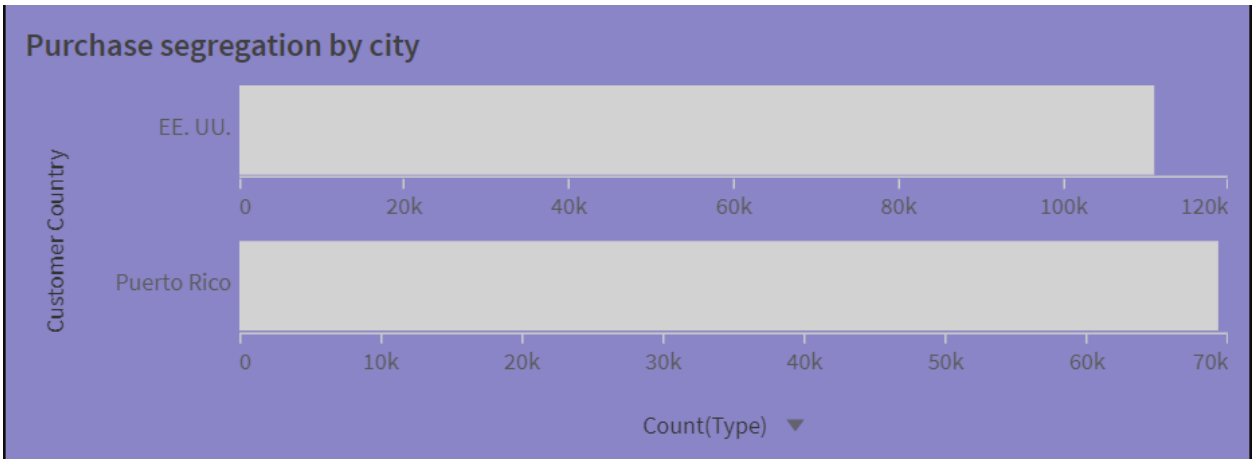

4. Types of customers



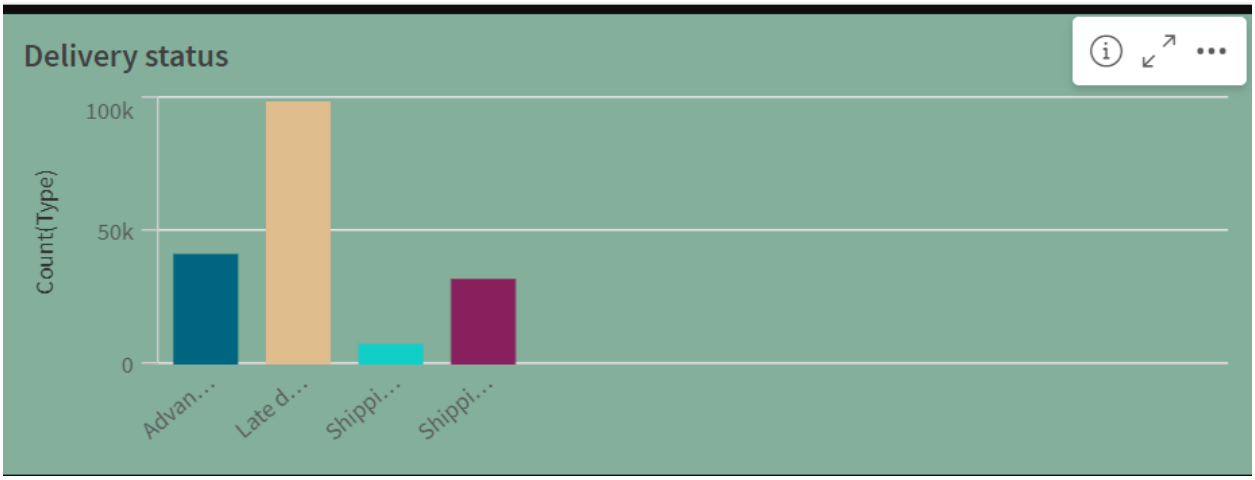

5. Types of payments



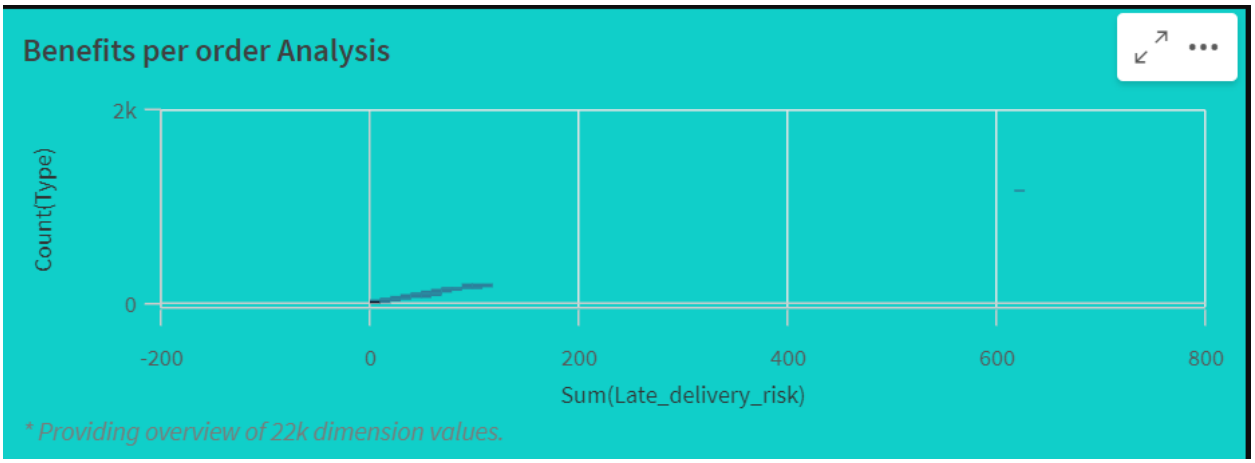

6. Purchase segregations by city



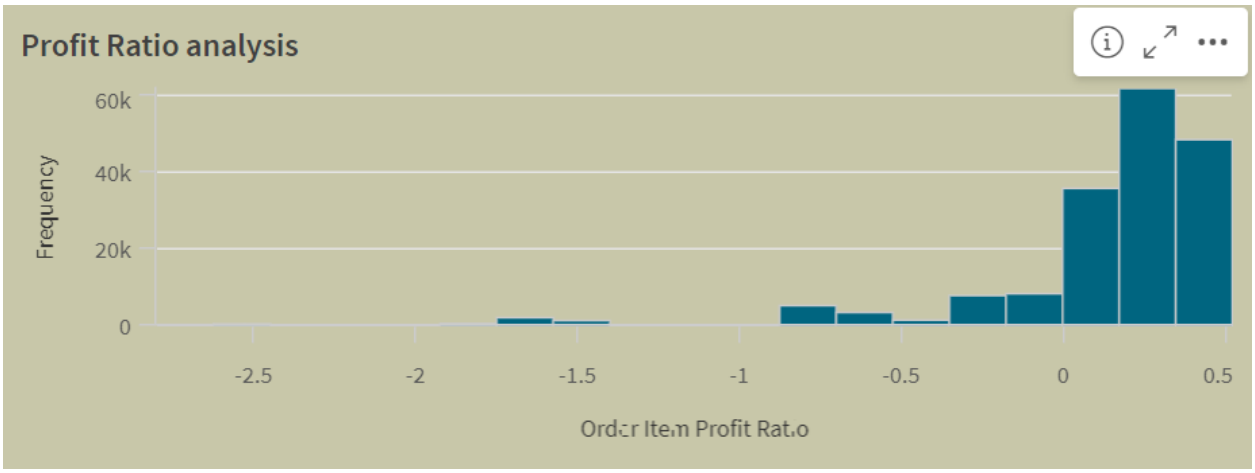

7. Delivery status



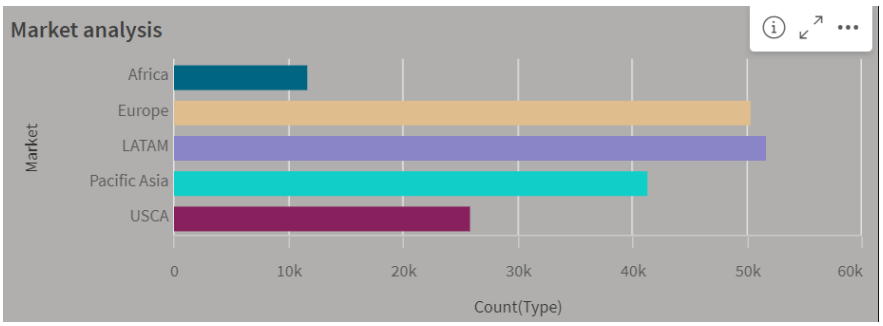

8. Benefit per order analysis




9. Profit ratio analysis




10. Market analysis




11. Regional analysis