

Airline Data Analysis

Introduction

Overview of the project:

The airline industry is a big platform and data driven sector. In this platform data analysis is a tough challenge for an analytic . Because timely and accurate data analysis is crucial for making informed decision.

We are using Qlik Sense Data Analysis Tool for analyzing airline data set which have multiple rows and columns and fields.

Qlik Sense is a powerful data visualization and business intelligence tool, to analyze various aspect of operations.

Qlik Sense enables us to transform complex data set into insightful visualizations .

To visualize different type of data here we have many type of charts . With the help of thats charts we can create many impact full and easy to understand visualizations for user.

Purpose

The main purpose of this project using qlik sense is that , analyze

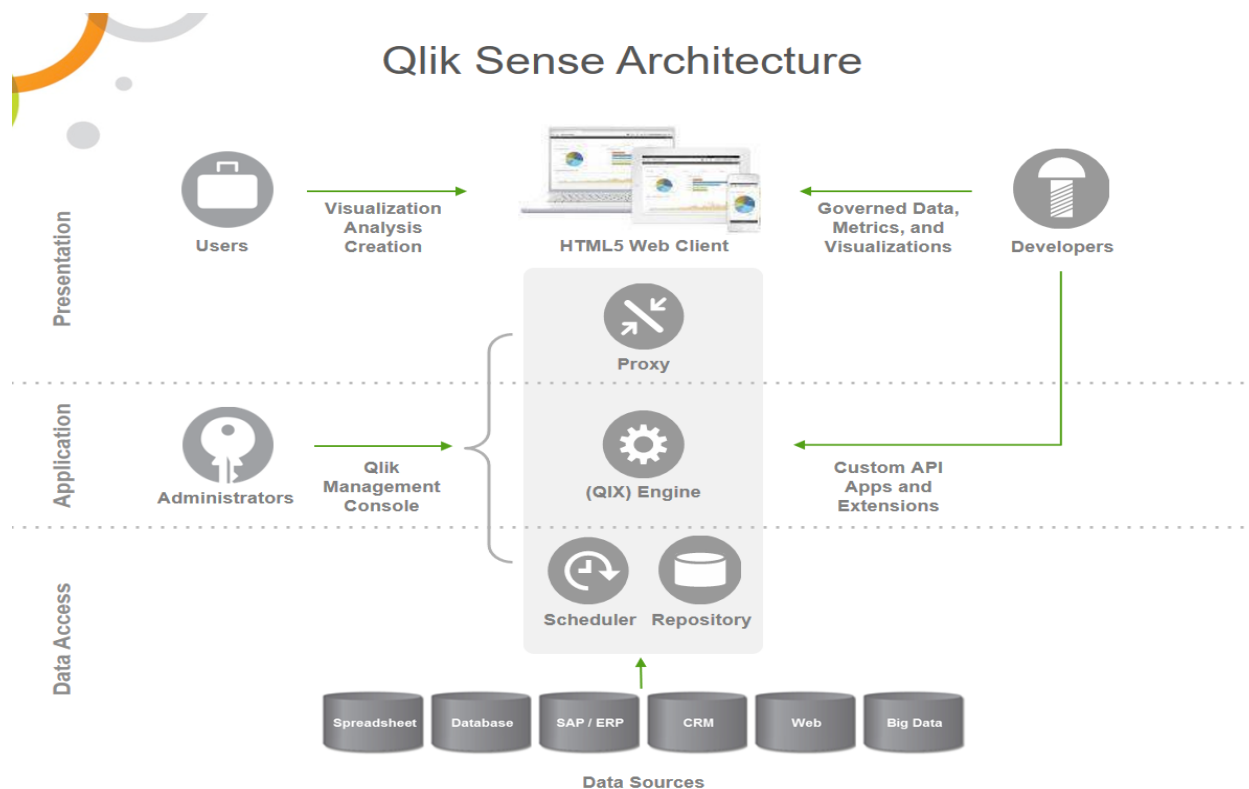
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row and difficult data and convert data into visualization form , which is easy to understand for customer .

It take less time to create visualizations , also improve costomer satisfaction. The project aims to understand and enhance the overall customer satisfaction and experience.

We can analyze data from the world by this tool . This is a user friendly interface and come with powerful analytics capabilities. It provides us intitutive dashboard , to enables us data diven decisions .

Technical Architecture



Define problem / Problem Understanding

Specify The Bussiness Problem

Whenever an analytic analyze row data , so there is many problems occur. The airline industry is characterized by its complexity and the critical need for operational efficiency, customer satisfaction, and financial stability.

Some time flights get delay and cancelled , and disrupt schedules and it reduce operational efficiency.

Poor customer experience , as reflected in passenger complaints and low satisfaction scores, harm the airline's reputation and customer loyalty.

Inefficient use of aircraft, crew, and ground resources leads to increased costs and decreased.

Frequent flight delays and cancellations disrupts schedules , leading to increased operational costs, reduced customer satisfaction , and potencial loss of revenue.

Business Requirement

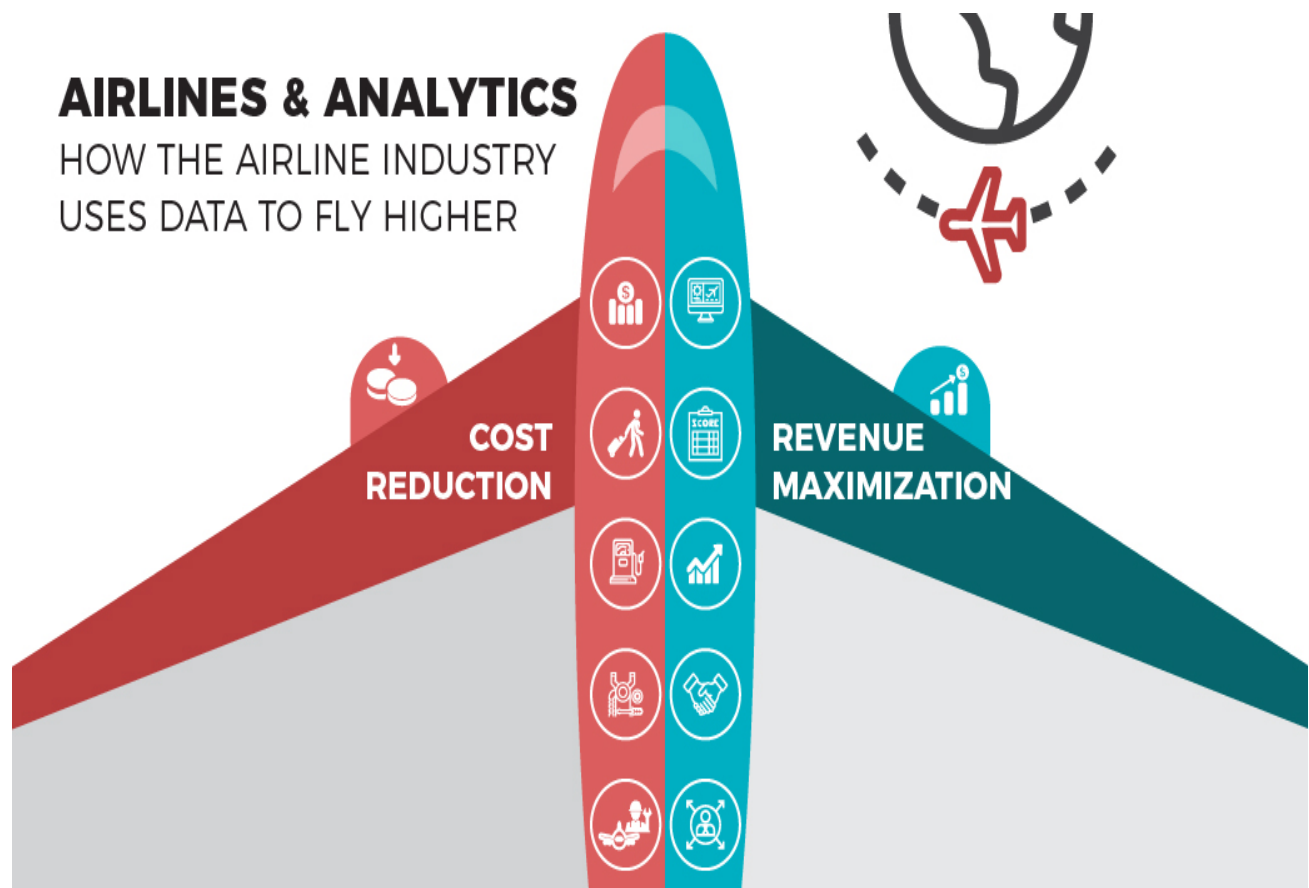
To effectively address the bussiness problem identified in the ariline data analysis project using Qlik Sense, many data requirements are essential. these requirement ensure comprehensive coverage of all relenvent aspects of airline operations ,customer satisfaction,

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financial performance and market dynamics.

Operational data like flight schedules, flight status and resource allocation are mainly required for the analysis. Flight schedule considers detailed information on planned and actual flight scheduled, including departure and arrival time. Flight status considers data on flight delays, cancellations, and reasons for disruptions. Resource Allocation considers information on aircraft usages, crew schedules, and ground service operations.

WE CAN UNDERSTAND BY A PICTURE



Literature Survey

The airline industry , characterized by its compelxity and competitive nature ,benifits significantly from data analysis and visualization .tools. Qlik Sense , a leading business intelligence tool , offer powerful capabilities for handling large data sets , enabling project to gain insight into various aspects such as operational efficiency, customer satisfaction , pricing strategies , demand forecasting , and safety analysis. Literature survey aims to review the existing research and case studies on the application of qlik Sense in the airline industry .

Qlik Sense helps airlines by providing real-time analytics and dashboards that monitor flight operations, maintenance schedules, and turnaround times. By visualizing data from various sources, airlines can identify inefficiencies and implement corrective measures promptly.

Qlik Sense enables the aggregation and visualization of customer feedback from multiple channels. Airlines can use this data to track customer satisfaction metrics, identify common issues, and enhance the overall passenger experience by addressing specific pain points.

Data Collection

Collect the dataset

For any project we have data for analyzing, without data we could not perform analysis task. We extract data from many different sources . To collect data we have to identify source for a particular analysis task , from which we can collect the required data .These could include internal airline database, third-party data provider , public database and industry reports.

We also integrate data from various sources into a centralized data repository that can be accessed and analyzed using Qlik Sense.

Data collection is the process of gathering and measuring information on variables of interest , in an established systematic fashion that enables one to answer stated research questions , test hypotheses , evaluate outcomes and generate insights from the data .

Connect Data with the Qlik Sense

Data contains all the meta data information regarding the column and rows in the csv file format. We calculate all desired fields which

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we want in data analysis. We can use many filters in the data set and make it in organised form.

Here we have airline data in which more than 15 columns which are:

Passenger ID , First Name, Last Name ,Gender , Age, Nation ,
Airport Name ,Country Name etc.

Data Preparation

Prepare the data for the visualization

Preparing data for analysis in Qlik Sense involves several crucial steps: cleaning, transforming, integrating, structuring, and validating the data before loading it into the BI tool. By ensuring high data quality and consistency, airlines can leverage Qlik Sense to gain meaningful insights and drive data-driven decisions.

We gather data from various sources as outlined in the previous section. Ensure that the data is relevant, accurate, and comprehensive. Data cleaning ,remove duplicate identify and eliminate duplicate records to ensure data accuracy. Fill in missing values where appropriate, or remove records with too many missing

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values. Identify and correct errors in data entries, such as incorrect dates, times, or numerical values.

Data Visualization

Visualizations:

Data Visualization represent the visual insights of our data. creating effective data visualizations in Qlik Sense involves a combination of selecting the right types of charts and configuring them to present your data clearly and insightfully .

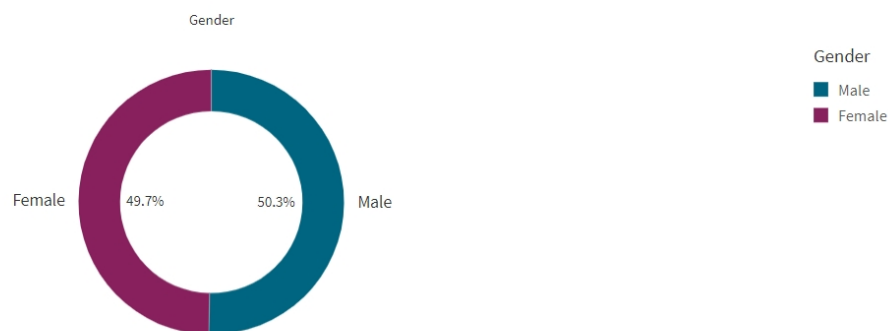
Some of Airline Data Visualization Charts :

Count([Passenger ID])

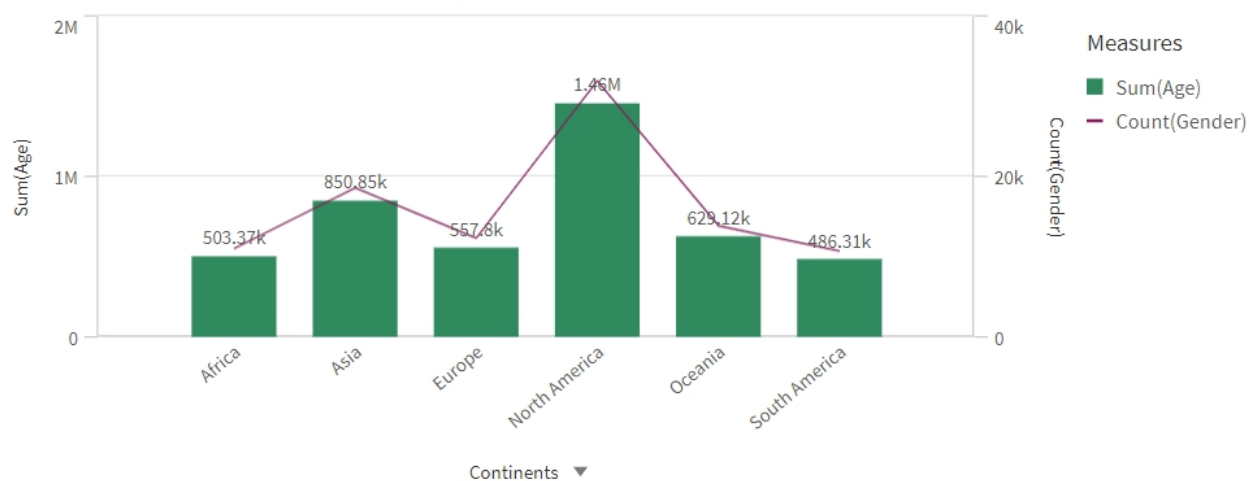
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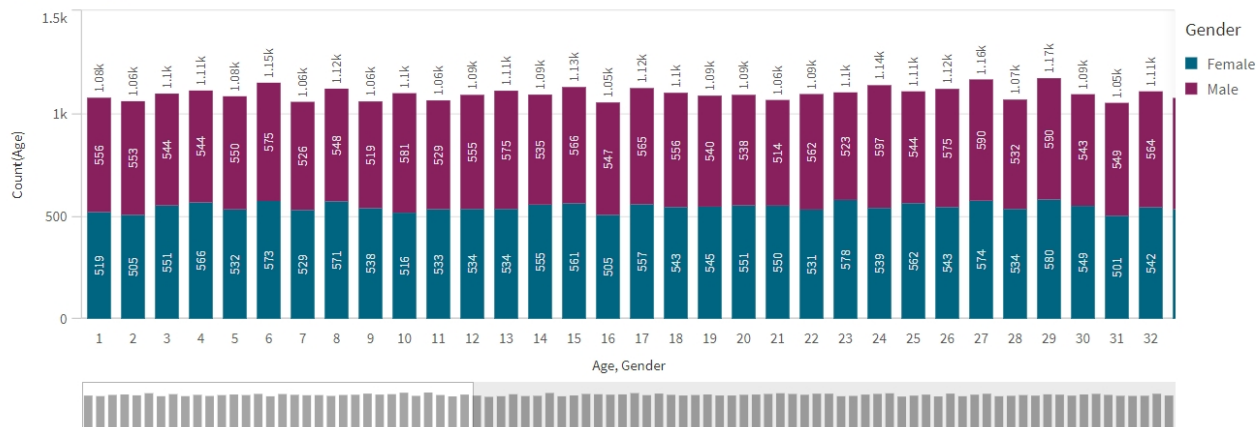
Percentage of male and female passenger



Analysis of Continent as pr sum of age and count of gender



Age count by gender



Dashboard

Responsive and Design dashboard:

Creating a responsive dashboard in Qlik Sense ensures that your visualizations adjust dynamically to different screen sizes, making them accessible and user-friendly across various devices.

To make a dashboard we drag and drop visualization from the asset panel onto the sheet.

We choose appropriate charts and tables based on the data we want to present.

We use grid layout option to arrange visualizations in row and columns.

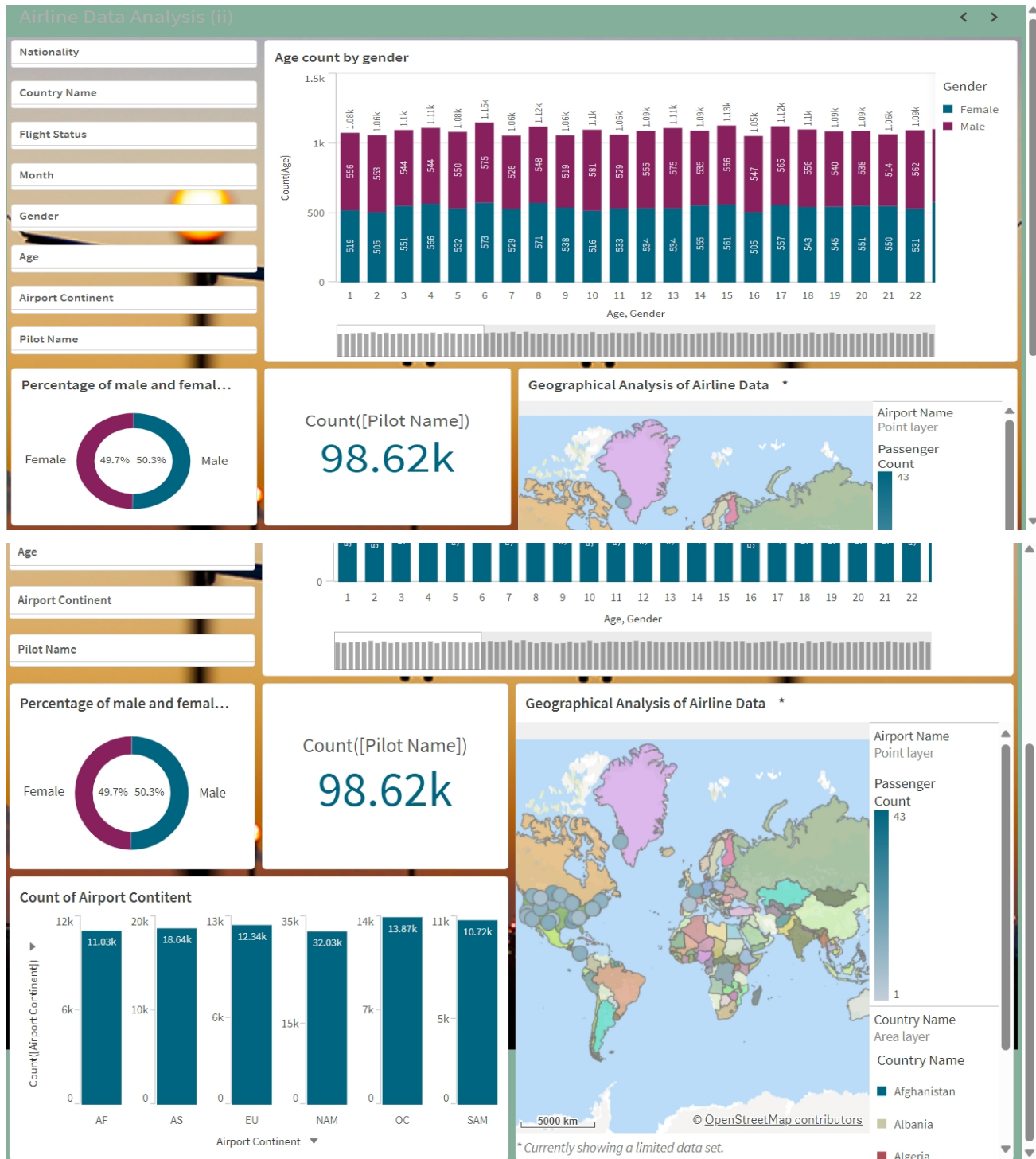
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Dashboard of the airline data set:



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Dashboard (ii)



Report

Report Creation:

Creating a comprehensive report based on your responsive Qlik Sense dashboard involves summarizing key insights, visualizations, and analyses in a format that can be shared with stakeholders.

The main objective of creating reports is Identify the purpose of the report, Determine the target audience and their information needs. Outline the key metrics and insights to be included. we choose the most relevant and impactful visualizations from our dashboard. and ensure each visualization supports the narrative of the report.

WE can also represent our report by story , which can also create story in Qlik Sense platform.

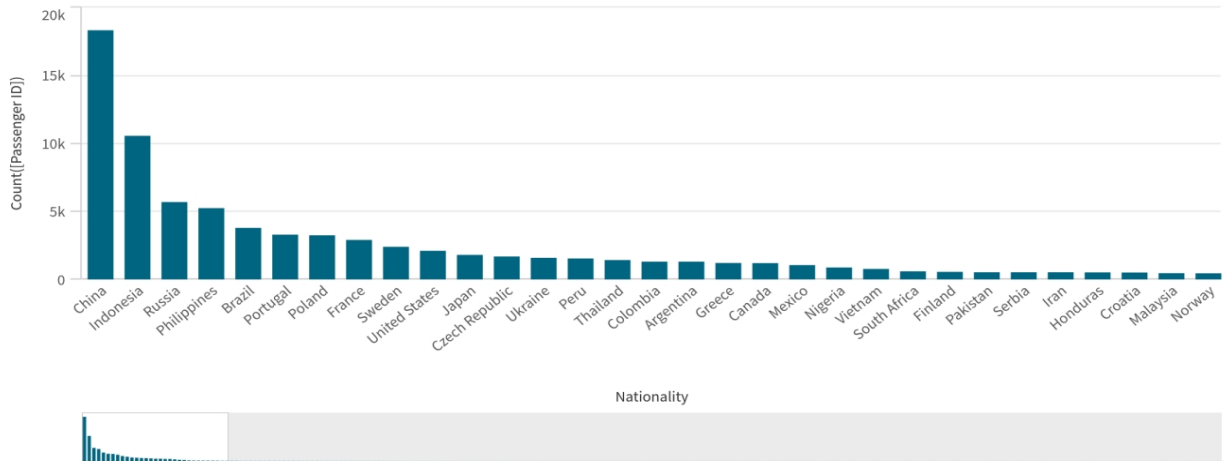
Here are some pictures of story of the project :

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Airline Data Analysis

Nation wise passenger count

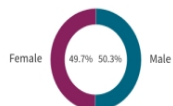


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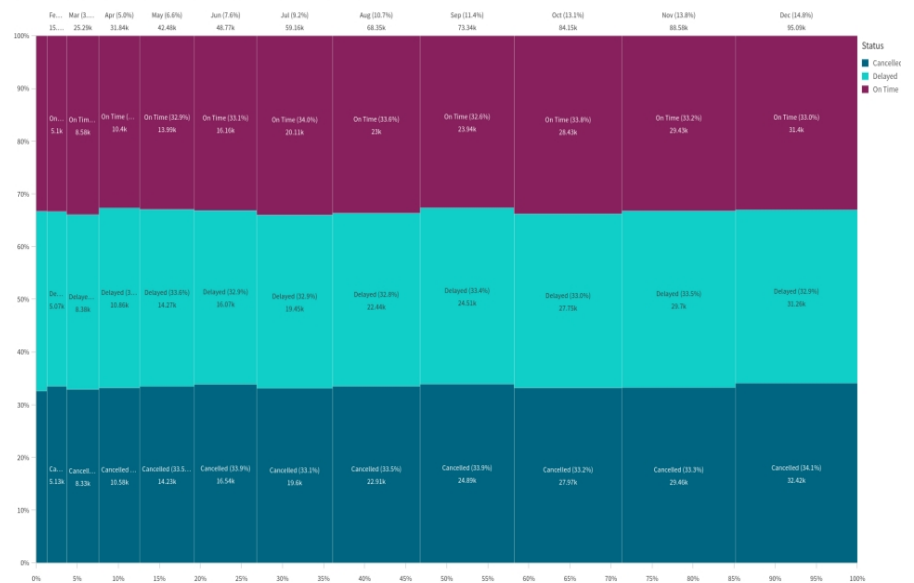
Count([Passenger ID])

98.62k

Percentage of male and female passenger



Passengers affected by flight status per month



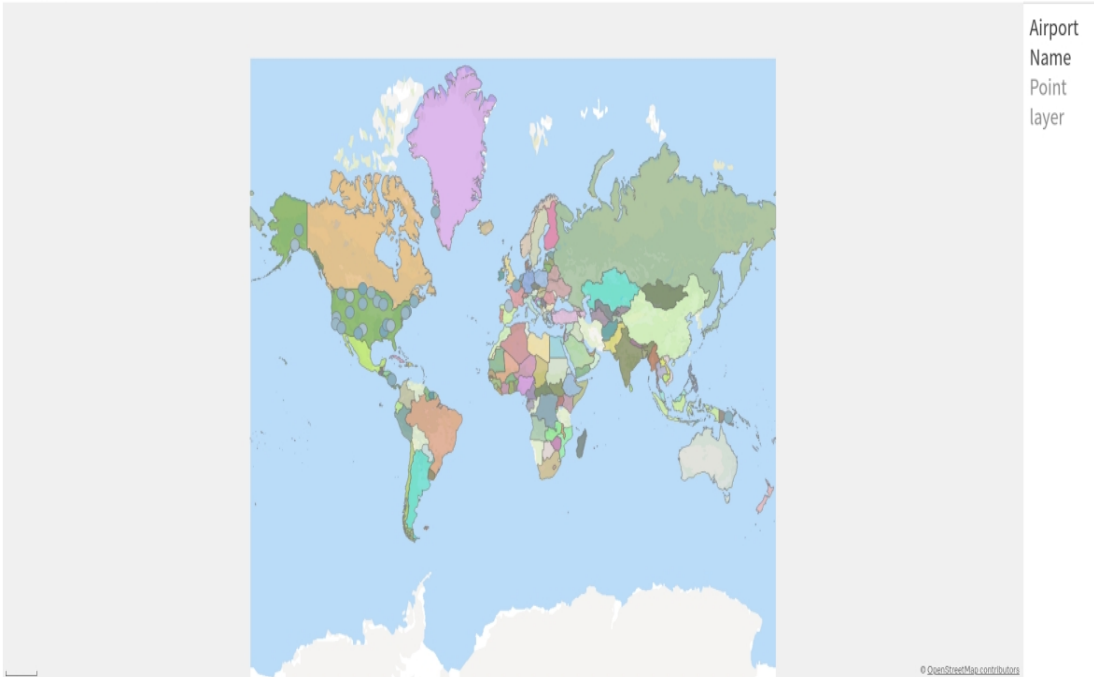
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Picture of airline data analysis:



Airline Data Analysis

Geographical Analysis of Airline Data *



* Currently showing a limited data set.

Performantion Testing

Amount of data rendered:

The amount of data that can be rendered in Qlik Sense effectively depends on several factors, including the complexity of the data, the structure of your data model, the performance of your Qlik Sense server or desktop environment, and the optimization of your visualizations.

Utilization of Data Filter:

Utilizing data filters effectively in Qlik Sense is crucial for managing large datasets and enhancing the interactivity of your dashboards. Filters allow users to focus on specific subsets of data, making it easier to derive insights.

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