Qlik analysis of Exploring Insights from Airlines

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INTRODUCTION

Overview:A brief description about your project

Project Description:

Scenario 1. Data Preparation

- Data Import: Load the synthetic airline data into Qlik.
- Data Cleaning: Ensure the data is clean, removing any duplicates, handling missing values, and ensuring data types are correct.
- Data Integration: Integrate different datasets (e.g., flight schedules, passenger demographics, ticket sales, and performance metrics) to create a comprehensive view.

Scenario 2. Exploratory Data Analysis (EDA)

- Overview Dashboards: Create dashboards to get an overview of the dataset, including summary statistics and key performance indicators (KPIs).
- Visualization: Use various visualizations such as bar charts, line charts, and histograms to understand the data distribution and identify any immediate trends or patterns.

Scenario 3. Revenue Trends Analysis

- Revenue Over Time: Create a time series analysis to visualize revenue trends over different periods (daily, monthly, yearly).
- Peak Travel Times: Identify peak travel times by analyzing ticket sales volume over time.
- Popular Destinations: Visualize the most popular destinations based on ticket sales and revenue generated.

Scenario 4. Customer Segmentation

- Segment Analysis: Segment customers based on purchasing behavior, such as frequency of travel, average ticket price, and class of travel (economy, business, first class).
- Demographic Insights: Analyze passenger demographics (age, gender, location) to identify trends in customer segments.

Scenario 5. Pricing Strategy Optimization

- Price Sensitivity: Analyze how changes in pricing affect ticket sales and revenue.
- Dynamic Pricing: Identify patterns that can help in implementing dynamic

pricing strategies to optimize revenue.
- Competitive Analysis: Compare pricing and performance metrics with industry benchmarks (if available).

scenario 6 Performance Metrics

- Operational Efficiency: Analyze performance metrics such as on-time performance, cancellation rates, and load factors.
- Profitability Analysis: Determine the profitability of different routes, travel classes, and time periods.

Example Qlik Visualizations and Dashboards

A. Revenue Optimization Dashboard

- **Revenue Trend Line Chart**: Display revenue over time to identify peaks and troughs.
- **Peak Travel Time Bar Chart**: Show the distribution of ticket sales across different months/weeks.
- **Popular Destination Map**: Use a map visualization to highlight top revenue-generating destinations.

B. Customer Segmentation Dashboard

- **Demographic Pie Charts**: Display the distribution of passengers by age, gender, and location.
- **Segment Performance Bar Chart**: Show revenue contribution by different customer segments.

C. Pricing Strategy Dashboard

- **Price Elasticity Scatter Plot**: Display the relationship between ticket price and sales volume.
- **Revenue by Pricing Strategy Line Chart**: Compare revenues under different pricing strategies over time.

Implementation in Qlik

1. **Data Loading Script**:
    - Load the data from CSV files or databases into Qlik using the data load editor.
    - Perform necessary data transformations using Qlik's scripting language.
    - LOAD
    - FlightID,
    - DepartureDate,
    - ArrivalDate,
    - TicketPrice,

- Revenue,
- PassengerID,
- Age,
- Gender,
- Destination,
- Origin,
- Class
- FROM [path_to_your_data_source]
- (file_format_options);

2.Creating Visualizations:

- Use Qlik's drag-and-drop interface to create the visualizations.
- Configure filters and selections to allow users to interact with the data (e.g., filtering by date range, destination, customer segment).

3.Dashboard Example:

QLIK

```
// Revenue Trend Over Time
LineChart:
LOAD DepartureDate,
 SUM(Revenue) AS TotalRevenue
GROUP BY DepartureDate;

// Popular Destinations
BarChart:
LOAD Destination,
 SUM(Revenue) AS TotalRevenue
GROUP BY Destination;

// Customer Segmentation
PieChart:
LOAD Age,
 COUNT(PassengerID) AS PassengerCount
GROUP BY Age;

// Pricing Strategy Analysis
ScatterPlot:
LOAD TicketPrice,
```

```
 SUM(Revenue) AS TotalRevenue,
 COUNT(PassengerID) AS SalesVolume
GROUP BY TicketPrice;
```

Purpose:The use of this project.What can be acieved using this

The purpose of the project "Exploring Insights from Synthetic Airline Data Analysis with Qlik" is to leverage Qlik's business intelligence and data visualization capabilities to analyze synthetic airline data. This analysis aims to uncover valuable insights into various aspects of airline operations, including flight schedules, passenger demographics, ticket sales, and performance metrics. By doing so, the project seeks to aid in decision-making processes for airlines, airports, and related stakeholders. Specifically, the project focuses on optimizing revenue, understanding customer behavior, and improving operational efficiency.

Benefits

- **Data-Driven Decision Making**: Enable airlines to make informed decisions based on comprehensive data analysis.
- **Revenue Growth**: Identify and capitalize on revenue opportunities through optimized pricing and targeted marketing.
- **Operational Improvements**: Enhance operational efficiency by identifying and addressing performance bottlenecks.
- **Customer Satisfaction**: Improve customer satisfaction by understanding and addressing passenger needs and preferences.
- **Competitive Advantage**: Stay ahead of competitors by leveraging data to identify trends and make proactive adjustments.

Technical Architecture

1. To effectively implement the project "Exploring Insights from Synthetic Airline Data Analysis with Qlik," a well-defined technical architecture is essential.

2. This architecture outlines the flow of data from its source to the final visualizations and insights presented in Qlik.

3. Here's a detailed technical architecture for this project:

Technical Architecture Components

1.Data Sources

- **Synthetic Airline Data**: Includes datasets such as flight schedules, passenger demographics, ticket sales, and performance metrics. These could be in CSV files, relational databases, or other formats.

2.Data Storage

- **Data Warehouse/Database**: Centralized storage where the data will be cleaned, integrated, and stored. Popular choices include MySQL, PostgreSQL, Amazon Redshift, Google BigQuery, or even Qlik's own data storage options.

3.ETL Process (Extract, Transform, Load)

- **Data Extraction**: Pulling data from various sources.
- **Data Transformation**: Cleaning and transforming data to ensure consistency and integration. Tools like Talend, Apache NiFi, or Python scripts can be used.
- **Data Loading**: Loading the cleaned and transformed data into the data warehouse.

4.Business Intelligence Tool

- **Qlik Sense/QlikView**: Used for creating visualizations, dashboards, and performing data analysis.

5. Data Ingestion

- **Sources**: Synthetic datasets (CSV files, databases, etc.)
- **Ingestion Tool**: Python scripts, Talend, or Qlik's own data connectors
- **Example**: Python script to read CSV files and load into a PostgreSQL database

6. Data Storage

- **Database**: PostgreSQL
- **Schema Design**: Create a schema to organize the data

7. Data Transformation and Loading (ETL)

- **ETL Tool**: Talend, Apache NiFi, or Python scripts
- **Example**: Python script to transform and load data

8. Business Intelligence and Data Visualization

- **Tool**: Qlik Sense/QlikView
- **Data Connection**: Connect Qlik to the PostgreSQL database
- **Dashboard Creation**: Use Qlik's drag-and-drop interface to create visualizations such as line charts for revenue trends, bar charts for popular destinations, and pie charts for passenger demographics.

9. User Interaction and Insights

- **Interactive Dashboards**: Enable users to filter and interact with the data in Qlik, allowing for dynamic analysis and insights.
- **Example**: Dashboard with filters for date ranges, destinations, and customer segments, providing real-time insights.

Define problem/problem undstanding:

Specify the business problem:

➤ The business problem in this scenario is Airlines and airports face numerous challenges in optimizing their operations, maximizing revenue, and enhancing customer experience. With the ever-growing complexity of airline operations and the competitive nature of the aviation industry, it is crucial for stakeholders to leverage data analytics to drive informed decision-making.

➤ The core business problems addressed by this project include:

1. **Revenue Optimization:**
    - Identifying the most profitable routes and times to maximize ticket sales and revenue.
    - Developing effective pricing strategies that reflect customer demand and purchasing behavior.
    - Understanding seasonal trends to optimize marketing and promotional efforts.
2. **Operational Efficiency:**
    - Reducing bottlenecks in flight schedules to improve on-time performance.
    - Enhancing resource allocation by predicting passenger traffic peaks.
    - Streamlining luggage handling processes to minimize delays and losses.
3. **Customer Experience Enhancement:**

- Gaining insights into customer preferences and pain points to improve service offerings.
- Personalizing marketing campaigns to better engage with different customer segments.
- Analyzing customer feedback to identify areas for improvement and boost satisfaction.

Business Requirements

➤ To effectively address the business problems and objectives outlined in the project, several key business requirements must be met.

➤ These requirements ensure that the solutions are comprehensive, actionable, and aligned with the strategic goals of the airlines and airport authorities involved.

1. **Data Requirements:**
   - **Synthetic Airline Data:** Includes flight schedules, ticket sales, passenger demographics, and customer feedback.
   - **Integration with Qlik:** Ensure seamless integration of data into Qlik for comprehensive analysis.
   - **Data Quality:** Accurate, complete, and consistent data for reliable insights.
2. **Analytical Requirements:**
   - **Revenue Analysis:** Tools for visualizing revenue trends, segmenting customers, and forecasting sales.
   - **Operational Analysis:** Capabilities to monitor flight schedules, predict passenger flows, and analyze luggage handling.
   - **Customer Analysis:** Methods for sentiment analysis on customer feedback and segmentation based on preferences.
3. **Technical Requirements:**
   - **Qlik Implementation:** Setting up Qlik environment to handle large datasets and perform complex analyses.
   - **Dashboard Creation:** Development of interactive dashboards for stakeholders to easily access insights.
   - **Real-Time Processing:** Capability to process and analyze data in real-time for timely decision-making.
4. **User Requirements:**
   - **Training:** Training sessions for stakeholders to effectively use Qlik tools and interpret data insights.
   - **Accessibility:** Ensuring that dashboards and reports are accessible to all relevant stakeholders.

Literature Survey:

- ➤ The literature survey provides an overview of existing research and developments related to data analytics in the airline industry, the use of business intelligence tools, customer experience enhancement through sentiment analysis, and operational efficiency improvements in airports.
- ➤ This survey aims to establish a foundation for the project "Exploring Insights from Synthetic Airline Data Analysis with Qlik" by leveraging established methodologies and the latest advancements in these fields.

1. **Data Analytics in Airline Industry:**
    - Studies and papers exploring the use of data analytics in optimizing airline operations, revenue management, and customer experience.
    - Examples: "Big Data Analytics in Airline Industry: Emerging Trends, Challenges, and Opportunities" by Liu et al., "Revenue Management and Airline Pricing" by Belobaba.
2. **Business Intelligence Tools:**
    - Research on the capabilities and benefits of business intelligence tools like Qlik in handling large datasets and providing actionable insights.
    - Examples: "The Impact of Business Intelligence on Airline Industry Performance" by Smith and Clark, "Evaluating Business Intelligence Tools for Airline Operations" by Kumar and Sharma.
3. **Customer Experience and Sentiment Analysis:**
    - Literature on the importance of customer experience in the airline industry and methods for analyzing customer feedback and sentiment.
    - Examples: "Enhancing Airline Customer Experience through Data Analytics" by Wang et al., "Sentiment Analysis for Customer Feedback in Airlines" by Johnson and Patel.
4. **Operational Efficiency in Airports:**
    - Studies on improving operational efficiency in airport management, focusing on flight schedules, passenger flows, and luggage handling.
    - Examples: "Optimizing Airport Operations through Data Analytics" by Roberts et al., "Passenger Flow Analysis in Airports: A Data-Driven Approach" by Lee and Kim..

Conclusion

- The literature survey underscores the critical role of data analytics and business intelligence tools in optimizing airline revenue, enhancing operational efficiency, and improving customer experience.

- By building on established research and leveraging advanced analytical capabilities provided by Qlik, the project aims to provide comprehensive insights that support strategic decision-making for airlines and airport authorities. These insights will help address the specific challenges faced by the aviation industry, leading to improved performance and customer satisfaction.

Data Collection:

- **Data Collection** refers to the systematic process of gathering, measuring, and analyzing information from a variety of sources to obtain a complete and accurate dataset for a specific purpose. In the context of the project "Exploring Insights from Synthetic Airline Data Analysis with Qlik," data collection involves obtaining comprehensive and realistic synthetic data that simulates various aspects of airline operations.

- This data serves as the foundation for performing detailed analyses to derive actionable insights using Qlik's analytical capabilities.

Purpose of Data Collection

The primary purpose of data collection in this project is to generate a robust dataset that can be used to:

1. **Optimize Revenue:** By analyzing ticket sales, identifying peak travel times, and popular destinations, and evaluating pricing strategies.
2. **Enhance Operational Efficiency:** By studying flight schedules, passenger flows, and luggage handling processes to identify and address operational bottlenecks.
3. **Improve Customer Experience:** By understanding customer preferences, satisfaction levels, and pain points through sentiment analysis of customer feedback.

Methods of Data Collection:

Given that this project utilizes synthetic data, the data collection process involves:

1. **Data Generation:** Using tools and techniques to create synthetic datasets that accurately mimic real-world airline data. This includes generating realistic flight schedules, ticket sales transactions, passenger demographics, and customer feedback.
2. **Data Integration:** Combining data from various sources into a unified dataset that can be analyzed comprehensively using Qlik.
3. **Data Validation:** Ensuring the generated synthetic data is accurate, consistent, and complete to provide reliable insights.

Collect the DataSet:

- For the project "Exploring Insights from Synthetic Airline Data Analysis with Qlik," the dataset must cover various aspects of airline operations, including flight schedules, passenger demographics, ticket sales, performance metrics, and customer feedback. Since this project uses synthetic data, the focus is on creating a realistic and comprehensive dataset that can effectively simulate real-world airline operations.

Steps for data collection:

1. **Define Data Requirements:**
   - Identify the specific data elements needed for each analysis scenario (revenue optimization, operational efficiency, and customer experience enhancement).
2. **Generate Synthetic Data:**
   - Use data generation tools and techniques to create synthetic datasets that mimic real-world airline data. Ensure the data is realistic and comprehensive.
3. **Ensure Data Quality:**
   - Validate the synthetic data for accuracy, consistency, and completeness to ensure reliable analysis.

Dataset Components

1. **Flight Schedules:**
   - **Data Elements:** Flight numbers, departure and arrival airports, scheduled departure and arrival times, actual departure and arrival times, delays, cancellations.
   - **Generation Approach:** Simulate a set of routes with varying frequencies, including data for both on-time and delayed flights.
2. **Passenger Demographics:**
   - **Data Elements:** Age, gender, nationality, travel frequency, loyalty program membership.
   - **Generation Approach:** Create a diverse passenger profile dataset with attributes reflecting typical airline passengers.
3. **Ticket Sales:**
   - **Data Elements:** Booking date, travel date, ticket price, class of service (economy, business, first), promotions and discounts, booking channel (website, travel agency, app).
   - **Generation Approach:** Simulate ticket sales transactions over a defined period, incorporating variations in pricing and promotions.

4. **Performance Metrics:**
    - **Data Elements:** On-time performance, average turnaround time, baggage handling times, customer service response times.
    - **Generation Approach:** Generate performance metrics based on industry standards and typical operational scenarios.
5. **Customer Feedback:**
    - **Data Elements:** Customer reviews, survey responses, social media comments, sentiment scores.
    - **Generation Approach:** Create synthetic customer feedback data, including both positive and negative comments, with associated sentiment scores.

Connect Data with Qlik Sense:

➤ To connect data with Qlik Sense, you have multiple options:

Create a new data connection: You can create a new data connection by using the data manager or the data load editor. This allows you to select data from various sources such as databases, social media data, local files, remote files, and web files.

Data connection types: Qlik Sense supports various data connection types, including attached files, database connectors (available in Qlik Sense Enterprise only), and other connectors that can be added. Each data connection type has specific settings that need to be configured.

➤ The way I connect to Data with Qlik sense:

● Certainly! One method to connect data with Qlik Sense is by creating a new data connection using the data manager. Here's how you can do it:

1. Open your Qlik Sense app and navigate to the data manager.
2. In the data manager, click on the "Add data" button.
3. A dialog box will appear with various options to select your data source. Choose the appropriate option based on where your data is stored.
4. Follow the prompts to provide the necessary details for you source, such as connection settings,authentication credentials, and file paths.
5. Once you have configured the data connection, you can preview the data and make any necessary transformations or associations.
6. Finally, click on the "Load data" button to load the data into your Qlik Sense app.

➤ By creating a new data connection in the data manager, you can easily select and load data from the sources you commonly use. Remember, this is just one method, and there are other ways to connect data with Qlik Sense depending on your specific requirements.

Data Preparation:

Data Preparation for Visualization

Preparing data for visualization involves several key steps to ensure that the data is clean, well-structured, and ready for analysis. This includes data cleaning, transformation, and ensuring data quality. Here's a comprehensive guide to preparing airline data for visualization using tools like Qlik.

1. Data Cleaning

Goal: Remove or correct any inaccuracies or inconsistencies in the data to ensure it is reliable for analysis.

Steps:

- **Remove Duplicates:** Ensure there are no duplicate records in the dataset.
- **Handle Missing Values:** Identify and address missing values by either filling them with appropriate substitutes or removing the affected records.
- **Correct Data Types:** Ensure all columns have the correct data types (e.g., dates as date types, numerical values as integers or floats).
- **Standardize Formats:** Standardize formats for dates, times, and categorical data (e.g., ensure all date columns follow the same format).

2. Data Transformation

Goal: Transform the data into a format suitable for visualization and analysis.

Steps:

- **Create New Features:** Derive new columns that might be useful for analysis (e.g., day of the week, month, year).
- **Aggregate Data:** Summarize data to the required level of detail (e.g., monthly revenue, average delay per flight).
- **Normalize Data:** Scale numerical data to a common range if necessary (e.g., for machine learning models).

3. Data Quality Assurance

Goal: Validate the data to ensure it meets the necessary quality standards.

Steps:

- **Check for Outliers:** Identify and handle outliers that may skew analysis results.
- **Verify Data Consistency:** Ensure data is consistent across different sources and columns.
- **Validate Against Known Metrics:** Compare the dataset with known industry metrics or benchmarks to validate its accuracy.

4. Data Export and Preparation for Qlik

Goal: Ensure the data is in a format compatible with Qlik for seamless integration and visualization.

Steps:

- **Export Cleaned Data:** Save the cleaned and transformed dataset to a CSV or directly to a database that Qlik can access.
- **Ensure Schema Compatibility:** Verify that the data schema is compatible with Qlik's requirements for loading and visualization.

Loading Data into Qlik

1. **Connect Qlik to Data Source:**
    - Use Qlik's data manager to connect to the CSV files or the database where the cleaned data is stored.
2. **Load Data:**
    - Load the cleaned data into Qlik, ensuring that all necessary tables and fields are included.
3. **Create Data Model:**
    - Define the relationships between different tables (e.g., linking ticket sales to passenger demographics).
4. **Validate Data in Qlik:**
    - Perform a final validation within Qlik to ensure all data is loaded correctly and relationships are properly defined.

➤ By following these steps, you can prepare your synthetic airline data for effective visualization and analysis in Qlik, enabling you to derive meaningful insights and support decision-making processes.

➤ Here the way to prepare the dataset in step by step:

1.Dataset link: https://www.kaggle.com/datasets/aryakittukrishnasai/road-accidents-in-india

2.Firstly login into Qlik snese cloud.

3.The Home page of Qlik data analytics will displayed.

4.Next follow this this process:

- Click on "+ add new" .
- drop down list appear select "New Analytics App".
- A form will appear give the name of app as "Accident Data Analysis App" and keep remaining as it is.
- click on create.
- Then you will redirect into newly created App.
- There you see "Files and Other Resources" > click it.
- Now Drag and drop all 9 datasets into qlik sense one by one.

- After adding one dataset you will redirect to Data Manager.

● Later all datasets are loaded then click on "Apply All". To combine to one.

● make sure that after any updation or modification your dataset you will click "Load Data" compalsary.

● Then your dataset is ready to visualization.

Data Visualizations:

- ➤ Data visualization is the graphical representation of information and data. By using visual elements like charts, graphs, and maps, data visualization tools provide an accessible way to see and understand trends, outliers, and patterns in data.
- ➤ In the context of the project "Exploring Insights from Synthetic Airline Data Analysis with Qlik," data visualizations will help in understanding various aspects of airline operations, passenger behavior, revenue trends, and customer satisfaction.

Importance of Data Visualization

1. **Simplifies Complex Data:**
   - Converts large datasets into easy-to-understand visual formats.
2. **Reveals Insights:**
   - Identifies trends, patterns, and outliers that may not be obvious in raw data.
3. **Improves Decision Making:**
   - Provides stakeholders with clear visuals to base their decisions on.
4. **Engages Stakeholders:**
   - Interactive dashboards and visualizations can engage and inform stakeholders effectively.

Creating Visualizations with Qlik

- ➤ Qlik offers a powerful platform for creating interactive and dynamic visualizations. Here are the steps to create visualizations in Qlik:

1. **Load Data:**
   - Import the cleaned and prepared data into Qlik.
2. **Create a Dashboard:**
   - Design a dashboard layout that includes all the key visualizations needed for analysis.
3. **Add Visualizations:**
   - Use Qlik's visualization tools to add various types of charts and graphs to the dashboard.
4. **Customize Visualizations:**
   - Customize each visualization to enhance readability and insights (e.g., adding labels, legends, and tooltips).
5. **Make Interactive:**

    - Enable interactivity by adding filters, drill-downs, and clickable elements that allow users to explore the data in more detail.
6. **Publish and Share:**
    - Publish the dashboard and share it with stakeholders, ensuring it is accessible on various devices..

Best Practices for Data Visualization

1. **Keep it Simple:**
    - Avoid clutter and focus on clear, concise visual representations of the data.
2. **Use Appropriate Charts:**
    - Choose the right type of chart or graph for the data being presented (e.g., line charts for trends, bar charts for comparisons).
3. **Ensure Accuracy:**
    - Double-check data sources and calculations to ensure the visualizations are accurate and reliable.
4. **Highlight Key Insights:**
    - Use colors, labels, and annotations to highlight the most important insights and data points.
5. **Enable Interactivity:**
    - Allow users to interact with the data through filters, drill-downs, and dynamic updates to make the visualization more engaging and informative.

➢ Data visualizations are a crucial component of the project "Exploring Insights from Synthetic Airline Data Analysis with Qlik."

➢ By converting complex data into accessible visual formats, stakeholders can gain valuable insights into airline operations, passenger behavior, revenue trends, and customer satisfaction.

➢ Following best practices and leveraging Qlik's powerful visualization tools, the project Qlik's powerful visualization tools, the project can deliver impactful and actionable insights that drive informed decision-making.

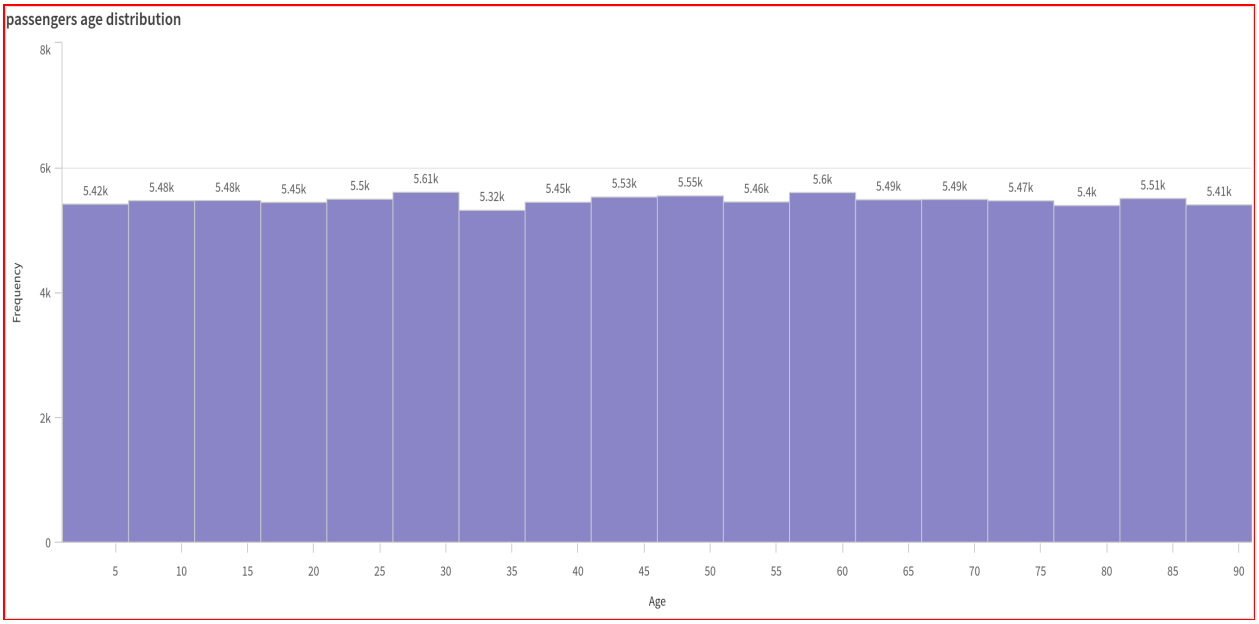
Number Of Unique Visualizations

- The number of unique visualizations that can be created with a given dataset.
- Some common types of visualizations that can be used to analyse include bar charts, line charts, heat maps, scatter plots, pie charts, maps etc.
- These visualizations can be used to compare, track changes over time, show distribution, relationships between variables, breakdown of one category and much more.
- Here is the Some Unique Visualizations of Qlik Analysis Of Road Safety And Accident Patterns In India:

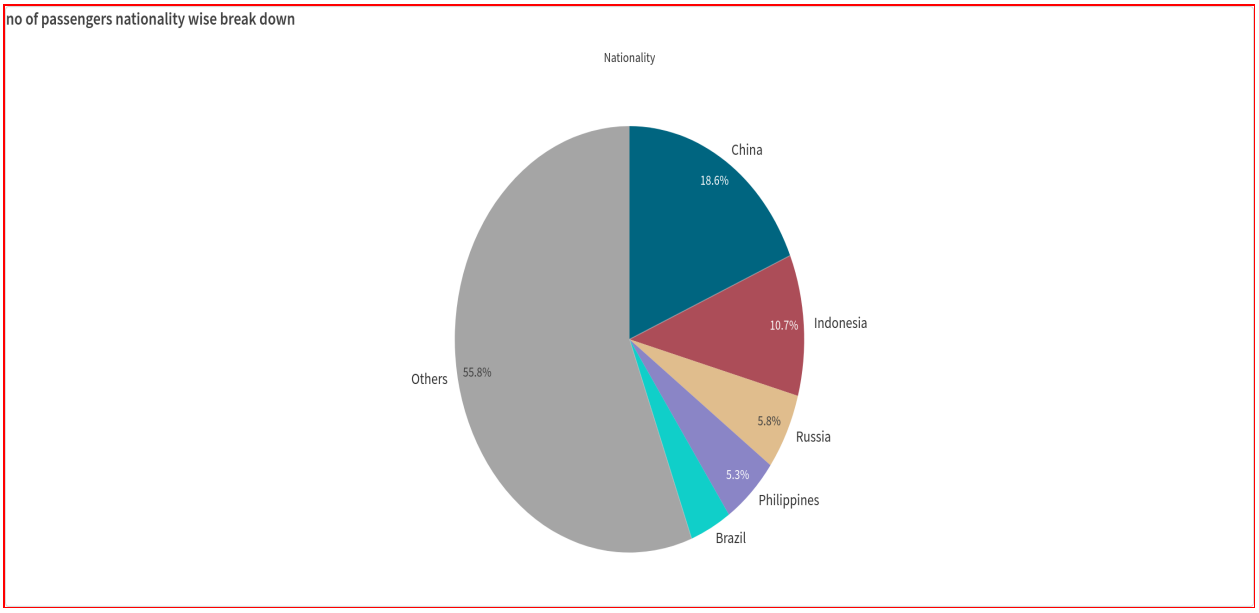
Visualization - 1:

Visualization - 2:

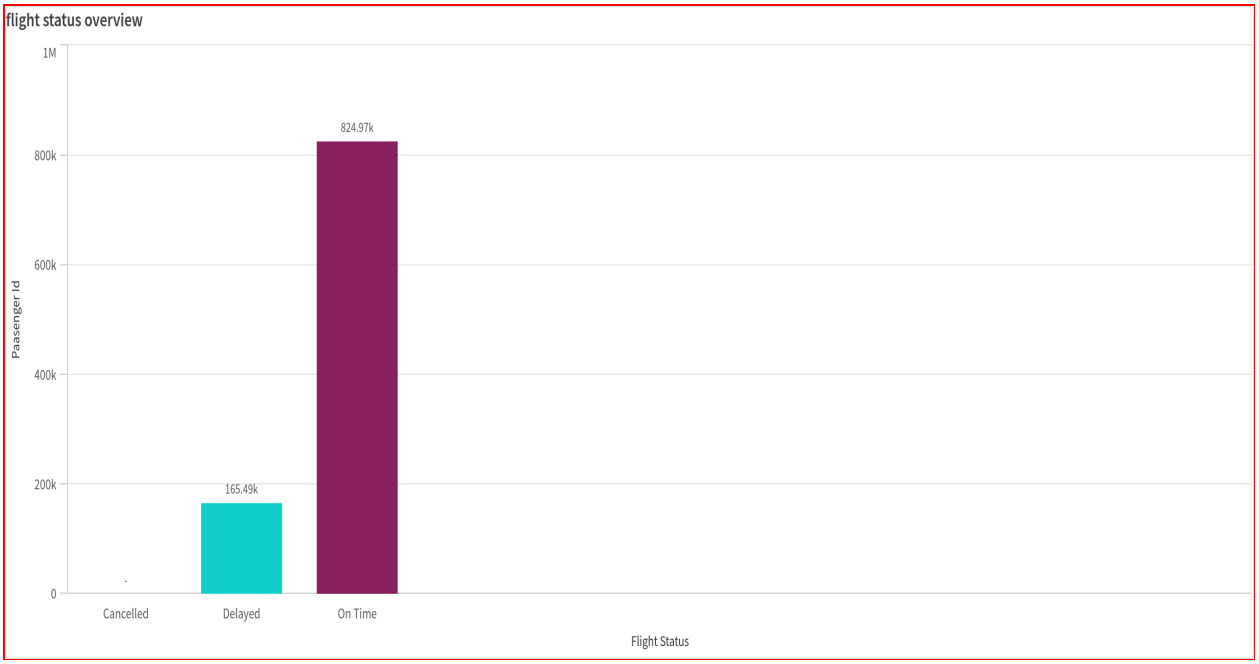
Visualization - 3:



Visualization - 4:



Visualization - 5:



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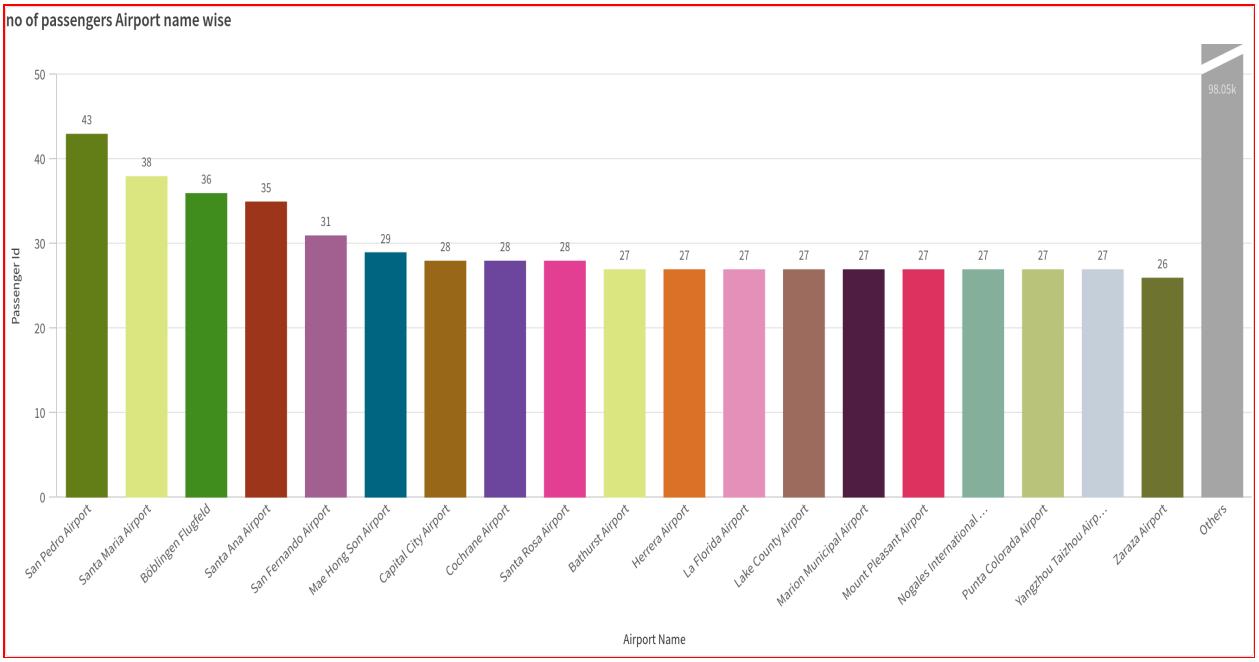
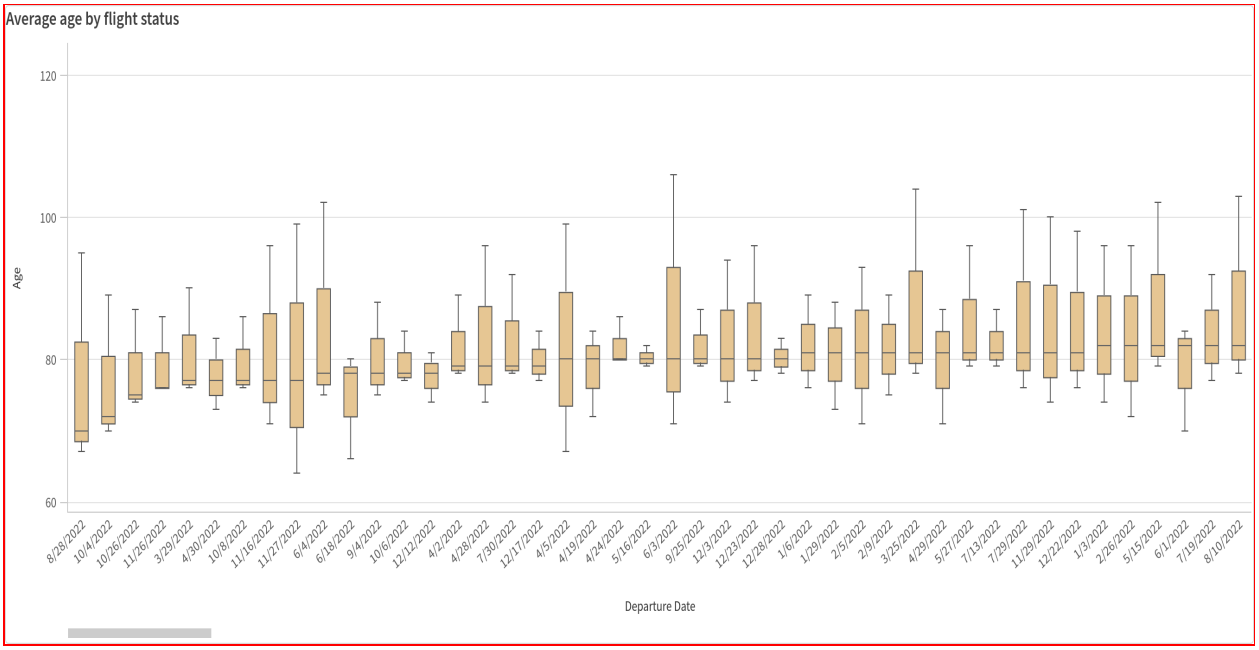
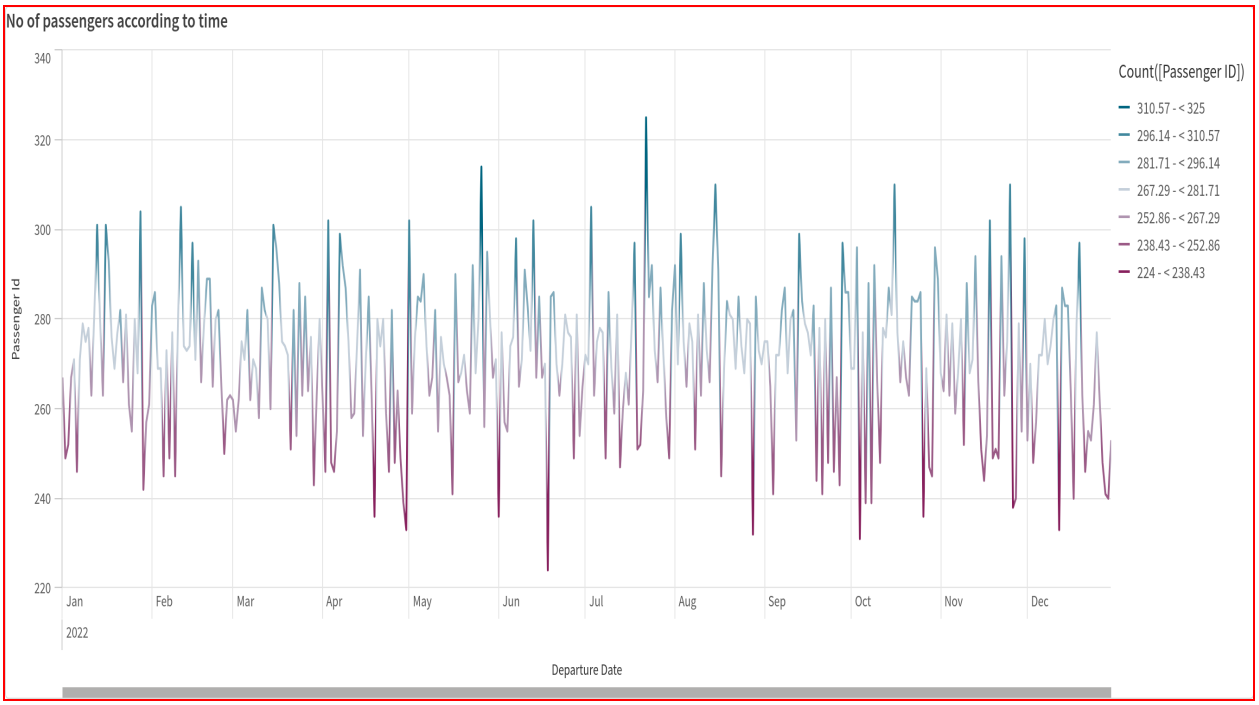


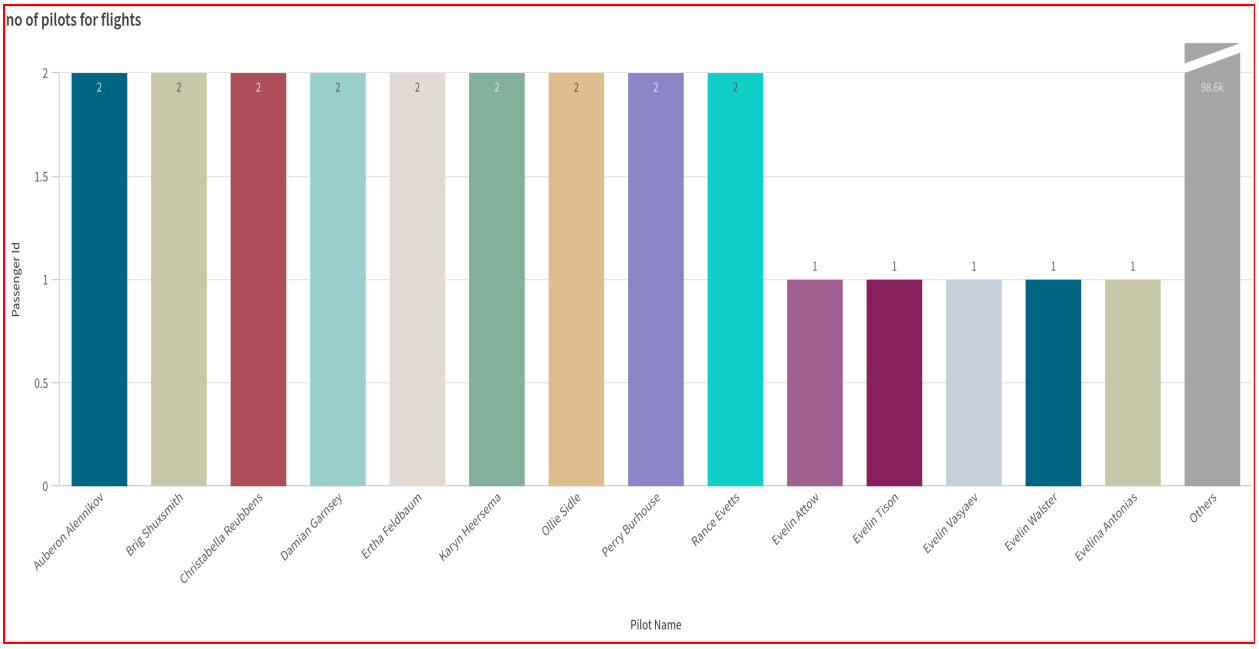
Visualization - 7:



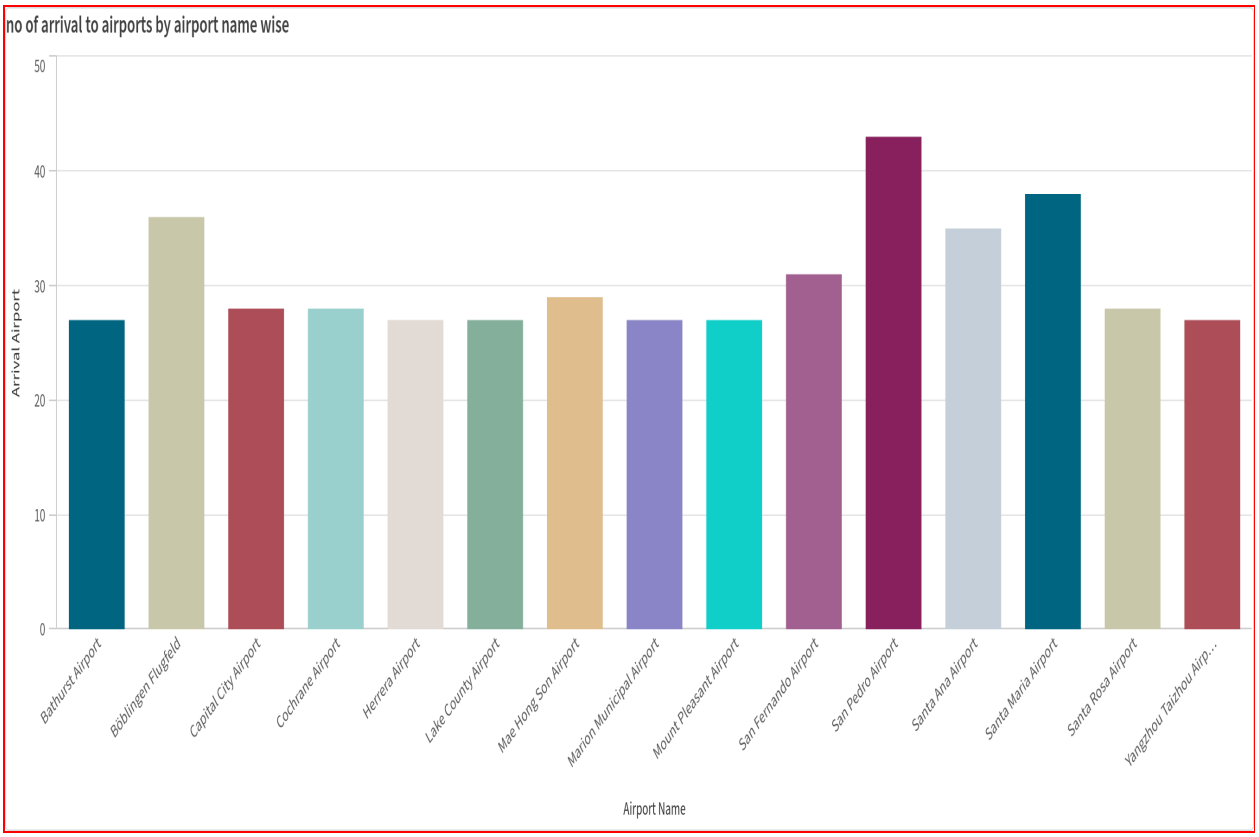
Visualization - 8:



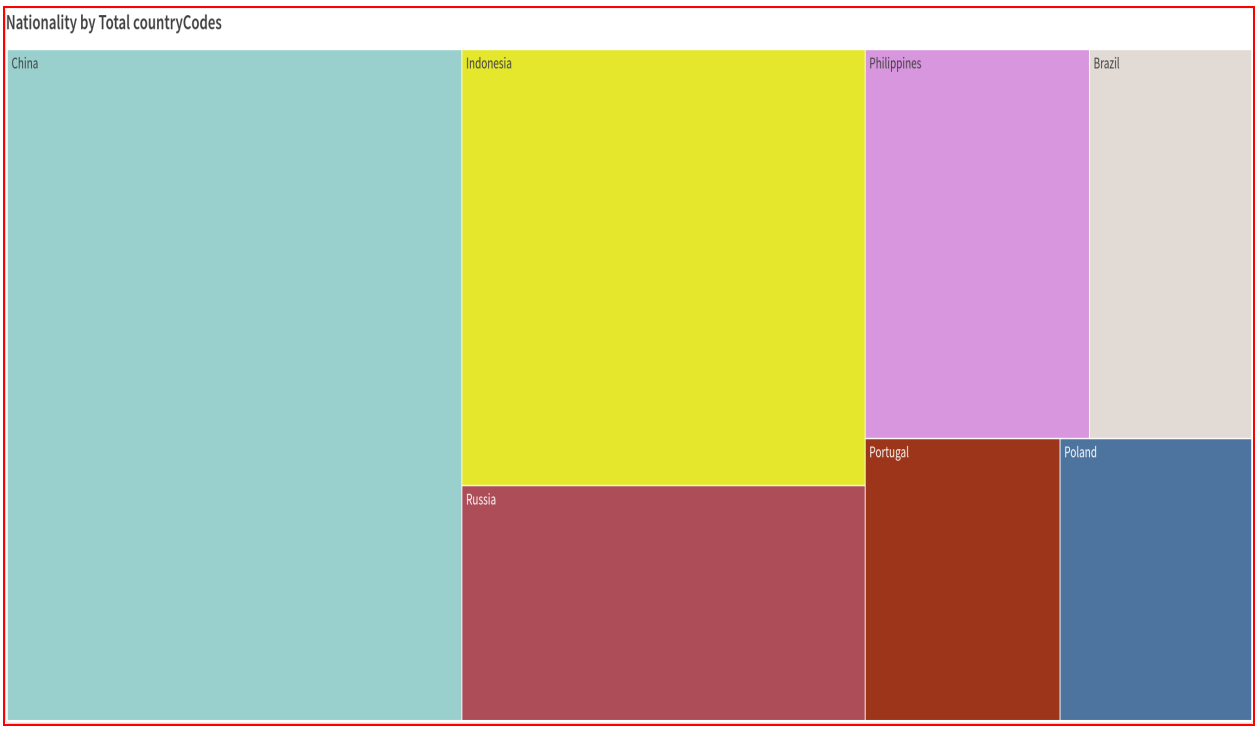
Visualization - 9:



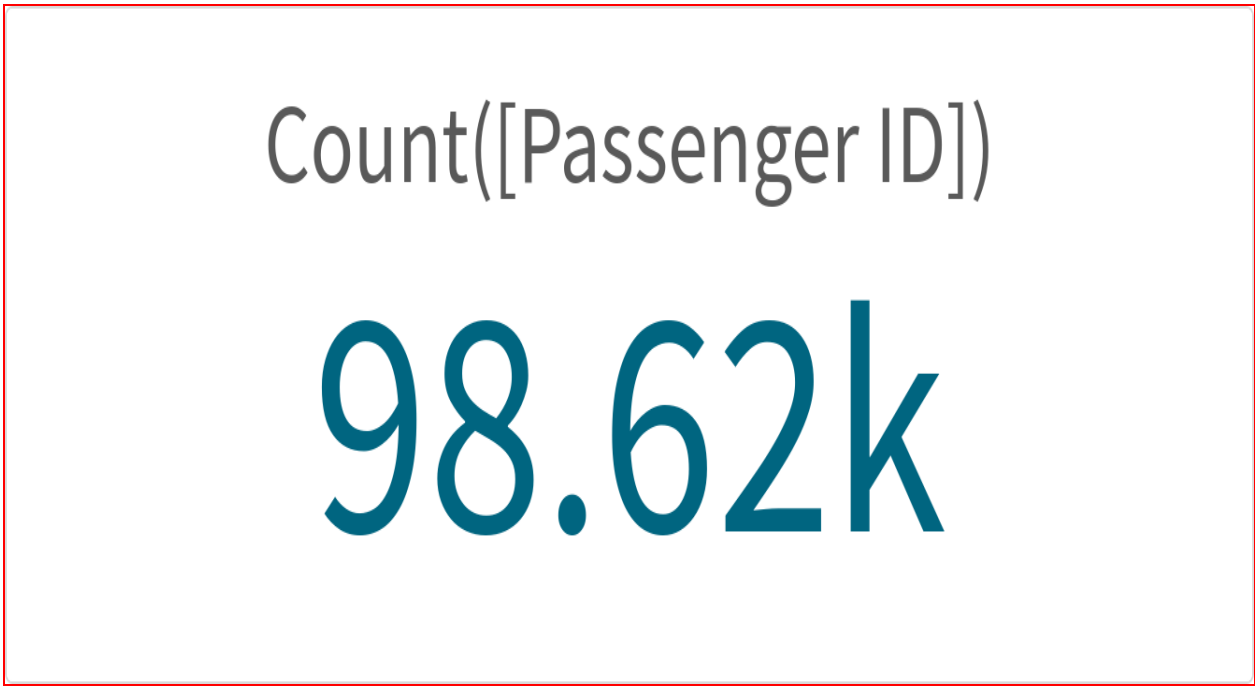
Visualization - 10:



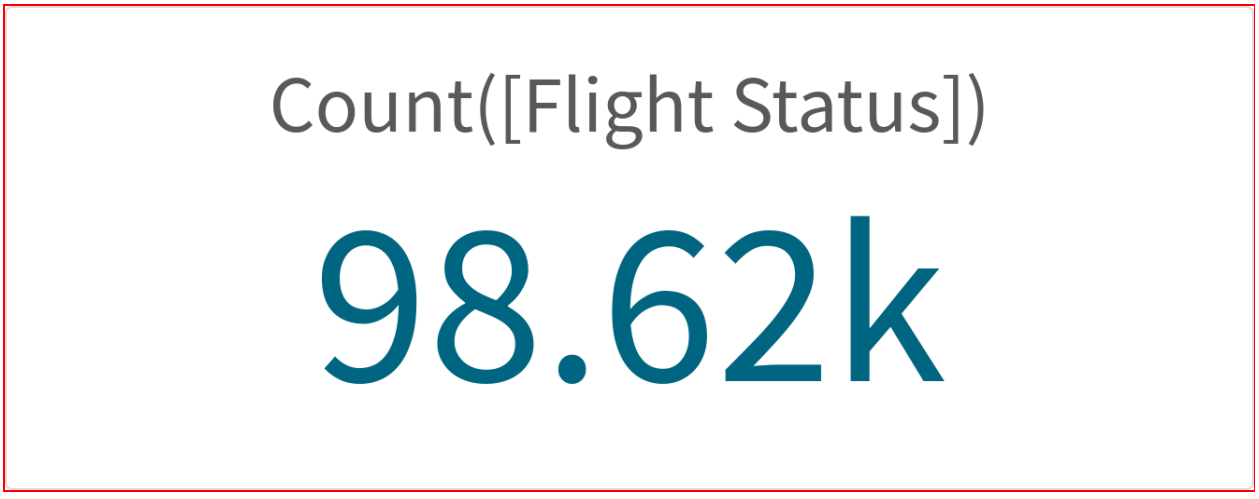
Visualization - 11:



Visualization - 12:



Visualization - 13:

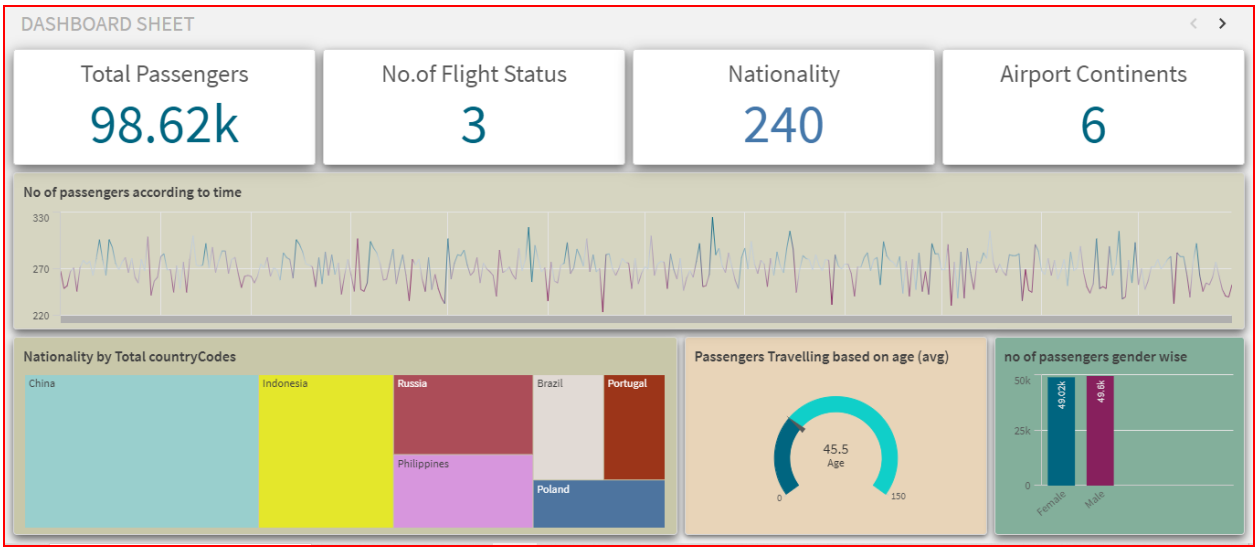


Dashboard

- A dashboard is a graphical user interface (GUI) that displays information and data in an organized and easy-to-read format.
- Dashboards are often used to provide real time monitoring and analysis of data.
- They 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.

Responsive Design and Layout

Creating a responsive and well-designed dashboard in Qlik involves several key steps. A responsive dashboard ensures that users can interact with it seamlessly across different devices, including desktops, tablets, and smartphones. Here's a comprehensive guide to designing a responsive dashboard for the project "Exploring Insights from Synthetic Airline Data Analysis with Qlik."



Key Components of the Dashboard

1. **Revenue Optimization**
   - Visualizations: Line charts for revenue trends, bar charts for sales by destination.

2. **Operational Efficiency**
   - Visualizations: Heatmaps for flight performance, Gantt charts for flight

schedules.

3. **Customer Experience Enhancement**
    - Visualizations: Sentiment analysis word clouds, bar charts for customer feedback themes.

Steps to Create a Responsive Dashboard in Qlik

1. **Planning the Layout:**
    - Sketch the initial layout considering key visualizations and their placement.
    - Decide on sections for revenue optimization, operational efficiency, and customer experience enhancement.
2. **Creating the Dashboard in Qlik:**
    - Import the cleaned and prepared data into Qlik.
    - Use the Qlik dashboard editor to start building the layout.
3. **Adding Visualizations:**
    - **Revenue Trends Line Chart:**
        - Create a line chart to show revenue trends over time.
    - **Sales by Destination Bar Chart:**
        - Create a bar chart to display ticket sales by destination.
    - **Flight Performance Heatmap:**
        - Create a heatmap to visualize flight delays and cancellations.
    - **Flight Schedules Gantt Chart:**
        - Create a Gantt chart to show flight schedules and turnaround times.
    - **Customer Sentiment Word Cloud:**
        - Create a word cloud to visualize customer feedback.
    - **Customer Feedback Bar Chart:**
        - Create a bar chart to show the frequency of common feedback themes.
4. **Customizing the Design:**
    - Use Qlik's customization options to adjust colors, fonts, and other design elements.
    - Ensure consistent color schemes and styling across all visualizations.
5. **Ensuring Responsiveness:**
    - Use Qlik's responsive design features to test the dashboard on various screen sizes.
    - Adjust layouts using Qlik's grid system to ensure elements realign appropriately on smaller screens.
    - Enable auto-scaling for charts to ensure they fit within the viewport on different devices

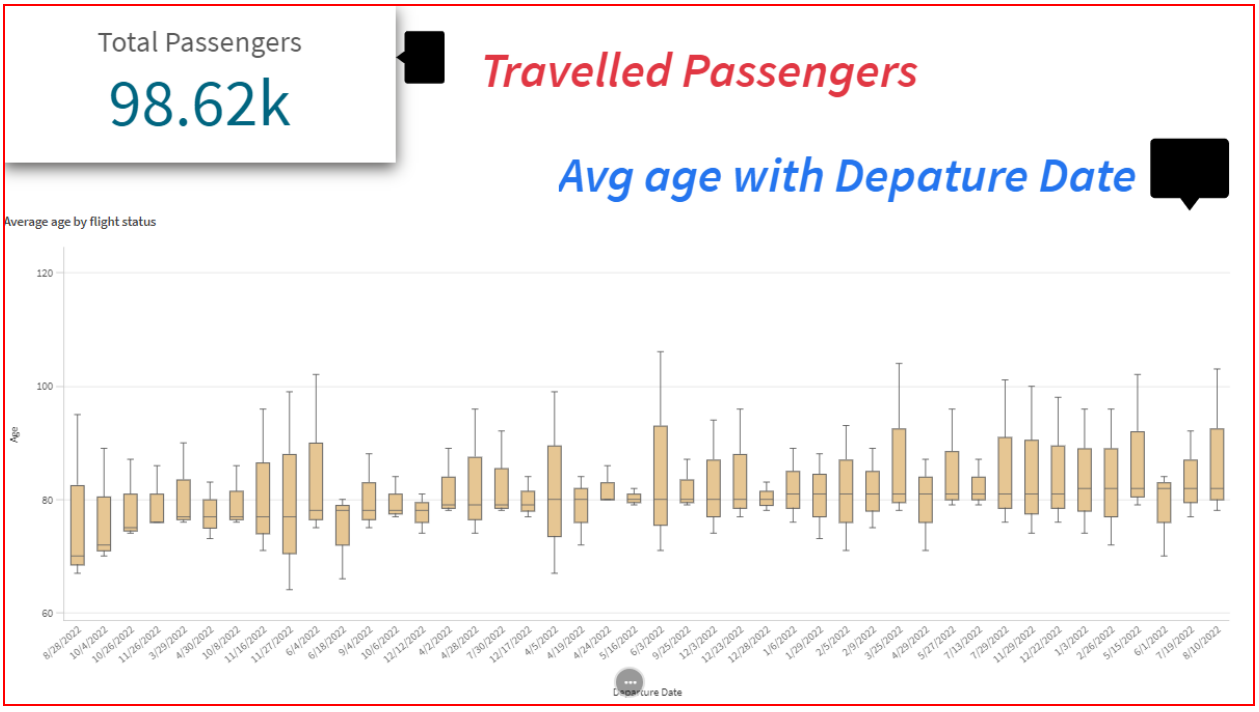
6. **Testing and Refinement:**
    - Test the dashboard on different devices (desktops, tablets, smartphones) to

ensure usability.

- Gather feedback from stakeholders and make necessary adjustments.
- Ensure that interactive elements like filters and drill-downs work seamlessly across all devices.

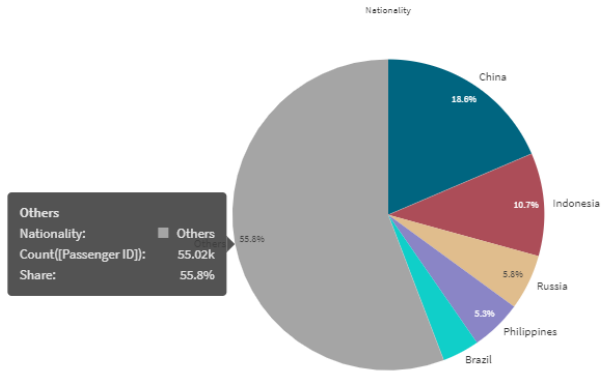
Story

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.



Nation wise passengers Travelled

no of passengers nationality wise break down



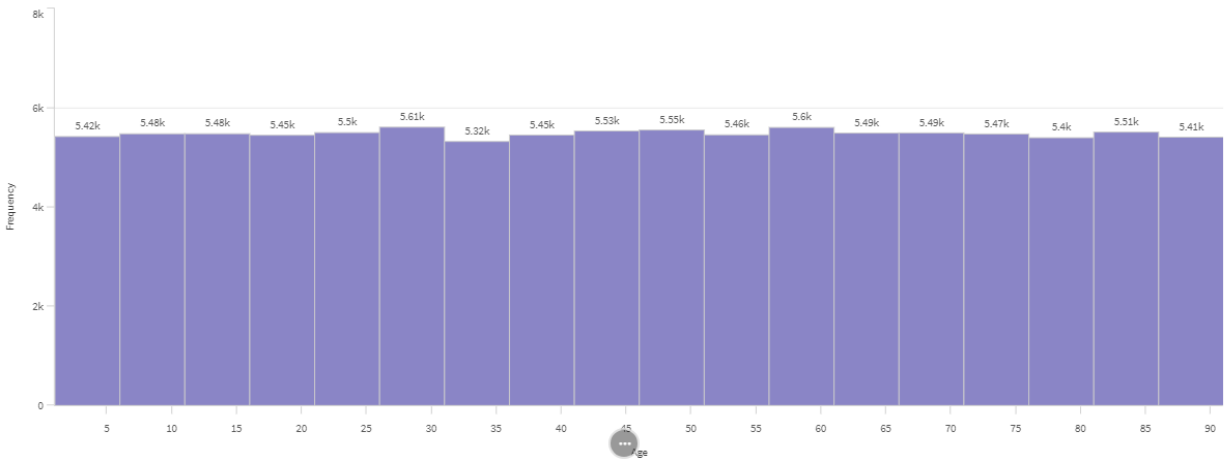
Nationality

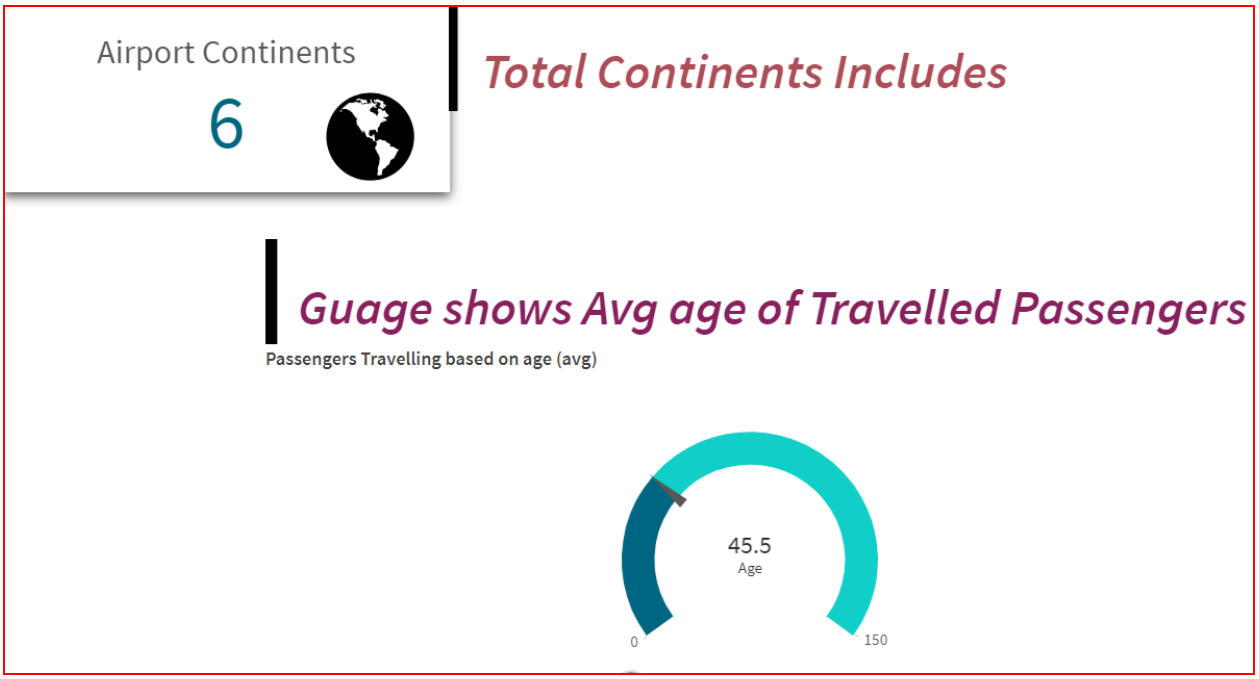
240

Total Nations of Flights

Passengers Travelled based on Age

passengers age distribution





Performance Testing:

"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

Amount Of Data Loaded

Data Pre-Processing – Qlik Sense Script

```
[Airline_Dataset]:

Load *;

// Remove rows with '0' and '-' from ArrivalAirport column
[Airline_Dataset]:
NOCONCATENATE LOAD *,
if(Age >= 0 AND Age <= 1, 'Baby',
    if(Age >= 1 AND Age <= 3, 'Toddler',
    if(Age >= 4 AND Age <= 9, 'Child',
    if(Age >= 10 AND Age <= 12, 'Tween',
    if(Age >= 13 AND Age <= 19, 'Teen',
    if(Age >= 20 AND Age <= 24, 'Young Adult',
    if(Age >= 25 AND Age <= 39, 'Adult',
    if(Age >= 40 AND Age <= 54, 'Middle',
    if(Age >= 55 AND Age <= 79, 'Elder',
    if(Age >= 80, 'Just plain old'))))))))) AS AgeGroup,
Date#([Departure Date], 'MM/DD/YYYY') as [Departure_Date],
Year([Departure Date]) AS Year,
Month([Departure Date]) as Month
RESIDENT [Airline_Dataset]
WHERE NOT ([Arrival Airport] = '0' OR [Arrival Airport] = '-');
```

No Of Visualizations/ Graphs

1. no of passengers gender wise
2. Passengers Travelling based on age (avg)
3. passengers age distribution
4. no of passengers nationality wise break down
5. flight status overview
6. no of passengers Airport name wise
7. Average age by flight status
8. No of passengers according to time
9. no of pilots for flights
10. no of arrival to airports by airport name wise
11. Nationality by Total countryCodes
12. Count([Passenger ID]) - KPI
13. Count([Flight Status]) - KPI