Airport Data Analysis

High-Level Design

Author: Himanshu Gautam

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Abstract

The Airport Data Analysis Dashboard project aims to provide insights into flight destinations, busy and lengthy routes, and meaningful relationships between attributes. The dashboard will be developed using Power Query Editor for ETL(Extract, Transfer, and Load) and Power BI for interactive visualizations.

Given Tasks

- Identify flight destinations based on the provided dataset.
- Analyze busy and lengthy flight routes using flight count and distance covered metrics.
- Explore meaningful relationships between attributes to gain valuable insights.

Scope

The project will analyze flight routes and related metrics using an airport and airline dataset. The analysis will focus on flight counts, distances, delays, and status. The dashboard will not include real-time data or operational functionalities.

Problem Statement

Develop a data analysis dashboard to identify flight destinations, analyze busy and lengthy routes, and showcase meaningful relationships between attributes using Power Query Editor for ETL(Extract, Transfer, and Load) and Power BI for data visualization.

General Description

The dashboard will consist of interactive visualizations to explore various aspects of flight data. Sections will include:

•Overview: Key summary metrics and charts representing the total number of flights, average daily flights, and maximum flights at FLYSFO GATE.

•Flight Patterns: Visualize flight counts by day and date, identifying peak and off-peak periods.

•Route Analysis: Explore the distance covered in different flight routes.

•Flight Status: Present flight status distribution, showing on-time, delayed, and canceled flights.

Tools Used:

- Data Transformation: Power Query Editor will be used for ETL(Extract, Transfer, and Load), data cleaning, preprocessing, and any additional transformations required for analysis.
- Data Visualization: Power BI will be used to create interactive and insightful visualizations based on the transformed data.

Optimization

•Data Transformation: Power Query Editor will be utilized for ETL(Extract, Transfer, and Load) and efficient data manipulation.

•Visualization: Power BI will optimize data queries to improve dashboard performance.

KPIs (Key Performance Indicators)

The dashboard will present the following KPIs:

- TOTAL COUNT OF FLIGHTS
- AVERAGE NUMBER OF FLIGHTS ON DAILY BASIS
- MAXIMUM FLIGHTS (FLYSFO GATE)
- MOST NUMBER OF FLIGHTS WERE FOUND ON DAY
- MAXIMUM AVERAGE DELAY WAS OBSERVED ON THE DAY
- MAXIMUM NUMBER OF FLIGHTS WERE OBSERVED ON DATE
- THE LEAST NUMBER OF FLIGHTS WAS OBSERVED ON THE DAY
- DISTANCE TO BE COVERED IN A ROUTE
- FLIGHT STATUS

Deployment

- The dashboard will be deployed on a web-based platform, accessible to relevant stakeholders for analysis and decision-making.

- There are multiple ways to deploy the dashboard in Power BI. The simplest way is to save directly on Power BI service from online mode.

- One can easily save the work from the desktop and then it will open in the browser, the user has to sign in and the work will be saved. This work can see all the viewers around the world.

- You can share it via a sharable link. Thus, user can deploy a dashboard using Power Bi

Conclusion

The Airport Data Analysis Dashboard will provide valuable insights into flight destinations, busy and lengthy routes, and flight patterns. By leveraging Power Query Editor for ETL(Extract, Transfer, and Load) and Power BI for visualization, the project aims to facilitate data-driven decision-making for the aviation industry.

Future Recommendations

Potential future enhancements could include incorporating real-time data for live flight tracking, additional analytics for route optimization, and predictive models for flight delays.

With this final document, you have a comprehensive overview of the project's objectives, methodology, and key metrics to be visualized in the Airport Data Analysis Dashboard. You can now proceed with the development and implementation of the dashboard to derive meaningful insights from the data.