Airport Data Analysis

Low-Level Design

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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

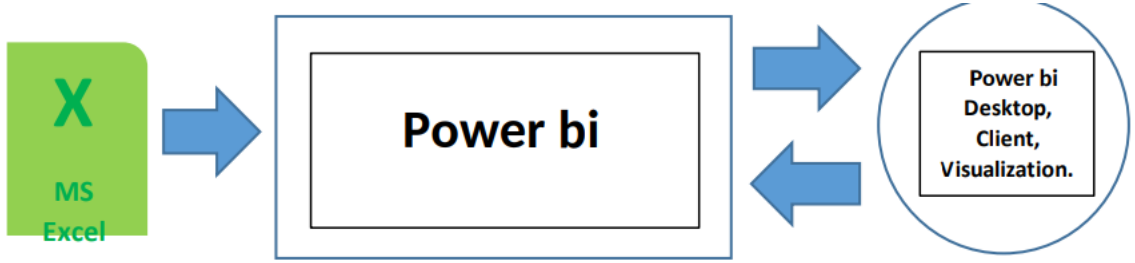
- Identify flight destinations based on the provided dataset.
- Analyze busy and lengthy flight routes using flight count and distance covered metrics.
- Explore meaningful relationships between attributes to gain valuable insights.

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.

Architecture

The architecture of the entire project is shown below:



- Our entire data source is our Excel file. This Excel file is connected to the Power BI server. From the server, data can be shown and accessed.
- Power BI server has various architectural components regarding solving the query.
- The functionalities show the result according to a query entered by the end-user or client.
- Screen of Power BI desktop, client, and various charts and dashboard (screen) of Power BI are present on the client side.
- The client entered the query to show the graph. After selecting the data in the form of rows and columns it will go inside the Power BI server.
- In the Power BI server, it understands the query generates the best-recommended charts based on selected data, and returns it to the Power big screen. Based on recommended charts, the client can make the visual aspect of the same.
- If the client is not satisfied with the result, he/she has to select data accordingly otherwise make the required changes to show the expected result.

DATA Description

1. **Geometry Coordinates Lat Origin:** The latitude of the flight origin airport's geographical coordinates.
2. **Geometry Coordinates Long Origin:** The longitude of the flight origin airport's geographical coordinates.
3. **Geometry Coordinates Lat Destination:** The latitude of the flight destination airport's geographical coordinates.
4. **Geometry Coordinates Long Destination:** The longitude of the flight destination airport's geographical coordinates.
5. **Geometry Type:** The type of geometry associated with the flight data.
6. **Properties Edtf Cessation:** The end date of the flight's validity in the Extended Date/Time Format (EDTF).
7. **Properties Edtf Inception:** The start date of the flight's validity in the Extended Date/Time Format (EDTF).
8. **Properties Flysfo Actual Timestamp:** The actual timestamp of the flight event at San Francisco International Airport (FLYSFO).
9. **Properties Flysfo Airline:** The airline associated with the flight event at FLYSFO.
10. **Properties Flysfo Base Airline:** The base airline for the flight event at FLYSFO.
11. **Properties Flysfo Base Flight Number:** The base flight number for the flight event at FLYSFO.
12. **Date:** The date of the flight event.
13. **Properties Flysfo Estimated Timestamp:** The estimated timestamp of the flight event at FLYSFO.
14. **Properties Flysfo Event:** The type of flight event at FLYSFO (e.g., arrival, departure).
15. **Properties Flysfo Flight Number:** The flight number associated with the flight event at FLYSFO.
16. **Properties Flysfo Gate:** The gate number for the flight event at FLYSFO.
17. **Route:** The flight route in the format "Origin-Destination."
18. **Days of the week:** The day of the week corresponding to the flight event date.
19. **Distance:** The calculated distance between the origin and destination airports, representing the distance to be covered in the flight route.
20. **City:** The city associated with the flight event, derived from the origin and destination airports.
21. **Flight Status:** The status of the flight, indicating whether it is on-time, delayed, or canceled.

Connect Data with Power BI & Deployment

- First of all, open Power BI on your desktop. On the first screen, it will ask you to connect your files from various sources like MS Excel, SQL Server, Power BI Service, etc.

- Make sure the internet connection is connected well while working with Power BI, otherwise, it will show the error. After completion of work, you can simply press ctrl + s or save it from the file menu.

- It will let you to Power bi public's website and ask you to sign in. After sign-in, your work will be saved on the Power BI website. There, all can see the work