Airlines Flight Data Analysis Using Python & MySQL

Welcome to the Airlines Flight Data Analysis project repository! This project utilizes Python, Pandas, NumPy, Matplotlib, Seaborn, and MySQL to explore airline flight data and derive actionable insights about pricing trends, flight routes, and airline performance.

Project Overview

The goal of this project is to uncover meaningful patterns and trends in airline ticket prices and flight routes. By analyzing various attributes such as airline, class type, duration, stops, source/destination cities, and days left before departure, we aim to offer strategic insights into flight operations and pricing models.

Technologies Used

📌 Python Stack

- Python – Core scripting for automation and analysis
- Pandas – Data wrangling and manipulation
- NumPy – Numeric operations
- Matplotlib – Visualization and plotting
- Seaborn – Statistical data visualization
- Jupyter Notebook – Interactive coding environment

Visualizations

- Price Distribution across Airlines
- Average Price: Economy vs. Business Class
- Busiest Source & Destination Cities

- Days Left vs. Ticket Price Trend
- Stops vs. Price Comparison
- Duration Impact on Ticket Pricing

Sql queries:-

```
-- 1.  Find the average ticket price per airline.
-- 2. List the top 5 most expensive routes (source to destination).
-- 3. Which airline offers the lowest average ticket price for Business class?
-- 4. Find routes with more than 50 flights and their average ticket prices.
-- 5. Compare average price difference between Economy and Business class per airline.
-- 6. Which cities have the most incoming flights?
-- 7. Which cities have the most outgoing flights?
-- 8. Find the busiest route (most number of flights).
-- 9. List the top 3 airlines with cheapest average prices for each route.
-- 10. Find flights with duration more than 5 hours but priced below average.
-- 11. Which flight class shows the highest average price variation (std deviation)?
-- 12. Find how ticket prices vary with number of days left before departure.
-- 13. Which time of day (Morning, Evening, etc.) has the highest average ticket price?
-- 14. Find Price trends by airline and travel class
-- 15. Compare the airlines average prices for non-stop vs. 1-stop vs. 2+ stops flights.
```

Dataset link:-
https://drive.google.com/file/d/1bY-zeD8Ar3d2jQvkbaFGJnOQqBA5ddqp/view?usp=sharing

Submit your Key Finding below

Key Findings

1.
2.
3.

4.