Airline Data Analytics Case-study | SQLite + Python

This project aims to address the challenges faced by a leading air transportation company through data analytics. The company is experiencing issues like stricter environmental regulations, higher flight taxes, increased labor costs, and rising fuel prices, which impact profitability and growth prospects. To ensure long-term sustainability and success, the company plans to analyze its database to increase aircraft occupancy rates and maximize average profit per seat.

Problem Statement

The airline company aims to enhance aircraft occupancy rates and identify strategic opportunities to increase profitability per seat. The key challenges are as follows:

1. Stricter environmental regulations: These regulations raise operating costs and restrict expansion potential.
2. Higher flight taxes: Increased taxes raise the overall cost of flying, reducing demand.
3. Tight labor market resulting in increased labor costs: Scarcity of skilled workers leads to higher labor costs and increased turnover rates.

Tools Used

- SQLite: The database used for storing and managing airline data.
- Python: The programming language used for data analysis and visualization.

Requirements

- Python
- Jupyter Notebook
- SQLite database

Libraries Used

- pandas: Data manipulation and analysis.
- sqlite3: To run SQL commands in jupyter python environment.
- matplotlib: Data visualization.
- seaborn: Data visualization based on matplotlib.

Data Source

The data is stored in an SQLite database and includes several tables related to flights, aircrafts, tickets, bookings, boarding passes, etc.