Airbnb Pricing Analysis

1. **Introduction:** In the competitive landscape of short-term rentals, setting the right price is critical to maximizing occupancy rates and revenue. Airbnb hosts often struggle to identify the optimal price point that balances guest demand with profitability.
2. **Abstract:** The objective of this project is to develop a Dynamic Pricing Recommendation Engine for Airbnb listings. Using historical data across multiple cities, this engine analyses key factors such as location, seasonality, property type, and listing quality measured by reviews and ratings to suggest optimal nightly prices.
3. **Tools Used:**
   - **Python:** Data Exploration, Data Management, Feature Engineering, Logistic Regression Modelling.
   - **SQL:** Data Exploration and Preparation.
   - **Power BI:** Interactive Dashboard.
4. **Data Preparation:**
   - Importing the dataset into SQL or python.
   - Quick inspection of data using head() and tail() in python.
   - Removed the unwanted columns for analysis.
   - Handling the missing values.
   - Changed the data type of columns.
5. **Exploratory Data Analysis (EDA):**
   - Cities like San Francisco and New York has highest average nightly prices.
   - Apartment and Villa property type has high prices.
6. **Predictive Modelling:**
   - **Logistic Regression Model:**
   - **Objective:**
   - To predict the prices of rooms.
7. **Power BI Dashboard:**
   - Created interactive dashboard for Airbnb pricing analysis.
   - **Filters:**
   - Property Type
   - Room Type
   - Bed Type
   - City
   - Year
   - Month
   - Season
   - Review Score Rating
   - **Visuals:**
   - Price analysis by Property Type, Room Type, Bed Type, City, Year, Month, Season and Review Score Rating.
   - Reviews analysis by Property Type, Room Type, Bed Type, City, Year, Month, Season and Review Score Rating.
   - Number of Customers analysis by City and Property Type.
8. **Deliverables:**
   - Data Cleaning scripts.
   - Logistic Regression model training.
9. **Insights:**

- Increase prices by 20-30% during peak seasons.
- Based on cities and their environment make property types differently.
- Increase the discount for weekly and monthly stays during the non-peak months.
- Mention the basic requirements like Wi-Fi, Parking, etc first in listing.
- Focus on guests that they are happy and comfortable while staying their response through reviews must be greater than 4.5.

10. Dashboard: