Airbnb Dynamic Pricing Recommendation Engine

Project Completion Report

🔹 Introduction

With the growing popularity of short-term rentals, dynamic pricing is crucial for Airbnb hosts to maximize revenue while remaining competitive. This project aims to analyze Airbnb listing data to recommend optimal pricing strategies based on location, reviews, listing type, and availability.

🔹 Abstract

The objective of this project was to develop a dynamic pricing engine using historical Airbnb data. By applying data analysis and predictive modeling, I identified key factors that influence pricing. A Tableau dashboard was built to visualize insights, and a Python regression model was used to suggest price predictions. The final output helps hosts make informed pricing decisions tailored to market conditions and listing quality.

🔹 Tools Used

- Python: Data cleaning, exploratory data analysis, regression modeling
- Tableau: Interactive dashboard with filters and visuals
- Excel: Initial data inspection and support calculations

🔹 Steps Involved in Building the Project

1. Data Collection: Downloaded Airbnb dataset from Inside Airbnb.
2. Data Cleaning: Handled missing values, filtered relevant columns (price, reviews, location).
3. EDA: Identified trends in room types, neighbourhoods, and reviews affecting price.
4. Regression Modeling: Built and evaluated a linear regression model to predict price.
5. Dashboard Development: Created a Tableau dashboard with map, bar chart, scatter plot, and histogram. Filters for room type, price range, and location were added.
6. Insights & Recommendations: Provided actionable insights on how listing attributes affect optimal pricing.

🔹 Conclusion

The project successfully demonstrated that Airbnb pricing can be effectively predicted and optimized using data-driven methods. Hosts can use this approach to adjust their listing prices

dynamically, based on location, availability, and guest engagement. The combination of visual insights and a predictive model provides a comprehensive decision-support tool.