

Title: Airbnb Dynamic Pricing Recommendation Engine

INTRODUCTION:

This project focuses on analyzing Airbnb listings across various European cities to build a dynamic pricing recommendation engine. The goal is to suggest optimal room prices based on location, room type, day (weekday/weekend), guest satisfaction, and cleanliness reviews.

ABSTRACT:

With Airbnb's growing demand, hosts need data-driven strategies for pricing. By analyzing historical data, this project identifies key pricing predictors and guest satisfaction patterns. A Power BI dashboard was created to visualize insights, enabling users to interactively explore data by city, room type, and day type. The final outcome includes a business-friendly dashboard and actionable pricing suggestions.

Tools Used

- **Power BI:** For data visualization and dashboard creation
- **Excel:** For initial data cleaning and transformation
- **Python:** Python for modelling , cleaning and regression analysis.

Steps Involved in Building the Project:

1. **Data Collection & Cleaning:** Used Airbnb dataset containing city-wise room prices, reviews, and room types.
2. **Data Exploration:** Identified high-traffic cities, price ranges, guest satisfaction scores, and review counts.
3. **Power BI Dashboard:**
 - Created filters for **Room Type** and **Day Type (Weekday/Weekend)**
 - Visualized **Average Price by City, Guest Satisfaction, and Cleanliness Reviews**
 - Added interactive slicers to explore patterns

4. Insight Extraction:

- Amsterdam has the highest average price (\$573.63)
- Athens and Budapest lead in guest satisfaction
- Entire home/apt listings score highest in satisfaction
- Rome has the highest review count, making it ideal for upselling

5. Recommendations:

- Use dynamic pricing: raise prices for high-demand weekends
- Offer weekday discounts for cities with lower occupancy
- Focus on listing quality for shared rooms to improve reviews

CONCLUSION:

The dashboard reveals that Amsterdam has the highest average prices, while Athens and Budapest have the highest guest satisfaction. Entire homes/apartments receive better reviews than other room types. Weekend prices are generally higher, showing potential for dynamic pricing based on day and room type.