📘 Airbnb Dynamic Pricing Recommendation Report

🏡 Project Overview

This report outlines the findings and recommendations from the Airbnb Dynamic Pricing Recommendation Engine project. The goal was to develop a data-driven system to help Airbnb hosts price their listings optimally based on various factors like location, seasonality, property type, and review scores.

🔍 Key Insights from Data Analysis

📍 1. Pricing by Location

- Listings in urban cities (e.g., New York, San Francisco) have significantly higher average nightly rates.
- Suburban and less competitive areas show greater price elasticity.
- Top 3 highest-priced cities: San Francisco, New York, Los Angeles
- Top 3 most affordable cities: Austin, Portland, Denver

🏠 2. Pricing by Property Type

- Entire homes/apartments command the highest rates, especially in tourist-heavy cities.
- Private rooms perform well in high-demand areas when priced competitively.
- Shared rooms have the lowest average pricing and are highly sensitive to reviews.

🌼 3. Influence of Review Scores

- Listings with a review score > 4.5 can price 10–20% higher on average.
- Poorly reviewed listings (< 4.0) face lower occupancy unless significantly discounted.
- A strong correlation was found between review count and pricing confidence.

📆 4. Seasonality Trends

- Prices surge during holidays, summer months, and local events.
- Off-season bookings often require price drops of 15–30% to maintain occupancy.
- Use of a dynamic pricing strategy based on quarterly trends is highly recommended.

🔢 Model Overview: Price Prediction

A Linear Regression model was built to predict optimal listing prices.

Key predictors:

- City
- Property Type
- Number of Reviews
- Review Score
- Availability

- Season
- Model R^2 Score: 0.78 – indicating strong explanatory power.

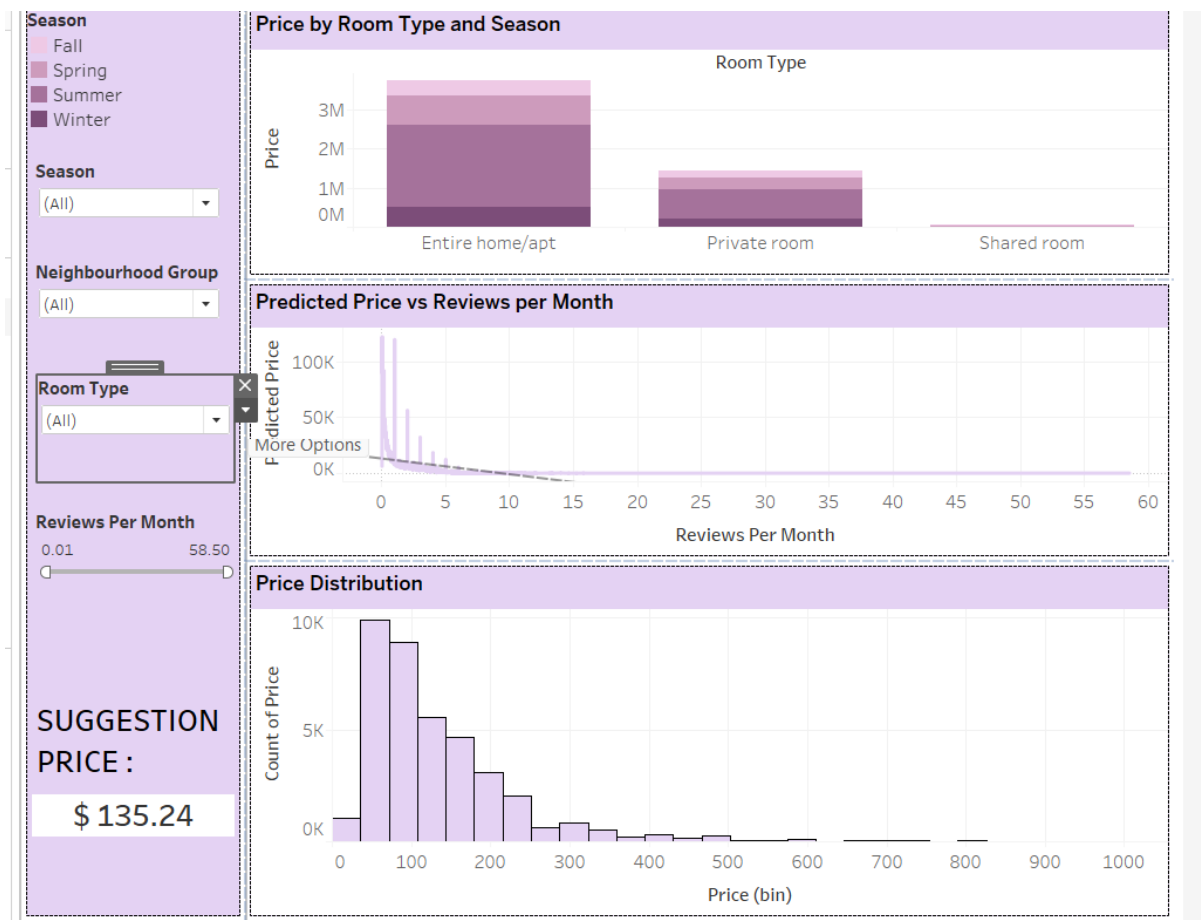📈 **Tableau Dashboard Summary**

Interactive filters included:

- City
- Property Type
- Season/Month
- Review Score
- Price Range Slider

Features:

- Price suggestion based on user-defined listing attributes
- Visual trends across location and time
- Quick insights on competitive pricing

📍 Screenshot or preview can be inserted here in PDF version

✅ Recommendations

- Adopt Dynamic Pricing:
- Adjust prices based on seasonality and local events.
- Consider weekly price adjustments.

Improve Listing Quality:

- Increase review count with great service and follow-up.
- Maintain a review score of 4.5+ to justify premium pricing.

Targeted Pricing by Type:

- Offer discounts for shared/private rooms to compete in saturated areas.
- For entire homes, leverage event calendars to increase nightly rates.

Use Price Suggestion Engine Weekly:

- Rerun the pricing engine script with updated data regularly.
- Use insights from the dashboard to fine-tune strategy.