**EDA & Data Visualization on Hospitality Domain**

***Introduction***

After data cleaning and exploratory data analysis (EDA), I have identified key insights from the dataset that can help hotel managers and directors make informed decisions to grow the business, improve guest experience, and boost overall performance. The hospitality data consists of hotel branches from different parts of India, capturing a wide range of operational and customer-related metrics.

***Total Revenue Generated by City Using Different Booking Platform.***

Hotel has different branches all over the country and runs in different states, and each state gives its own revenue performance. There are multiple platforms where people can book rooms in hotels or use their services—whether it's online from some apps or websites, or it's coming offline through a phone call.

A graph of different colored squares

AI-generated content may be incorrect.

After analyzing the data, it was found that Mumbai generated the highest revenue, followed by Bangalore, Hyderabad, and lastly Delhi. Most bookings came through the "Others" platform (likely phone or offline sources), followed by direct hotel channels or unidentified platforms, which need to be explored for potential collaboration. These channels represent key opportunities for maximizing bookings and revenue.

***Monthly Revenue Trend***

A graph showing the growth of a company

AI-generated content may be incorrect.

According to the analysis, the highest number of bookings was made in November 2022, while performance was at its lowest in June of the same year, with very few bookings recorded during that month.

***Revenue Earned Using Different Platforms***

According to the data, the hotel has used various booking platforms to reserve rooms, such as MakeyourTrip, Tripster, and others, which are among the popular platforms people use to search for and book hotel.

**A graph of a bar chart

AI-generated content may be incorrect.**

The chart shows that the highest revenue was earned through the "Others" category, which may include a mix of platforms or direct bookings. The second-highest revenue came from MakeyourTrip, followed by Tripster. Staying active on these platforms with updated pictures and positive feedback can help the hotel attract more bookings and increase revenue.

***Revenue Distribution by Number of Guests***

A graph with orange and white lines

AI-generated content may be incorrect.

This boxplot shows the distribution of revenue based on the number of guests. As the number of guests increases, the median revenue also tends to rise, especially from 4 to 6 guests. The spread (variation) in revenue is wider for higher guest counts, indicating that bookings with more guests can generate significantly more revenue. There are also several high-revenue outliers across all guest numbers.

***Revenue by Room Category and Booking Platform***

A colorful squares with white text

AI-generated content may be incorrect.

This is a heatmap showing the revenue generated by different room categories (RT1 to RT4) across various booking platforms. The colour intensity represents the revenue, with brighter shades indicating higher earnings. The "Others" platform consistently generates the highest revenue across all room types, especially for RT2. MakeMyTrip also shows strong performance, while platforms like Journey and Tripster contribute less

**📊 High-Level Analysis of Results**

After performing data cleaning and exploratory data analysis (EDA) on the hospitality dataset, several meaningful insights were uncovered that can help inform business strategy and optimize hotel operations.

The dataset captures hotel performance across various cities and booking platforms. One of the standout findings was from the bar chart showing total revenue by city and platform — it revealed that Mumbai generated the highest revenue, followed by Bangalore and Hyderabad. The most bookings came from the “Others” platform, which likely represents offline bookings or unidentified sources. This platform consistently contributed the most revenue, making it a potential area for further marketing efforts or partnership exploration.

The line chart showing monthly revenue trends highlighted seasonal patterns. It was observed that November 2022 recorded the highest number of bookings, while June 2022 had the lowest, indicating off-peak season effects. This type of trend can guide pricing strategies and promotional campaigns during slower months.

When looking at revenue by booking platforms in a horizontal bar chart, the analysis showed that “Others” again brought in the most revenue, followed by MakeMyTrip and Tripster. This confirms the value of diversifying booking channels and maintaining strong visibility across popular third-party platforms.

The box plot for revenue distribution by number of guests revealed that bookings with 4 to 6 guests tend to generate higher median revenue, and the spread in revenue increases with guest count. There are also noticeable outliers, suggesting a few very high-value bookings in certain guest ranges. This insight could help the hotel target larger group bookings to maximize returns.

Lastly, a heatmap of room categories versus platforms showed that RT2 rooms generated the most revenue, especially through the "Others" platform. This confirms that both room type and platform influence revenue potential. RT4 (likely the Presidential suite) showed high individual value but lower volume, suggesting it's premium but niche.

Overall, these visualizations and findings point to the importance of optimizing platform partnerships, targeting high-performing room categories, and adjusting strategy based on seasonal booking trends. The insights are actionable and grounded in the data, helping decision-makers prioritize efforts for growth and profitability.