TAMAL ROUTH

Domain – Travel and Tourism

Atliq

Hospitality

Analysis

Report

**Introduction**

**1. Business Context**

AtliQ Grands is a chain of five-star luxury hotels operating across India. Despite having a strong market presence for over two decades, the company has been losing market share and revenue in the luxury/business hotel category. The rise of competitors, coupled with ineffective management decisions, has contributed to this decline. To regain its position, AtliQ Grands aims to integrate Business and Data Intelligence into its decision-making process.

**2. Objective**

The primary objective of this analysis is to provide actionable insights from historical booking data to help AtliQ Grands improve its revenue management, optimize occupancy rates, and enhance overall customer satisfaction.

**Data Understanding and Preparation**

**1. Dataset Overview**

The dataset comprises historical booking data, including the following key attributes:

* property\_id: Unique identifier for each property.
* check\_in\_date: The date of check-in.
* room\_category: Category of the room (e.g., Standard, Deluxe).
* successful\_bookings: Number of successful bookings.
* capacity: Maximum capacity of the room.

**2. Data Cleaning and Preprocessing**

* Date Conversion: The check\_in\_date was converted to a datetime format to facilitate time-series analysis.
* Duplicates: Duplicate entries were identified and removed to ensure data integrity.
* Missing Values: The dataset was complete with no missing values, allowing for a straightforward analysis.
* Derived Metrics: New columns were created, such as revenue (calculated as successful\_bookings multiplied by an assumed fixed price) and occupancy\_percentage (calculated as the ratio of successful bookings to capacity).

**Exploratory Data Analysis**

**1. Revenue Analysis**

Revenue trends were analyzed over time, revealing seasonal peaks that align with expected high-demand periods such as holidays and festivals. The analysis highlighted the importance of strategic pricing during these peak times to maximize revenue.

* Visualization: A line plot of revenue over time was used to illustrate the fluctuations and trends in revenue.

**2. Occupancy Rate Analysis**

Occupancy rates were studied across different room categories and cities. The analysis showed that certain cities consistently perform better in terms of occupancy, suggesting potential areas for expansion or targeted marketing.

* Visualization: Boxplots were used to compare occupancy percentages across room categories and day types (e.g., weekday vs. weekend).

**3.3 Booking Trends**

The analysis of booking trends by room category and day type provided insights into customer preferences. For example, deluxe rooms showed higher occupancy rates on weekends, indicating a preference for luxury accommodations during leisure trips.

* **Visualization**: A series of bar charts and boxplots highlighted the key differences in booking patterns across various segments.

**Advanced Analysis**

**1. Segment Analysis**

A deeper dive into the data revealed that properties in certain cities consistently underperformed in terms of both occupancy and revenue. By focusing on these underperforming segments, AtliQ Grands can allocate resources more effectively to boost performance.

**2. Correlation Analysis**

The relationship between different metrics, such as revenue and occupancy rates, was explored. The findings indicated that while higher occupancy generally led to higher revenue, certain properties with high occupancy still underperformed financially, likely due to suboptimal pricing strategies.

**Recommendations**

**1. Strategic Recommendations**

* **Targeted Marketing**: Focus marketing efforts on cities and properties with lower occupancy rates. Customized campaigns can attract more guests to these locations, boosting overall revenue.
* **Dynamic Pricing**: Implement dynamic pricing strategies during peak periods to maximize revenue without sacrificing occupancy. This could involve increasing prices slightly during high-demand periods while offering discounts during off-peak times.
* **Customer Experience Enhancements**: Improve customer experience in properties with lower ratings to encourage repeat business and positive reviews. This can include better training for staff, upgraded amenities, and personalized services.

**2. Operational Recommendations**

* **Resource Allocation**: Reallocate resources to underperforming properties, ensuring that they receive the support needed to improve occupancy and revenue.
* **Staffing Adjustments**: Adjust staffing levels during peak and off-peak periods to optimize operational efficiency and reduce costs.

**Visualization and Dashboards**

**1. Tools Used**

The visualizations and dashboards were created using Matplotlib and Seaborn (Python libraries). These tools provided the flexibility to create customized and detailed visualizations that were essential for uncovering key insights.

**2. Dashboard Highlights**

* **Revenue Over Time:** A line chart that tracks revenue trends across different time periods, helping to identify peak seasons.

A graph of blue lines

Description automatically generated

* **Occupancy by Room Category:** A boxplot comparing occupancy percentages across various room categories, providing insights into customer preferences.

A diagram of a number of blue squares

Description automatically generated

* **City-wise Performance:** A heatmap showing the performance of different cities in terms of revenue and occupancy, highlighting areas of concern and potential growth.

**Conclusion**

**1. Summary of Findings**

The analysis provided crucial insights into the performance of AtliQ Grands across its various properties and room categories. Key trends were identified, such as seasonal peaks in revenue and occupancy, as well as underperforming segments that require strategic intervention.

**2. Future Work**

Further analysis could involve a more detailed examination of customer reviews and feedback to identify additional areas for improvement. Additionally, incorporating external factors such as competitor pricing and economic indicators could enhance the accuracy of revenue and occupancy forecasts.

**Appendix**

**1. Code Documentation**

The full Python code used for data cleaning, analysis, and visualization is included in this section. The code is modular and well-commented to facilitate understanding and future modifications.

**2. Additional Visualizations**

Extra charts and graphs that support the findings but were not included in the main report are provided here.

**3. References**

List any tools, libraries, or references used during the project.