AtliQ Hotels Hospitality Domain Analysis

Exploratory Data Analysis Report

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1. Executive Summary

This project presents an Exploratory Data Analysis (EDA) of AtliQ Hotels' booking and revenue data across multiple Indian cities. The objective of the analysis is to evaluate occupancy performance, revenue distribution, customer ratings, and booking channel contribution in order to generate actionable business insights for revenue optimization and operational improvement.

The dataset consists of booking-level transactions, aggregated occupancy data, hotel metadata, room categories, and calendar information.

2. Data Preparation and Cleaning

The analysis began with data validation and preprocessing to ensure reliability of results.

Key steps included:

- Removal of invalid booking records (negative guest counts).
- Handling missing capacity values using median imputation.
- Outlier detection and removal using the ±3 standard deviation rule.
- Creation of an Occupancy Percentage metric:

$$Occupancy\% = \frac{Successful\ Bookings \times 100}{Capacity}$$

- Merging booking, hotel, room, and date datasets for comprehensive analysis.

These steps ensured data consistency and analytical accuracy.

3. Key Findings

3.1 Room Category Performance

Presidential rooms (RT4) recorded the highest average occupancy (~59%), followed closely by Premium and Elite categories (~58%). Standard rooms had slightly lower occupancy (~57.9%). The results indicate relatively stable demand across room classes, with marginally stronger performance in premium offerings.

3.2 City-Level Occupancy

Average occupancy by city:

- Delhi: ~61.5% (Highest)
- Hyderabad: ~58.1%
- Mumbai: ~57.9%
- Bangalore: ~56.3%

Delhi demonstrated the strongest occupancy performance, while Bangalore showed comparatively lower utilization rates.

3.3 Weekend vs Weekday Demand

Occupancy analysis by day type revealed:

- Weekend Occupancy: ~72%
- Weekday Occupancy: ~50%

There is a significant increase in demand during weekends, suggesting strong leisure-driven bookings and potential for dynamic pricing strategies.

3.4 Revenue Performance

Total revenue realized by city:

- Mumbai: ₹668M (Highest revenue contributor)
- Bangalore: ₹420M
- Hyderabad: ₹325M
- Delhi: ₹294M

Although Delhi recorded the highest occupancy, Mumbai generated the highest total revenue, indicating stronger pricing or higher room-value mix.

Monthly revenue trend:

- May 2022: ₹408M
- June 2022: ₹377M
- July 2022: ₹389M

Revenue peaked in May, declined in June, and partially recovered in July.

3.5 Booking Platform Contribution

A significant share of revenue was generated through online platforms such as Makeyourtrip, Logtrip, and direct online channels. Digital booking platforms play a dominant role in revenue generation.

3.6 Customer Ratings

Average customer ratings by city:

- Delhi: 3.78
- Hyderabad: 3.66
- Mumbai: 3.65
- Bangalore: 3.41

Bangalore recorded the lowest average rating, suggesting potential service quality improvement opportunities.

4. Business Recommendations

1. Implement dynamic pricing strategies to capitalize on high weekend demand.
2. Focus operational improvements in Bangalore to enhance customer satisfaction and occupancy.
3. Optimize pricing strategies in Delhi to convert high occupancy into higher revenue.
4. Strengthen digital channel partnerships to maximize online booking performance.
5. Monitor monthly demand trends to anticipate seasonal revenue fluctuations.

5. Conclusion

This hospitality domain analysis demonstrates how structured data exploration and metric-driven evaluation can provide strategic insights into occupancy optimization, revenue management, and service quality improvement. The findings support data-driven decision-making for enhanced profitability and operational efficiency within the hospitality sector.