Project Report: Hospitality Insights Dashboard – OYO Bookings Analysis

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Domain: Hospitality Analytics | Business Intelligence | Data Visualization

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# 1. Introduction

In the modern hospitality industry, data analytics plays a vital role in enhancing customer experiences, optimizing resource allocation, and maximizing revenue. This project aims to develop an interactive Power BI dashboard that enables business users to extract actionable insights from a hotel booking dataset, representing OYO’s multi-city operations.  
  
The dashboard serves as a tool for decision-makers and business teams to monitor KPIs such as occupancy rate, revenue per room, seasonal trends, and property-wise performance across various locations.

# 2. Objective

- Create an end-to-end Business Intelligence (BI) solution using Power BI  
- Apply star schema design for a clean and scalable data model  
- Provide interactive visualizations for hotel performance analysis  
- Empower stakeholders to identify trends, issues, and opportunities  
- Showcase real-world Power BI project delivery in a portfolio-ready format

# 3. Tools & Technologies Used

Power BI - Report development, DAX calculations, dashboards  
Microsoft Excel/CSV - Data pre-processing and cleaning  
Star Schema - Data modeling for analytical performance  
DAX - Custom measures and business metrics

# 4. Data Description

The project uses structured CSV files, mimicking data typically found in enterprise data warehouses.

Dimension Tables:  
- dim\_date.csv: Date dimension for time-based analysis  
- dim\_hotels.csv: Hotel metadata (name, city, state, category)  
- dim\_rooms.csv: Room types, capacities, and pricing

Fact Table:  
- fact\_aggregated\_bookings.csv: Contains booking metrics like total bookings, occupancy %, revenue, and booking date

# 5. Methodology

Data Modeling:  
- Used star schema architecture for efficient querying  
- Created relationships between fact and dimension tables  
- Formatted data types and built hierarchies in Power BI

Dashboard Development:  
- Created visuals: Time-series trends, KPI cards, Top Hotels, Maps  
- Built slicers and filters for interactive exploration

# 6. Key Insights Delivered

- City-level performance analysis  
- Room preferences by occupancy rate  
- Time-based booking trends  
- Identification of high and low performing hotels

# 7. Results

The dashboard enabled:  
- Faster decision-making via centralized KPIs  
- Actionable insights for pricing and inventory strategies  
- Deep understanding of hotel and customer performance patterns

# 8. Conclusion

This project demonstrates how Business Intelligence tools like Power BI can be leveraged to extract, model, and visualize complex datasets in a way that supports real-world decision-making. It also reinforces the value of structured data modeling, intuitive design, and metric tracking in the hospitality sector.

# 9. Future Scope

- Connect to live data sources (e.g., SQL Server, APIs)  
- Integrate predictive modeling and ML forecasts  
- Explore customer segmentation and personalization  
- Publish automated reports and alerts via Power BI Service

# 10. Screenshots (To Be Added)

Include dashboard snapshots here using Power BI export or screenshots.

# Appendices

- Data files: dim\_date.csv, dim\_hotels.csv, dim\_rooms.csv, fact\_aggregated\_bookings.csv  
- Dashboard File: hospitality\_oyo.pbix  
- Documentation: README.md

# About the Author

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