Hotel Booking Power BI Project Documentation

# 1. Project Overview

This Power BI project analyzes hotel booking data to identify key performance indicators, trends, and guest behaviors. The dashboard supports data-driven decision-making for revenue management, customer segmentation, and operational efficiency.

# 2. Data Source

The dataset 'hotel\_bookings.csv' includes 119,390 records with 33 attributes. Key fields include booking status, lead time, guest demographics, booking channels, ADR (Average Daily Rate), and revenue-related metrics.

# 3. Data Cleaning & Transformation

- Missing values imputed or replaced with default values.  
- Created calculated columns: Total Stay Nights, Total Guests, Revenue.  
- Converted reservation status dates to datetime.  
- Categorized lead time and guest types.

# 4. Data Model Design

Adopted a star schema with the following tables:  
- FactBookings (main data table)  
- DimHotel  
- DimDate (from reservation\_status\_date)  
- DimCountry  
- DimMarketSegment  
- DimRoomType

# 5. DAX Measures Implemented

- Total Revenue  
- Cancellation Rate  
- ADR (Average Daily Rate)  
- RevPAR (Revenue per Available Room)  
- Occupancy Rate  
- Lead Time Bucket  
- Guest Type  
- Booking Quarter  
- Room Upgrades  
- Special Request Cancellations  
- Repeated Guest Revenue

# 6. Dashboard Components

- KPI Cards: Revenue, ADR, RevPAR, Cancellation Rate  
- Line Chart: Revenue & ADR trends over time  
- Pie Charts: Guest type & hotel type cancellations  
- Matrix: Revenue by market segment and channel  
- Slicers: Hotel type, country, lead time, quarter, guest type

# 7. Button Slicers Used

- Hotel Type  
- Booking Status  
- Lead Time Category  
- Guest Type  
- Market Segment  
- Season (Quarter)  
- Special Requests  
- Repeated Guests  
- Parking Required

# 8. Visual Summary

All visuals are interactive, tied to button slicers to filter metrics dynamically. Key visual types include:  
- Line charts for trend analysis  
- Matrix for segment performance  
- Pie charts for cancellation and guest type ratios  
- Bar charts for booking lead times

# 9. Strategic Insights

- City hotels receive more bookings but have higher cancellation rates.  
- Q3 is peak season for bookings and revenue.  
- Family guests drive higher revenue.  
- Last-minute bookings account for a significant share.  
- Room upgrades and special requests correlate with lower cancellations.