**Hotel Booking Analysis**

**1. Executive Summary**

This project presents a comprehensive analysis of hotel booking data to uncover key booking patterns, optimize revenue strategies, and reduce cancellation rates. By leveraging data-driven insights, the project aims to enhance operational efficiency, improve the guest experience, and maximize overall profitability. The analysis focuses on identifying factors influencing booking behaviour, evaluating the performance of different distribution channels, and providing actionable recommendations to support data-driven decision-making.

**2. Data Overview**

The analysis is based on a comprehensive hotel booking dataset, which includes the following key fields:

* **Booking ID:** Unique identifier assigned to each booking
* **Hotel:** Property type where the booking was made
* **Booking Date:** Date when the reservation was created
* **Arrival Date:** Scheduled check-in date
* **Lead Time:** Number of days between booking and arrival date
* **Nights:** Duration of the stay in nights
* **Guests:** Number of guests included in the booking
* **Distribution Channel:** Source of booking (Direct, Travel Agent, Corporate, etc.)
* **Customer Type:** Classification of customers (Transient, Group, etc.)
* **Country:** Country of origin of the guest
* **Deposit Type:** Deposit payment status (No Deposit, Non-Refundable, etc.)
* **Average Daily Rate (ADR):** Average price per night charged for the booking
* **Status:** Current status of the booking (Check-Out, Cancelled, etc.)
* **Status Update:** Date when the booking status was last modified
* **Cancelled (0/1):** Indicator denoting whether the booking was cancelled
* **Revenue:** Actual revenue generated from completed bookings
* **Revenue Loss:** Estimated revenue loss due to cancellations

**3. Project Objectives**

The primary objectives of this project include:

* **Identifying factors contributing to booking cancellations**, enabling the hotel to proactively reduce cancellation rates.
* **Analyzing revenue patterns across customer segments**, providing insights into the most valuable customer profiles.
* **Optimizing pricing strategies** by analyzing the relationship between lead times, seasonal demand, and average daily rates.
* **Evaluating the effectiveness of different distribution channels** to determine the most profitable booking sources.

**4. Deliverables**

The project will deliver the following outputs:

* **Comprehensive Analysis Report** summarizing key findings, trends, and actionable insights supported by data visualizations.
* **Interactive Dashboard** to facilitate real-time monitoring of key performance indicators (KPIs) related to bookings, revenue, and cancellations.
* **Presentation Deck** designed for stakeholders, highlighting critical insights, recommended strategies, and opportunities for improvement.