**Executive Summary – Hotel Bookings Data Analysis**

This project involved an in-depth analysis of a hotel bookings dataset comprising **119,000+ records** and **32 features**, collected from two types of hotels: **City Hotel** and **Resort Hotel**. The primary objectives were to understand booking patterns, customer behaviour, seasonal trends, and cancellation factors to derive actionable insights for business strategy and operational efficiency.

**Key Findings:**

* **Cancellation Rate:** Approximately **37.04%** of bookings were cancelled, indicating a significant impact on forecasting and revenue management.
* **Average Lead Time:** Customers booked, on average, **104 days in advance**, with longer lead times often linked to higher cancellation probabilities.
* **Average Daily Rate (ADR):** The mean ADR across bookings was approximately **₹101.83**, with rates varying significantly by hotel type, season, and customer segment.
* **High-Demand Periods:** The peak booking months were **August, July, and May**, highlighting key windows for targeted marketing and pricing strategies.
* **Customer Segmentation:** Most bookings came from **Transient** and **Transient-Party** customers, suggesting a focus on individual and small group travellers.
* **Special Requests & Parking:** A noteworthy segment of customers requested additional amenities like **special services and car parking**, influencing operational planning.

**Tools & Techniques Used:**

* **Data Cleaning & Wrangling:** Performed in Python using Pandas and NumPy to ensure dataset integrity.
* **Exploratory Data Analysis (EDA):** Utilized statistical summaries and visualizations to detect trends, seasonality, and customer behaviour patterns.
* **Key Visualizations:** Cancellation trends by month, ADR distribution by hotel type, lead time analysis, and customer type breakdown.

**Business Recommendations:**

* Implement overbooking strategies and cancellation policies to mitigate revenue loss.
* Launch marketing campaigns in the months leading up to **August and July**, with flexible pricing models.
* Personalize promotions for **Transient** customers and introduce bundled packages to increase retention.
* Leverage lead time data to offer early booking incentives and reduce last-minute cancellations.