Technical Documentation on Hotel Booking Analysis: Exploratory Data Analysis (EDA)

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1. Introduction

Exploratory Data Analysis (EDA) is a crucial step in data analysis that helps us understand the characteristics of our dataset and gain insights into the data. In this technical document, we will perform EDA on a hotel booking dataset to extract valuable information, identify patterns, and address potential challenges.

2. Problem Statement

The main objectives of this EDA project are as follows:

- Understand the distribution of hotel bookings.
- Identify trends in booking patterns.
- Detect potential factors influencing booking cancellations.
- Gain insights into customer behaviour and preferences.

3. Challenges Faced

During the EDA process, several challenges have been encountered, including:

- Dealing with missing or inconsistent data.
- Handling outliers and extreme values.
- Exploring and visualizing complex relationships in the data.
- Identifying relevant features for modelling.

4. Approach

The EDA process will be divided into several key stages:

4.1. **Data Collection** - Acquire the hotel booking dataset, which contains information about bookings in two hotels (city hotel and resort hotel).

4.2. **Data Pre-processing**

- Handle missing values and outliers.
- Encode categorical variables.

4.3. **Exploratory Data Analysis**

- Generate summary statistics.
- Visualize data distributions, trends, and patterns.
- Analyse correlations between variables.
- Explore booking trends over time.

5. Project Outcome

The project's final outcome will include:

- Insights into booking patterns and trends.
- Identification of factors influencing booking cancellations.
- Visualizations to communicate findings effectively.
- A foundation for future predictive modelling and decision-making.

6. Conclusion

Exploratory Data Analysis on the hotel booking dataset provides valuable insights into customer behaviour and booking patterns. This information can be used for making data-driven decisions to optimize hotel operations, pricing, and marketing strategies.

This technical document outlines the problem statement, challenges faced, approach and the expected project outcome for the Hotel Booking Analysis EDA. The project aims to provide valuable insights into hotel booking data to support informed decision-making.