Capstone Project Submission

Team Member's Name, Email and Contribution:
Name : - Zuber Ahmad Email:- ahmadzuber100@gmail.com
Please paste the GitHub Repo link.
Github Link:- https://github.com/Ahmad-Zuber/Hotel-Booking-Analysis Drive Link:- https://drive.google.com/drive/folders/1dhDQncZaofKuGo_f69okDwG4bK31Ze71?usp=sharing
Please write a short summary of your Capstone project and its components. Describe the problem statement, your approaches and your conclusions. (200-400 words)

Hotel industry is a very volatile industry and the bookings depend on variety of factors such as type of hotels, seasonality, days of week and many more. This makes analyzing the patterns available in the past data more important to help the hotels plan better. Using the historical data, hotels can perform various campaigns to boost the business. We can use the patterns to predict the future bookings using time series or decision trees.
We will be using the data available to analyze the factors affecting the hotel bookings These factors can be used for reporting the trends and predict the future bookings.
 	
Our Objectives are:
✦ In this, we will perform an exploratory data analysis (in order to investigate each of the features and also come up with a conclusion for the relationship between features and variable.
✦ Some objectives of analysis are given below
   ✓ Cancelation rates in City hotel and Resort hotel
   ✓ What is the booking ratio between Resort Hotel and City Hotel?
   ✓ What is preferred stay in each hotel?
   ✓ Which hotel has higher bookings cancellation rate?
   ✓ From which country most guests come?
   ✓ Which hotel has high chance that its customer will return for another stay?
   ✓ Which was the most booked accommodation type (Couple, Family)?
 	
Exploratory Data Analysis:
Exploratory Data Analysis refers to the critical process of performing initial investigations on data so as to discover patterns, to spot anomalies, to test hypothesis and to check assumptions with the help of summary statistics and graphical representations.

Steps Involved:

- ❖ Preprocessing the Datasheet
  - ✓ Data Cleaning
  - ✓ Treating Missing & Duplicate Values
- ❖ Exploratory Data Analysis
  - ✓ Data Exploration
  - ✓ Univariate Analysis
  - ✓ Hotel Wise Analysis
  - ✓ Distribution Channel wise Analysis
  - ✓ Booking Cancellation Analysis
  - ✓ Time Wise Analysis

- ❖ Data Visualization Techiques
  - ✓ Histogram Plot
  - ✓ Bar Plot
  - ✓ Pie Plot
  - ✓ Scatter Plot
  - ✓ Line Plot
  - ✓ Count Plot
  - ✓ KDE Plot

- ❖ Data Visualization Tools:
  - ✓ Matplotlib
    - o matplotlib.pyplot
    - o matplotlib.image
  - ✓ Seaborn.

Benefits of Hotel Booking Analysis:

- The project aims to gain interesting insight into customers' behavior when booking a hotel. To maximize the revenue gained by the hotel, the management often employed a pricing strategy, one of them being raising the room rate when the demand is high and making a promo when the demand is low.