Capstone Project Submission

Team Member's Name, Email, and Contribution:

1. Kushan Sharma:

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   1. Description of data
   2. Filling missing values
   3. Boxplots and finding outliers
   4. Filling outliers
   5. Proportion of adults with and without children
   6. Relationship of special requests and adults with and without children
   7. Cancellations over different months
   8. ADR over different months
   9. Relationship between ADR, Room types, and different customer groups.
   10. Relationship between deposit type and cancellations.

2. Lavanya M:

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   1. Description of columns
   2. Heat map of missing values
   3. Filling missing values
   4. Detecting outliers and filling them with appropriate values
   5. Lead time of different market segments
   6. Number of the week and weekend nights stayed in different market segments
   7. Checking if the reserved room type is assigned at the hotel
   8. Number of city and resort hotels
   9. Cancellations by the repeated and non-repeated guests.
   10. Relation between cancellations and special requests
   11. Relation between cancellations and previous cancellations.
   12. Relation between cancellations and special requests
   13. Market segment preferred by repeated and non-repeated guests

3. Umanand Pandey

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   1. World map of guests.
   2. Number of bookings canceled.
   3. Popular months.
   4. Market segments preferred by customers.

4. Kishan Kumar Singh

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   1. Most popular meal plan
   2. Meal preferred by different customer types

3.	Months of arrival preferred by different customer groups
4.	Cancellations over different months
5.	Deposit type preferred by guests
6.	Cancellation rates of hotels
7.	Most popular customer type

5.	Kamal Mandal

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1.	Days on the waiting list for different market segments.
2.	Popular market segments
3.	ADR of different room types
4.	Correlation of columns heat map.
5.	Market segment over the years

Please paste the GitHub Repo link.

GitHub Link:- https://github.com/Kushan1001/Hotel-booking-data-analysis

Please write a short summary of your Capstone project and its components. Describe the problem statement, your approaches, and your conclusions. (200-400 words)

We were presented with a hotel booking dataset in a CSV format for EDA. The dataset contained 32 columns and 119390 rows. The objective was to come up with insights that can help the hotels to improve their performance and profitability.

We checked the shape, size, info, summary statistics, head, and tail of the dataset. Then we proceeded to account for null values in the dataset. We found that agent (13.7%) and company's (94%) contained the maximum number of null values and hence we decided to drop these columns. To deal with outliers we used boxplots and replaced them using appropriate values using our best judgment.

For our analysis, we used various pictorial representations such as bar plots, line plots, heat maps, pie charts, and many more. After completing our analysis we arrived at Portugal, UK, France, and Spain are our biggest markets. Furthermore, most guests prefer city hotels over resort hotels. It was also observed that city hotels have higher cancellation rates. The summer season is busiest for both hotels. During this season, ADR and cancellations are at their peak for both hotels. Non-repeated guests prefer Online TA, Offline TA/TO, and groups for their booking. On the other hand, corporate and direct market segments are preferred by repeated guests. Moreover, over the three years, Online TA has the highest growth rate relative to other markets segments. Offline TA and groups had the highest lead and waiting time as compared to Aviation which had the least waiting time. It is also found that most of the customers travel without any children, but adults with children had the most special requests. Another thing we arrived at was most customers do not prefer to pay deposits. Also, G, F, and H are the most profitable rooms and are usually preferred by transient customers. Finally, BB and HB are the most popular meal plans and guests who have more than one special request are less bound to cancel their booking.