Capstone Project
Hotel Booking Analysis
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Points for Discussion

- Data Summary
- The price for different hotel types each month
- Waiting time for Hotel booking with respect to market segment
- Type of Hotel preferred by the customers
- Busiest month
- Bookings made by each hotel every month
- Most preferred business segment
- Home country of Guests
- Bookings per market segment
- Adults and kids guests arrived per month in each hotels
- Conclusion

Data Summary

For this EDA project, we are using the "Hotel booking demand" database.

This data set contains the reservation details of two hotels namely the city hotel and the resort hotel, and includes details such as when bookings are made, duration of stay, number of adults, children, and the number of available parking spaces, among other things.

The following steps are performed on the Data set:

Step 1. Overview the whole data :

Look at the number of rows and columns of the dataset and Look at each column information that is data type, null rows.

Step 2. Looking at missing data

Step 3. Splitting the dataset into numerical and categorical(String)

Step 4. Look at data distribution for numerical columns

Step 5: Look at Data Characteristics of text variables

Step 6: Conclusion

Exploratory Data Analysis (EDA)

- **Data Preparation and Cleaning**:Importing the libraries needed in this project for data manipulation , cleaning and visualization. Example – Column agents and column companies has many missing values making the columns irrelevant for our analysis , hence removing them. Finding all Null and Duplicate values and dropping them . After doing the data cleaning we are left with 86913 rows and 29 columns.

- **Handling Outliers**:By plotting boxplot, we see some outliers. We have used median for removing outliers.Seaborn boxplot are used for visualizing the outliers in the present data.

- Plotting different features against one another:
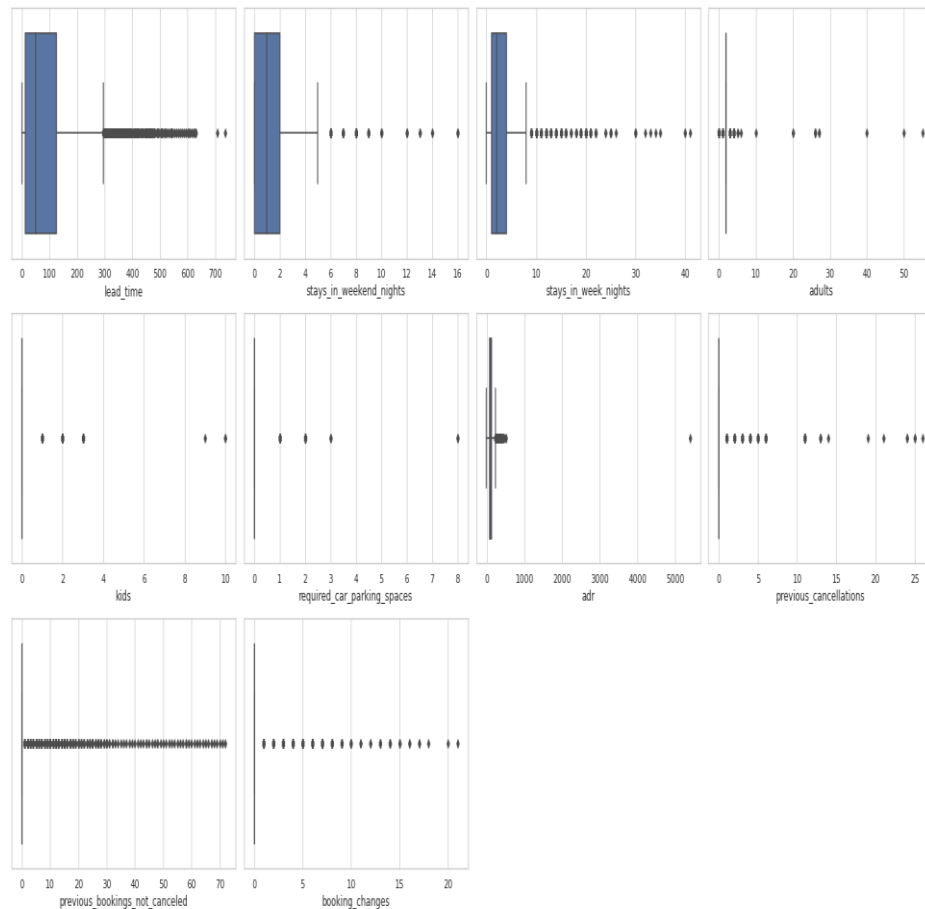
Which months have highest and lowest booking rates?

From graph we can conclude , that both city and resort hotels , from the month of November to January have lowest Average Daily Rate (adr) and month of August has the highest Average Daily Rate (adr).

The price for different hotel types each month
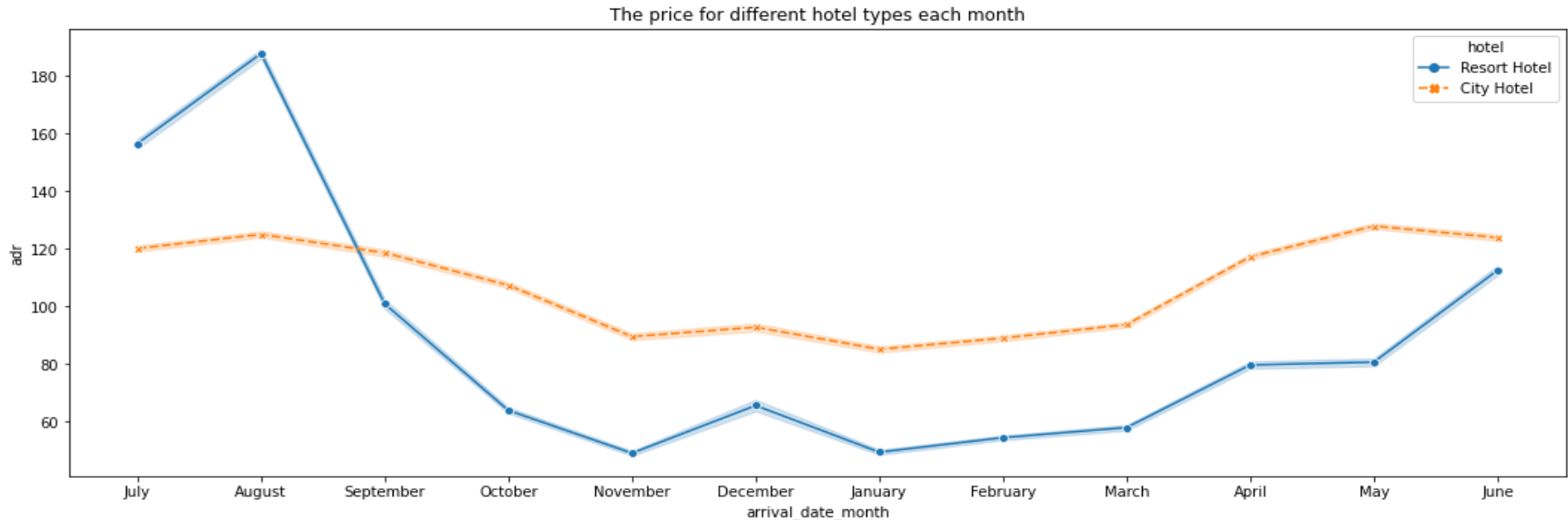
Which segment of the market usually has the Maximum number of days in the waiting list?

AI

From the graph we can conclude that through the 'Groups' market segment customers have to waiting more, this means that the waiting time is more before the conformation of booking through groups market segment Groups waiting time is 391 days for a data of 3 years which is maximum.

Waiting time for Hotel booking with respect to market segment

Which Type of Hotel is prefer by the customers ?

AI

From the graph we can conclude that more number of customers preferred city hotel with 61.45% .
And in 2016 Both Hotels got maximum business

Which type of hotel is preferd by customer
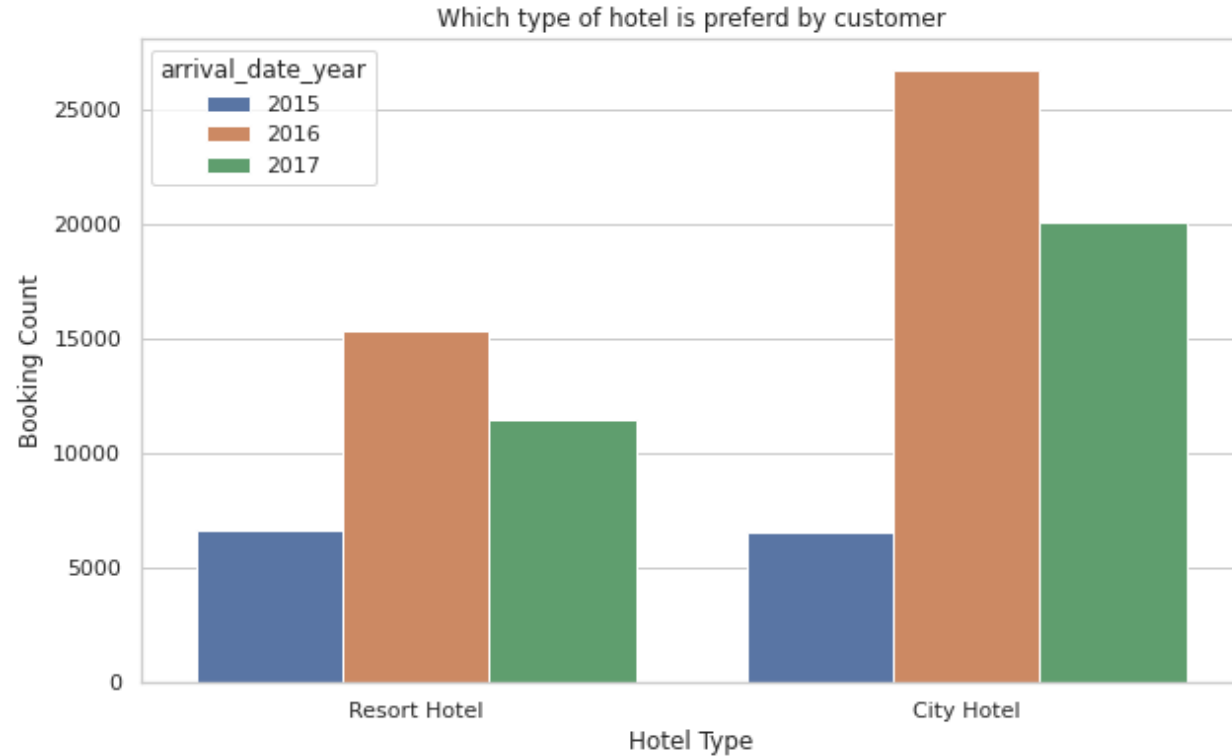
Which is the busiest month of the hotel ?

From graph we can conclude, that both city and resort hotels, from November to January have lowest bookings and August have highest bookings, which makes August month as the busiest month for both the Hotels.

August month City Hotel has 6586 booking and Resort Hotel has 4643 numbers of bookings.


which is the busiest month
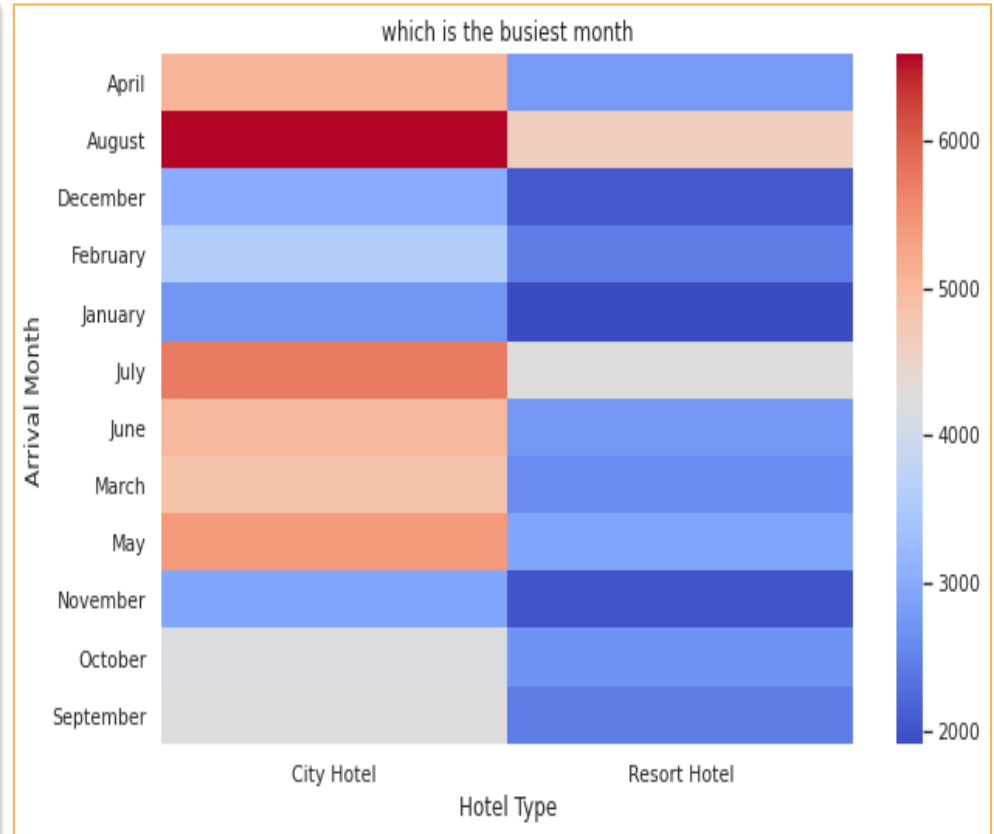
How many Bookings are done in each month ?

From the bar plot we can see the number of bookings made by city hotel are more than resort hotel and it is maximum during August month. Most number of hotel booking request came in the month of July and August followed by May and October. One reason for this may be the weather impact as these are the months of pleasant weather in Portugal.

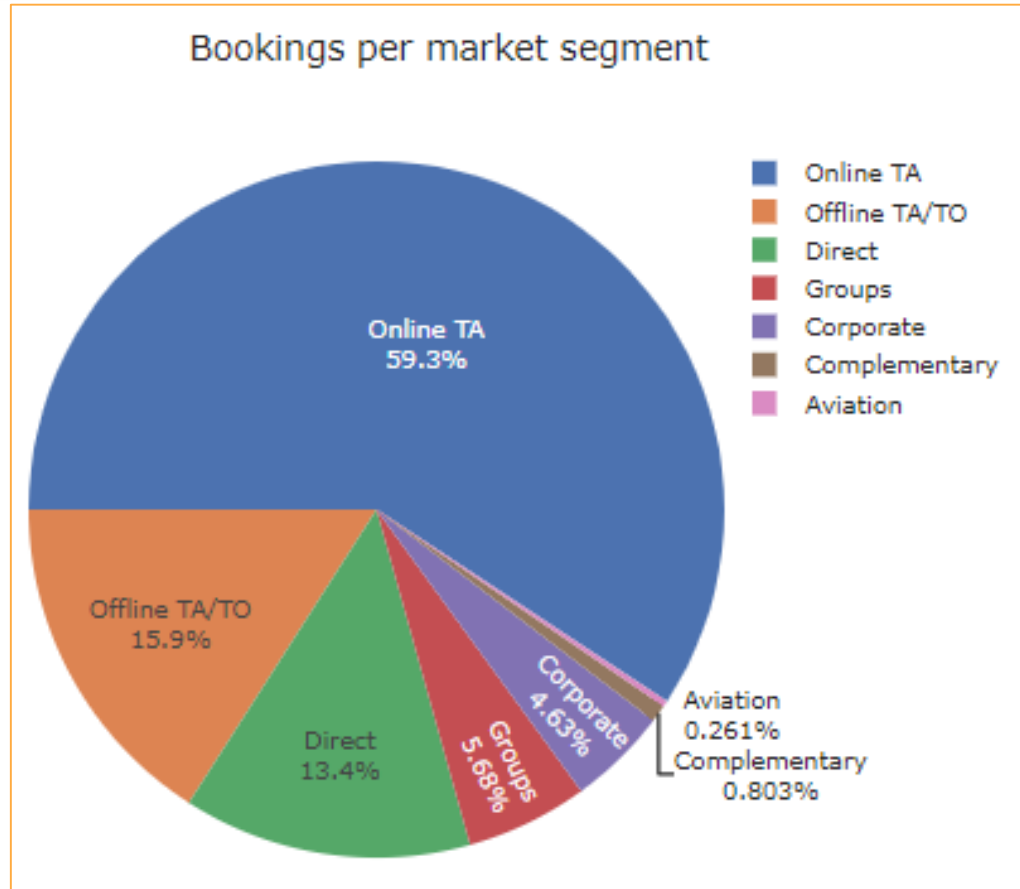
Number of Booking done in each month
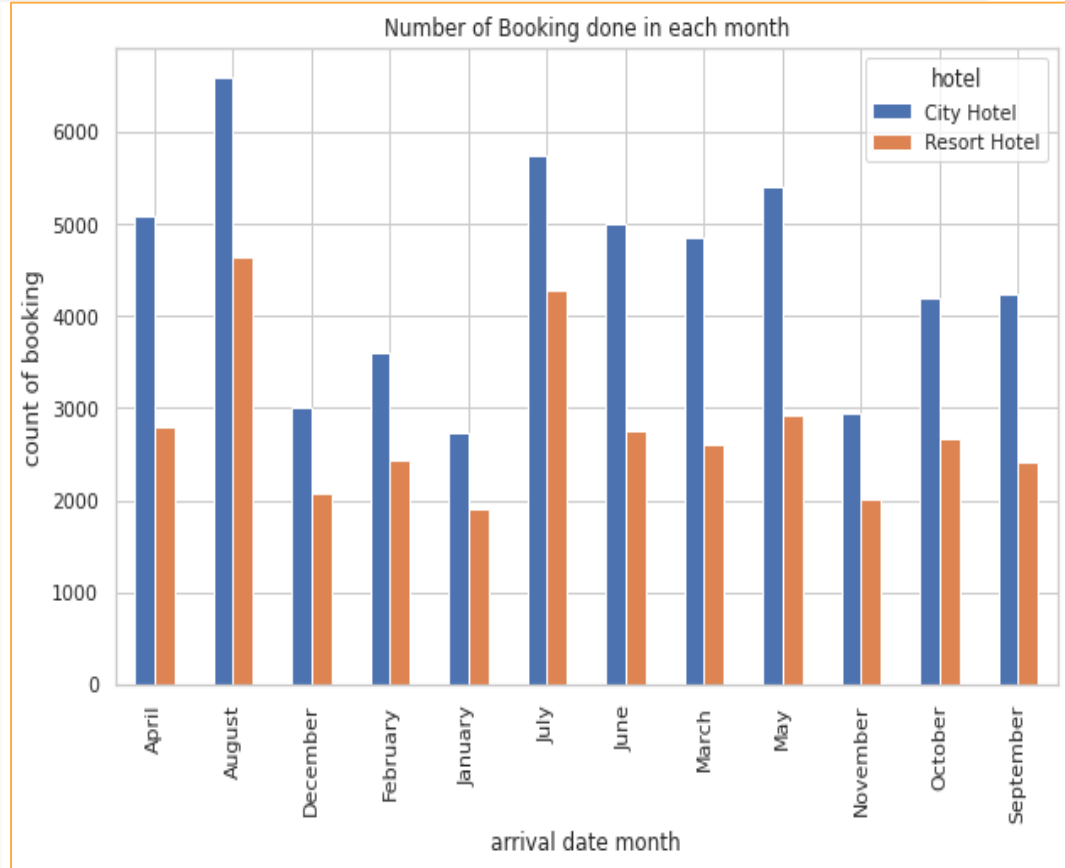
Which is the most preferred business segment ?

From the Bar graph we can see that 40.25 % city hotel booking are done by online TA and 19.04 % of Resort hotel are booked by Online TA.

Mostly prefered Hotel with respect to market Segment
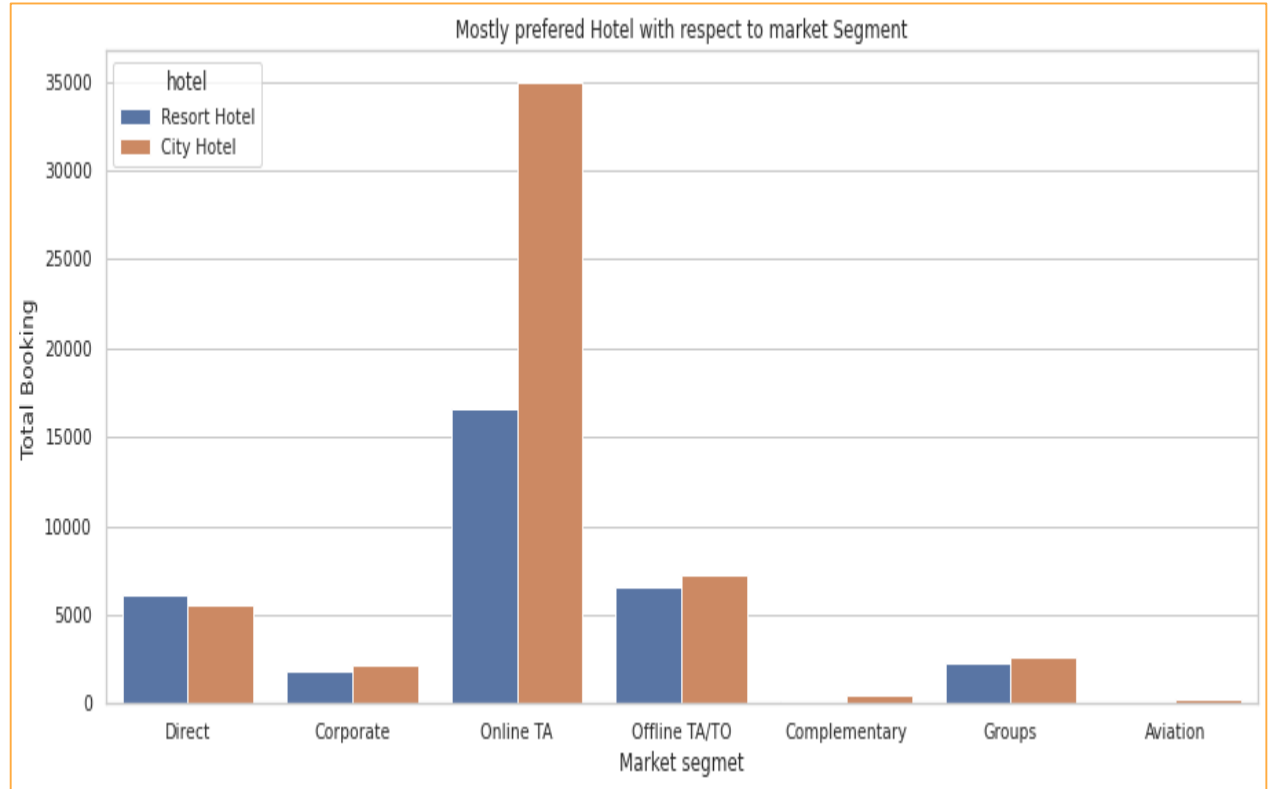
Total Bookings by market segment

AI

From the chart we found that maximum bookings are done by Online Travel Agents which is 59.3% and 15.9% bookings are made by offline Travel Agents and almost 13.4% bookings are Direct without any other agents.


Bookings per market segment

- Online TA
- Offline TA/TO
- Direct
- Groups
- Corporate
- Complementary
- Aviation

Online TA 59.3%
Offline TA/TO 15.9%
Direct 13.4%
Groups 5.68%
Corporate 4.63%
Aviation 0.261%
Complementary 0.803%

Which are the top five countries of origin of Guests ?

AI

As we can see from the pie chart, maximum numbers of guests are form Portugal with 17652 count, followed by Great Britain with 8446 count, and then France with 7104, and so on .

Around **28.1%** of all bookings were booked from **Portugal** followed by Great Britain(13.4%) & France(11.3%).


Home country of guests
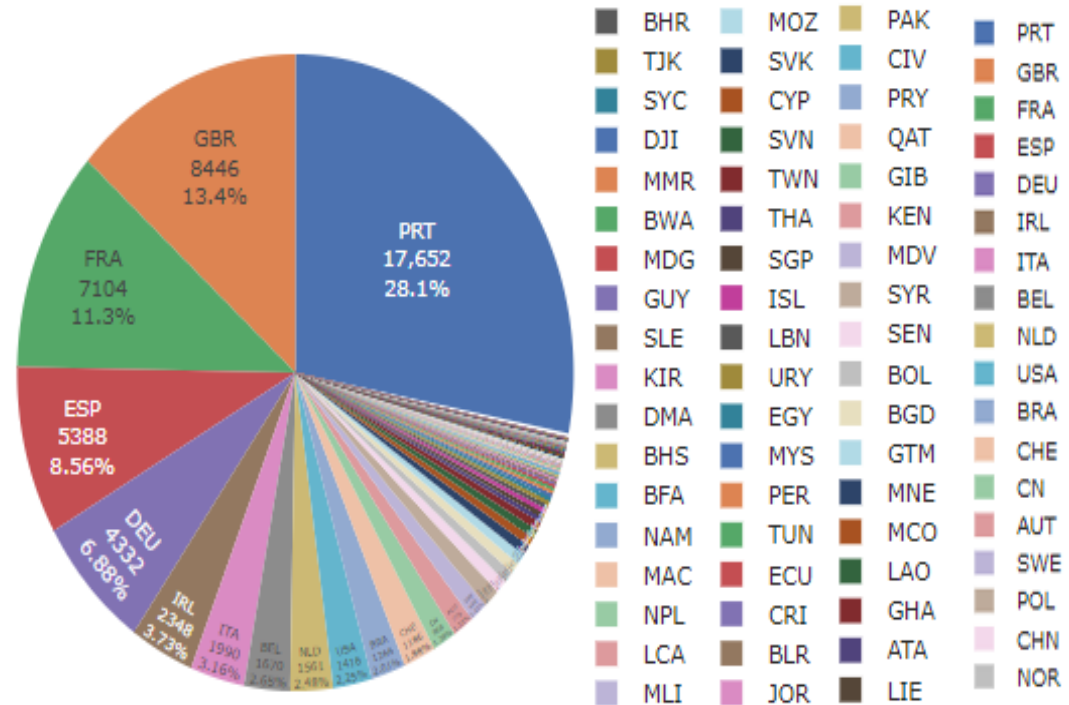
How many adults and kids guests arrived per month in each hotels ?

AI

The number of adults and kids in Resort Hotel in August month is 9463 and 1400 count, and for City Hotel its 13188 adults and 1532 kids.

It seems that the number of adults and children are higher in case of city hotel .

Number of adults and kids arrival per month in City hotel

Number of adults and kids arrival per month in Resort
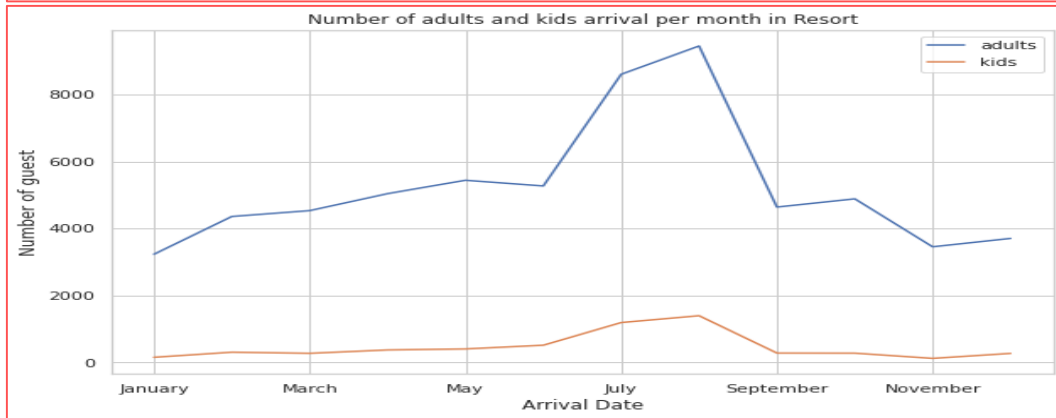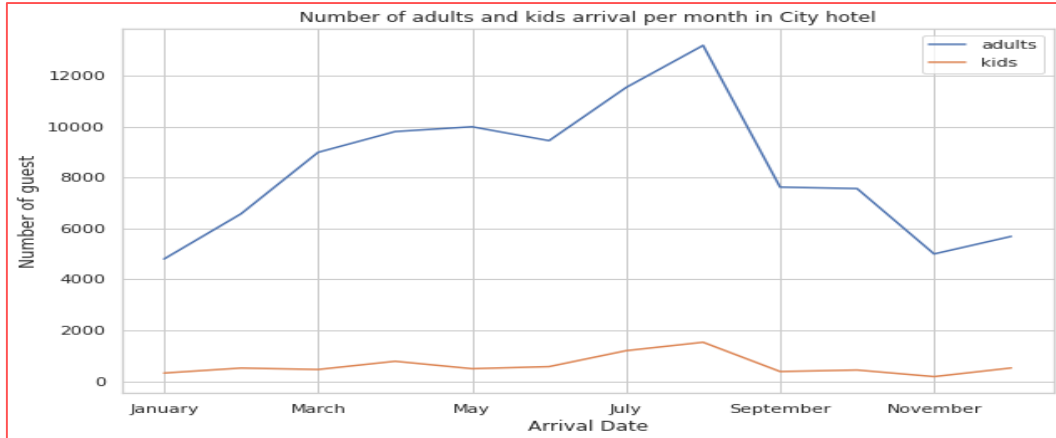
Conclusion

❑ Most bookings are done in the city hotel. Resort hotel tend to be on the costlier side and most people will go with city hotel.

❑ Analysis showed that May and August months are the busiest months because of the summer season.

❑ Most of the visitors are from Western Europe , Portugal being the highest followed by Great Britain and France.

❑ Knowing that the hotels do not have repeated visitors, this can be taken as an opportunity to target on this area to attract repeated customers since they have already booked before , by offering them discount on booking, giving privilege services and taking feedback seriously for improvement.

Conclusion

- Most of the market segments and distribution channels involve travel agencies either online or offline.

- It is suggested to target the travel agencies for marketing and advertising on their website since majority of customers tend to reach out to them for booking because of the ease of booking from the website and to skip middleman.

- Majority of the reservation gets converted into success business transactions.