CAPSTONE EDA PROJECT TOPIC -II

HOTEL_BOOKINGS_ANALYSIS

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ACKNOWLEDGEMENT

- We would express our gratitude towards the entire team of "Almabetter" for acknowledging us with such important domain and providing us an opportunity to work on real life problems through Capstone Project.

Data Analytics and its importance

- Data analytics (DA) is the process of examining data sets in order to find trends and draw conclusions about the information they contain.
- Data analytics initiatives can help businesses increase revenue, improve operational efficiency, optimize marketing campaigns and bolster customer service efforts.
- Analytics also enable organizations to respond quickly to emerging market trends and gain a competitive edge over business rivals.
- The ultimate goal of data analytics, however, is boosting business performance.

Steps followed :-

- Importing necessary packages and libraries.
- Mount the drive in colab and read the .csv file.
- Analysing the data sheet.
- Removing null/NAN/duplicate rows.
- Fixing the outliers.
- Drop certain columns/combined certain columns to make our data sheet free Avoid of any irrelevant data.
- Applying the concept of Data Wrangling and Data Visualization such that we can analyse the data sheet and retrieve required information.

Problem Statement

- Have you ever wondered when the best time of year to book a hotel room is? Or the optimal length of stay in order to get the best daily rate? This hotel booking dataset can help you explore those questions!
- This data set contains booking information for a city hotel and a resort hotel, and includes information such as when the booking was made, length of stay, the number of adults, children, and/or babies, and the number of available parking spaces, among other things. All personally identifying information has been removed from the data.
- Explore and analyze the data to discover important factors that govern the bookings.

Description of columns

Column_name	Column_description
Hotel	Contain data values hotel City ,Resort
is_canceled	Contains boolean data values 0-->not_canceled 1-->canceled
lead_time	Number of days between the entering date of booking and arrival date
arrival_date_year	Year of the arrival date of guests
arrival_date_month	Month of the arrival date of guests
arrival_date_week_number	Week number of year of arrival date
arrival_date_day_of_month	Day of the arrival of guests

distribution_channel	Via which medium booking was made.
is_repeated_guest	Having values 1□repeated guests 0->no repeated guests
previous_cancellations	Number of previous bookings that were cancelled by the guests prior to the current booking
Previous_booking_not_cancellations	Number of previous bookings that were not cancelled by the guests prior to the current booking
reserved_room_type	Room type --- reserved
booking_changes	Number of changes made to the booking from the moment the booking was entered on the pms until the moment of check-in or cancellation
deposit_type	Categorical values—No deposit , Refund, Non-refund
agent	ID of the travel agency made the booking

Stays_in_weekend_nights	Number of days for stay on weekend night
Stays_in_week_nights	Number of days for stay on week day
adults	Number of adults
children	Number of children
babies	Number of babies
meal	Type of meal offered
country	Countries from where guests arrived
market_segment	Categorical values like TA☐Travel agent TO-> Tour Operators

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days_in_waiting_list	Number of days the booking was in the waiting list before it was confirmed
customer_type	Categorical values☐ contract group, transient, party
Average_daily_rate	Obtained by dividing the sum of all lodging transaction by the total number of staying nights
required_car_parking_spaces	Number of car parking spaces used by guests
total_of_special_requests	Number of special requests made by guests(eg-extra bedsheet)
reservation_status	Contains the current status

Analysis & Observations

- Here we present some of the basic as well as some advanced observations retrieved from the data sheet.

Analysing the correlation
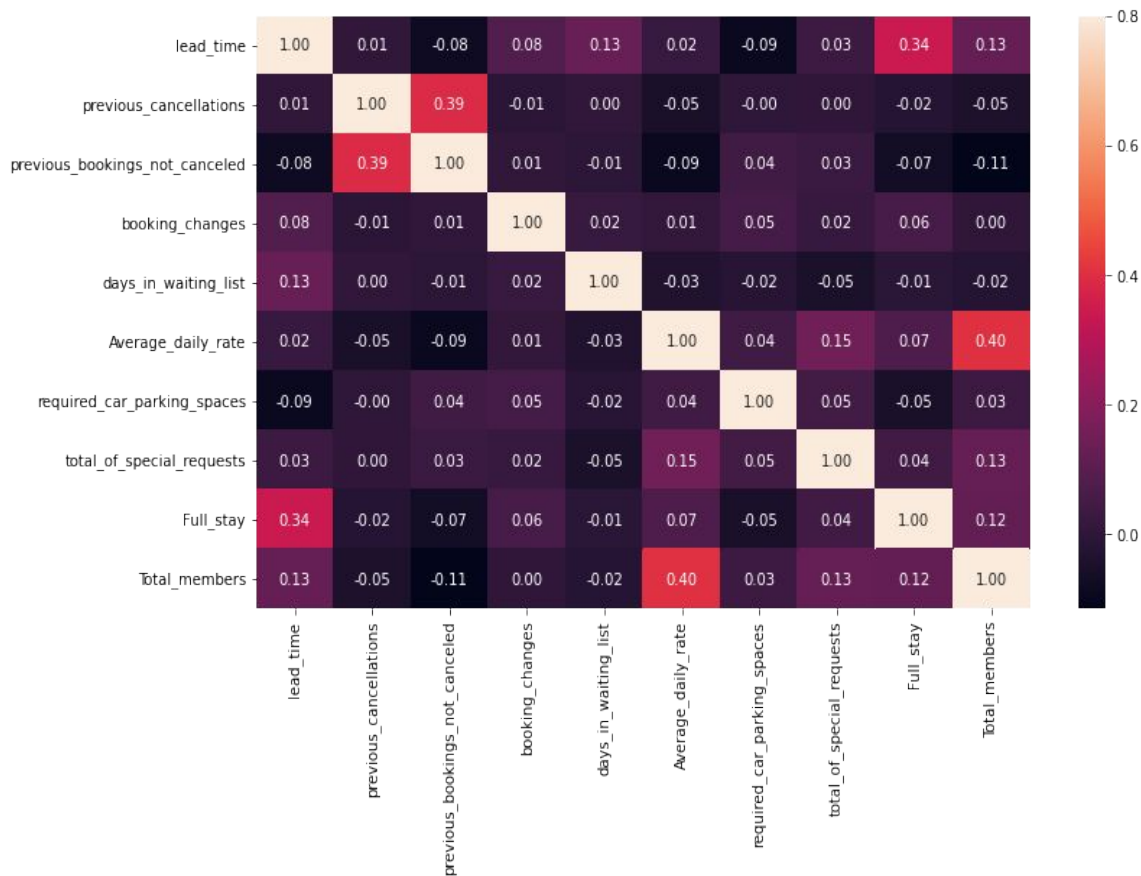
- Full_stay length and lead time have slight correlation. This may means that for longer hotel stays people generally plan little before the the actual arrival.

- Average_daily_rate is slightly correlated with Total_members, which makes sense as more no. of people means more revenue, therefore more Average_daily_rate.

1. Hotel type Percentage

Hotel type

City Hotel

61%

hotel

39%
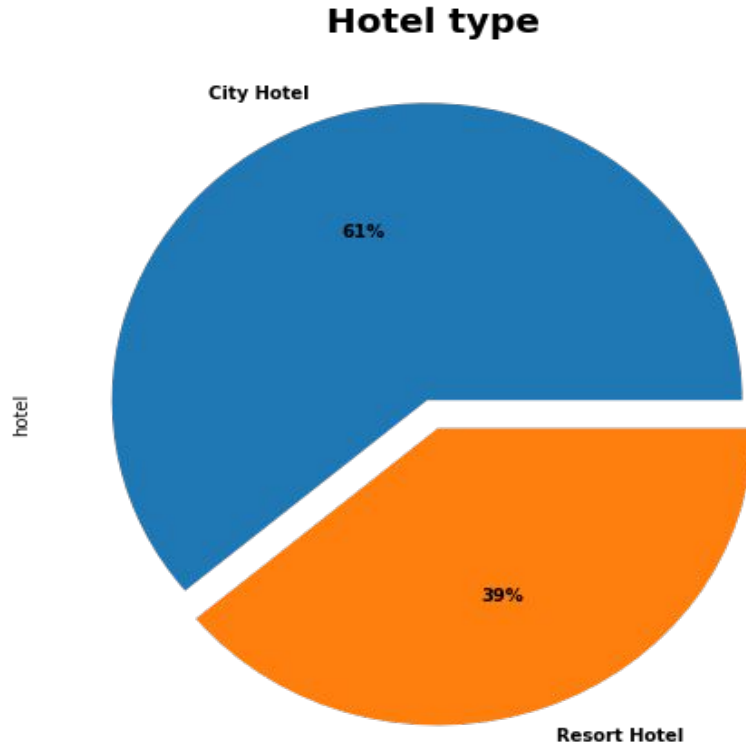
Resort Hotel

- We observed **City Hotel** shares **61%** out of 100 than Resort Hotel.

Hotel Wise Bookings based on Month and Year
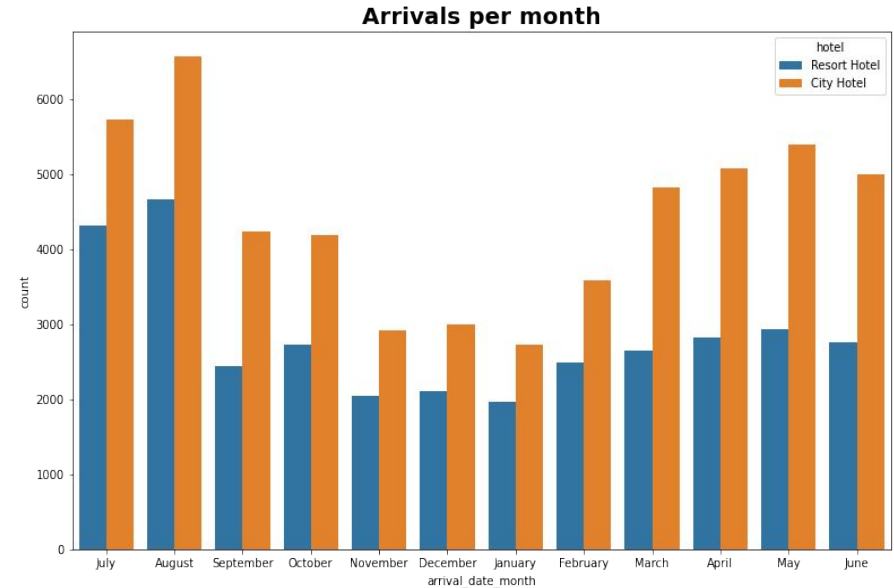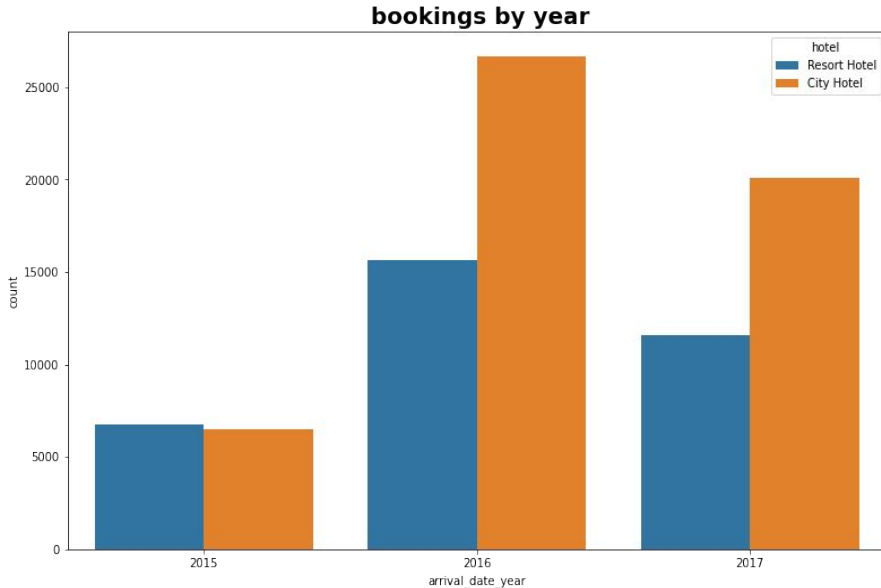
- Bookings for City hotels are higher than Resort hotels over the years and in year 2016 the bookings for both the hotels were maximum.

- Most bookings were done in the month of May, June, July, August.

Day-wise analysis of guests arrival
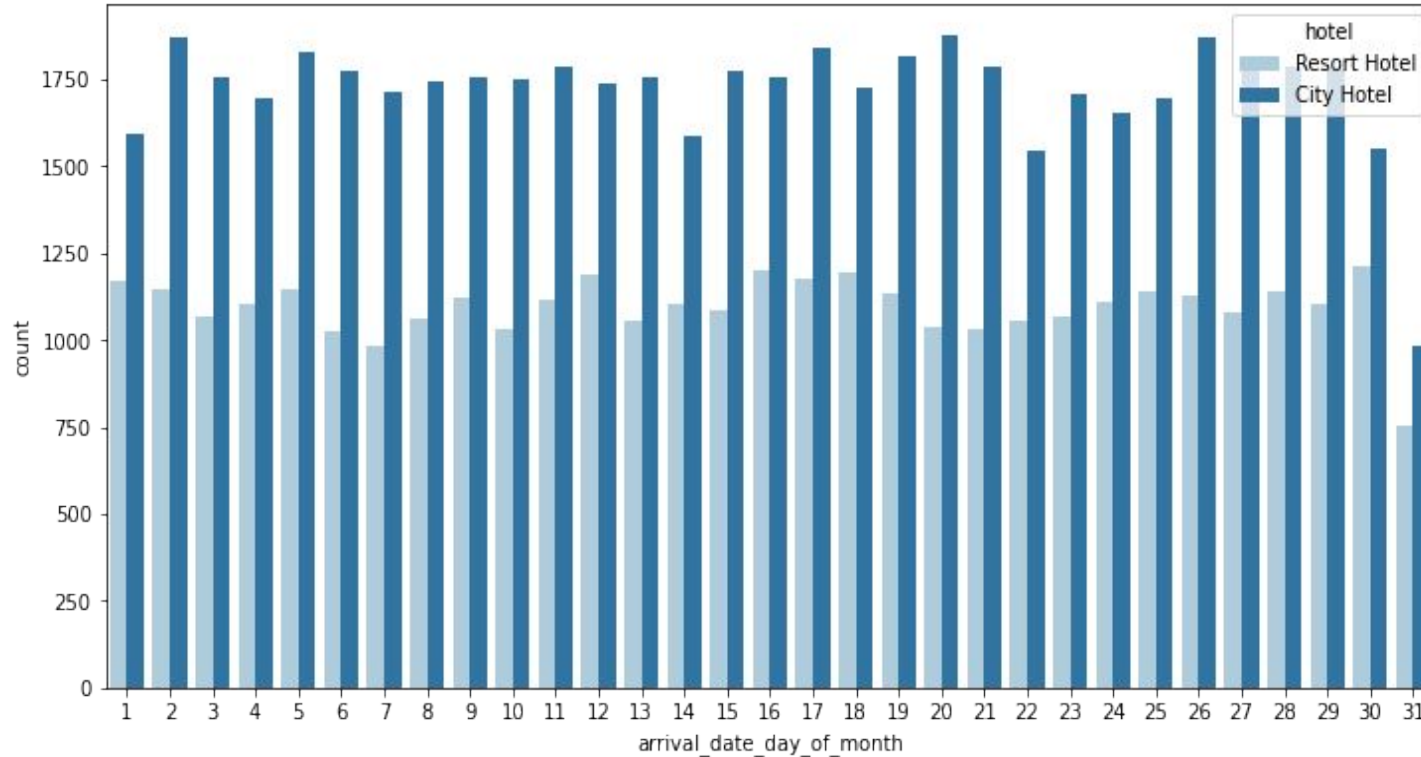
- We observed everyday the guest arrival is more in city hotel .

Favorite meal by hotel type

Favourite food type
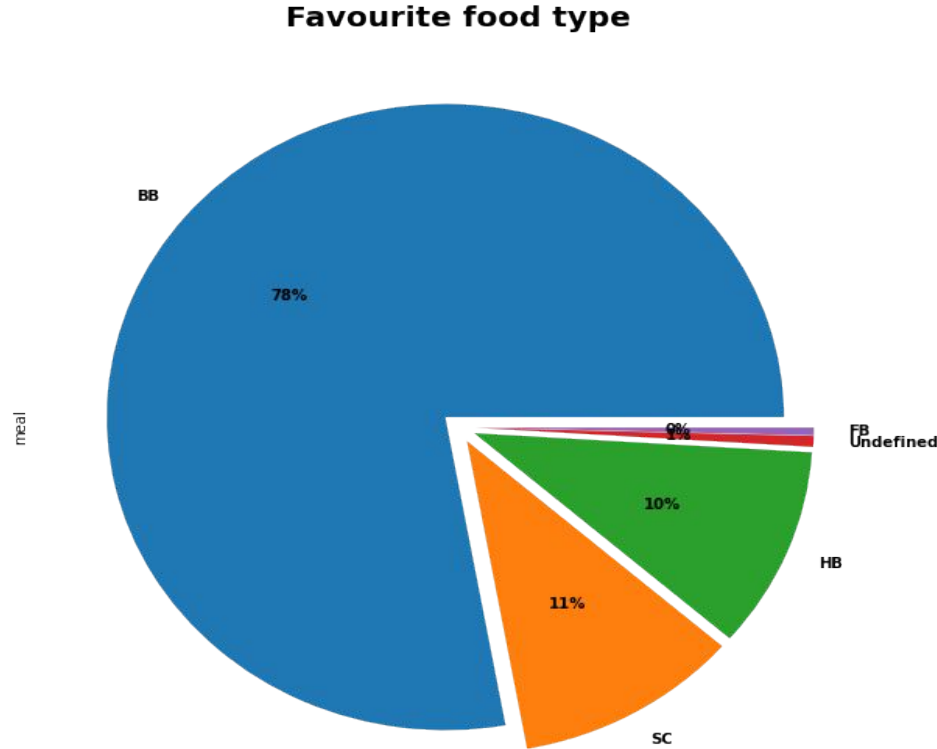
- We observed 78% of people prefer 'BB' type meal.
- BB - bed and breakfast
  HB - Half board
  FB - Full board
  SC - Self catering

4.From which country guests are visiting the hotel?

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Number of bookings country wise
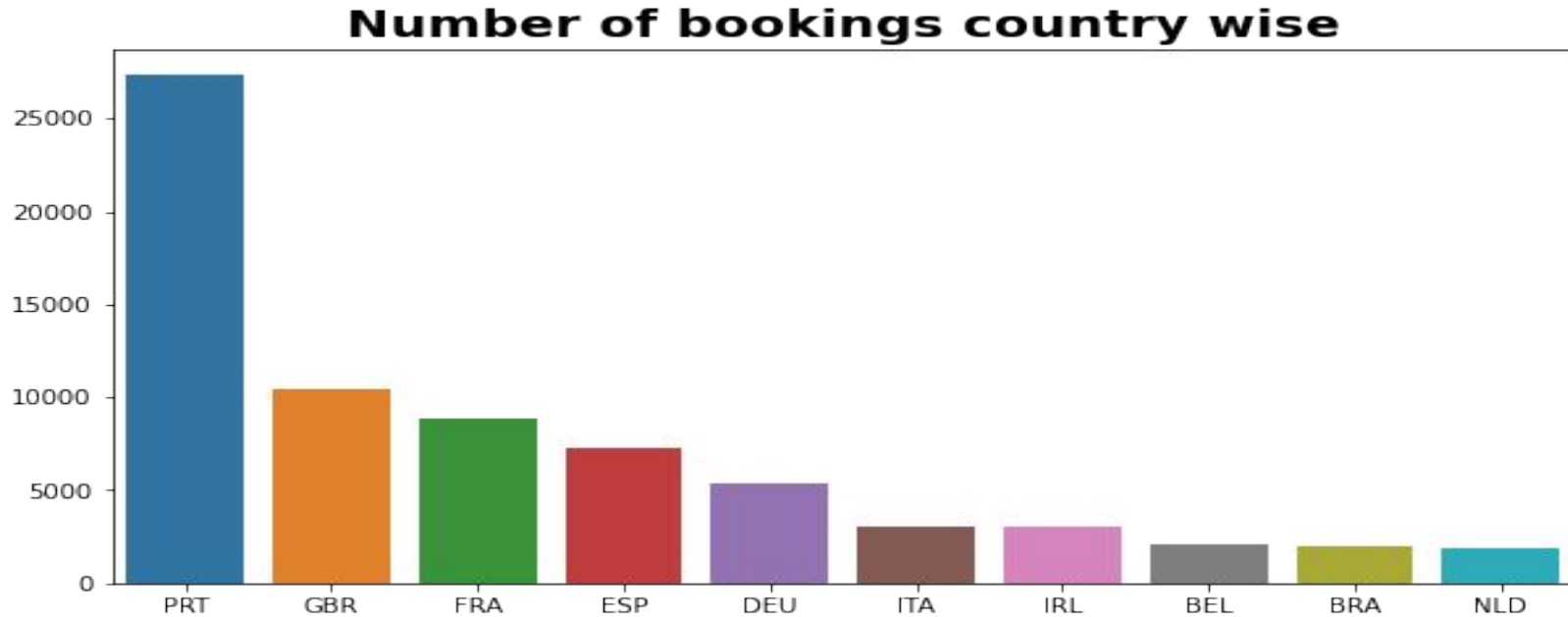
- We observed most guests visited the hotels where from **Portugal and other European countries.**

Which agent made the maximum bookings?

No. of bookings done by agents
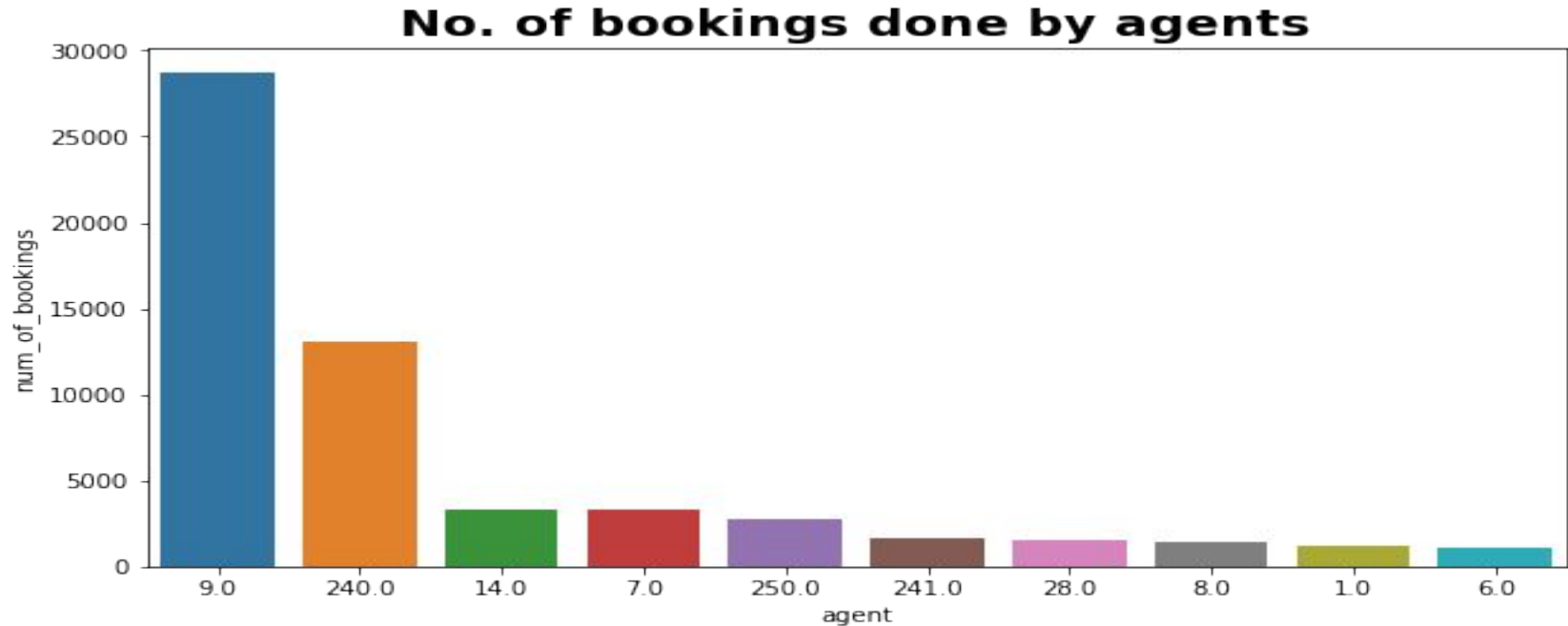
- We observed Agent no. 9 has made most no. of bookings.

Preferred Room Type

Preferred room types
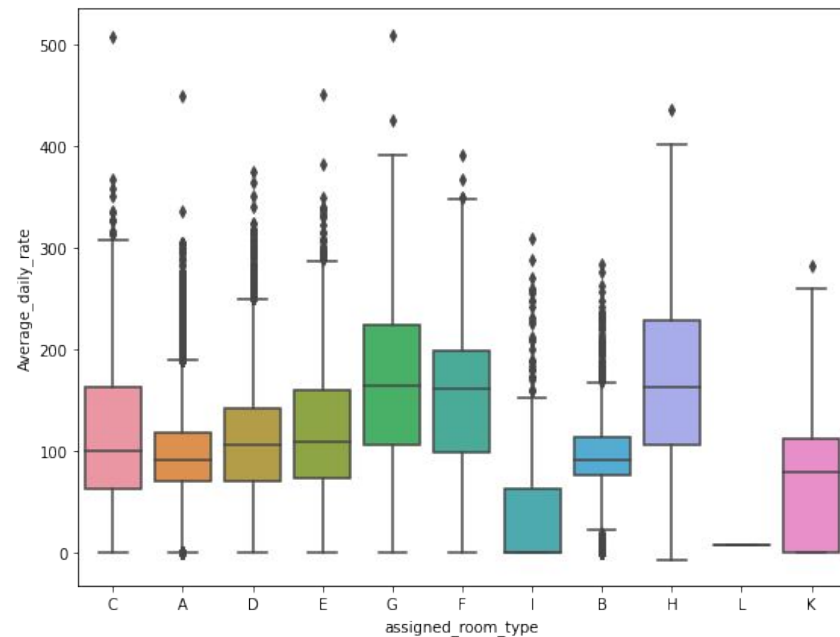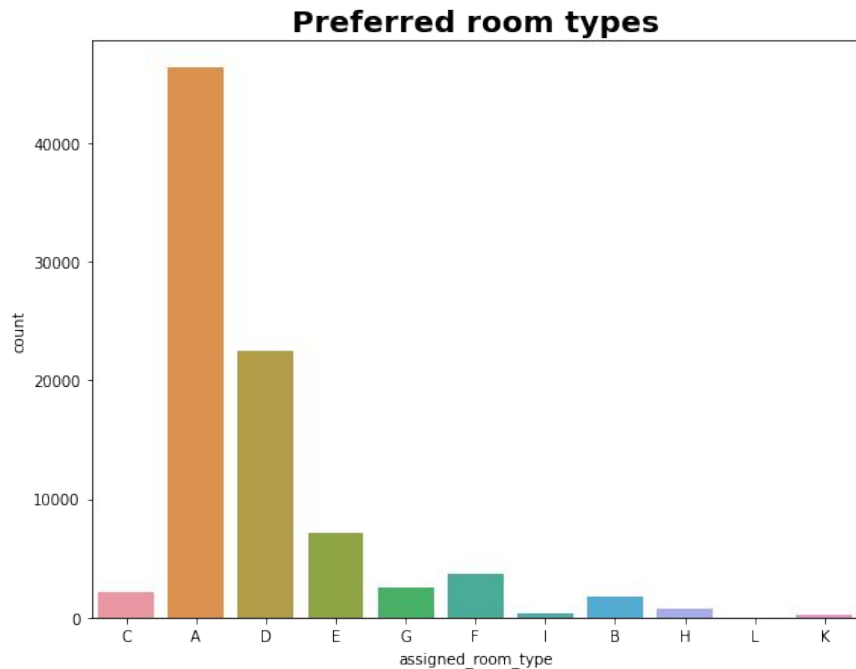
- We observed 'A' is the most preferred room type and better 'Average daily rate' rooms are of type H,G,F and C.

Percentage of guests visiting the hotel repeatedly
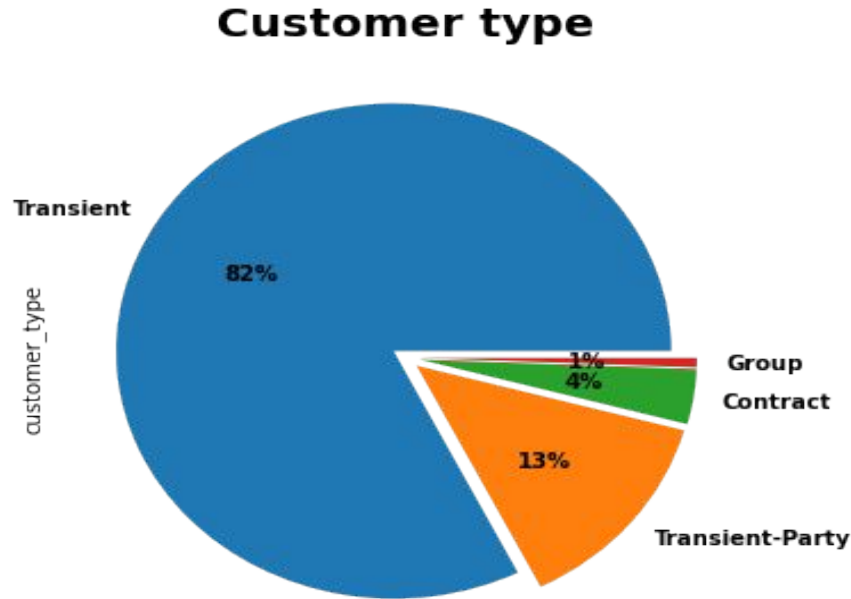
Repeated guests
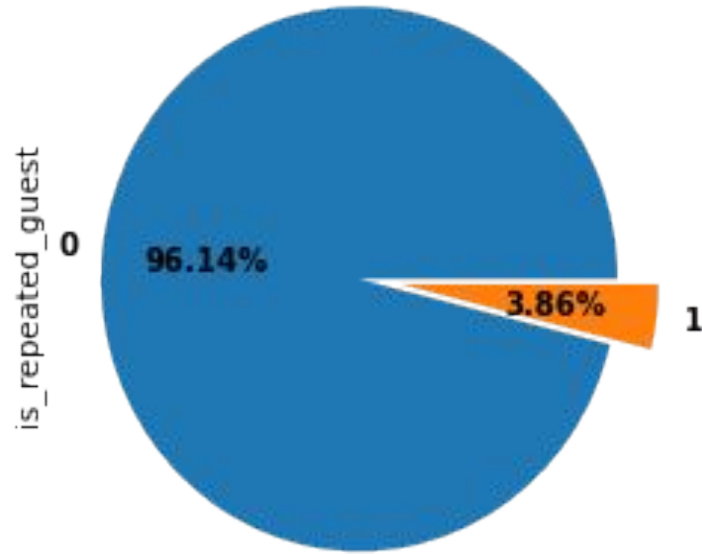
- We observed nearly **4%** people are repeated guests. The guests **retention rate** is low.

Distribution Channel Type

- We observed
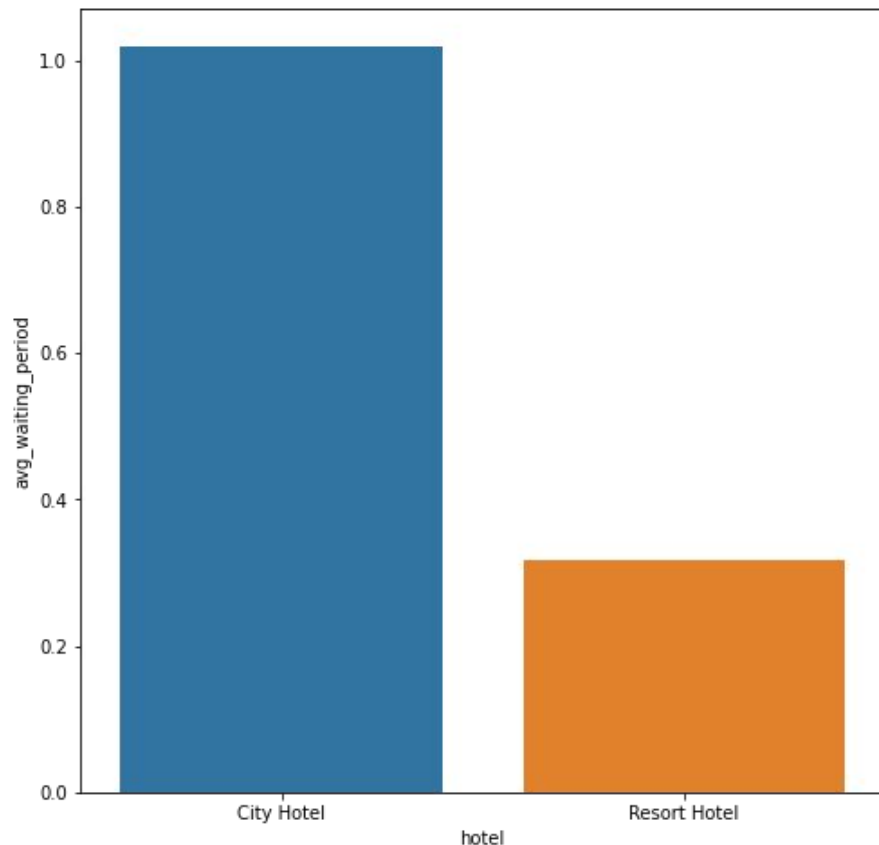 **81.98%** of share
  is occupied by
  TA/TO

Booking % by distribution channels
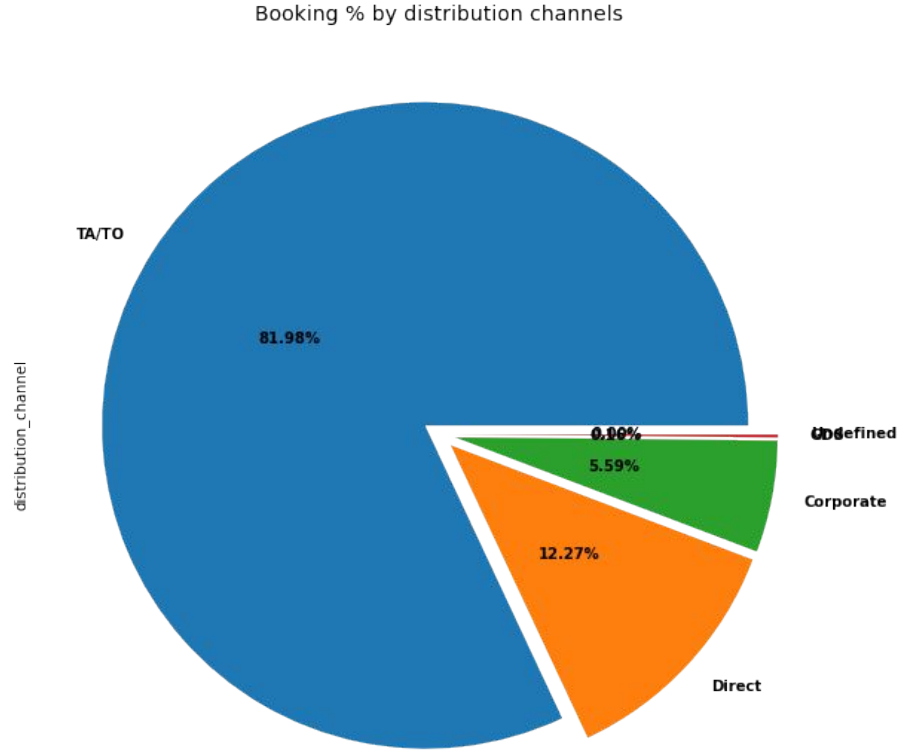
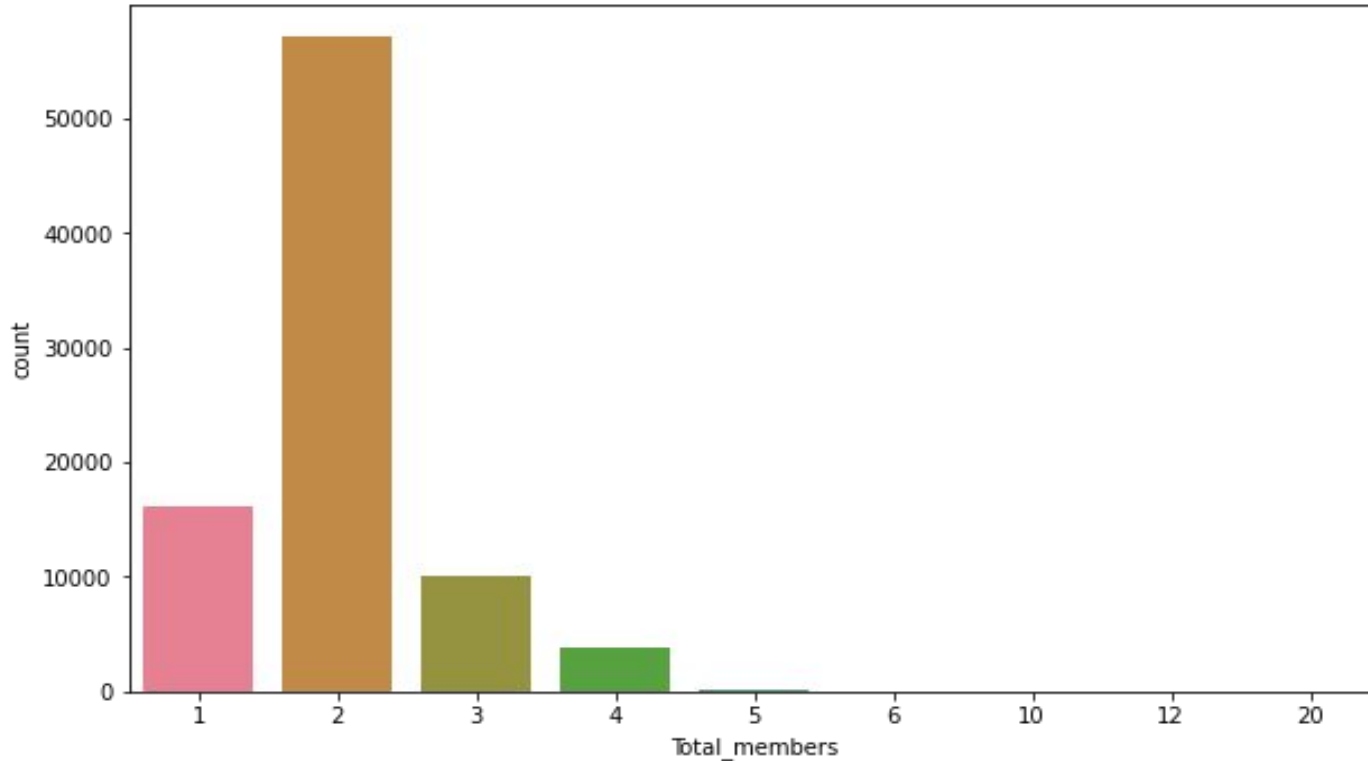# Customer type and car parking details

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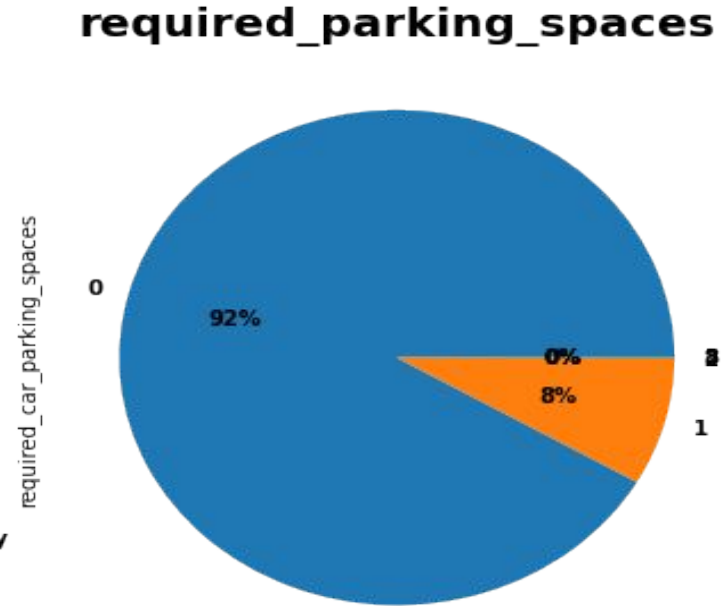
- There are 4 types of Customer. Out of them most are 'Transient Type"
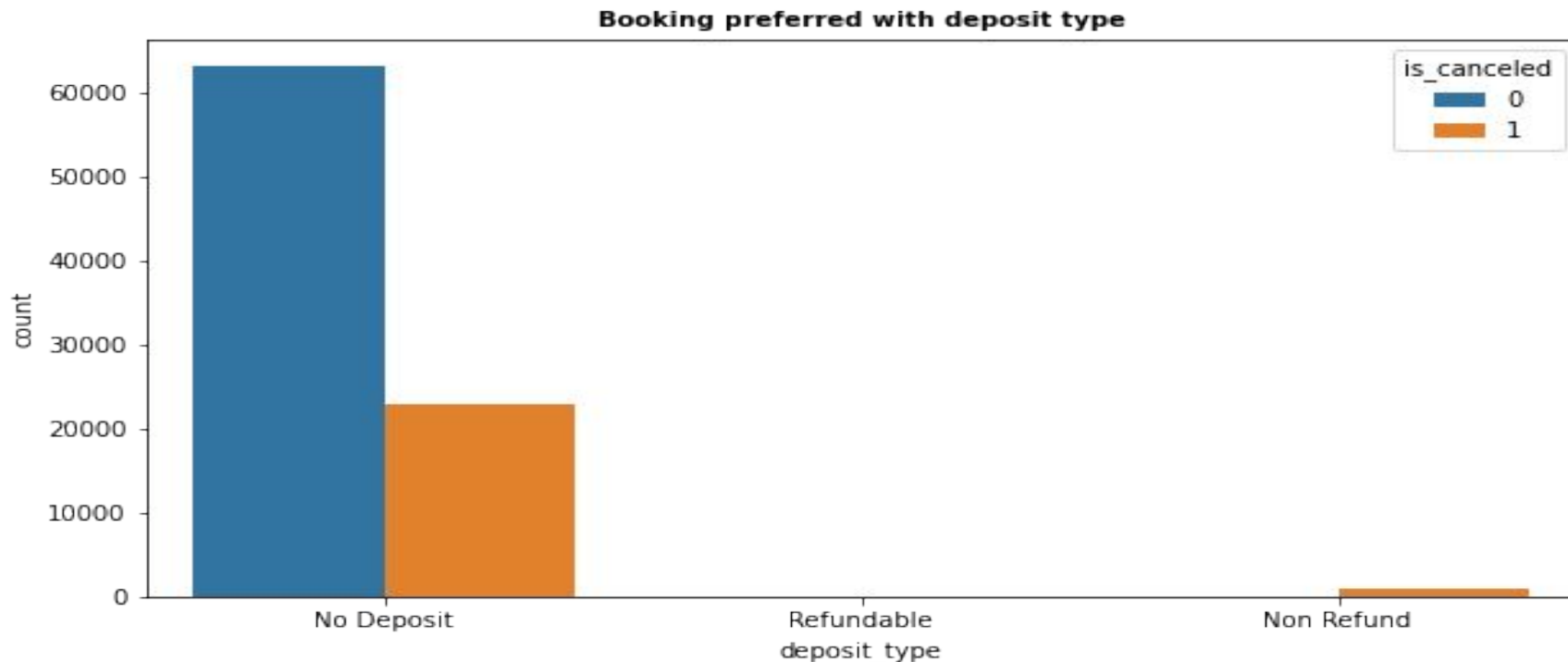- only 8% people require parking spaces

Waiting Time

- City hotel has significantly longer waiting time, hence City Hotel is much busier than Resort Hotel.

Couple vs Family

- Most guests prefer to come as pair of 2 Adults.
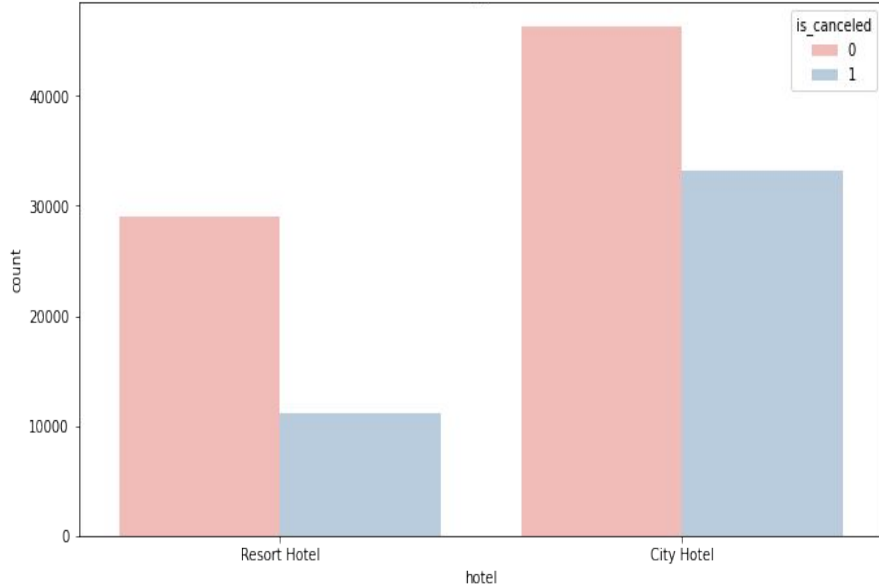
Bookings preferred with deposit type
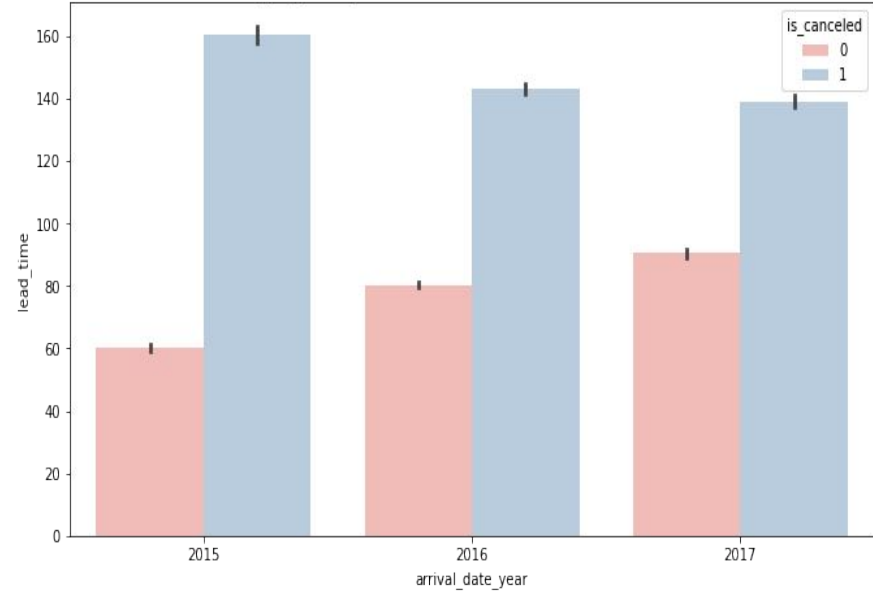
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Booking preferred with deposit type

- As expected , Most Bookings are done with 'No deposit' and most cancellations are also in 'no deposit' bookings. It is a surprise to see cancellations with 'Non-refundable' bookings

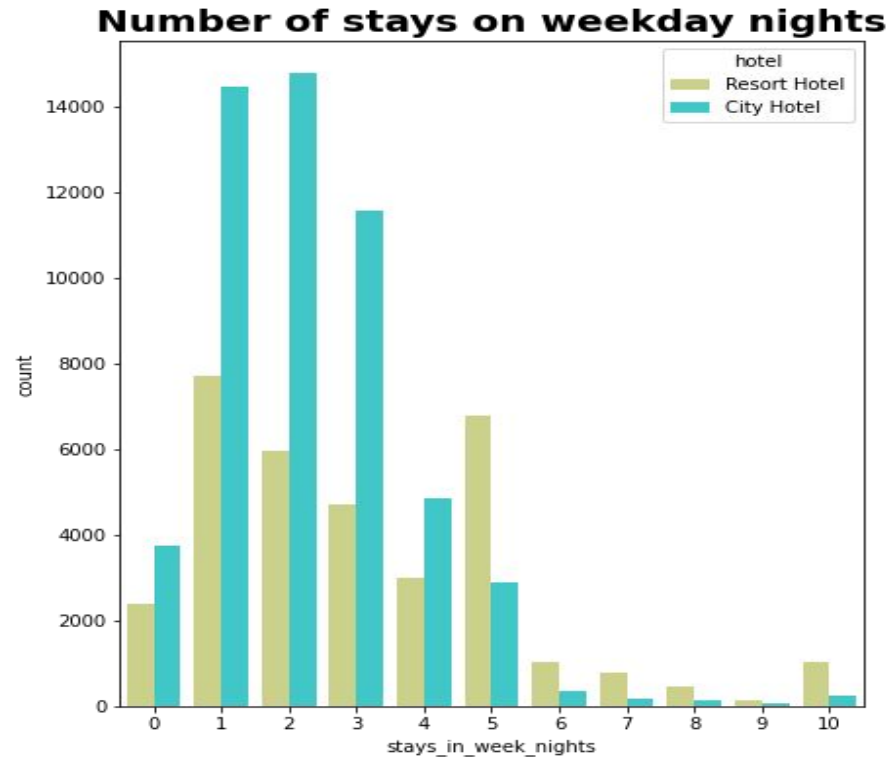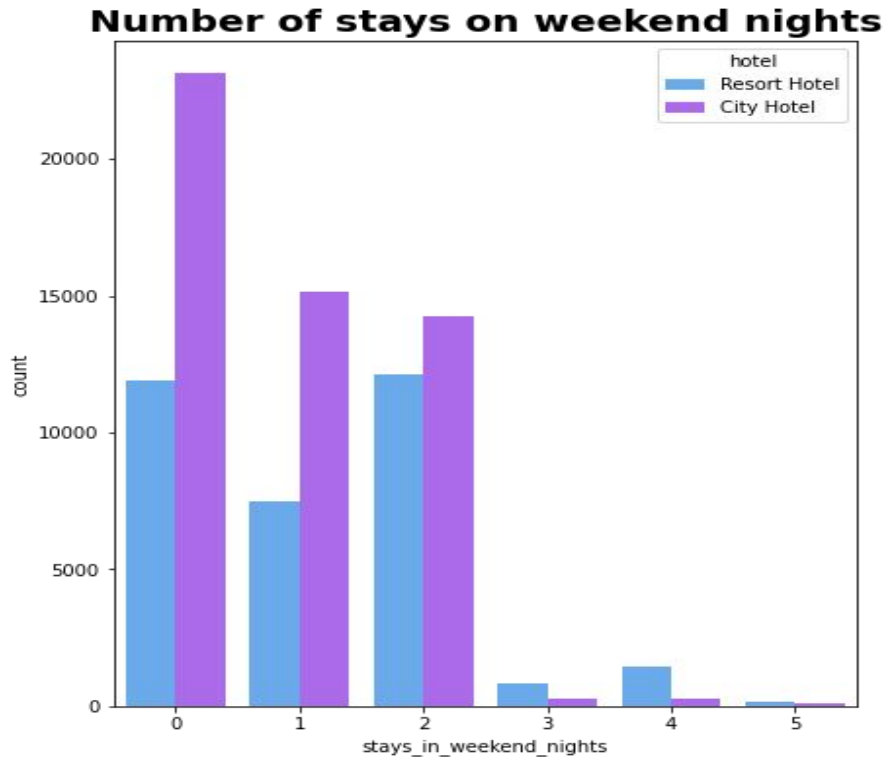# Cancellation rates in hotel and year-wise analysis

- We observed rate of cancellation is higher in City hotel.
- In year 2015 rate of cancellation was low.

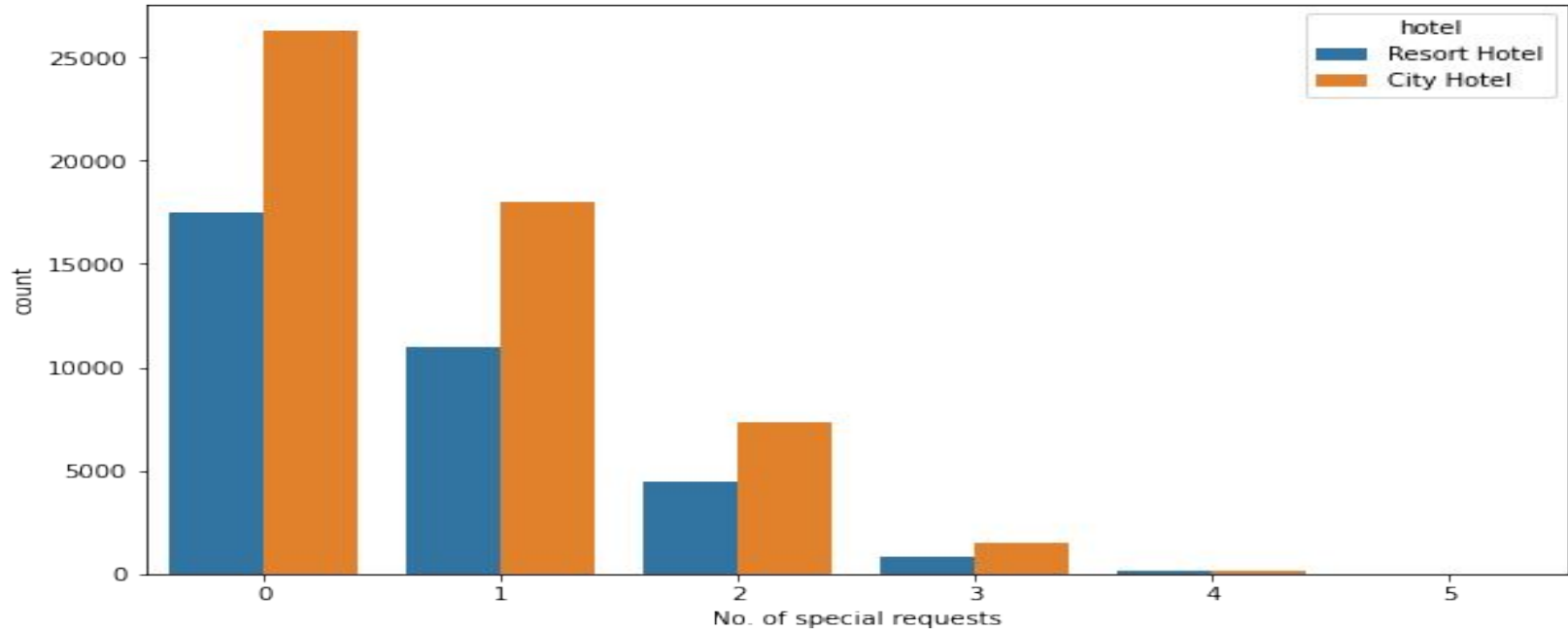# Figuring out the busiest months of the year

- We observed that the busiest months for both the hotels are May,June , July,August.

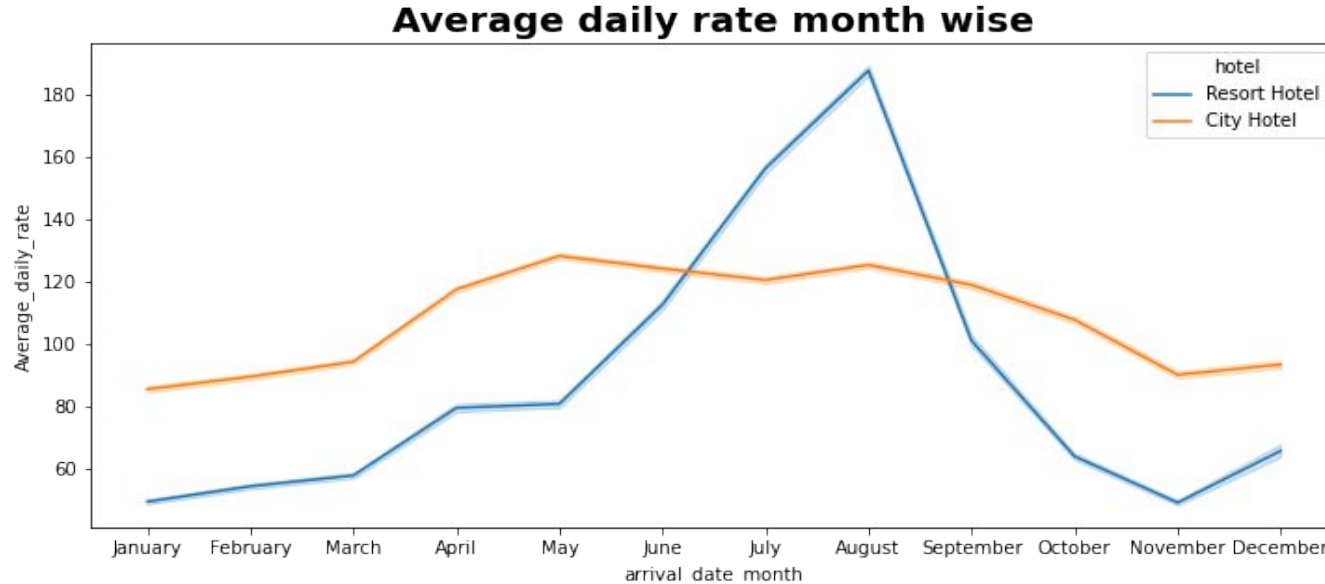# Bookings on weekends and weekdays

- We observed:- City hotels have more number of stays irrespective of week or weekend stays.

16.Special requests service offered by hotels


- We observed City hotels have more no. of special requests. Most of them ask for only 1 special request.

Average_daily_rate month-wise

Average daily rate month wise

- We observed: For resort hotels, the average daily rate is more expensive during August, July..
- For city hotels, the average daily rate is more expensive during August, July, June and May.

Average_daily_price per person

Average daily price per person
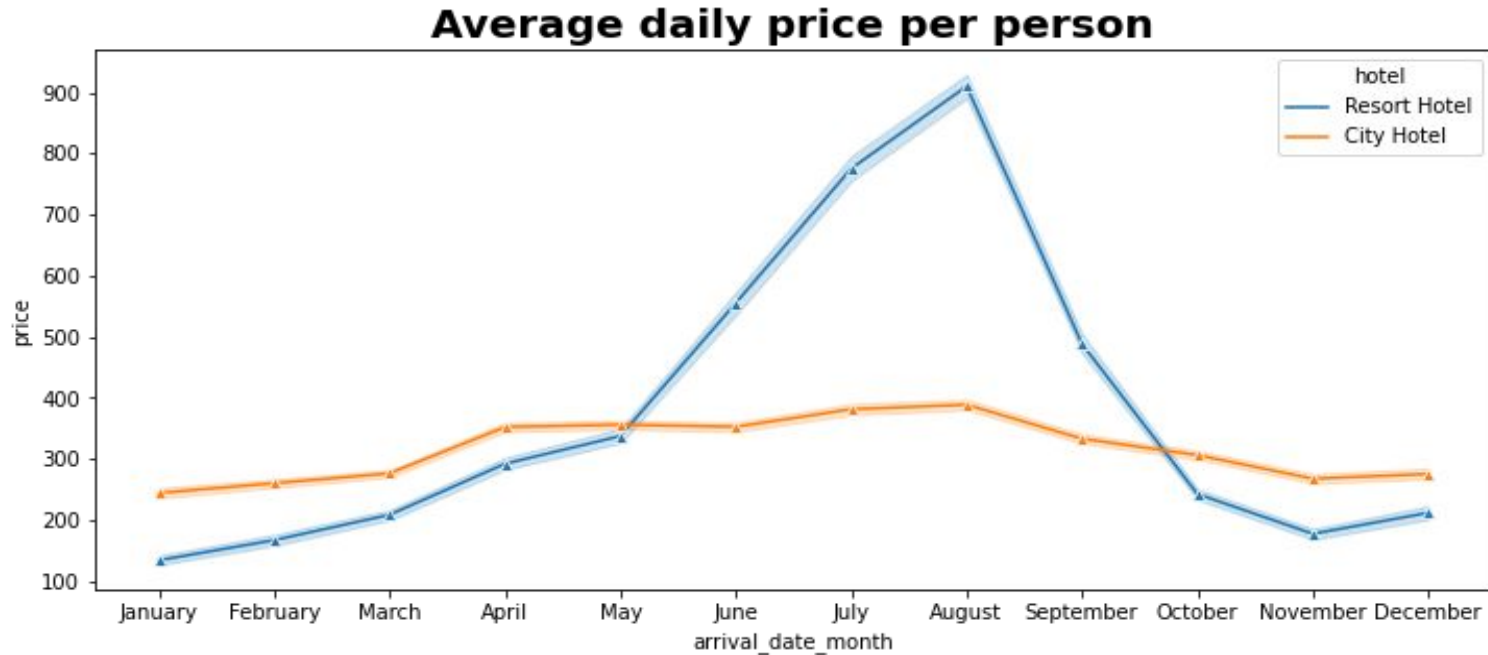
Prices of resort hotel are much higher.

Prices of city hotel do not fluctuate that much.

Conclusion

- **Around 61% bookings are for City hotel and 39% bookings are for Resort hotel, therefore City Hotel is busier than Resort Hotel.**

- **The majority of guests come from western europe countries.We should spend a significant amount of our budget on those area.**

- **July- August are the most busier and profitable months for both of hotels.**

- **Couples are the most common guests for hotels, hence hotels can plan services according to couples needs to increase revenue.(pair of 2 adults)**

- **July and August month have high Average daily price per person for resort hotel.**

- **Most common stay length is less than 5 days and generally people prefer City hotel for short stay, but for long stays, Resort Hotel is preferred.**

- **November,December, February And January are the months which has less booking so in this period you can get rooms with less average daily rate.**

- **For customers, generally the longer stays (more than 15 days) can result in better deals in terms of low adr.**

THANK YOU