

Capstone Project

Hotel Booking Analysis

Pravin Singh

Keshaw Agarwal

Shubham Jindal

Rohun Rajvanshi

Shubham Shahu



The Problem statement

- **Have you ever wondered when the best time of year to book a hotel room is?**
- **What is the optimal length of stay in order to get the best daily rate?**
- **What if you wanted to predict whether or not a hotel was likely to receive a disproportionately high number of special requests?**



→ **Analysis of hotel booking data for the period 2015-2017:-**

- ◆ **Data Summary**
- ◆ **Summary of descriptive statistics for different hotel types**
- ◆ **Time -wise Analysis**
- ◆ **Analysis on Cancellation of Hotel Bookings**
- ◆ **Distribution Channel wise Analysis**
- ◆ **Country wise Analysis**
- ◆ **Correlation Heat map**
- ◆ **Other Important Factors**
- ◆ **Analysis on Average daily rate (ADR)**
- ◆ **Conclusion**

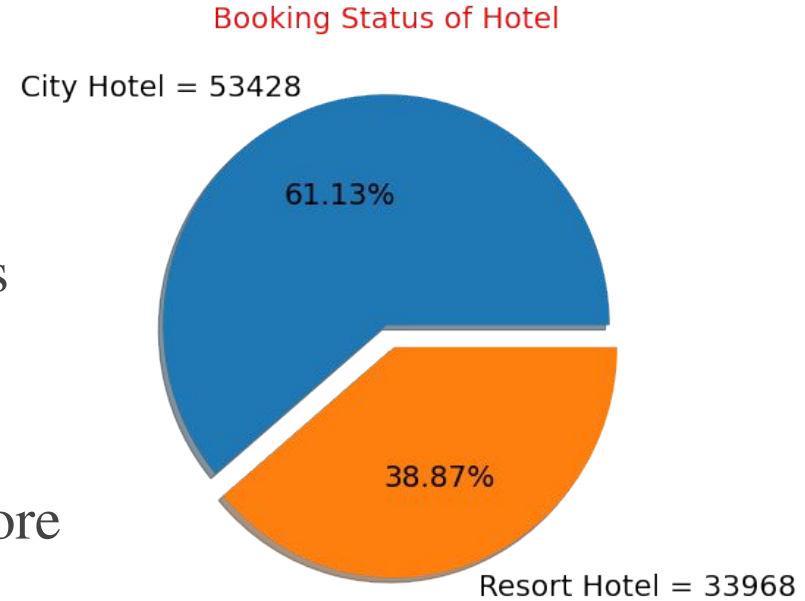
Data Summary

- Data consists the different column wise explanation of following variables described here as:
 - **Hotel:** list of different types of hotels
 - **Country:** origin country of customer
 - **Distribution Channel:** It tells us about the source through which booking was done (Corporate, GDS, Direct, Undefined, TA/TO)
 - **Market Segment:** This variable Specifies the purpose of visit of the customers.
 - **Lead Time:** time interval between reservation and actual arrival of the customers.
 - **Meal:** this variable tells the different types of meals preferred by customers
 - **Deposit Type:** it signifies the different types of deposits made by customer.
 - **Customer Type:** types of customer (transient, group etc)

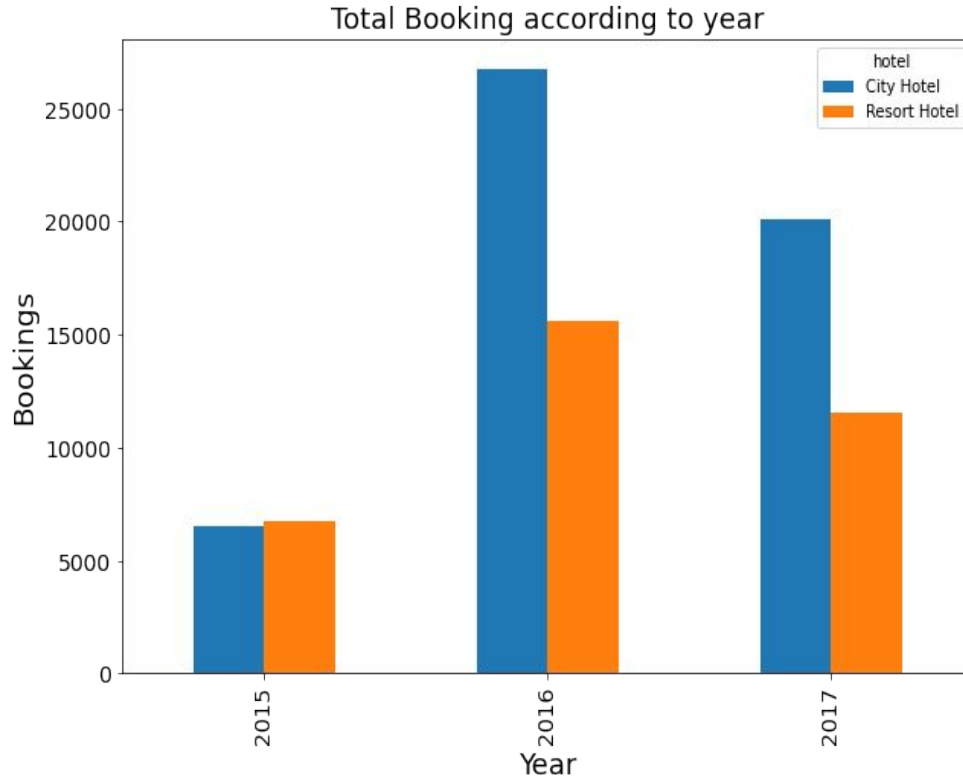
Descriptive Statistics

Approx. 61 percent booking are made for City Hotel and approx 39 percent bookings are made for Resort Hotel.

It means customers preferred City hotel more than the Resort hotel.

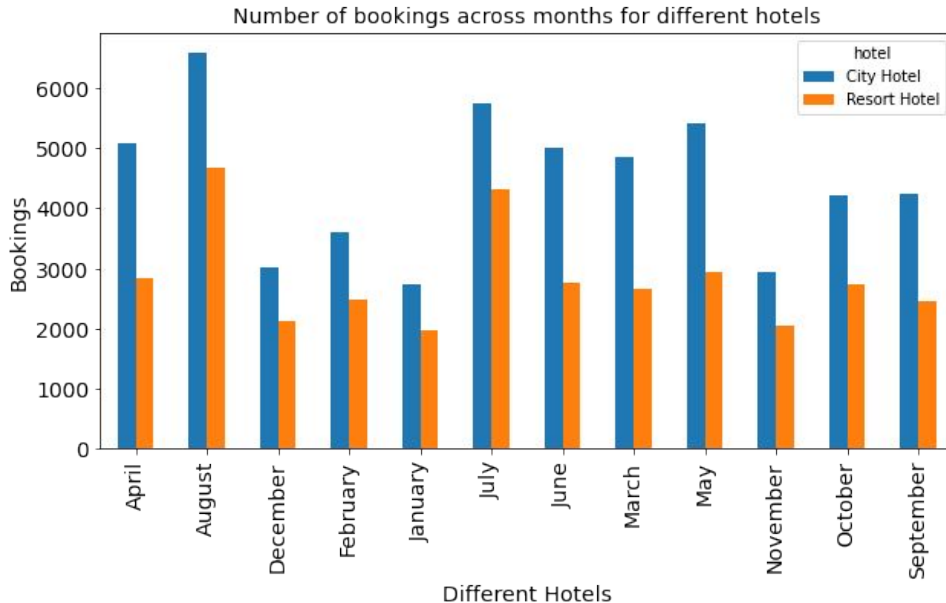


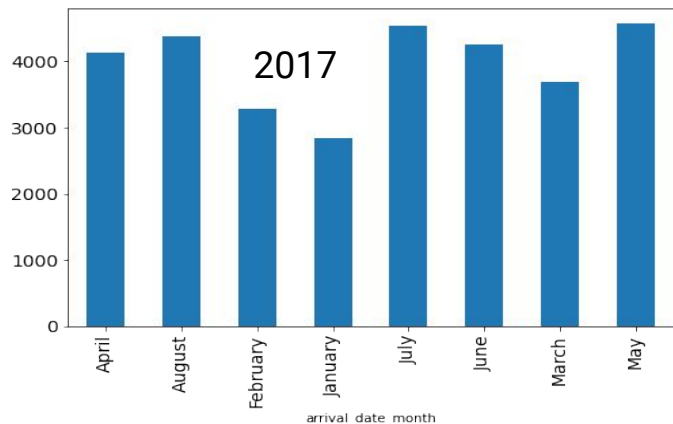
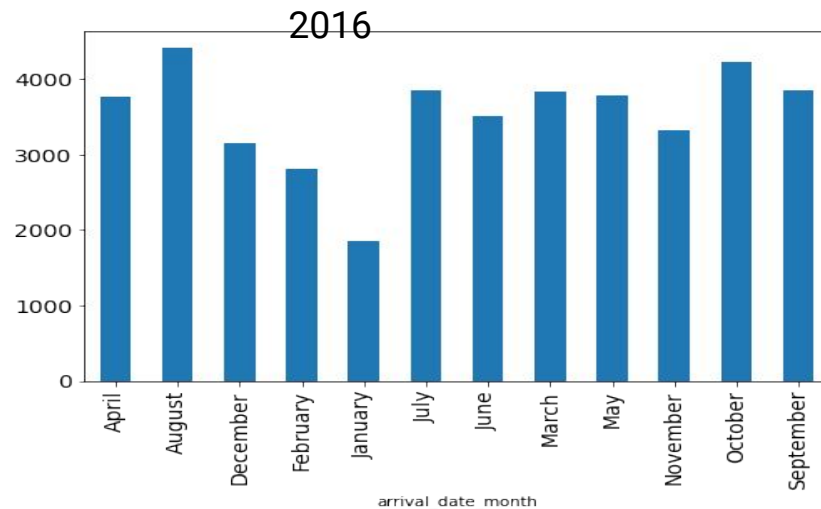
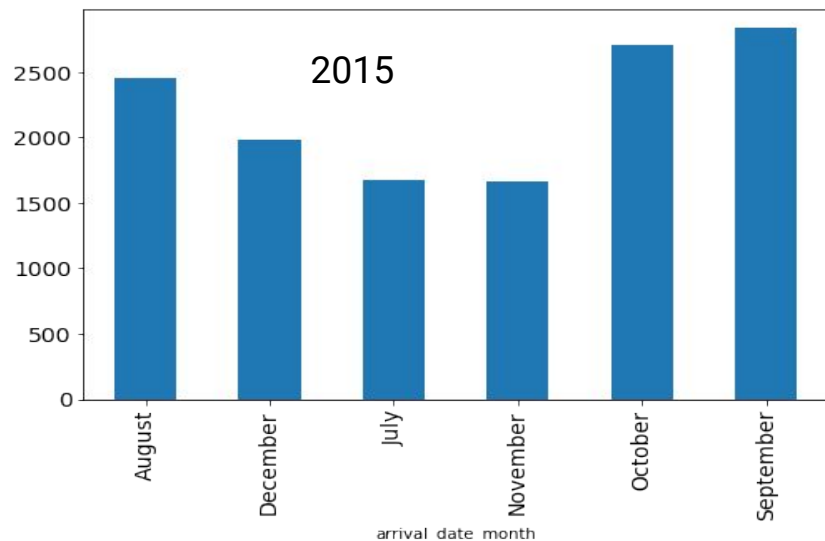
Time-wise Analysis



- As we can see in Each Year City Hotel is Getting more bookings as Compared to Resort Hotel Except Year 2015.
- In 2015 Resort Hotel has Slightly more Booking than City Hotel.

- According to our observation, in the three given years, August month is most preferred by customers and January is the least one.



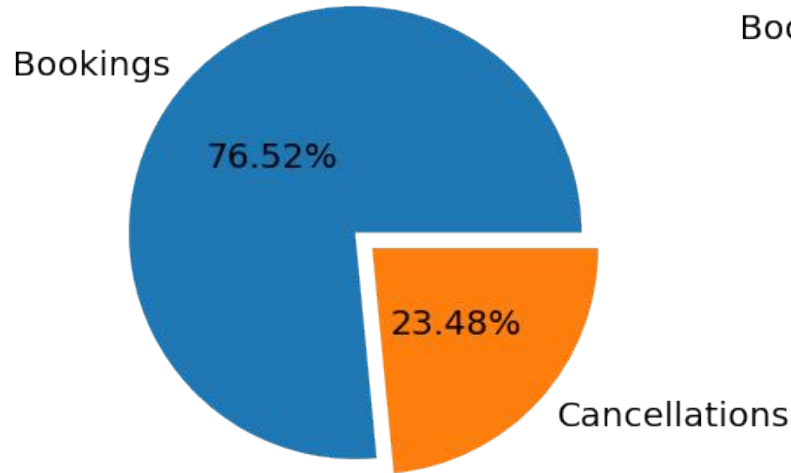


- These charts show the number of bookings for both hotels each year
- September, August and January are the most preferred months by customers in the years 2015, 2016 and 2017 respectively

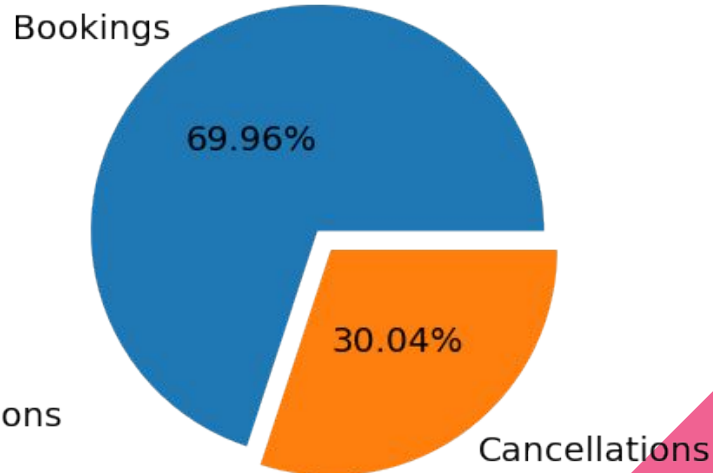
Analysis on Cancellation of Hotel Bookings

- City Hotel has almost 30% Booking Cancellation rate.
- Resort Hotel has almost 24% Booking Cancellation Rate.

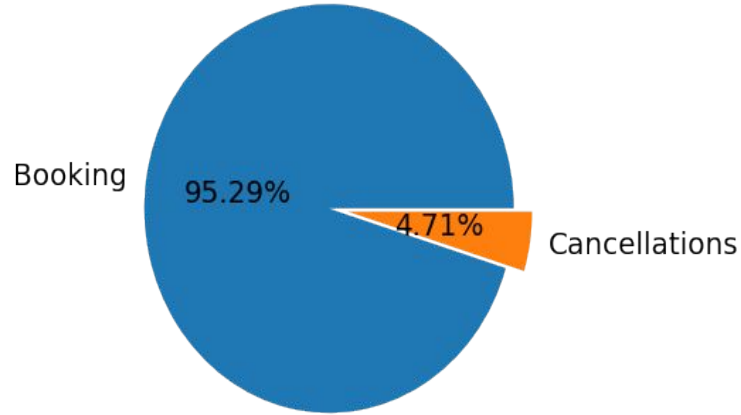
Booking Status at Resort Hotel



Booking Status at City Hotel



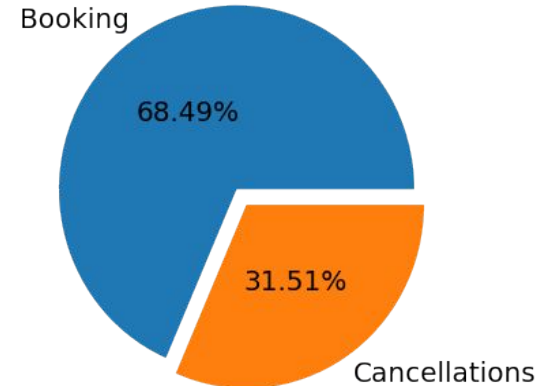
Booking Status When Assigned room is not equal to Reserved room



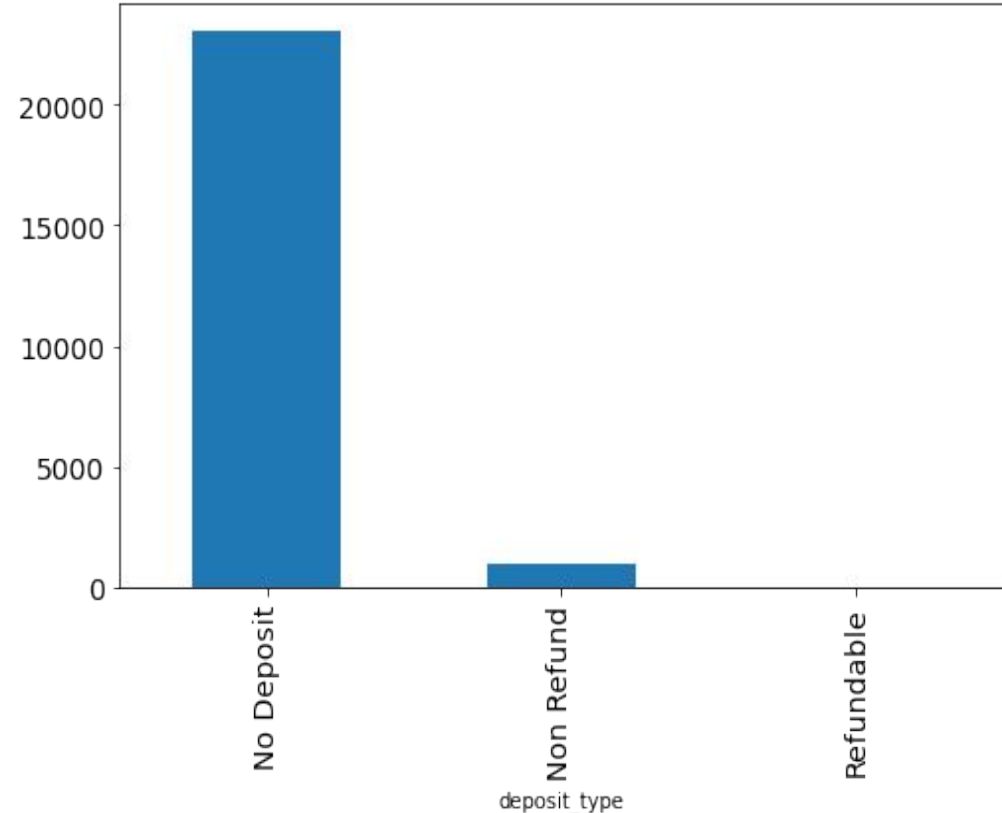
- When the Assigned room is not Equal to Reserved Room only 5% of Bookings are Being Cancelled.

Booking Status When Assigned room is equal to Reserved room

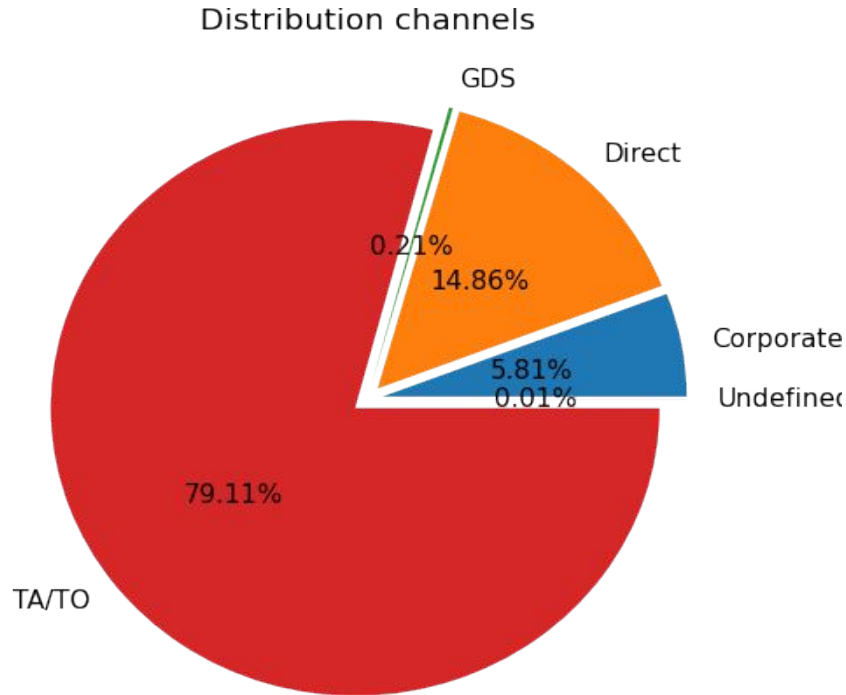
- When the Assigned room is Equal to Reserved room then more than 31% of the Bookings are Being Cancelled.
- So Assigning of Different room from Reserved Room Cannot be the Reason for the Cancellation of Bookings.



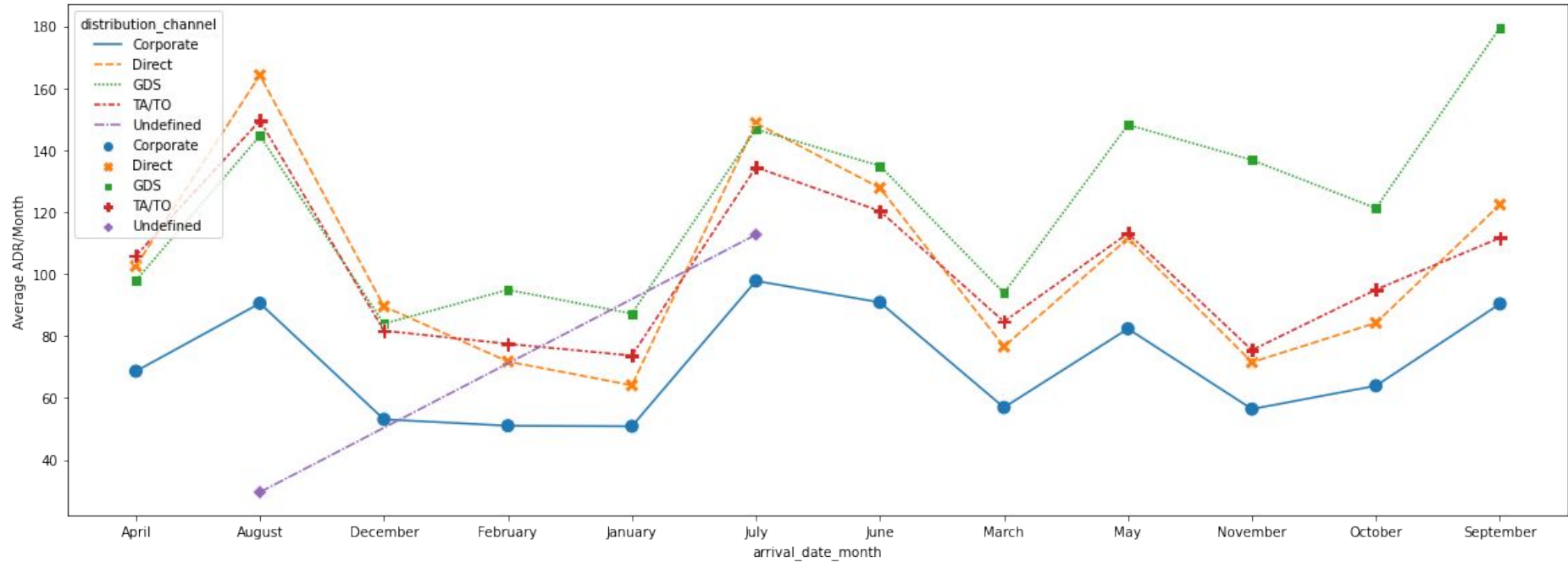
- We have Customers with Three Deposit types (No Deposit, Non-Refund , Refundable)
- Most of the Bookings are Cancelled where the Deposit type Was No Deposit.
- As we know in No Deposit we Need to Pay any Amount to the Hotel in Advance So this can be the Reason for Higher Cancellation of the Bookings.



Distribution Channel Analysis

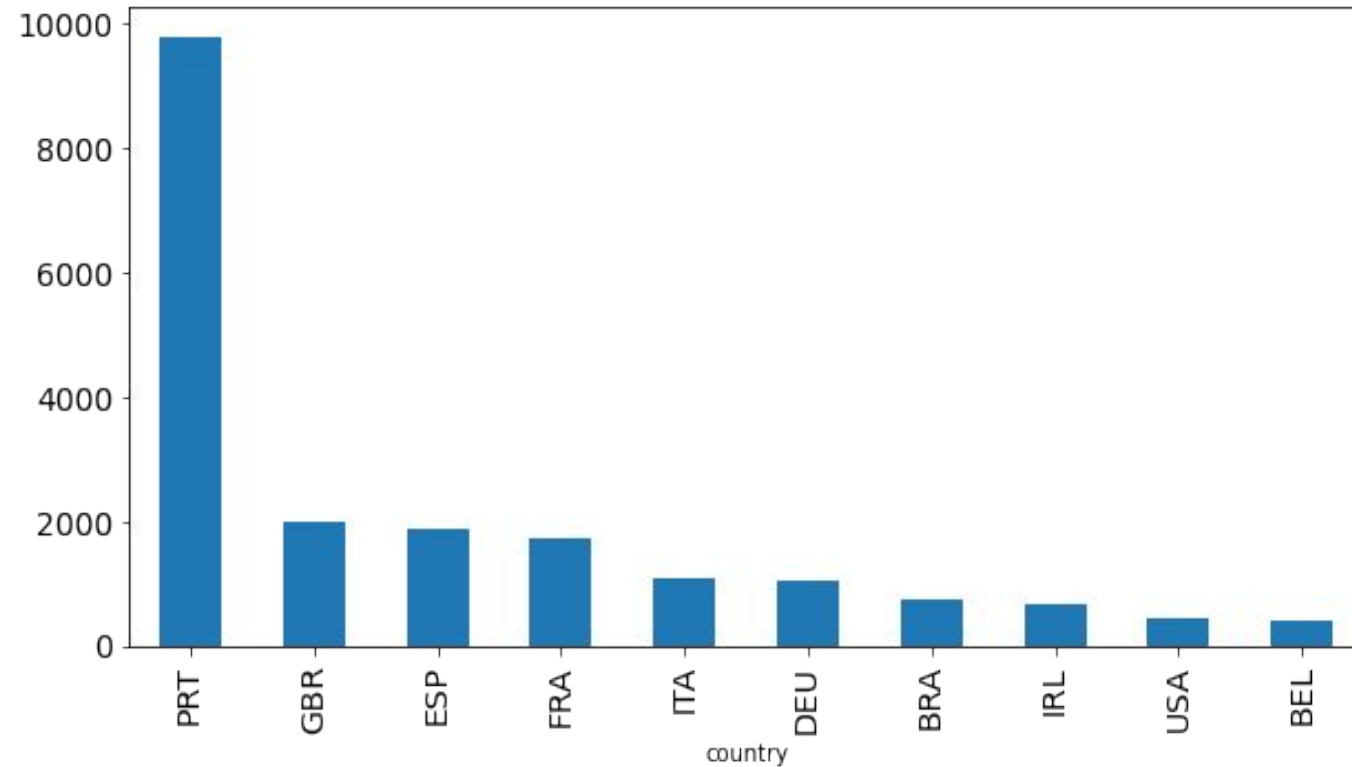


- Most Number of Bookings are made through Travel Agent and Tour Operator Channel.
- After TA/TO the Most used Channel for Booking is Direct.



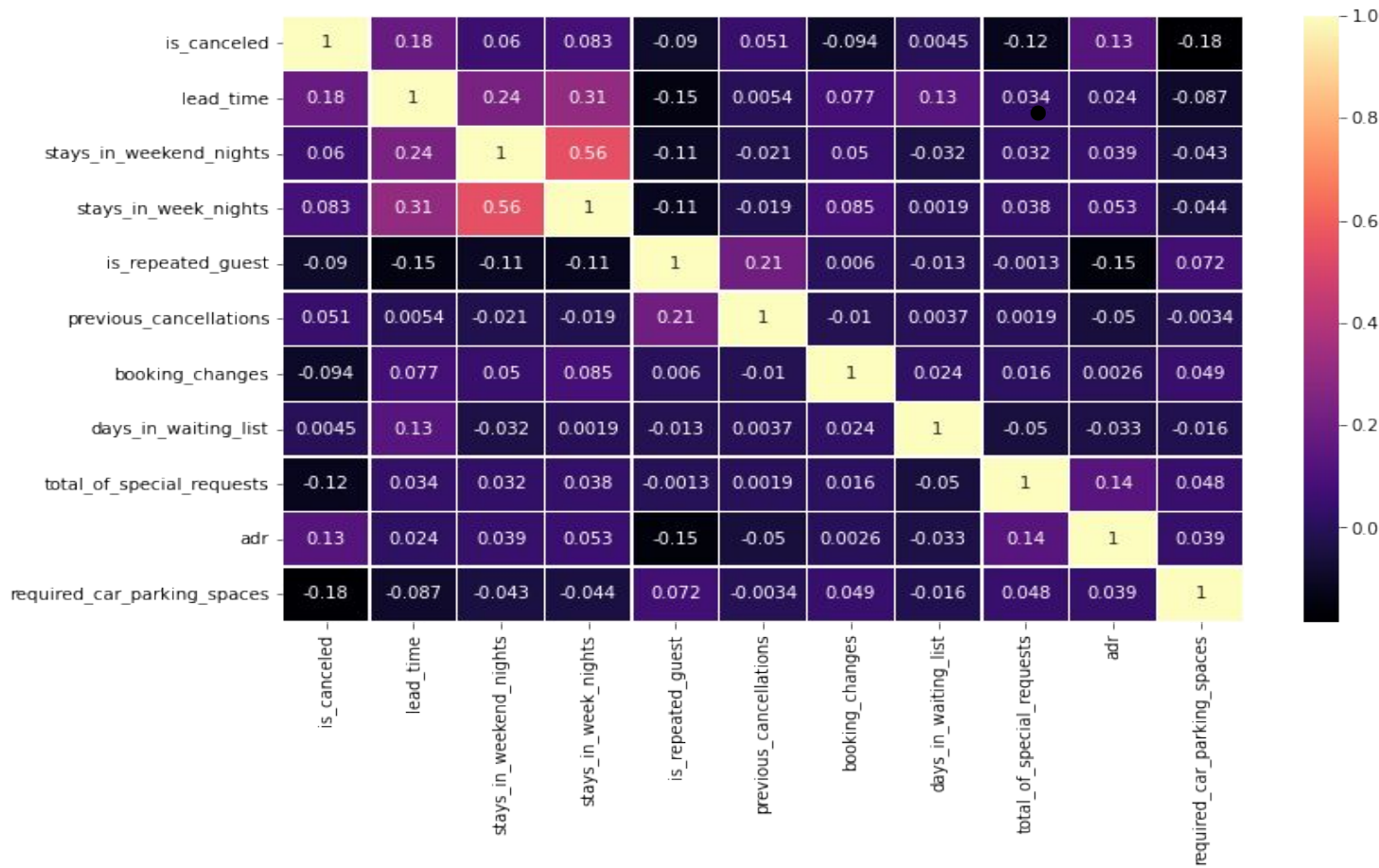
- GDS and Direct Channel have Highest ADR across the Whole Year.
- It means GDR and Direct are Generating Higher Revenue.

Country Wise Analysis



- Guests are Coming from Various Countries but Highest No. of Customers are Coming from Portugal.

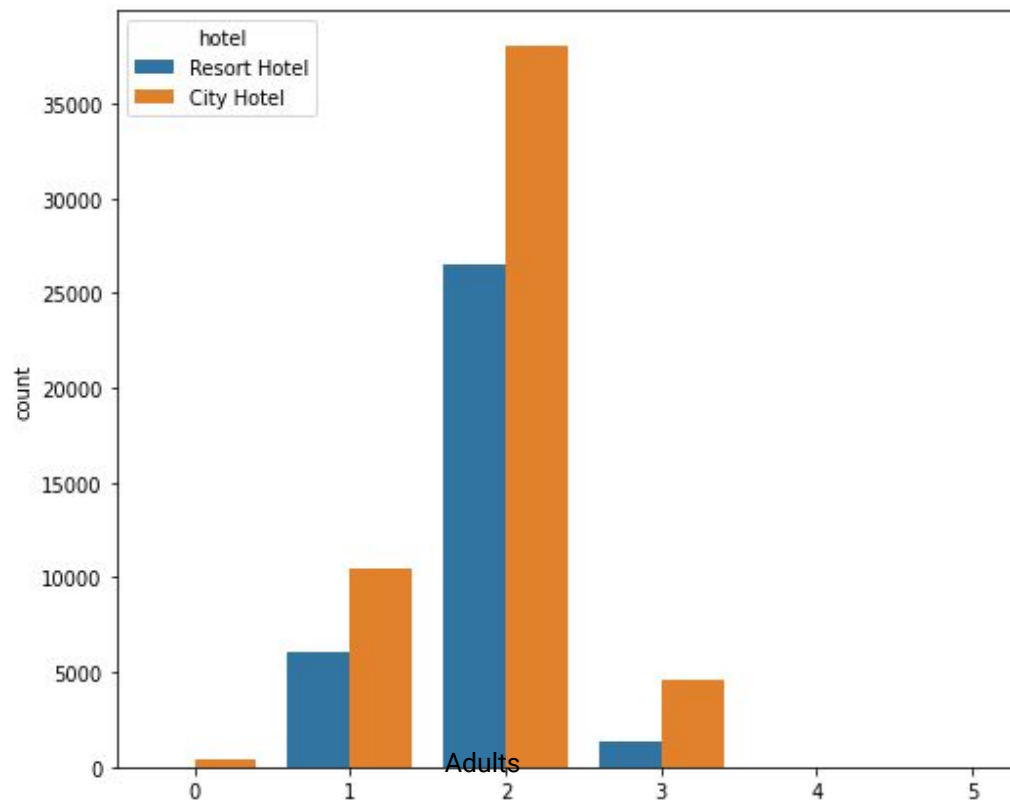
Correlation Heatmap



Other Important Factors

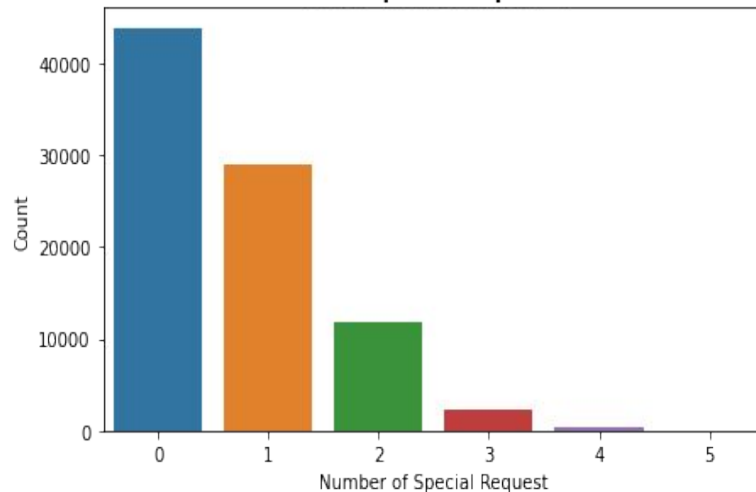


Number of Adults

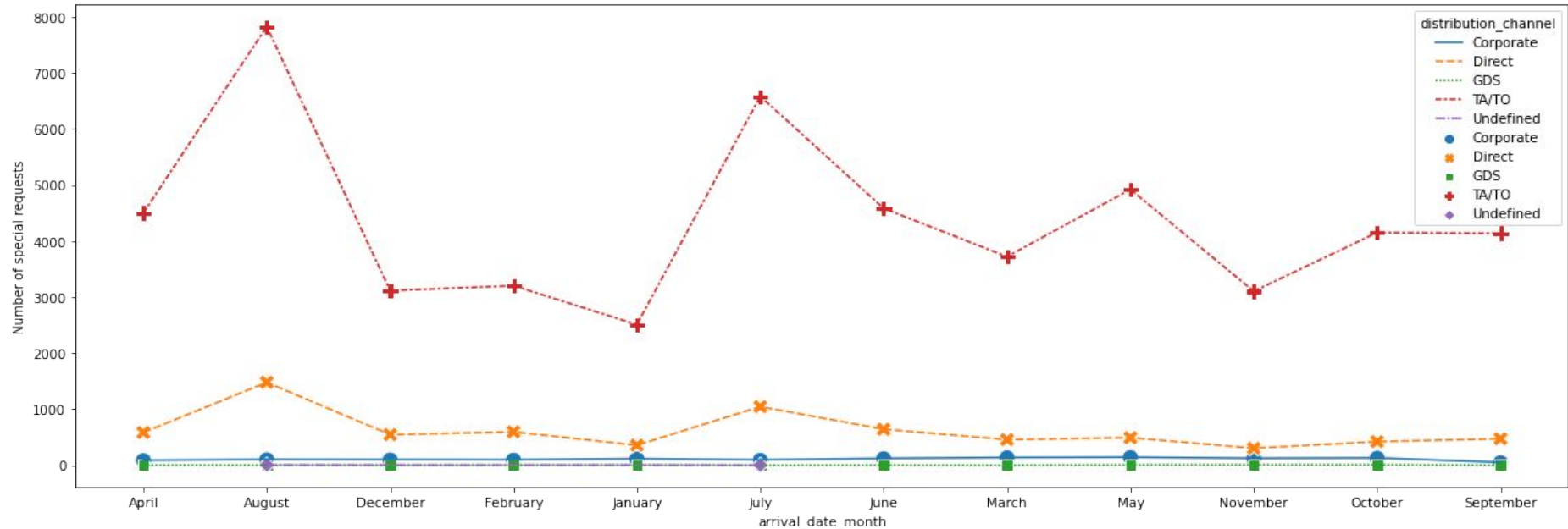


- We observe that the most bookings are from 2 adults in both the hotels
- Most customers do not make a special request

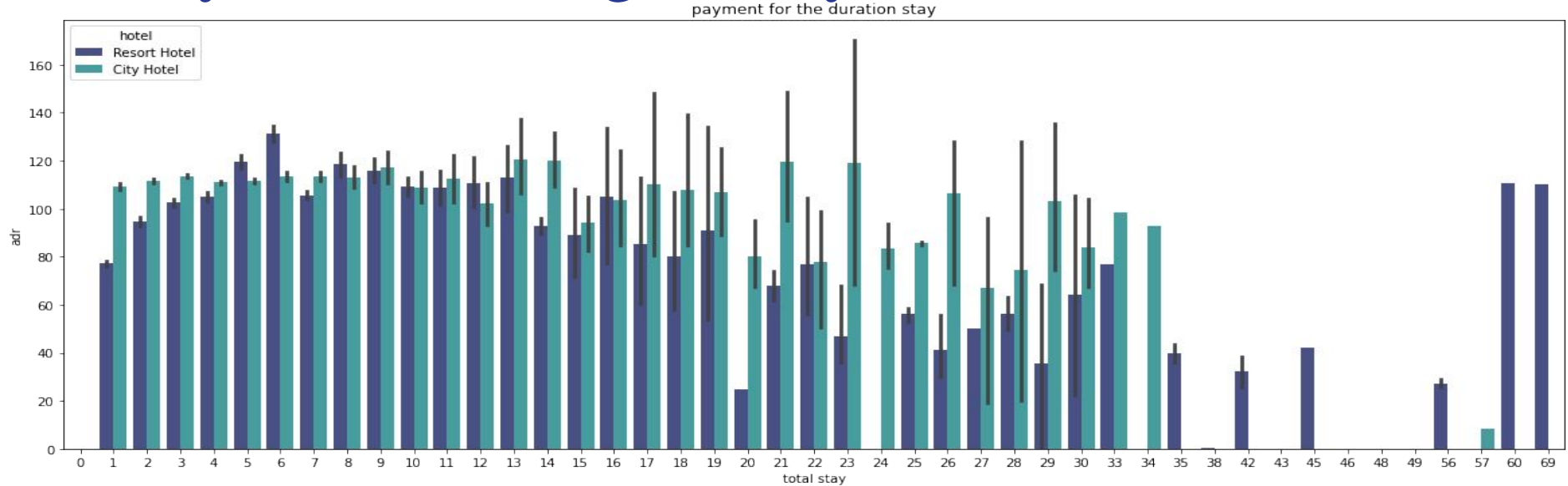
Total Special Requests



- Customers which are coming through TA/TO Channel have Highest number of Special Requests.
- No. of Special Request are Higher in July, August and May Because Bookings are also Higher in these Months Only.



Analysis on Average Daily Rate (ADR)



- We observe that with the increasing length of stay we get better adr. In the above chart we can see that we get best adr between the duration of 35 to 57 days.
- It has been observed that the adr of city hotel has not fluctuate much as compared to resort hotel.

Conclusion



- Both of the Hotels Received Highest no. of Bookings in the Month of August in Each Year
- According to the 3 year data, the most preferred month to book a hotel room is August for all customers
- Highest No. of Customers are Coming from Europe and Mainly from Portugal
- Highest No. of Bookings are Coming from TA/TO Channel
- The best average daily rate is observed in resort hotel rather than city hotel when the optimal length of stay increases and also it is observed that the daily rate does not vary much in city hotel.
- Cancellation is highest when the customer does not deposit any amount for the booking
- Most people prefer to stay at the hotels between 1 to 6 days

Recommendations



- Removing No Deposit deposit type from the booking policy of the hotels.
 - Cancellation is more when the customer does not deposit any amount for the booking.
- The hotels should promote distribution channels other than TA/TO.
 - Majority number of bookings come through TA/TO.
- Hotels can offer special discounts to adults coming in groups and are more than 2 in number.
 - Majority of bookings are by 2 adults.



Challenges

- Handling huge chunk of data keeping in mind not to miss anything which is even of little relevance.
- Deciding the important factors on which the analysis has to be done.
- Confusion between type of graphs to be plotted.





THANK YOU