

# Hotel Booking Analysis

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# Why Hotel Booking Demand Analysis?

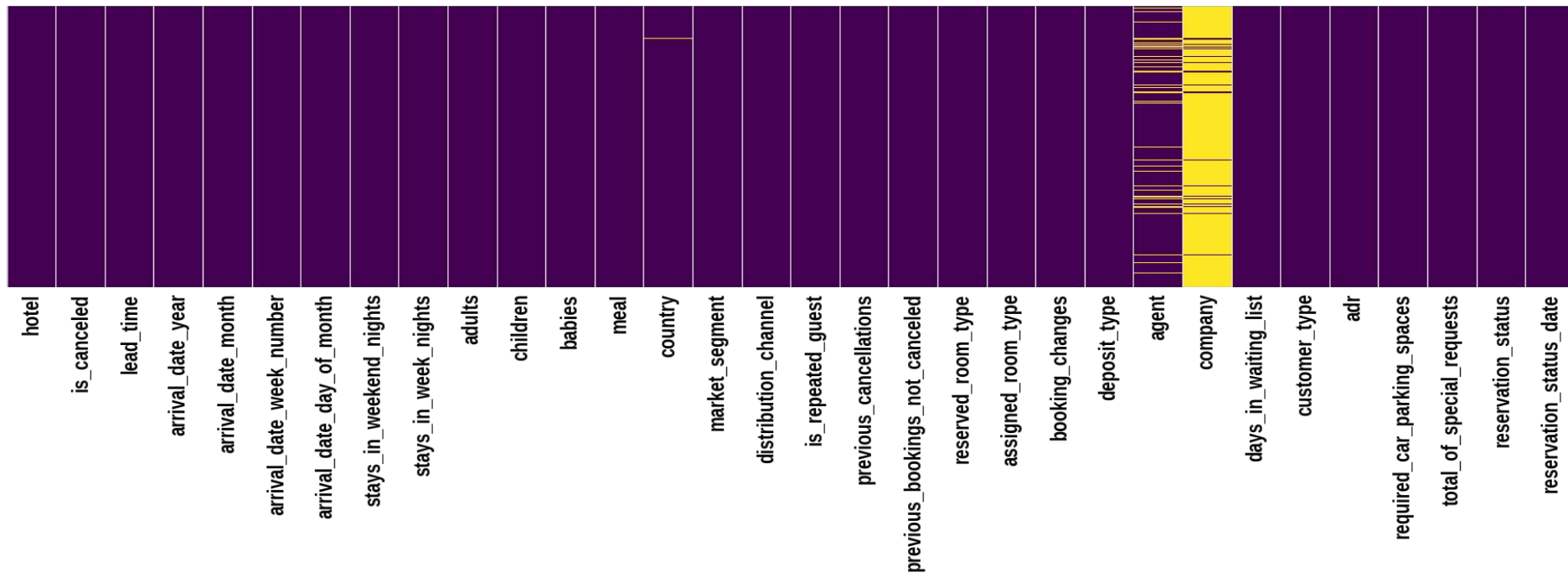
- Hospitality industry is **big contributor to economic growth of any country.**
- With a consistently growing middle class and increasing disposable income, the tourism and hospitality sector is witnessing a healthy growth.
- The growth in the hospitality sector and its contributions to the GDP will continue to be substantially increase.



# **E**xploratory **D**ata **A**nalysis

# Preparing our dataset

- Libraries used :Numpy, Pandas, Seaborn, Matplotlib and Plotly.
- Shape : **119390, 32**
- Most of the **null values** were present in columns - company and agent.

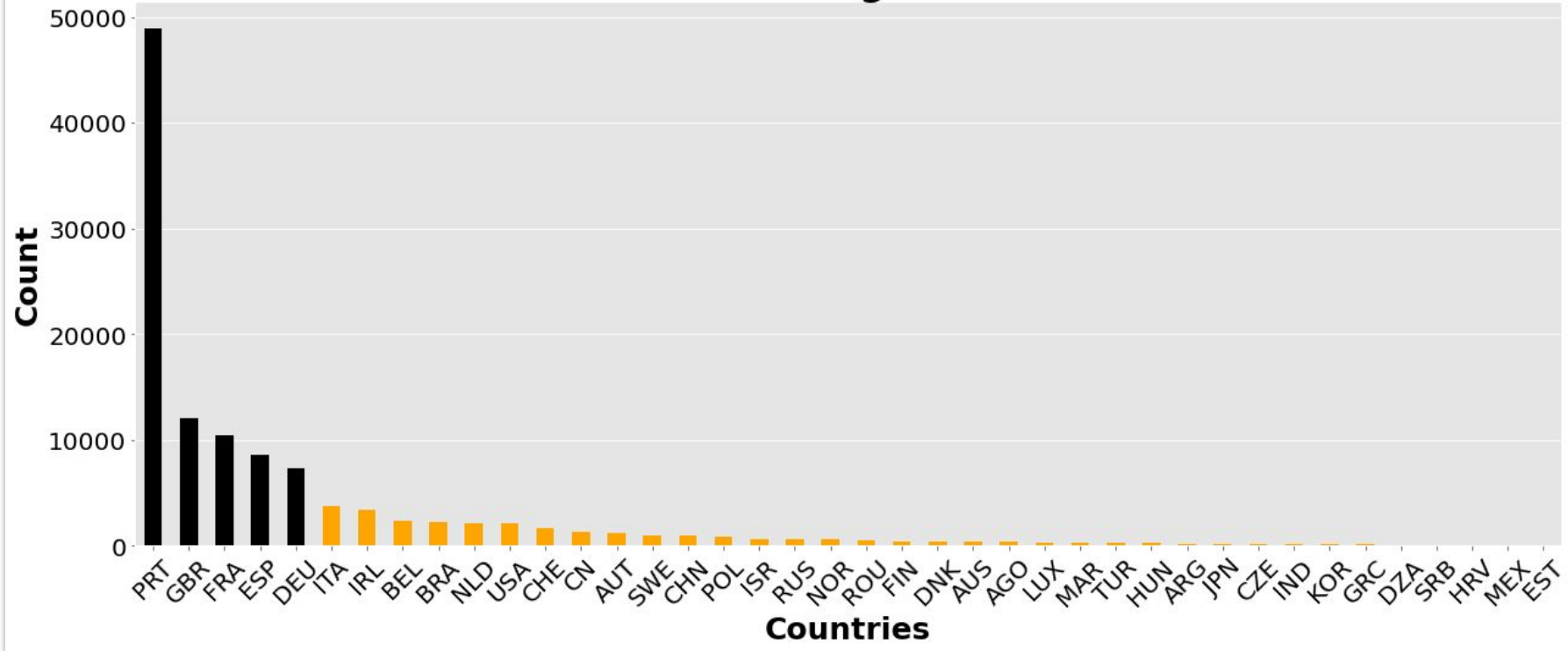


# Visualization



# Where do majority of guests are from?

## Countries where guests are from



- **Portugal, Britain, France, Spain and Germany** are the top five countries from where majority of guests come from.

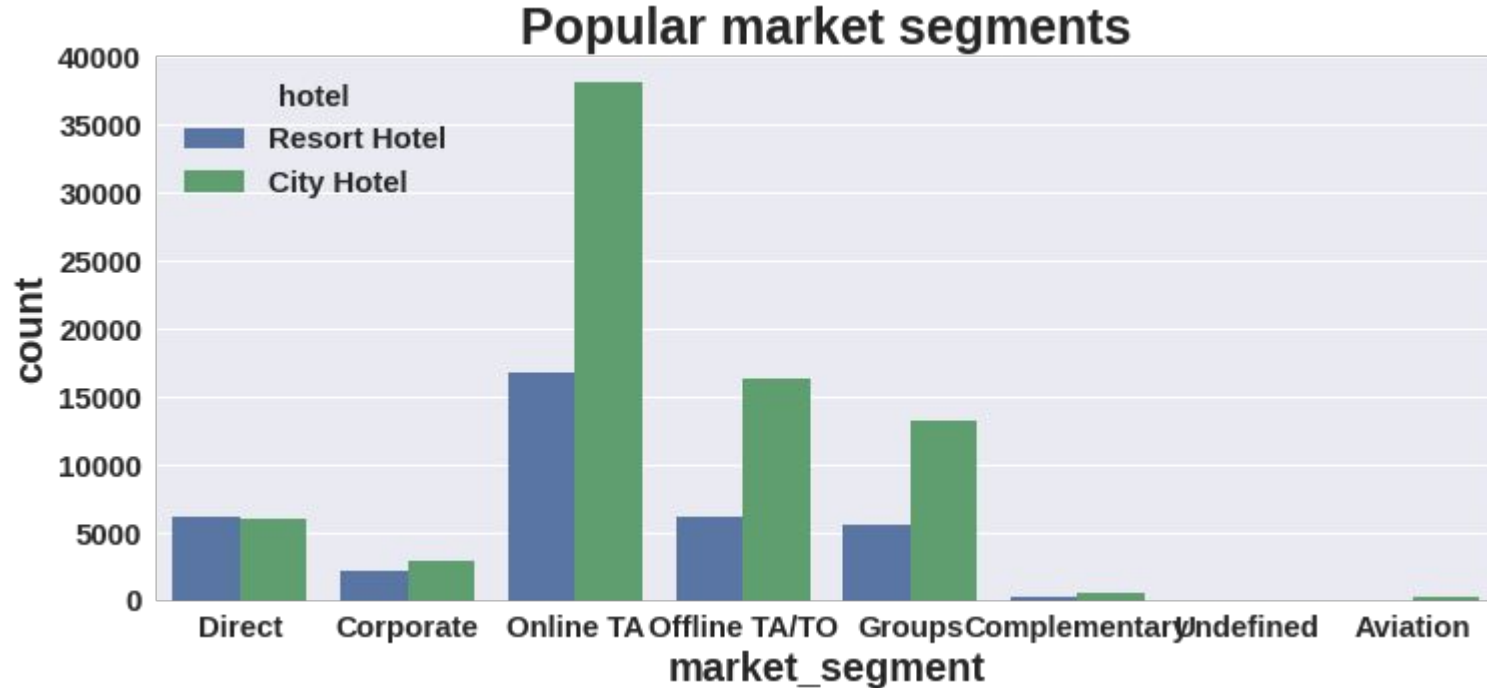
# Are the number of both the hotels of both types?



There are **twice the number of city hotels relative to resort hotels.**

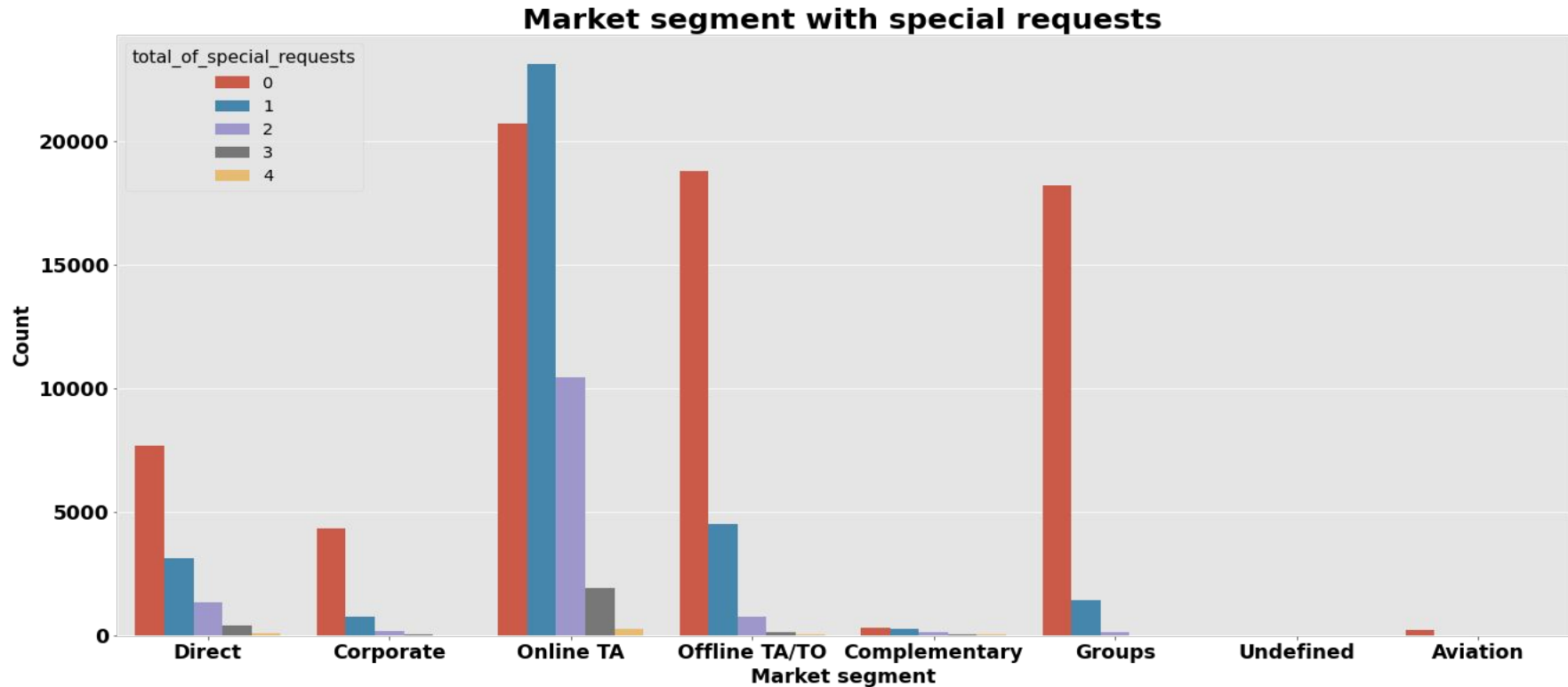


# Popular market segments used by customers



- **Online TA is the most popular market segment** occupying almost half of the market share with more than 50K customers.
- **Offline TA and groups are the other two major segments** having market share of around 20K respectively each.

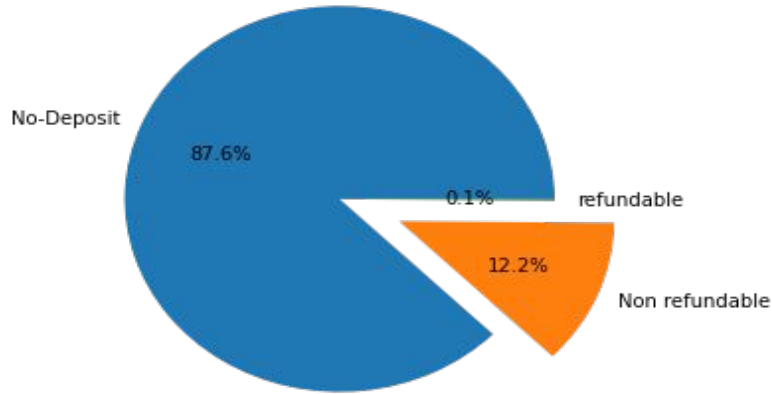
# From which market segment are we getting the most special requests?



- Online TA have disproportionate number of special requests.

# How do deposit types affecting bookings?

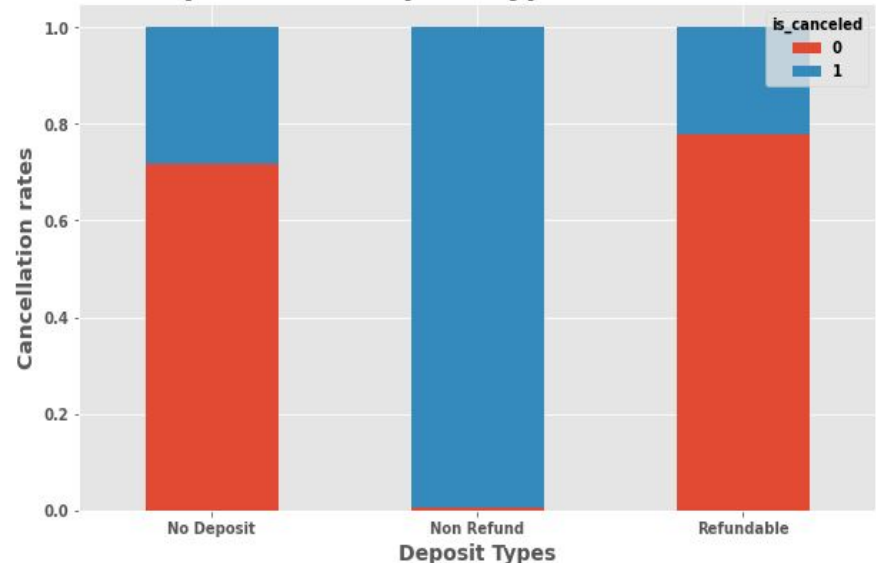
Deposit Type



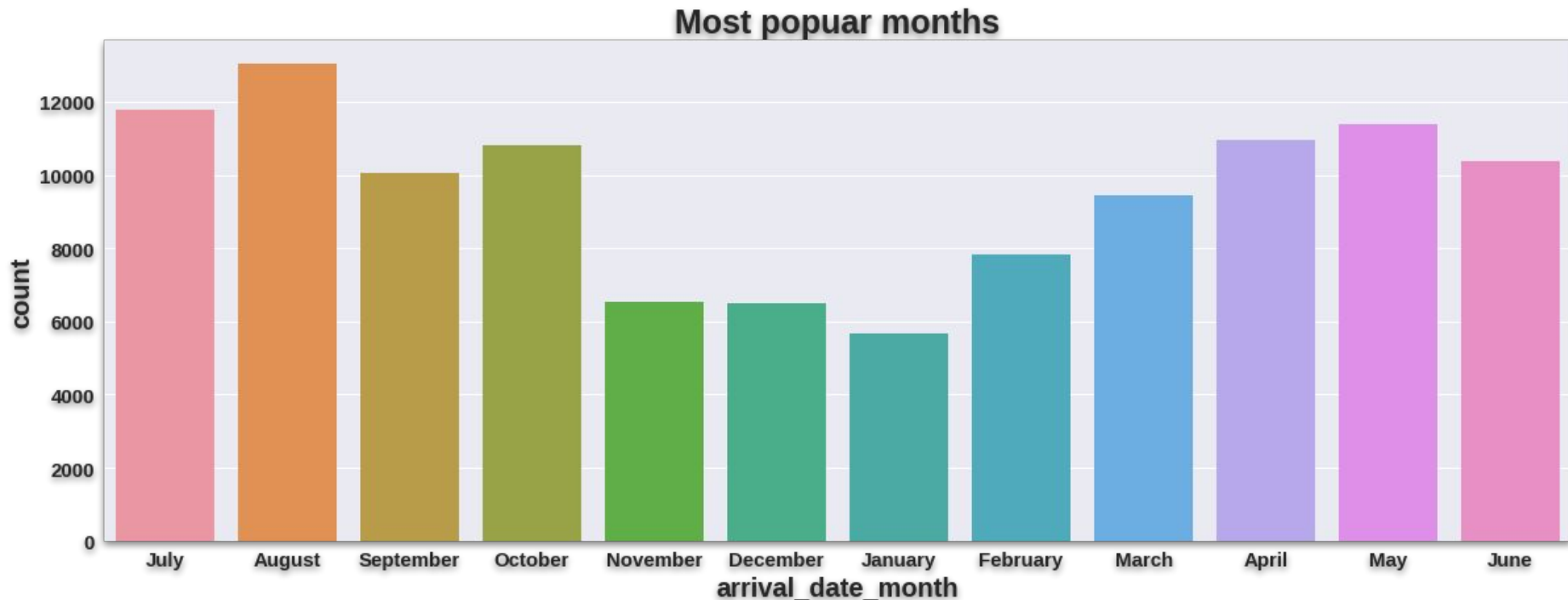
- Guests who have paid non-refundable deposit, **most of them have cancelled their booking.**
- Guests have paid either no deposit or refundable deposit are **likely to not cancel their booking with only 20% cancellation rates for each.**

- Out of all deposit type 87.5% people prefer No deposit type and only 12.2% people prefer Non-Refundable deposit type.
- Refundable deposit type is least preferred by the people.

Relationship between deposit types and cancellation rates

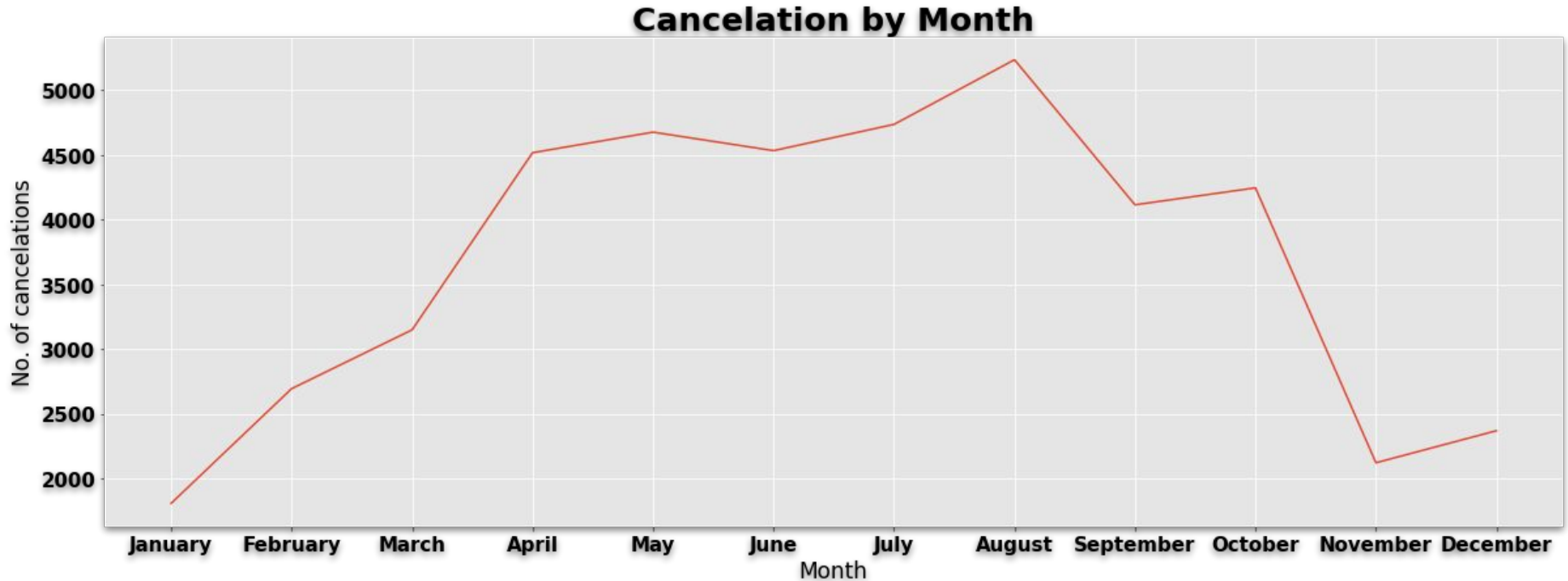


# Most Popular Month



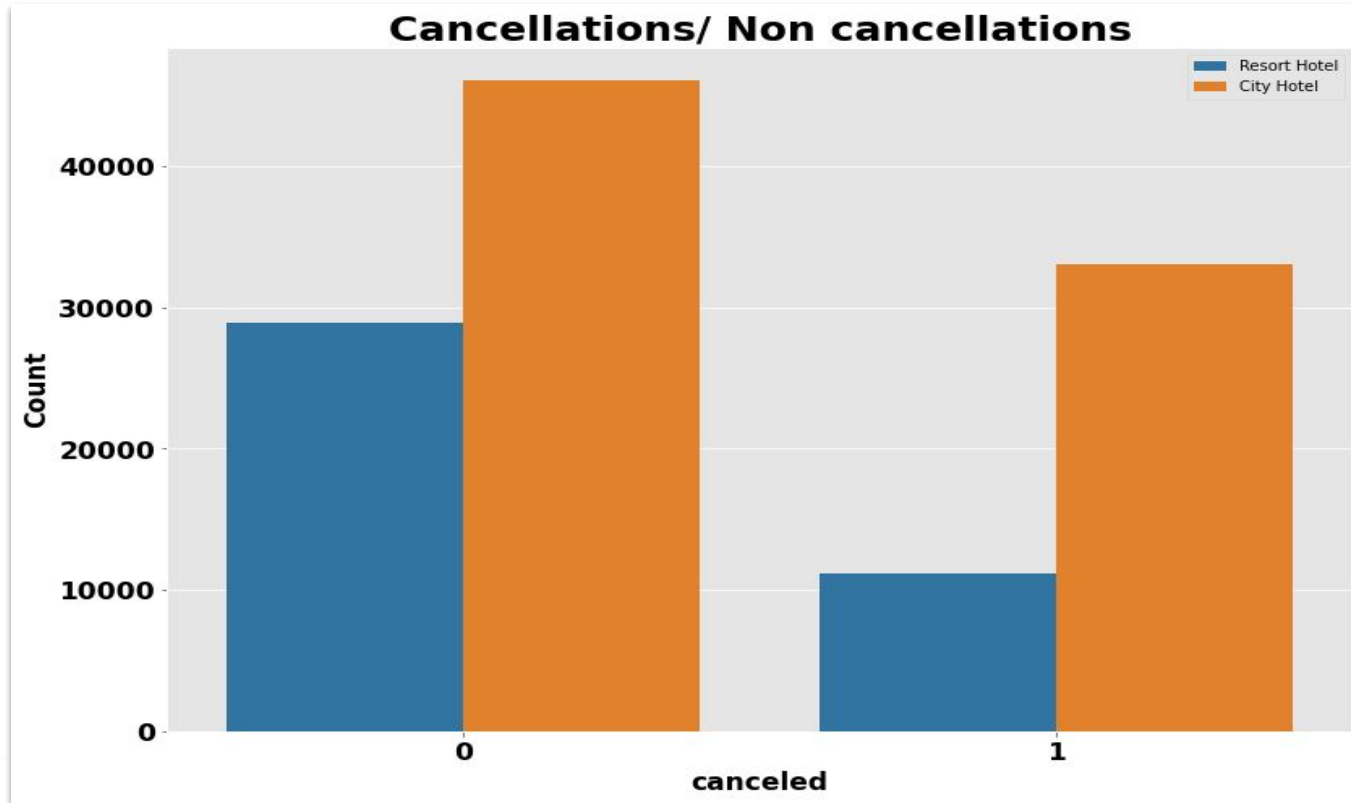
- Most popular months are May, June, July and August (highest).

# Cancellation levels over months



- Over the year, most number of cancellations happened during the summer season from April-August.
- Winter season from November - January experienced the least number of cancellations.

# Cancellation levels for both the hotels



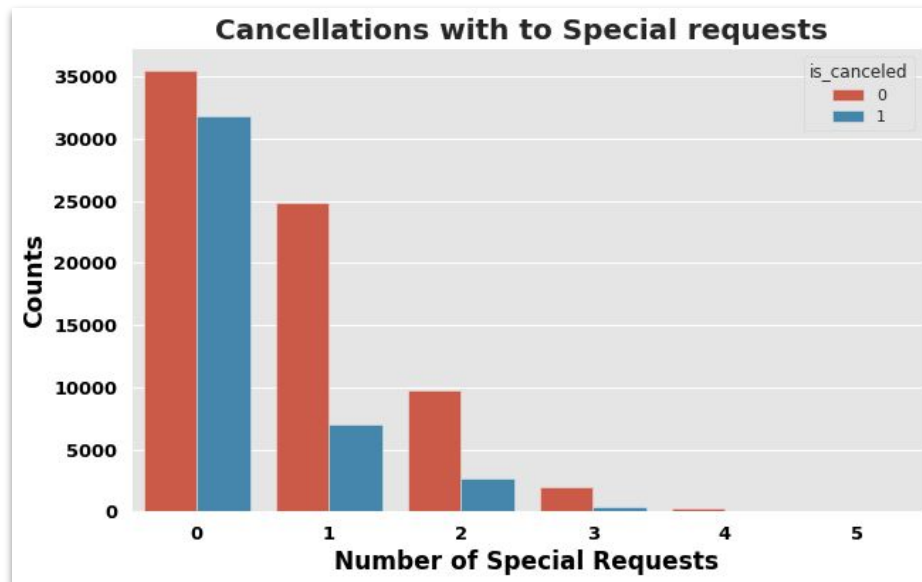
- By analyzing above graph we can say that the City Hotel is most popular among people because it both got cancelled and booked the most.

# Different factors affecting cancellations

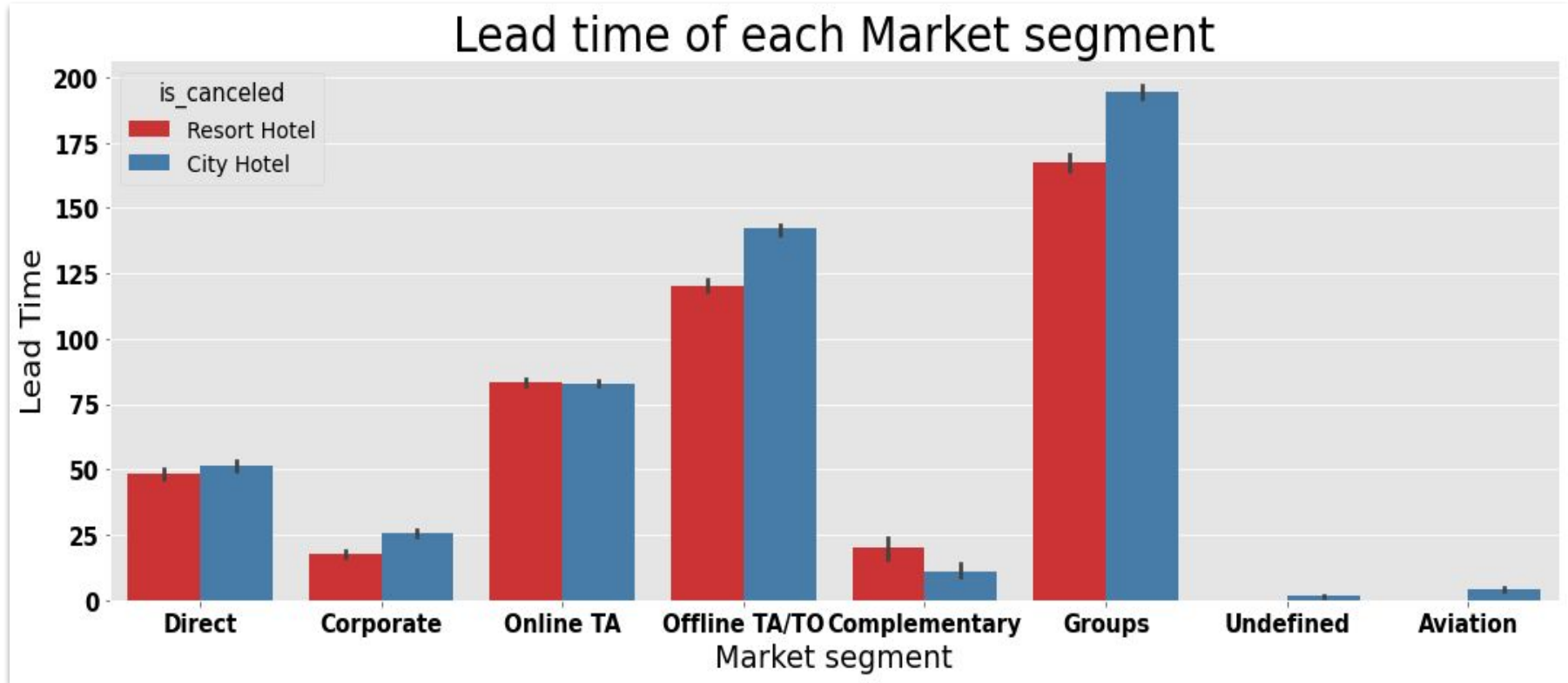


Repeated guests cancels the less compared to non repeated guests.

Guests who have more than 1 or more special requests are less prone to cancel.



# Lead time of various market segments



- Groups have the highest lead time, while aviation has the least lead time.



# Lead time and hotel cancellations



- Irrespective of the hotel type, guest generally cancel their bookings with high lead time.
- Moreover, it also becomes evident that if the lead time crosses 80-82 days then, the customer is bound to cancel their booking.

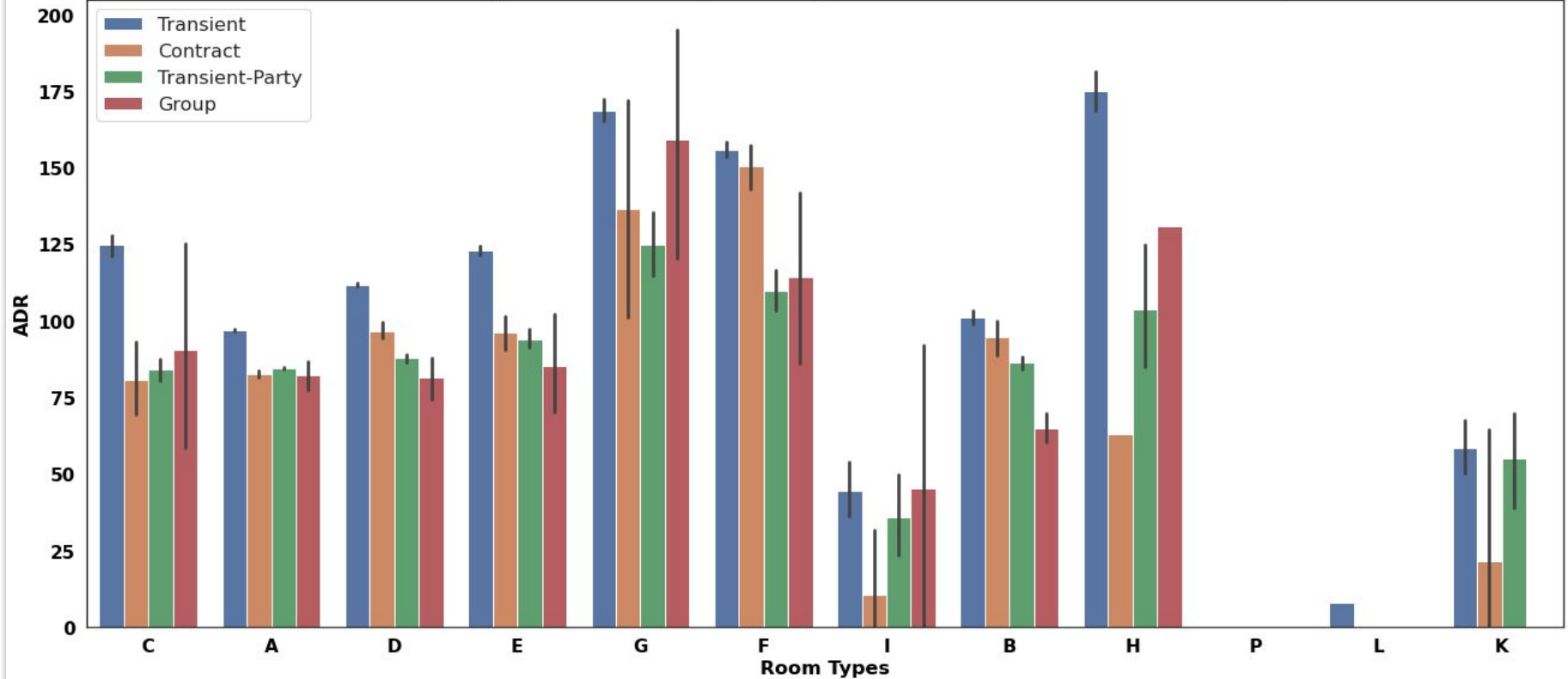
# Market segment and days in waiting list



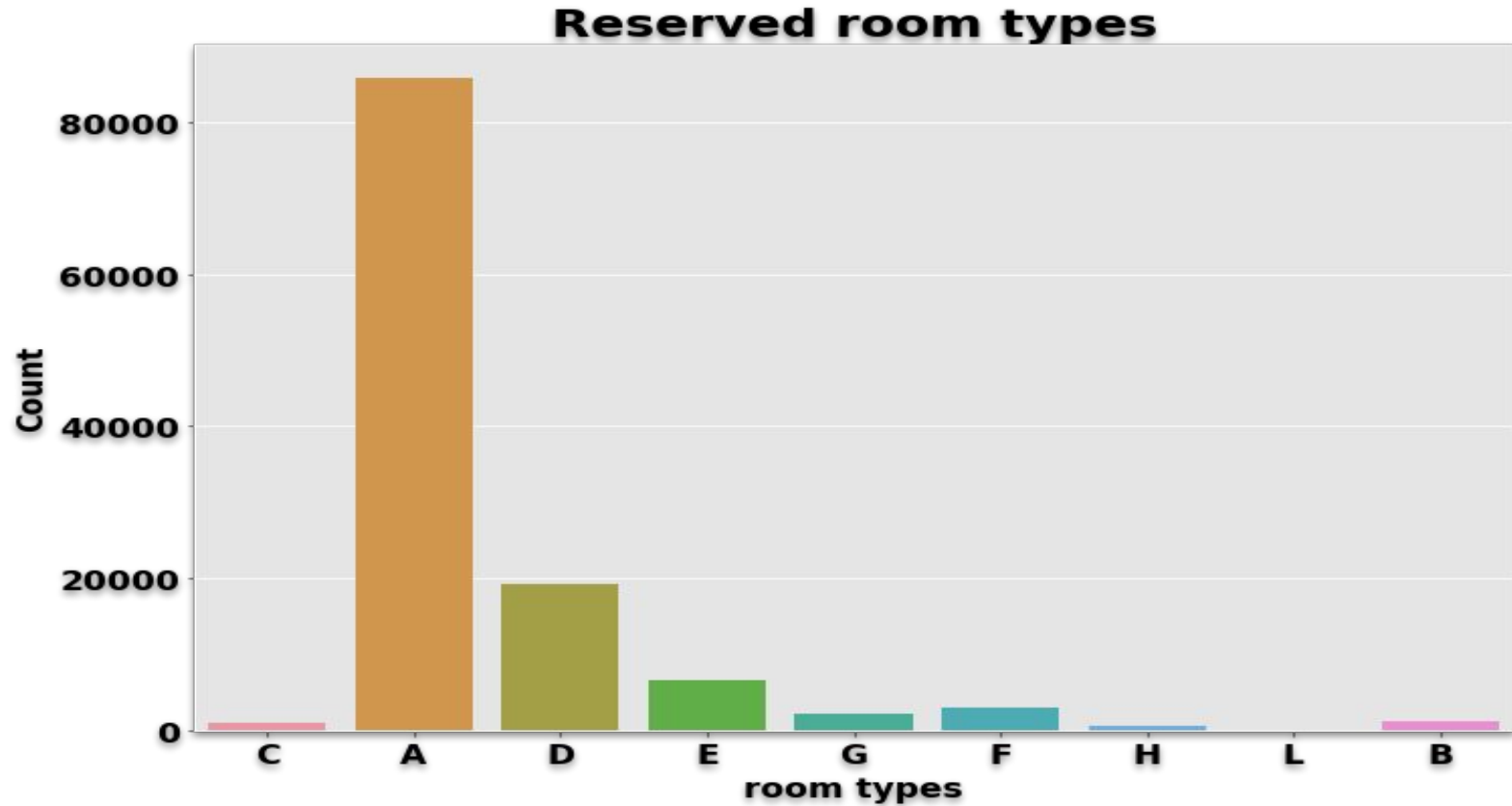
- From the graph we can conclude that through the 'Groups' and offline TA/TO market segment customers might have to wait for more than 200 days.
- Complementary and Aviation market segment have the least waiting days.

# Exploring ADR, room types and customer groups

Relationship between ADR, Room types and different Customer Groups



- Rooms G, F and H are the most profitable and popular rooms
- Transient customer group pay the highest ADR for all the room types.

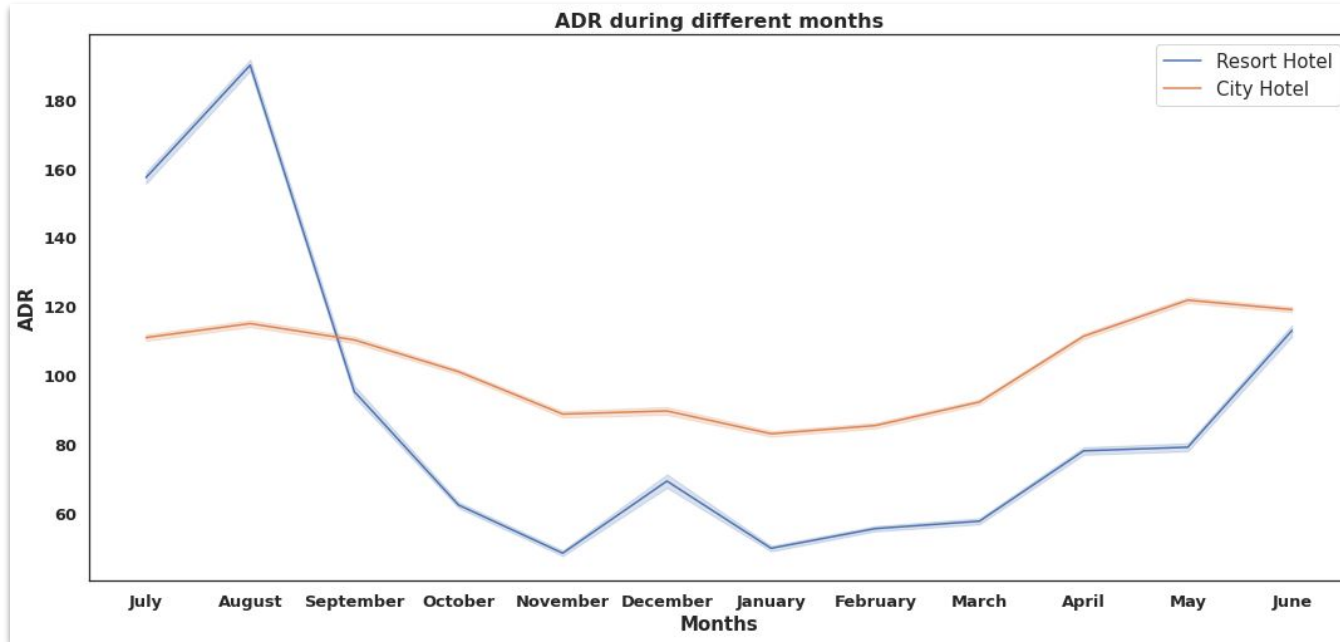


- Room type A is the most booked popular room type followed by D and E.

# Hypothesis

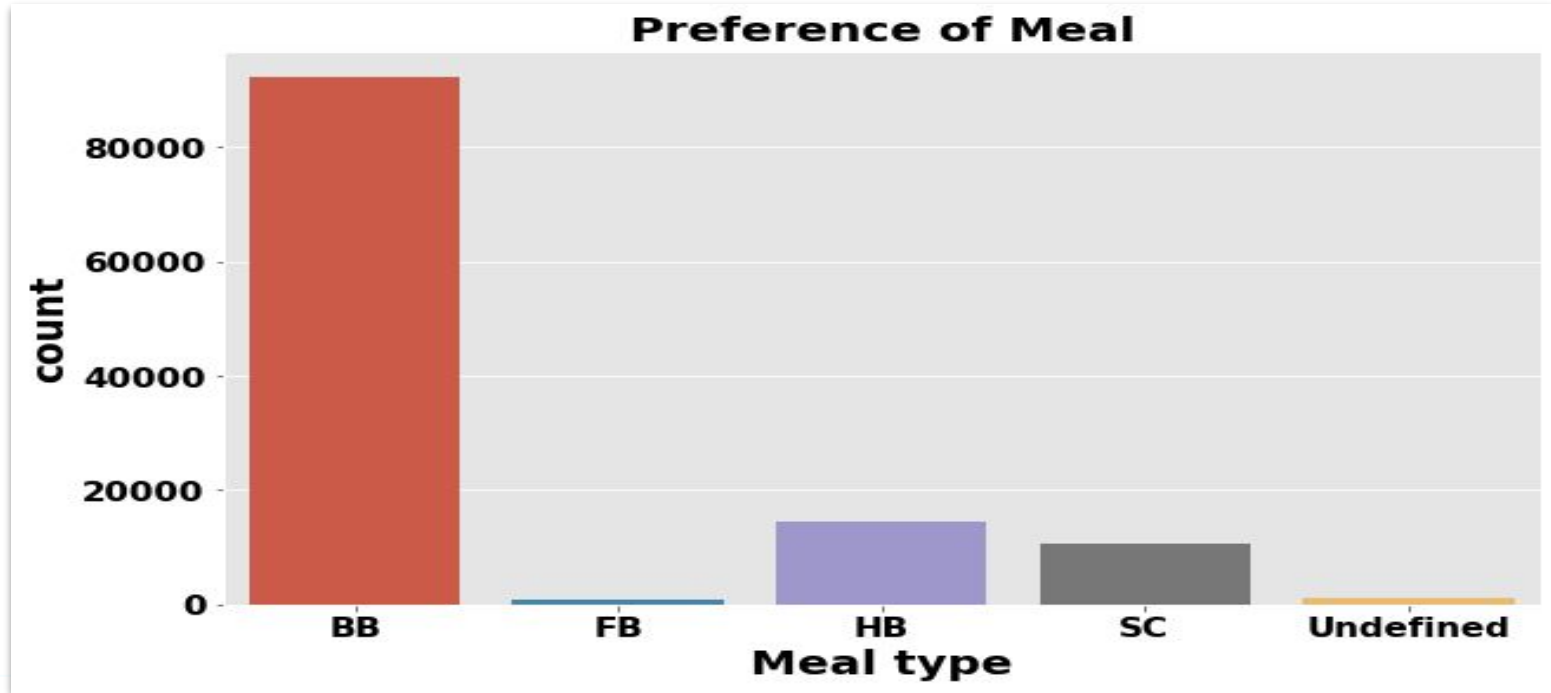


# Best time to visit the hotel



- During the summer season, it costs around €(150-130) and €(120-110) to book a room in the city and resort hotel respectively.
- However, it can be seen **in the winter season there is a sharp decline in the average daily rate** to book a room in the hotels.
- **There is almost 45% drop in the ADR to book a room in city hotel and 15% decline to book a room in the resort hotel** in the winter season.

# Most popular meal type?

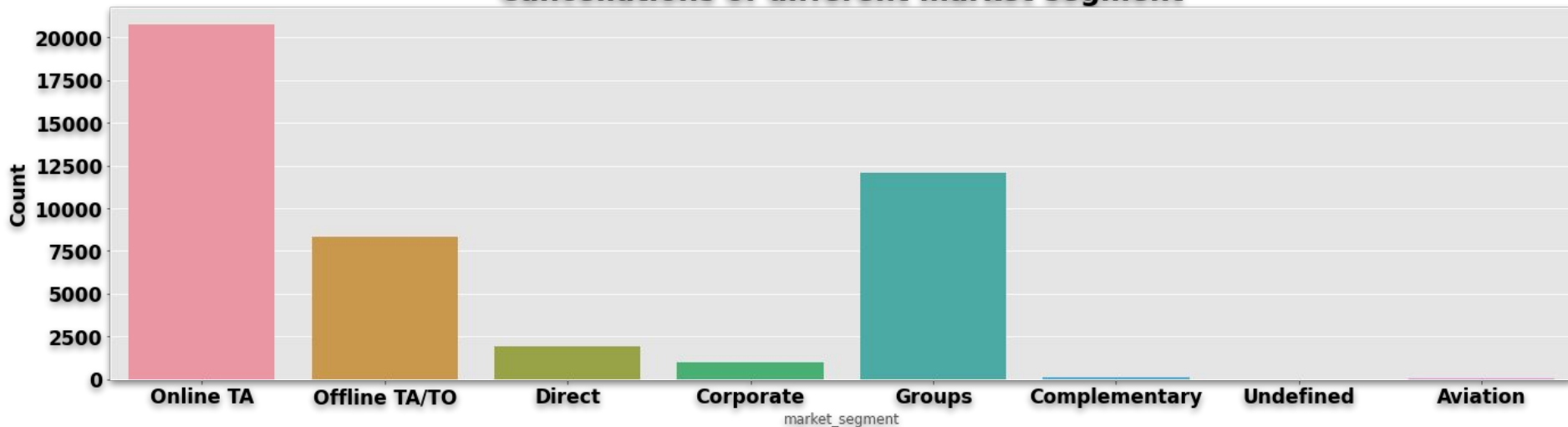


- BB Meal plan is most popular meal plan followed by HB.

# Which market segment is getting cancelled the most ?

- Almost 95%, cancellations are from online TA , offline TA and group segments.
- Online TA has the highest cancellations of around 50%, followed by groups and offline TA.

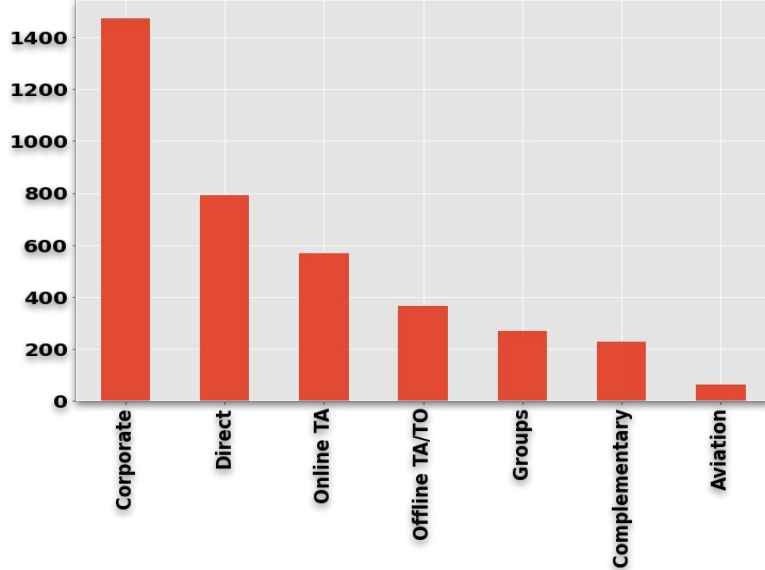
**Cancellations of different market segment**





# Which market segment is preferred by repeated and non repeated guests.?

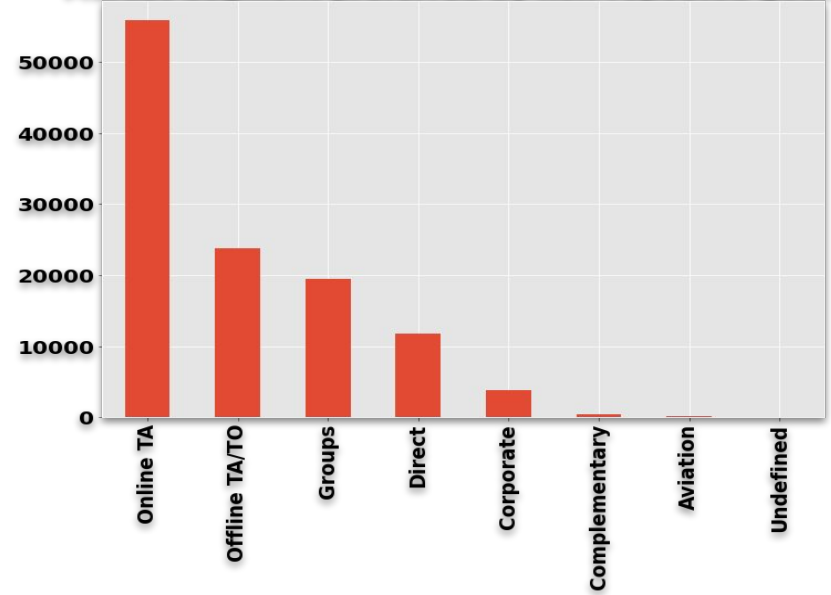
Market Segment preferred by repeated guests



## Repeated guests:

- Corporate is the most popular market segment for their bookings.

Market Segment preferred by non-repeated guests

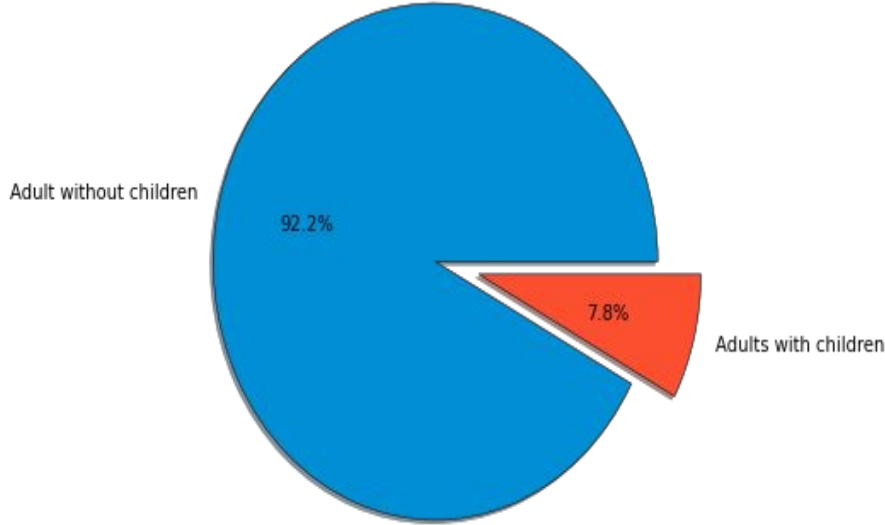


## Non-repeated guests:

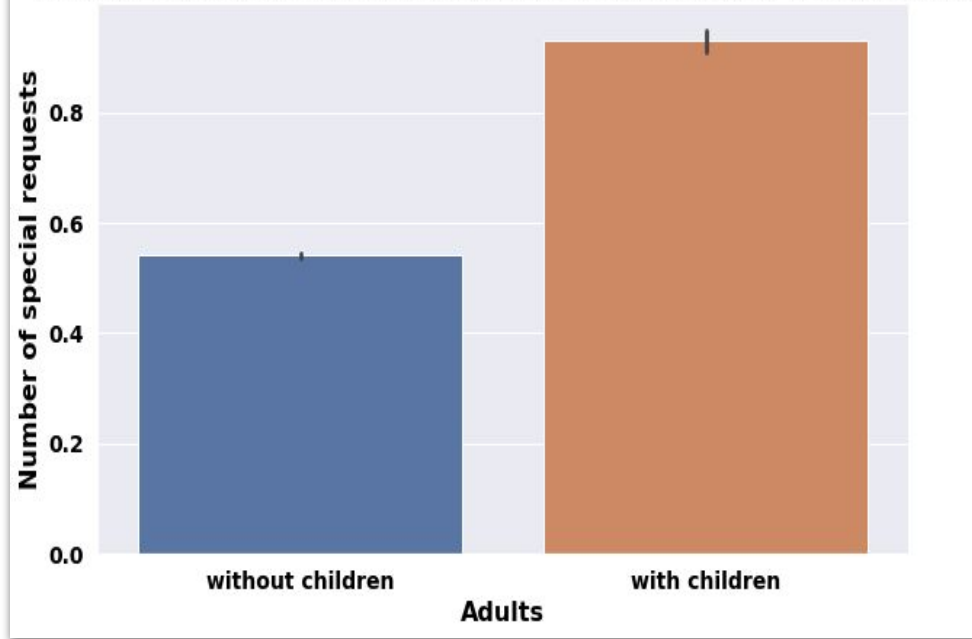
- Online TA is most preferred by non-repeated guests.

# Do adult with family have more or less special requests?

Proportion of adults with and without any children



Relationship between Special Requests and Adults With and Without Family



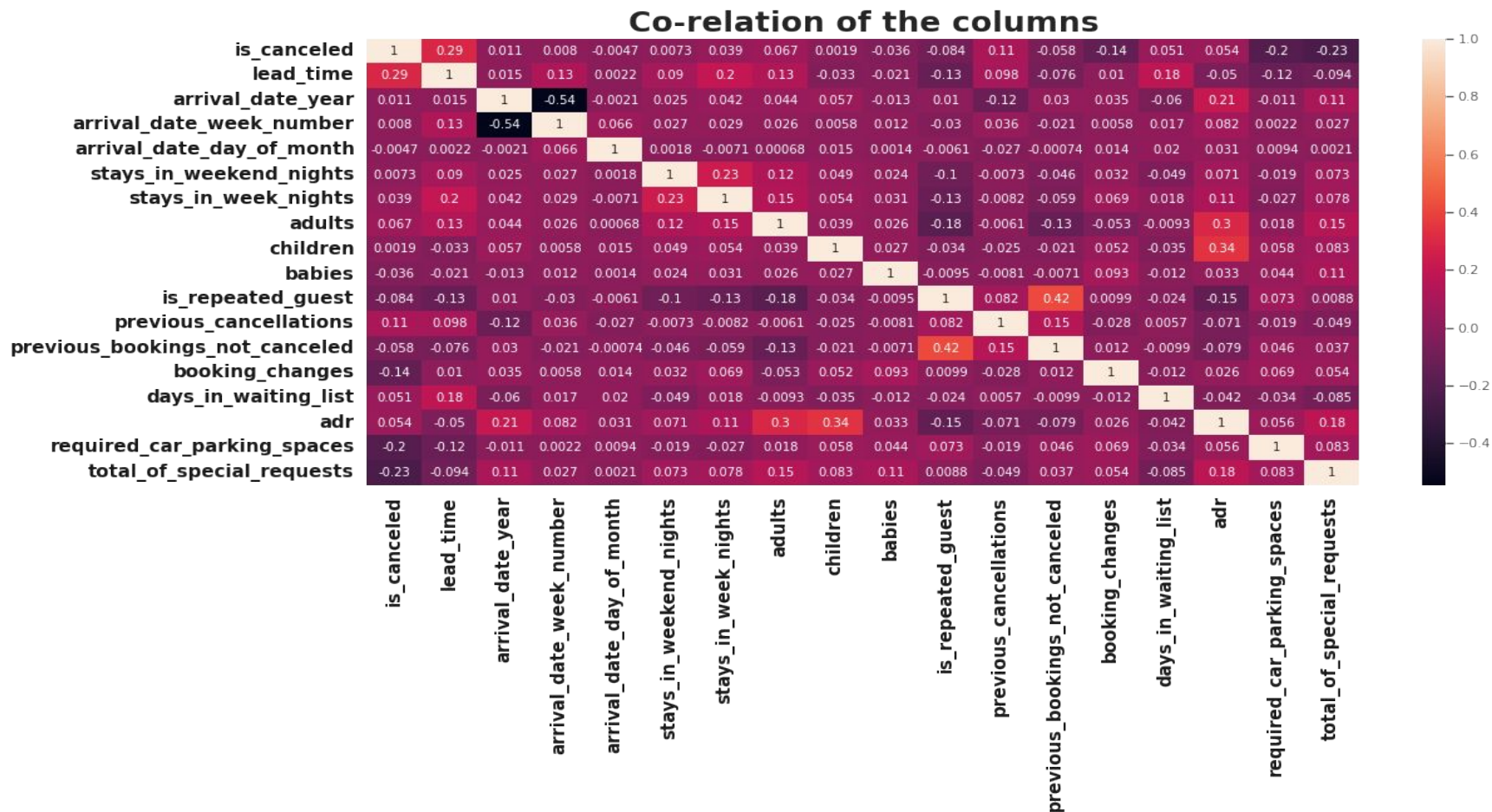
Travelling without any children is the preferred mode travelling among adults as **92% of adults prefer to travel without any children.**

# Has the market segment changed over the years?



- Online booking segment has grown over the years and reach its peak in 2016.
- Corporate witnessed insignificant increase in the three years
- Groups and offline TA also saw significant increase over the three years
- Direct remained same for the 3 years.
- Aviation and complementary has remained stagnant

# Extracting the correlation of the dataset using Heatmap.



# Conclusions

- May-August happens to be the busiest months but so the hotels should target more customers and try to do more business during these times.
- It is quite clear most customers travel in pairs and bringing children or babies along is very rare so the hotels could advertise in ways that attract couples more.
- Hotel has very few repeated guest, feedback can be collected to plan strategies accordingly. Hotel should collaborate with online marketing companies to advertise itself.
- Majority of the hotels booked are city hotel. Definitely need to spend the most targeting fund on those hotel.
- Majority of the guests are from Western Europe. We should spend a significant amount of our budget on those area.
- Given that we do not have repeated guests, we should target our advertisement on guests to increase returning guests.
- Set Non-refundable Rates, Collect deposits, and implement more rigid cancellation policies.
- Encourage Direct bookings by offering special discounts.

**Thank you**