

Capstone Project

Hotel Booking Analysis -EDA

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Content

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- Exploratory Data Analysis
- Observation and suggestion for Hotels

Problem Statement

- Observe Hotel Booking patterns and find which days week receive large crowds, find months of year so that resources can be managed by hotel
- See the Booking and cancelling pattern , find who is canceling booking and why ?
- Make suggestions to hotel so that profitability of hotel can be increased

Data Summary

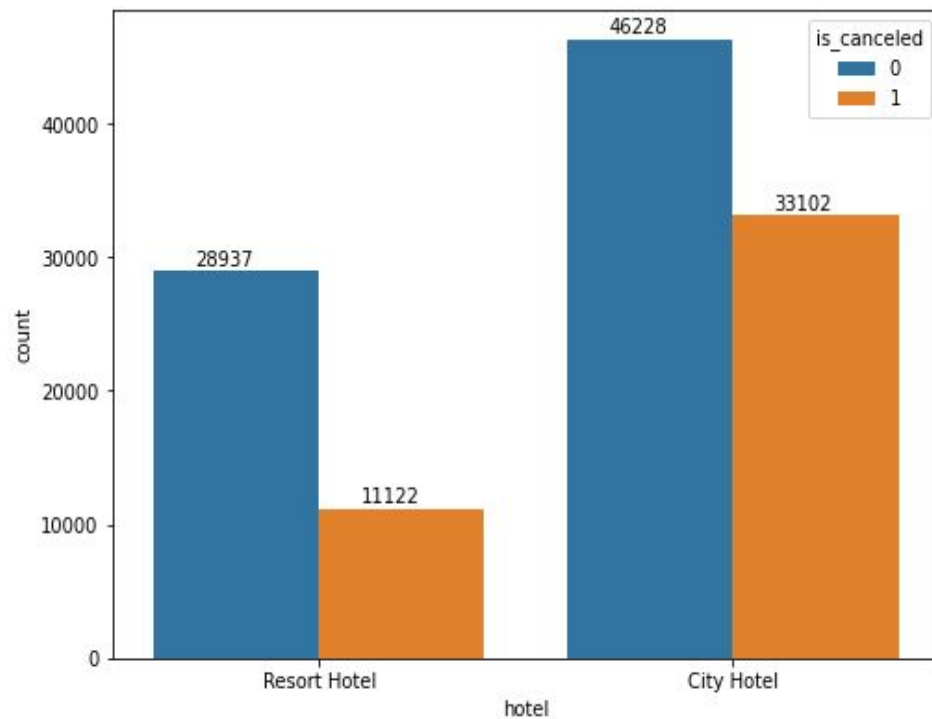
- **Hotels** : Data for two hotels is available Resort Hotel and City Hotel
- **Lead time** : Number of days booking is done before arrival date
- **Arrival date** : Three columns with arrival month, arrival date and arrival year
- **Stay days** : Two columns with weekend and weekdays
- **People** : Three columns with number of children, babies and adults
- **Market segment** : Type of customers grouped together
- **Repeated guest** : Whether customers are repeated or new customer
- **The previous cancellation** : Has customer booked the hotel previously and canceled the booking

Data Summary

- **Room type** : Two columns about which type of room was books and which type of room was assigned
- **Deposit type** : whether customers were asked to give any deposit and which type of deposit it was refundable or non refundable
- **Avg Daily rate** - what is average daily cost for staying in hotel
- **Meal-type** : which meals were ordered with hotel room
- Some other parameters such as Car parking space, meal-type, status date, special request are also available

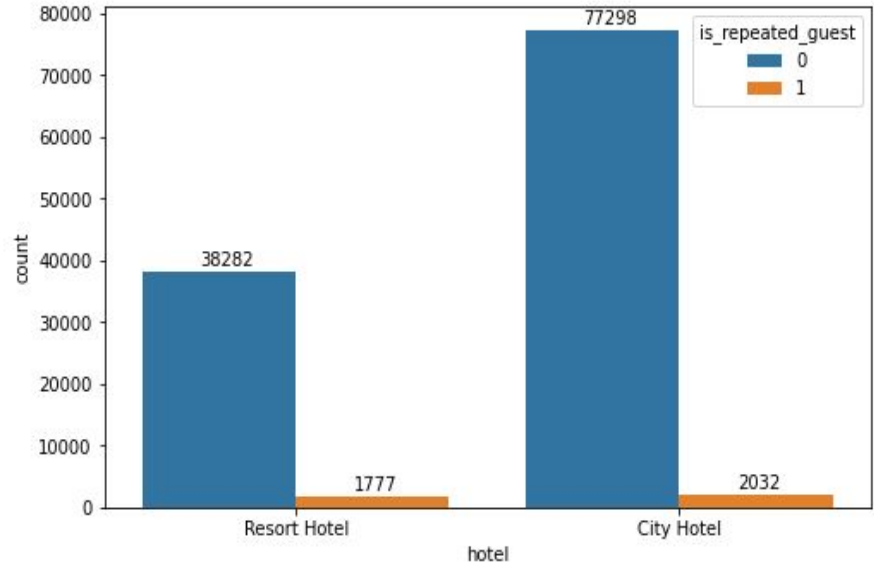
Hotels

	Canceled	Not Canceled
City Hotel	0.58	0.41
Resort Hotel	0.72	0.28



Repeated Guest

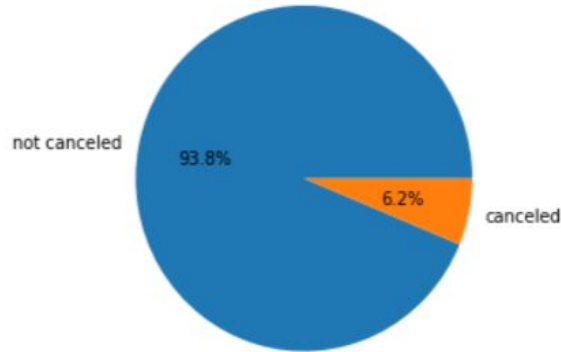
- Both hotel have very small numbers of bookings from old customers
- Resort hotel has 4.43 % repeat customer
- City hotel has 2.56 % repeat customers



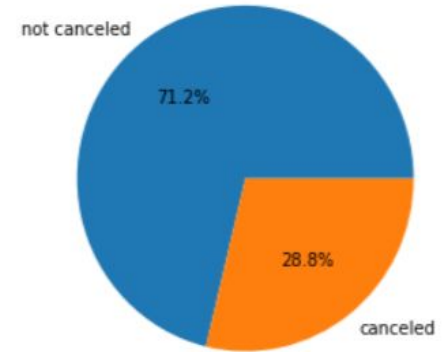
Repeated Guests

- City Hotel has High cancellation for repeated guests
- Resort Hotel has very less cancellation compared to the new guest

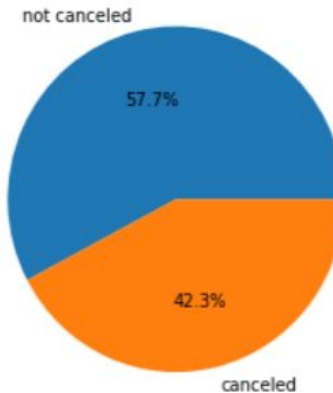
Resort repeated Guest



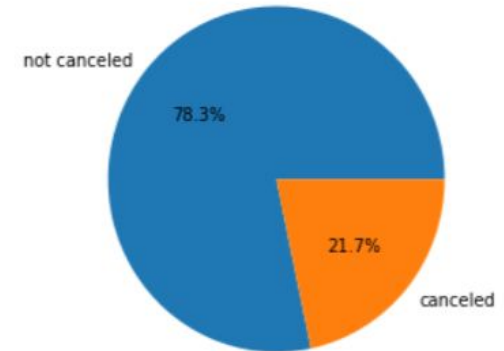
Resort new Guest



City repeated Guest

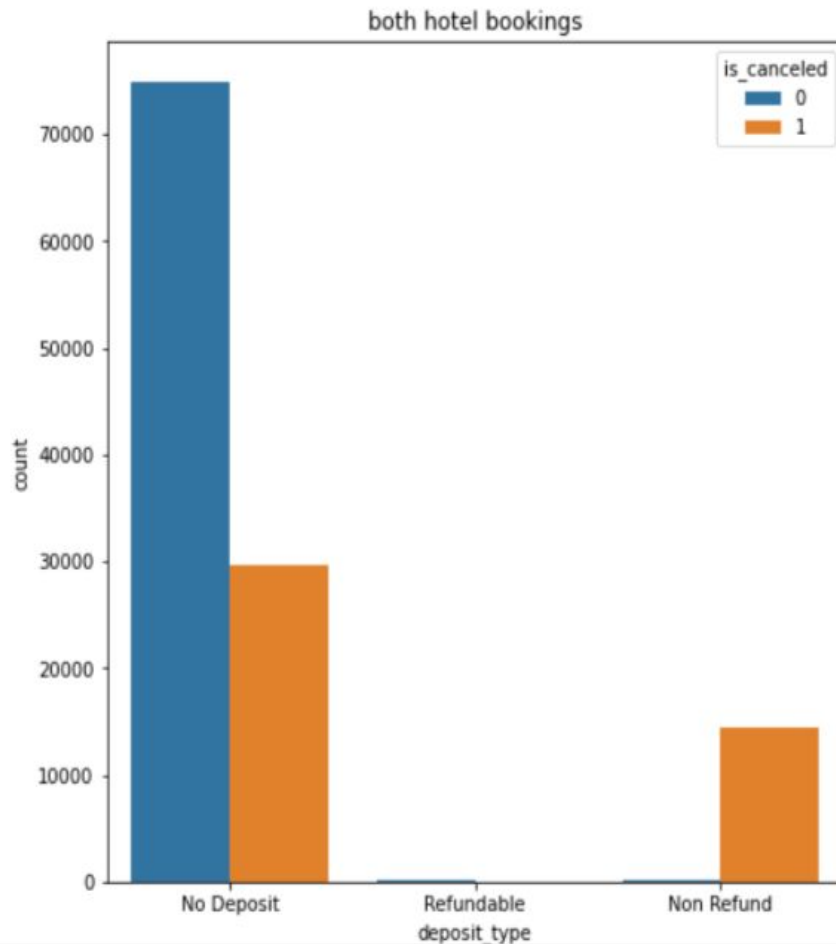


City new Guest



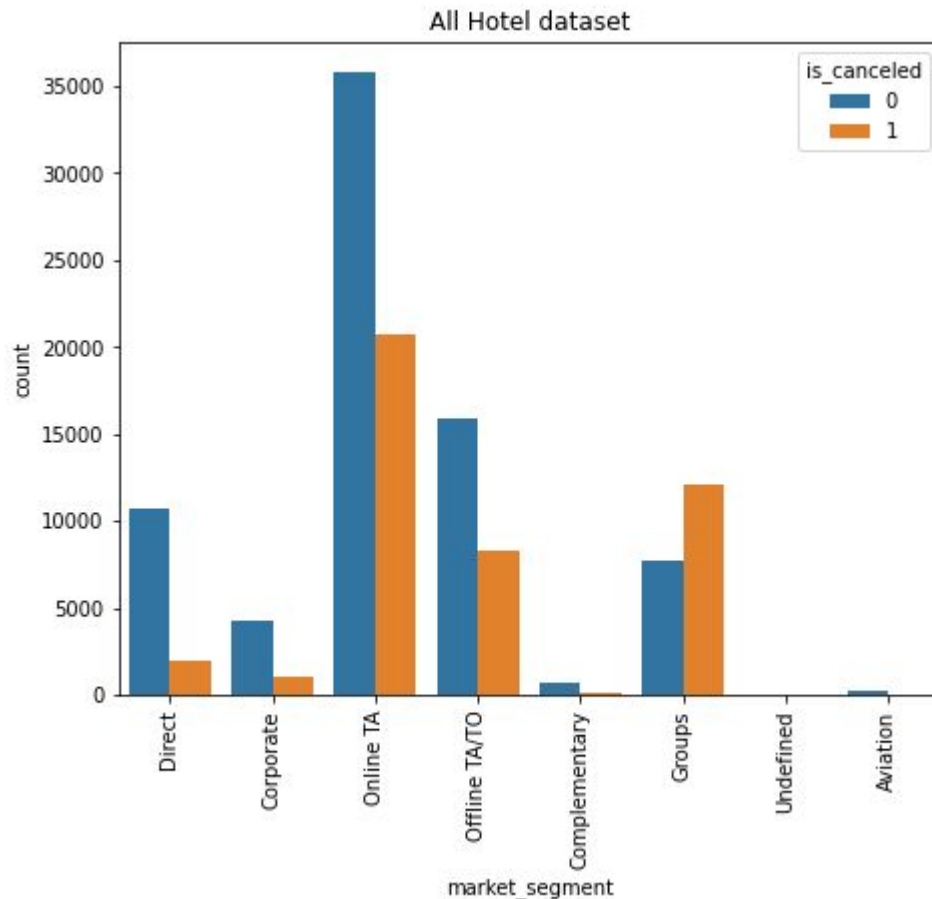
Deposit

Deposit Type	Cancelled	Not cancelled
No Deposit	74946	29694
Non-Refundable deposit	83	14494
Refundable Deposit	126	36



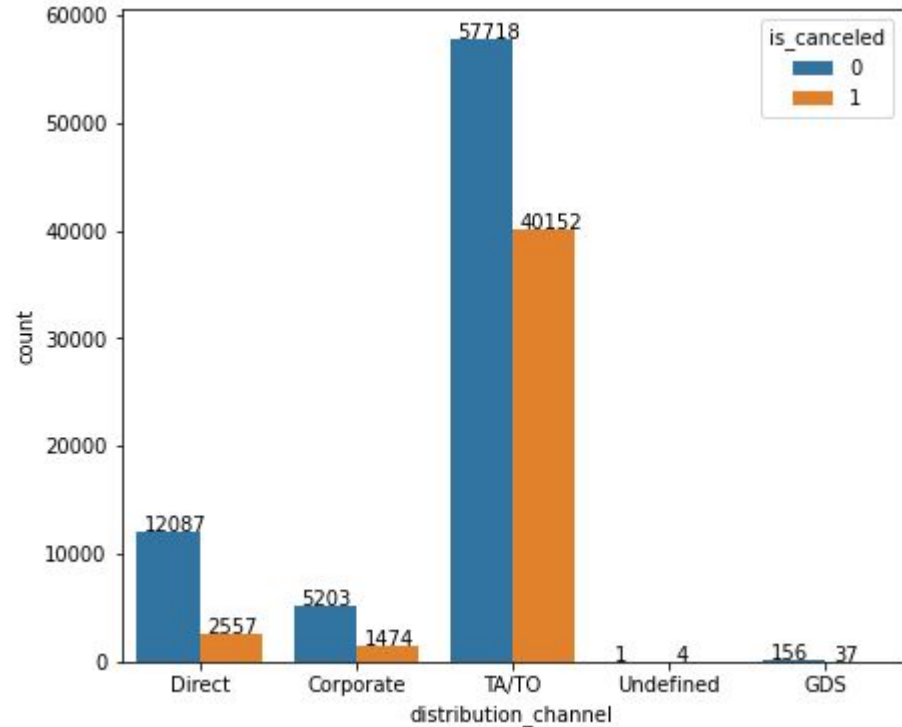
Market Segment

- Online agents have highest share in booking (63%)
- Offline agents have second highest share in number of bookings
- Groups have higher cancelation (61 %) than confirmed booking
- Direct (18.7 %) and Corporate(18.73) bookings have smaller cancelation rate



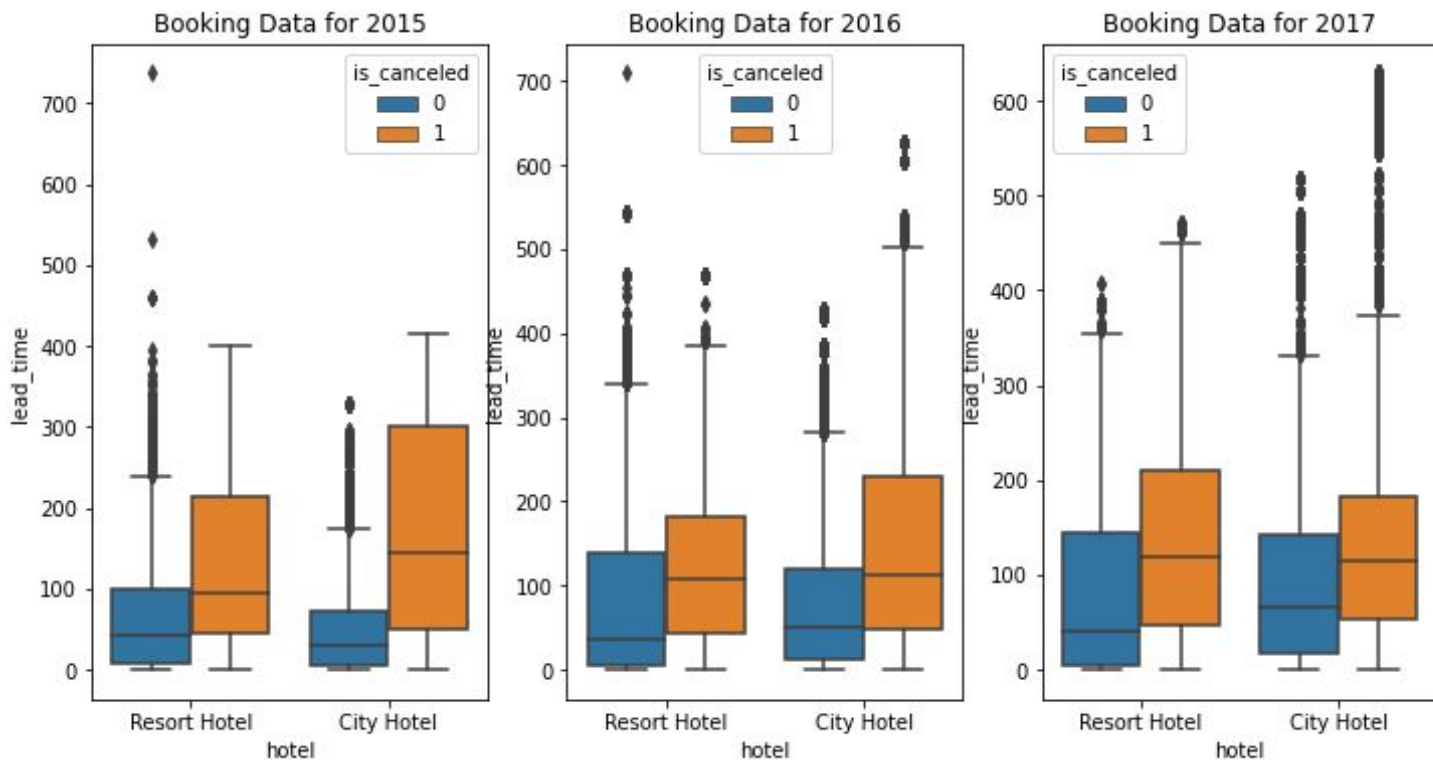
Distribution Channels

- Travel agent are responsible for bringing most of the bookings, accounting 82.5 % of total booking
- Second highest booking comes from direct booking category- 12.2 %
- Third highest are corporate bookings - 5.5%

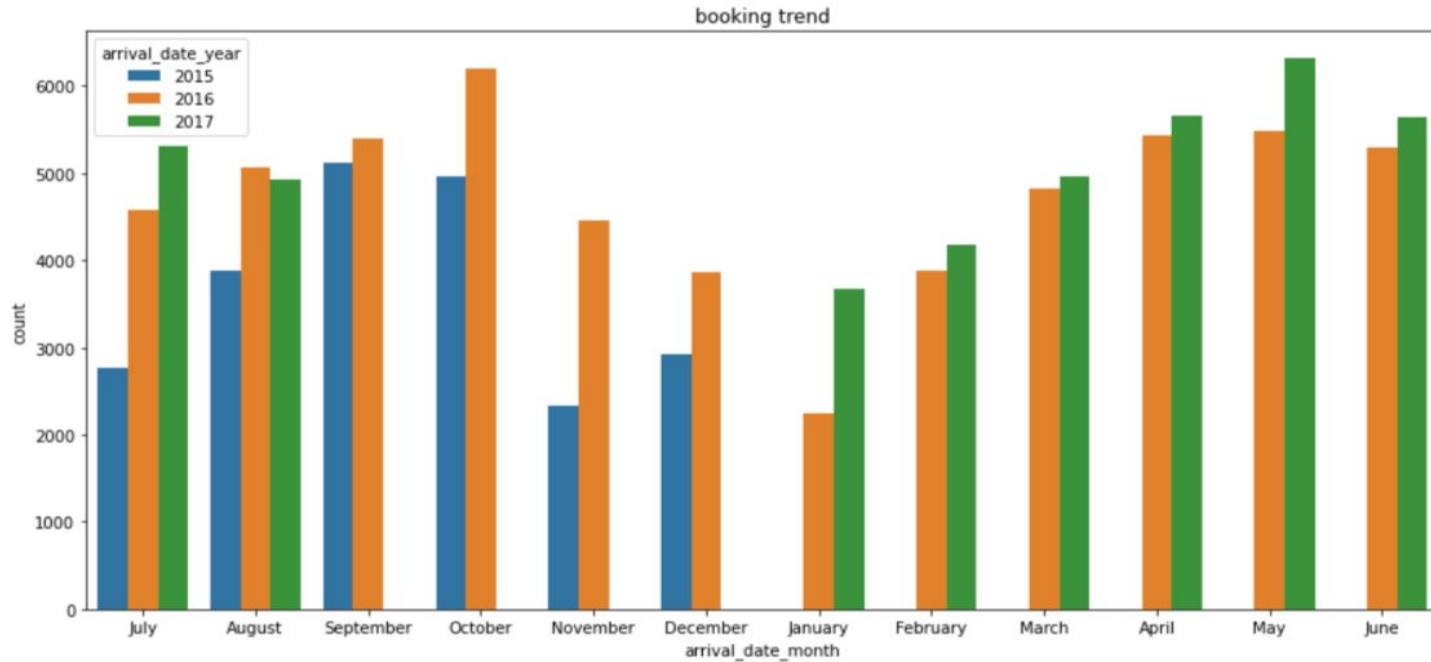


Lead Time and cancellations

- Bookings with more than 150 days lead time mostly gets canceled



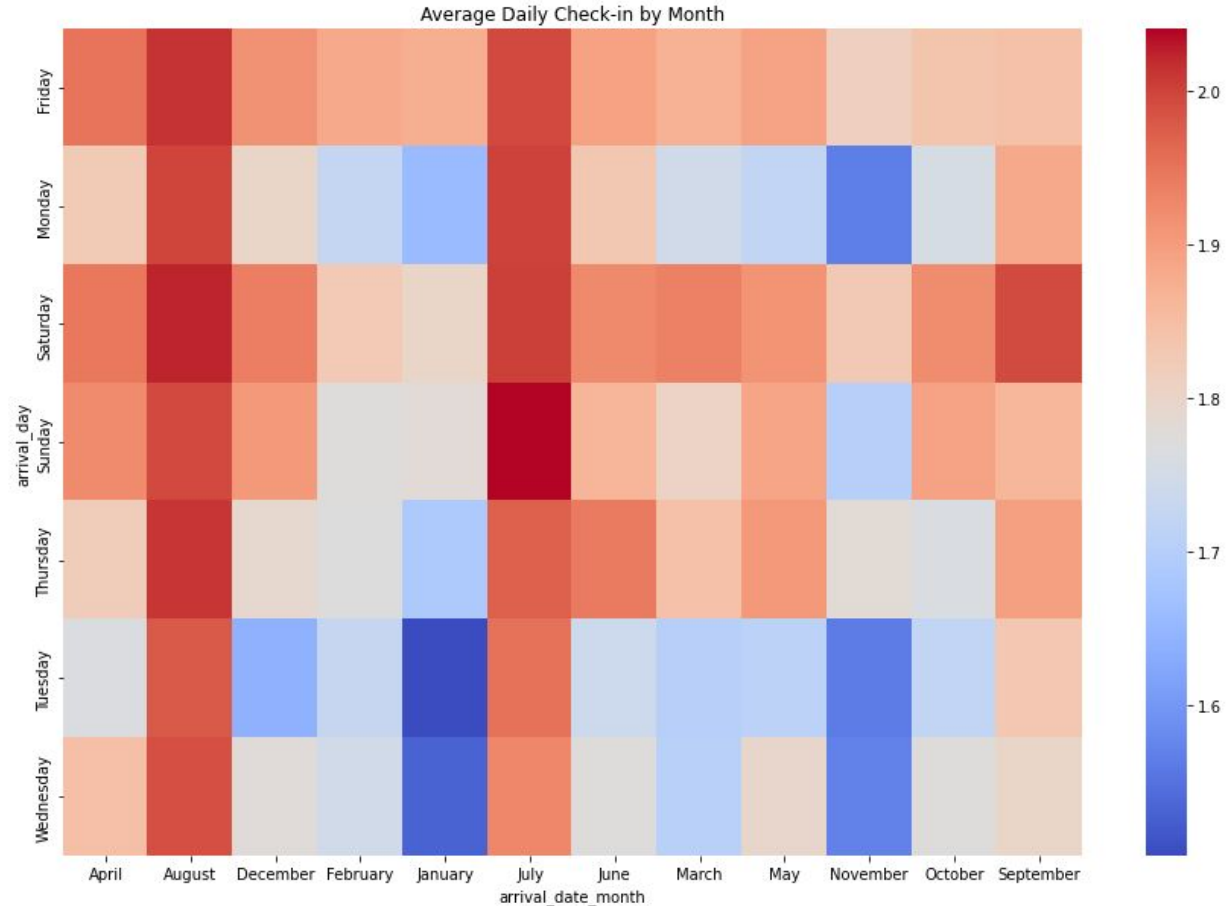
Booking Trend



- We can observe year on year growth

Check in by day

- Most of check in are on weekend Friday and saturday counts have the highest booking
- Monday,wednesday and tuesday have the lowest booking



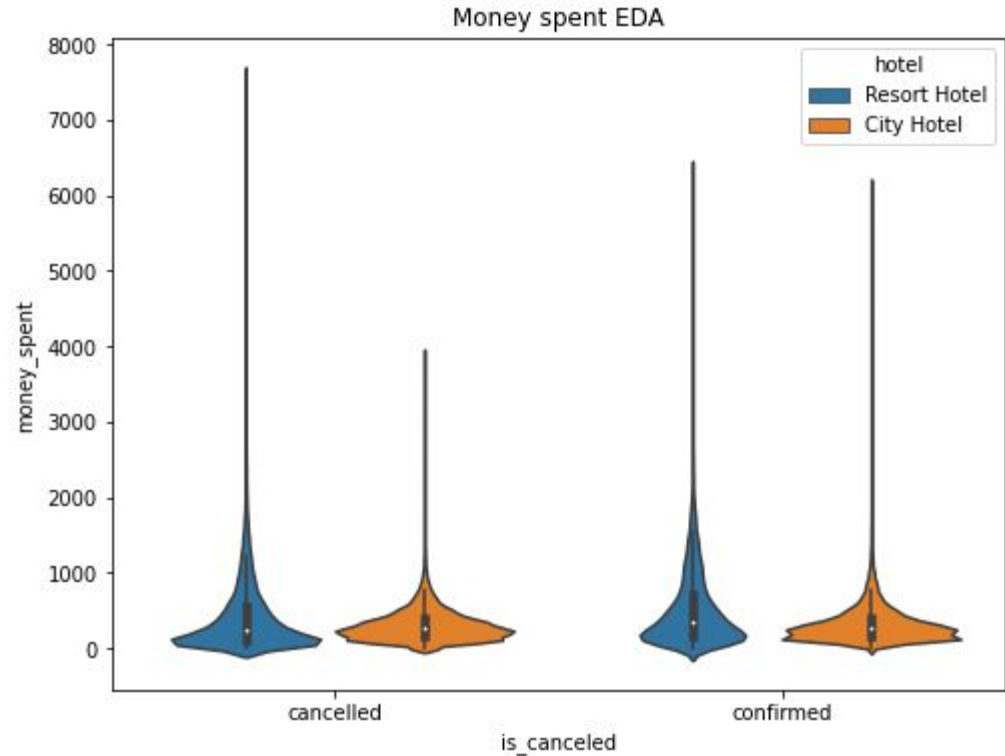
Room Type

- Most of the bookings are for low cost rooms
- Most high-value customers choose the resort hotel while low-value customers choose the city hotel

	All	City hotel	Resort hotel
Low Cost	87123	63270 (73.137 %)	23403 (26.86 %)
Economic	25742	13321(51.74 %)	12421 (48.25 %)
Premium	3829	1805 (47.14 %)	2024 (52.85 %)
Luxury	2695	484 (17.95 %)	2211 (82.04 %)

Expected Money Spent

- Resort Hotel is able to convert high value customer turn in but fails to convert low value booking to customers
- City hotel has more low value customers compared to resort hotel and fails to convert high value bookings to customers



Previous Cancellations

- Repeated customer with no previous cancelation have very less percentage of booking cancelation
- People who have canceled once have more cancelation
- People above 6 cancellation mostly cancel the bookings

Cancel Group	% customers of total repeat customers	% canceled Of the cancel cat people
0	75.66	3.1
1	18.18	59.7
2	1.99	21.05
[3 - 6]	2.88	~20

Recommendations

- Hotels should charge some booking deposit for the following types of people
 - People who have a lead time greater than 100 days
 - Customers with previous cancellations
 - Large group bookings
- Resources management
 - Weekends are busiest
 - Most people order breakfast
 - Nov , Dec , Jan , Feb , March are least busiest months