Capstone Project

Hotel Booking Analysis -EDA

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Content

- Problem Statement

- 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,, status date, special request are also available
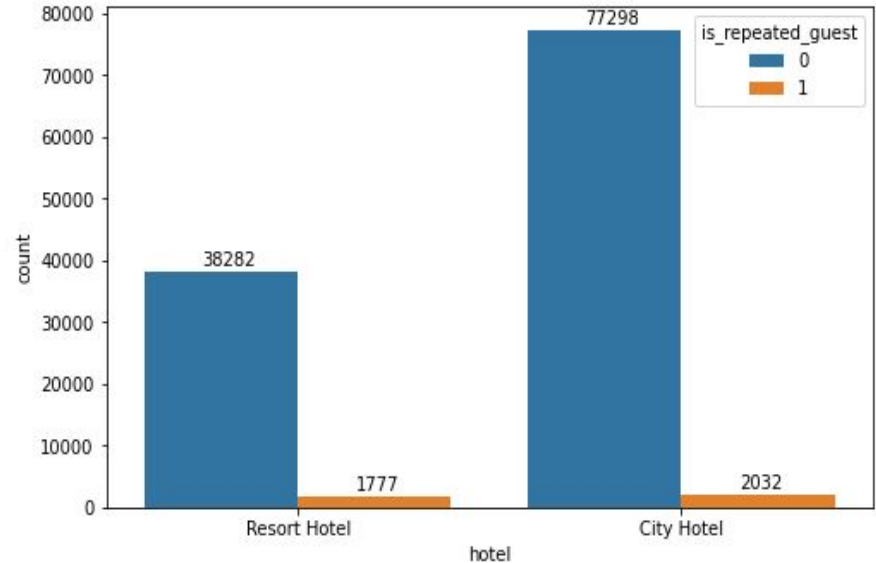
Hotels

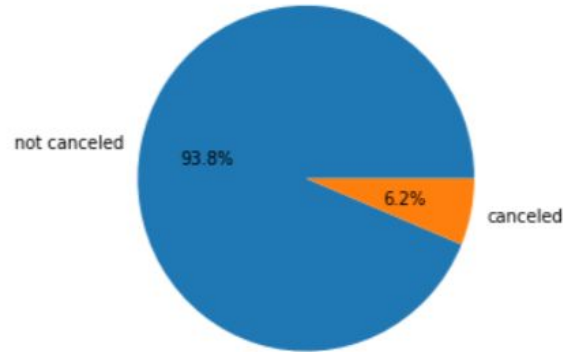|	Canceled	Not Canceled
City Hotel	0.58	0.41
Resort Hotel	0.28	0.72
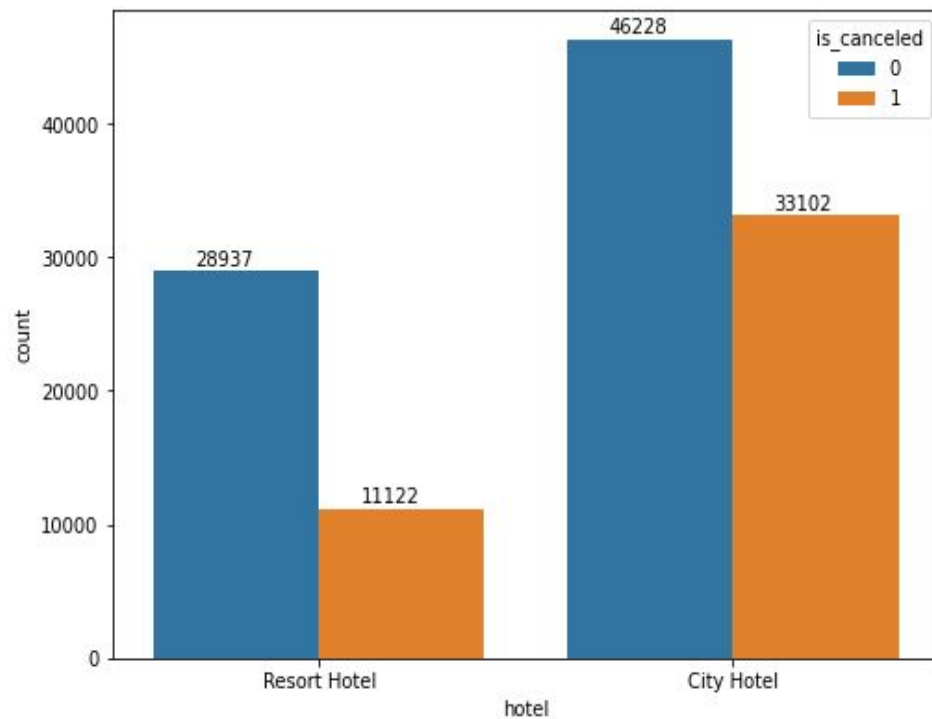
Repeated Guest

- Both hotel have very small numbers of bookings from old customers

- Resort hotel has 4.43 % repeat customer
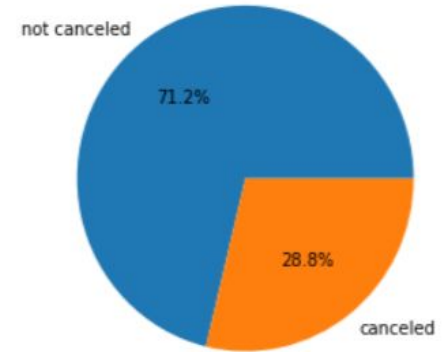
- City hotel has 2.56 % repeat customers

Repeated Guests

- City Hotel has High cancellation for repeated guests

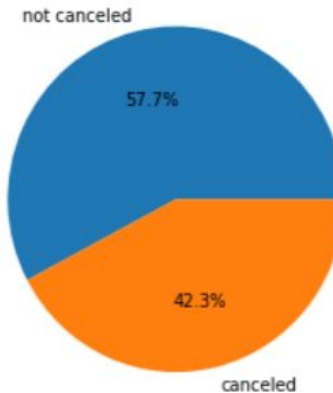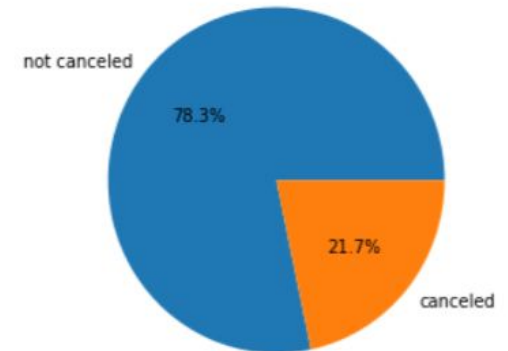- Resort Hotel has very less cancelation compared to the new guest

Deposit

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

both hotel bookings
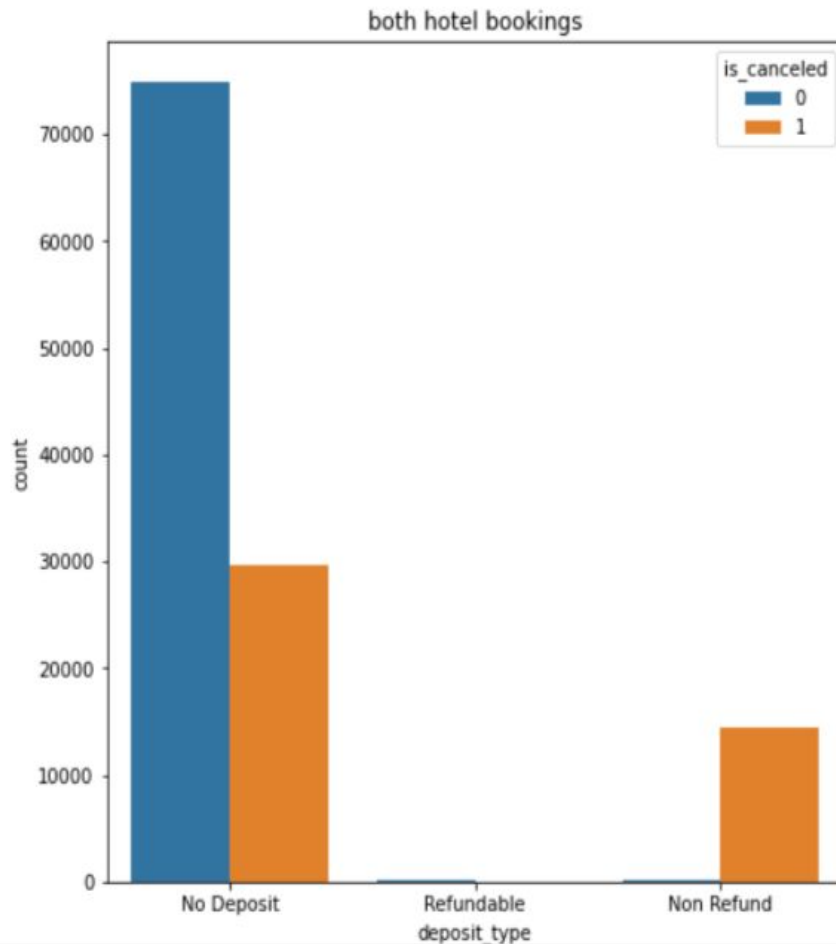
Meal Types

- **Most People book there room with breakfast facility**
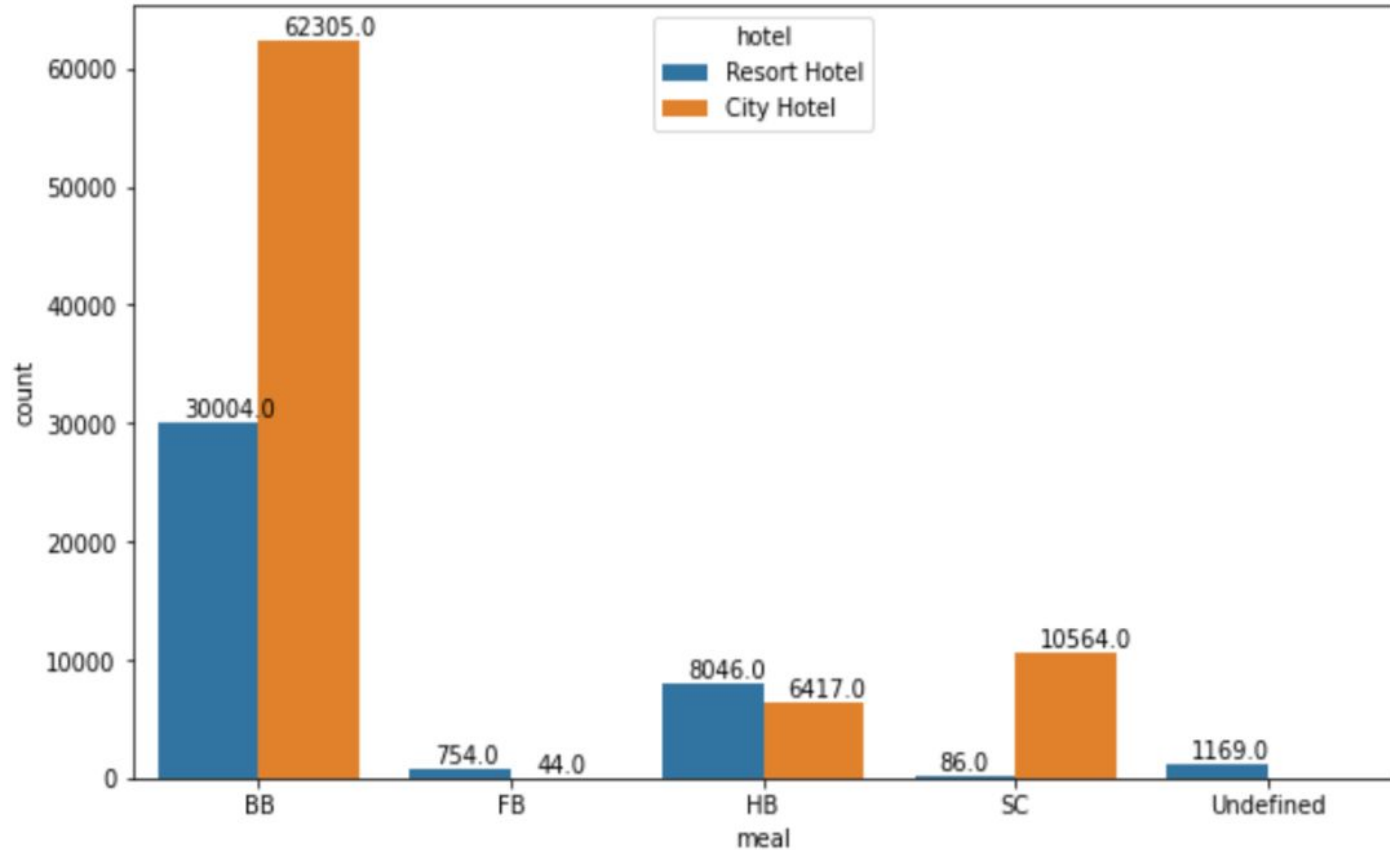
Market Segment

- 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
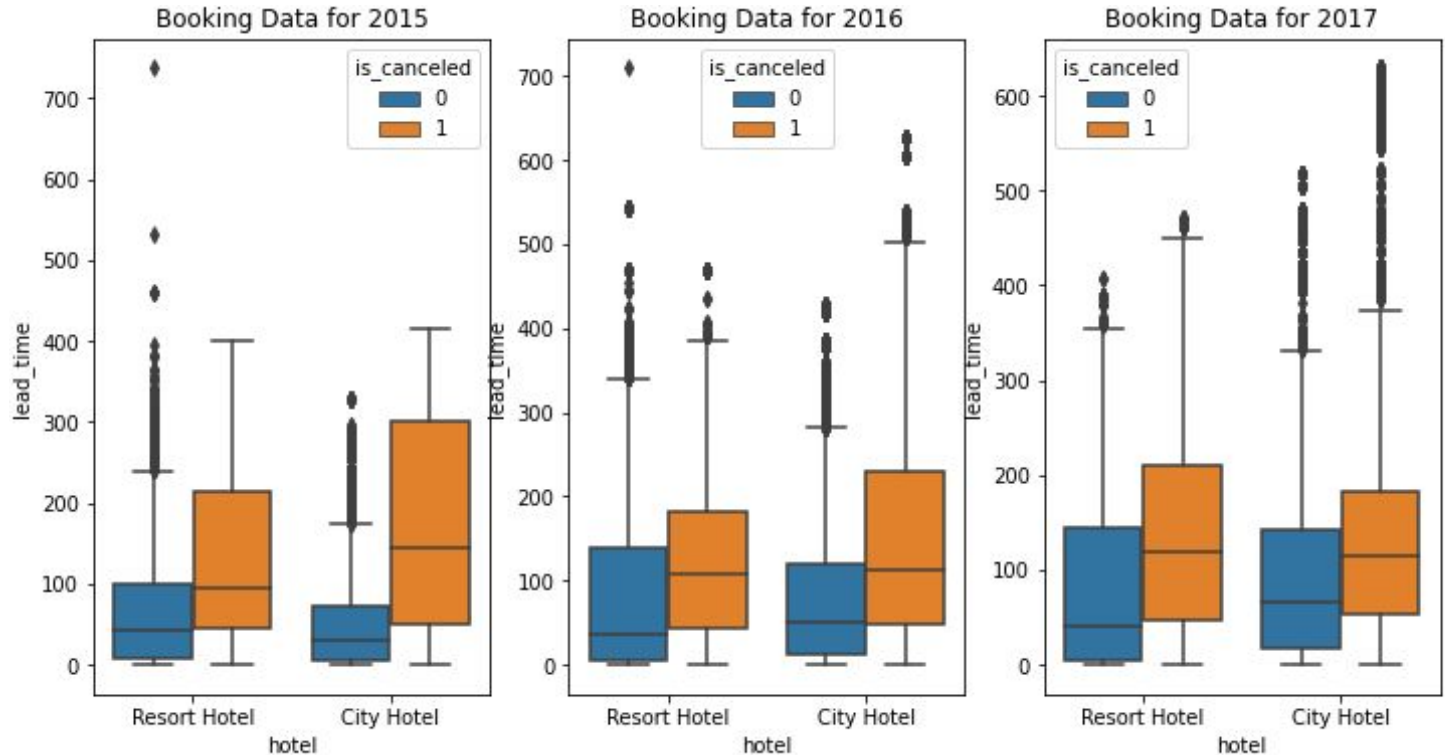

All Hotel dataset
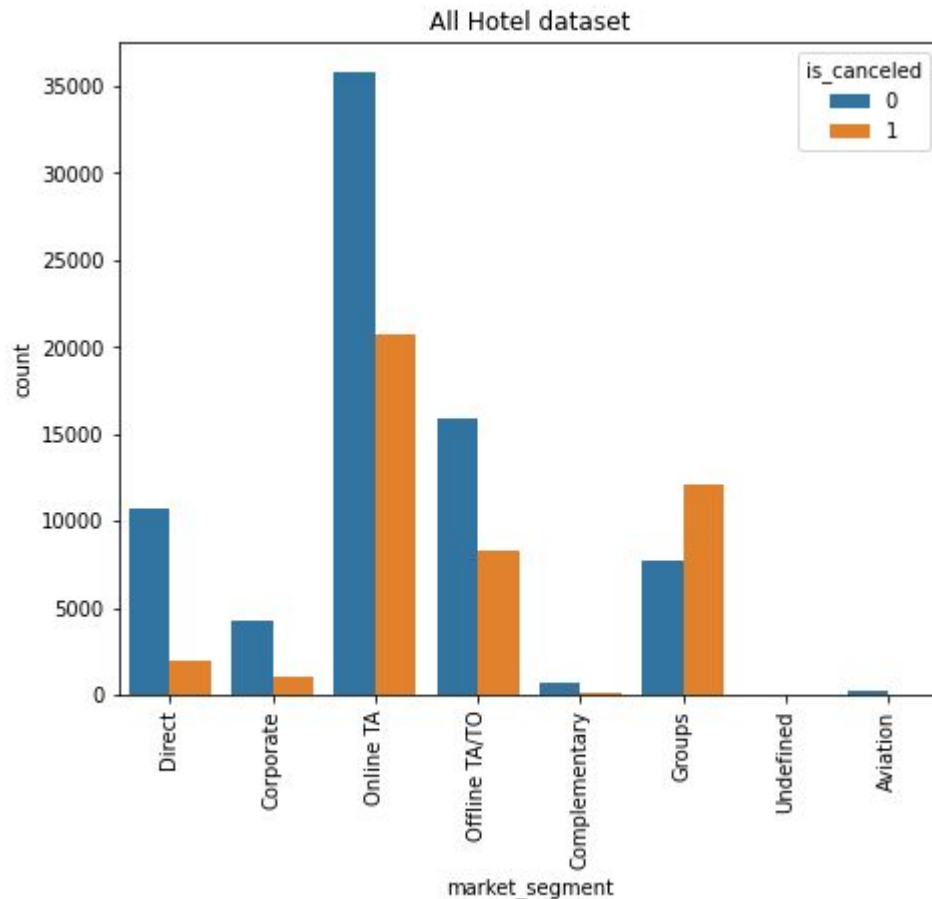
Distribution Channels

- 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 %
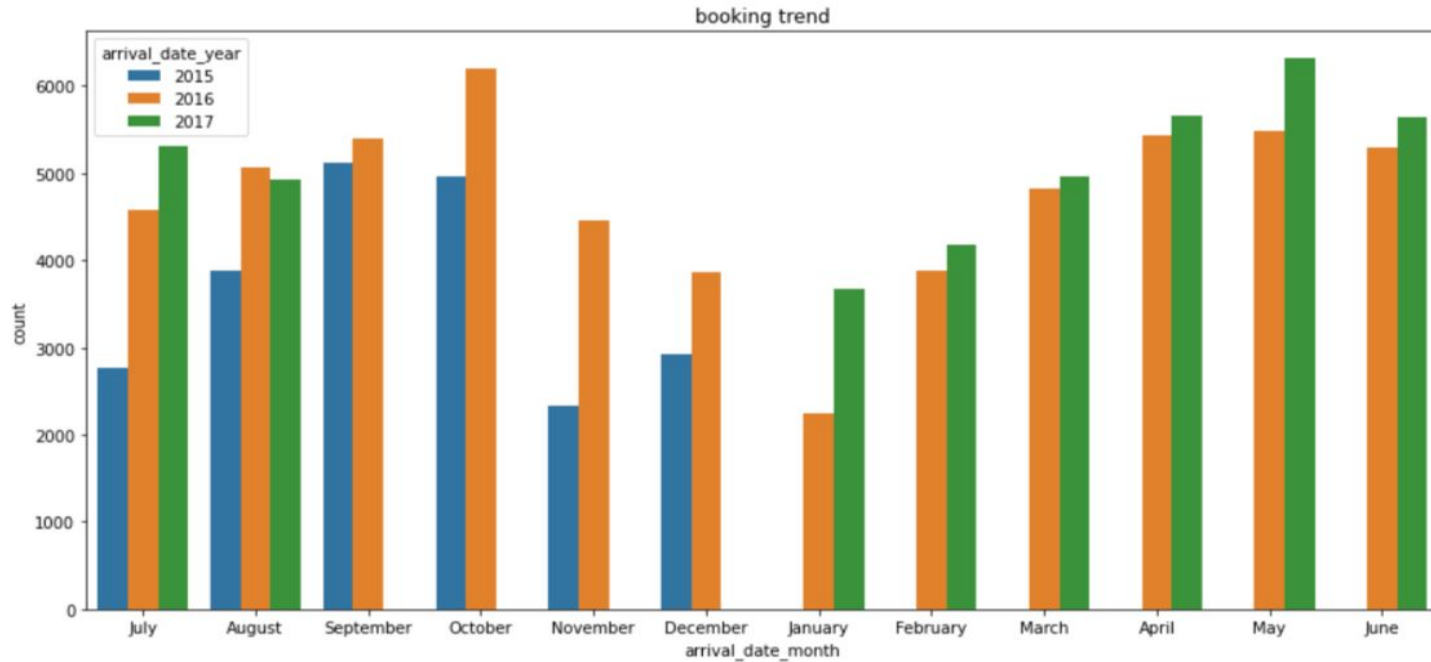- Third highest are corporate bookings - 5.5%
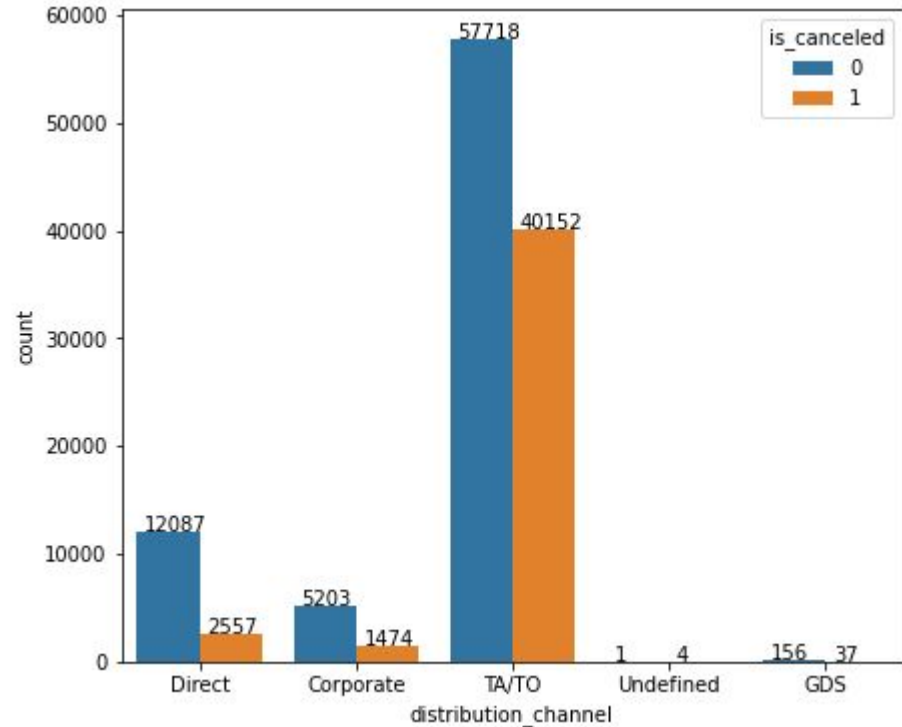
Lead Time and cancellations

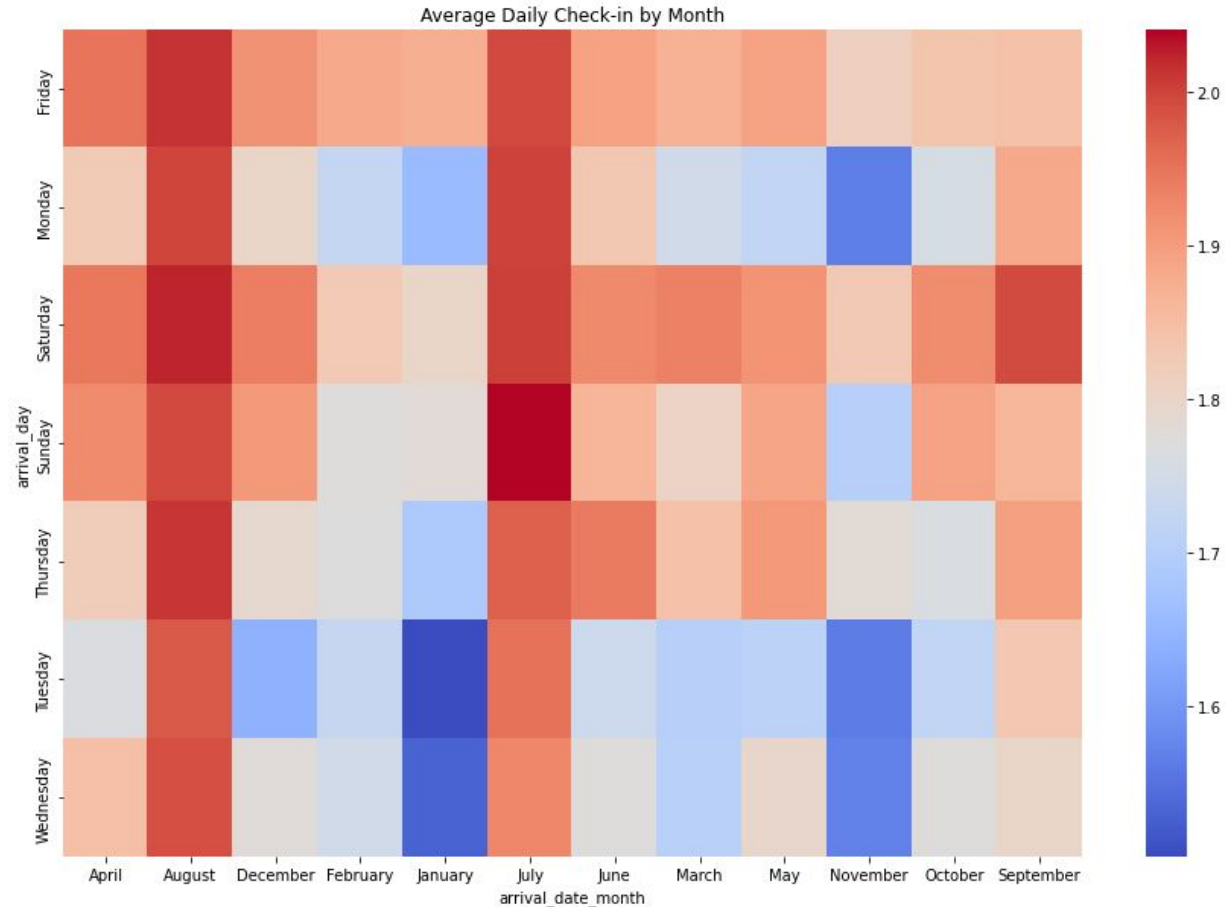- Bookings with more than 150 days lead time mostly gets canceled

Booking Trend

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

Average Daily Check-in by Month

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

Money spent EDA
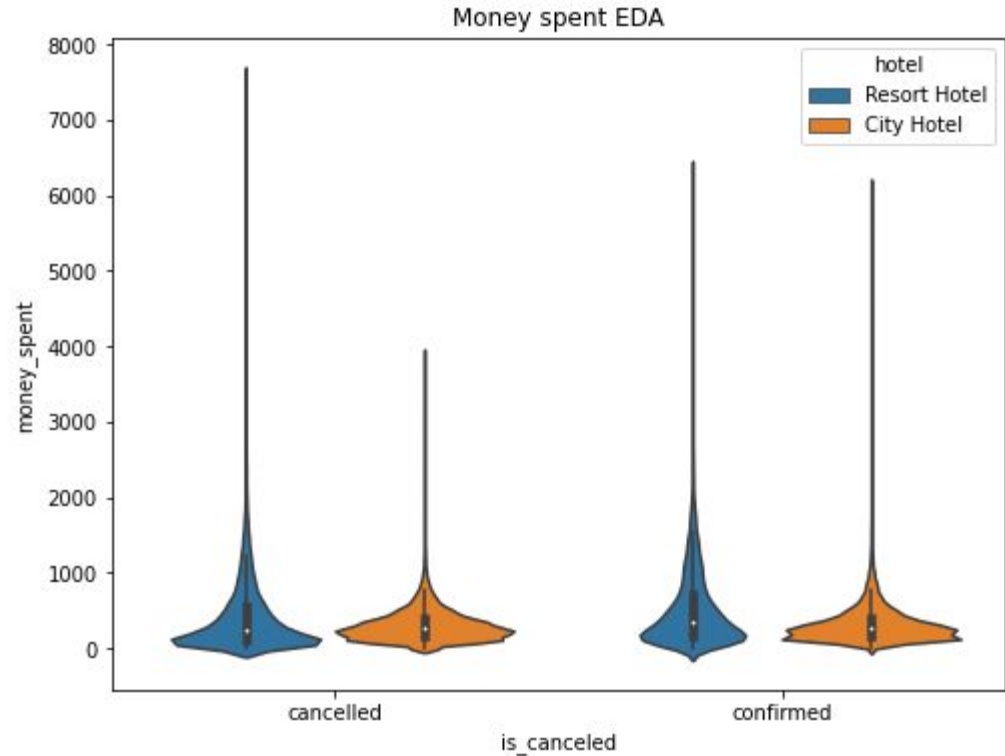
Previous Cancellations

- 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 busy months