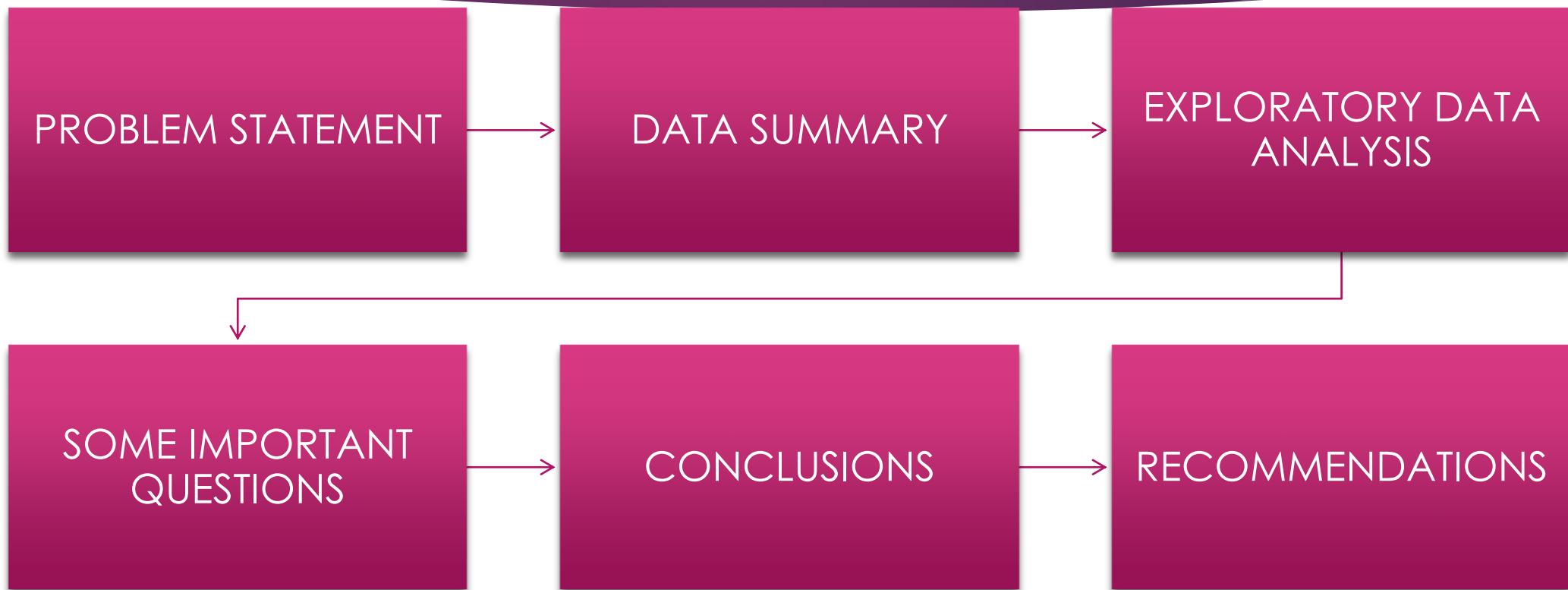


Hotel Booking Price Analysis



PREPARED BY
MOHIT KEDIA

CONTENTS



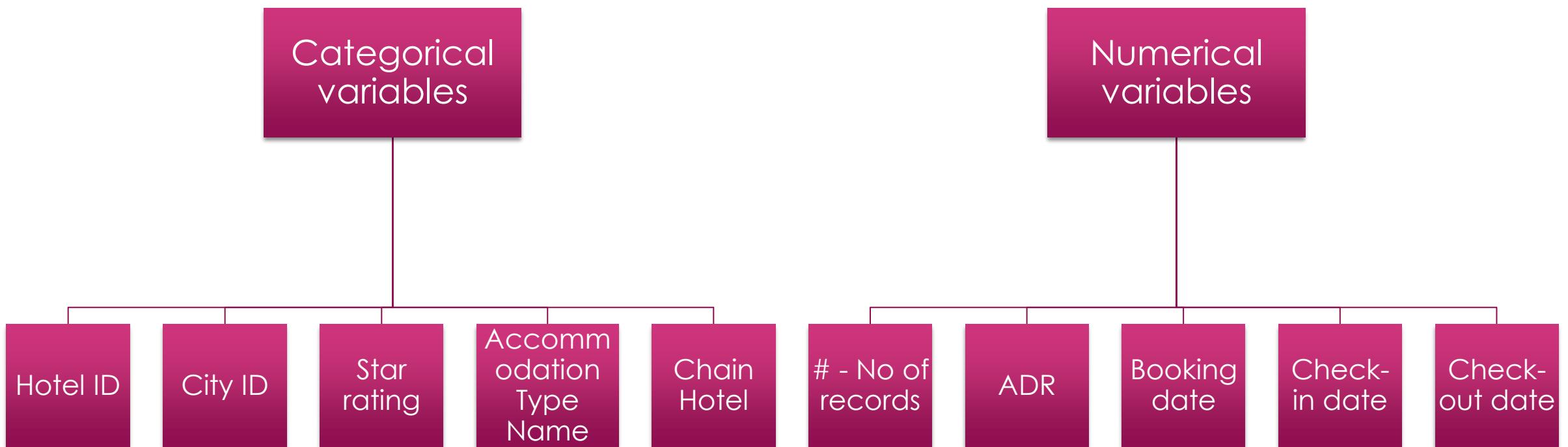
PROBLEM STATEMENT

Increasing Bookings And Conversion Rate at Agoda platform by using CTA or urgency messages.

The primary objective is to understand the hotel price movement as the day approaches the check in date.

We will do exploratory data analysis to explore different factors affecting the price and then come up with some conclusions.

DATA SUMMARY



EXPLORATORY DATA ANALYSIS

Data Importing and
cleaning

Data Manipulation

Data Visualization

Amount of
nights
booked

Check-in
day

Check-out
day

Days
before
check-in

Customer
Total
Amount

AVG_ADR

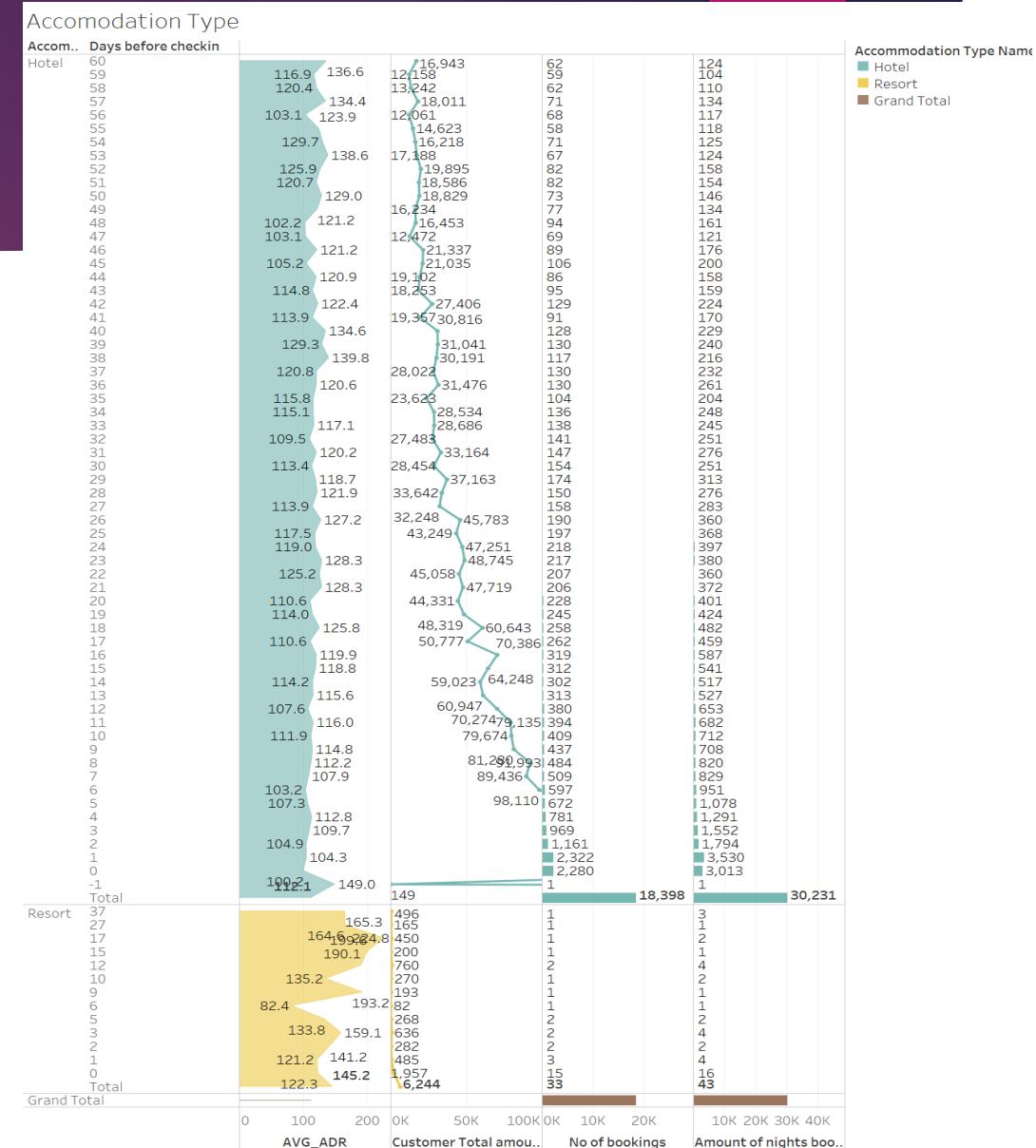
Weekend/
Weekday

Accommodation Type in City A

No significant trend observed in price movement or ADR as day approaches check-in date across Hotel and Resort.

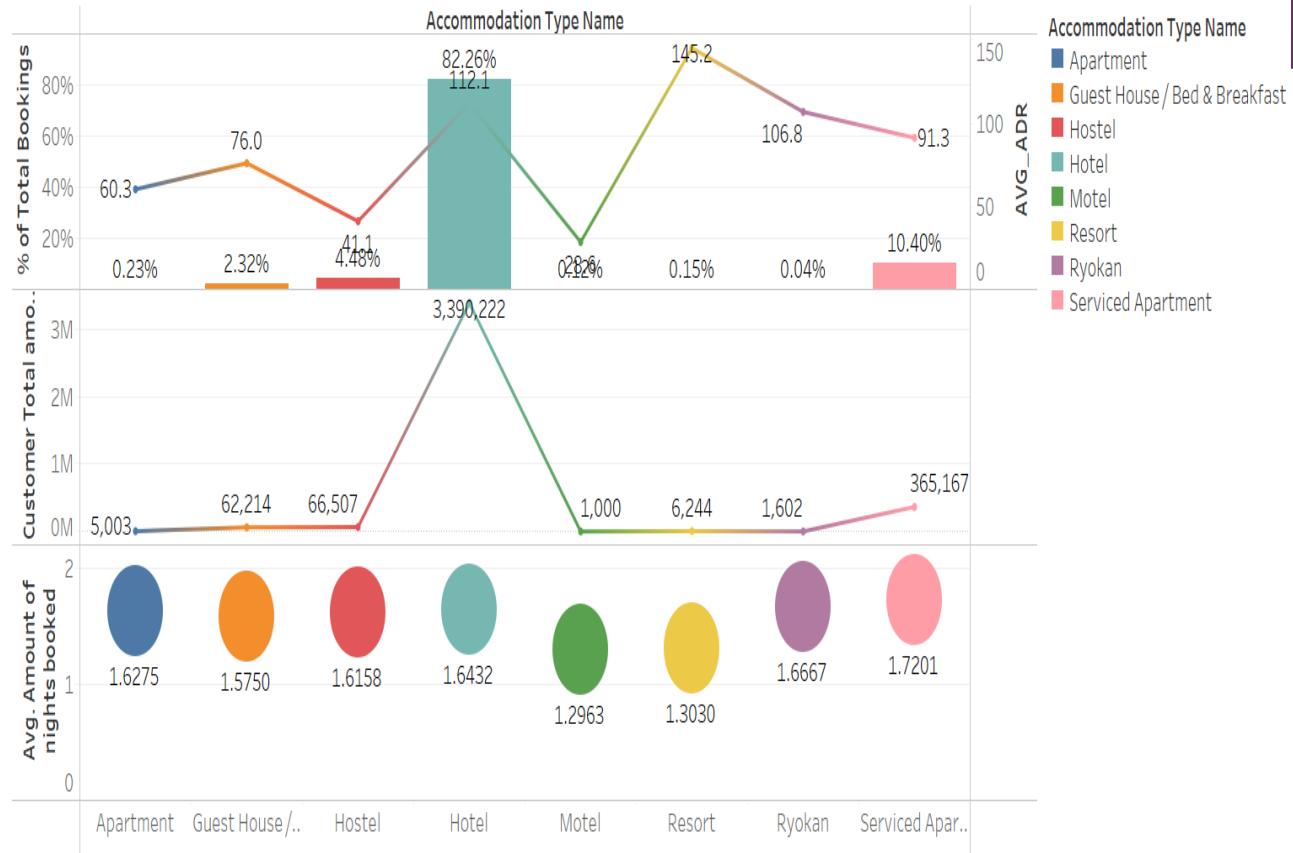
Significant increase in revenue or customer amount paid for Hotel as compared to Resort.

No of bookings and room nights increases as check-in date approaches for both.



Hotels have highest % of bookings with high ADR in City A

Metrics by Accommodation Type



The trends of % of Total Count of City_A, AVG_ADR, sum of Customer Total amount USD and average of Amount of nights booked for Accommodation Type Name. Color shows details about Accommodation Type Name.

Resort have the highest ADR of 145.2 followed by Hotel , Ryokan, Serviced Apartment while Motel has least ADR.

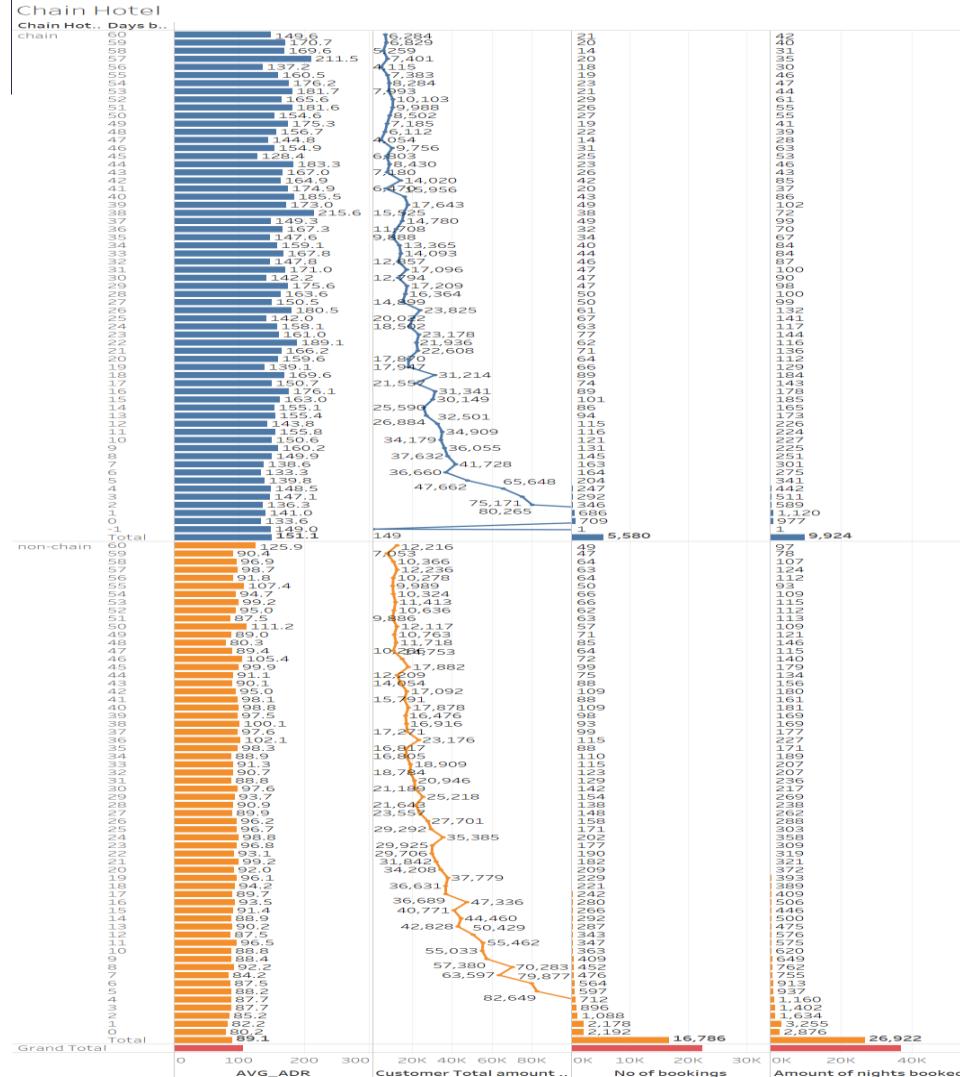
Hotels received 82% of total bookings and highest total payment across all Accommodation types.

Average length of stay is maximum for Serviced Apartment and minimum for Motel.

Despite having high ADR, total room revenue from Resort is not satisfactory.

Serviced Apartment is 2nd most preferred accommodation type.

Chain / Non-chain Hotel in City A



Non-chain hotel shows a decline in ADR or price as compared to Chain hotel as check-in date comes closer.

No of bookings and amount of room nights booked is significantly higher for Non-chain hotel as day approaches check-in date.

Total room revenue increases for both but Non-chain hotel shares higher chunk.

Average ADR for chain hotel is close to 150 while for non-chain hotel its less than 100.

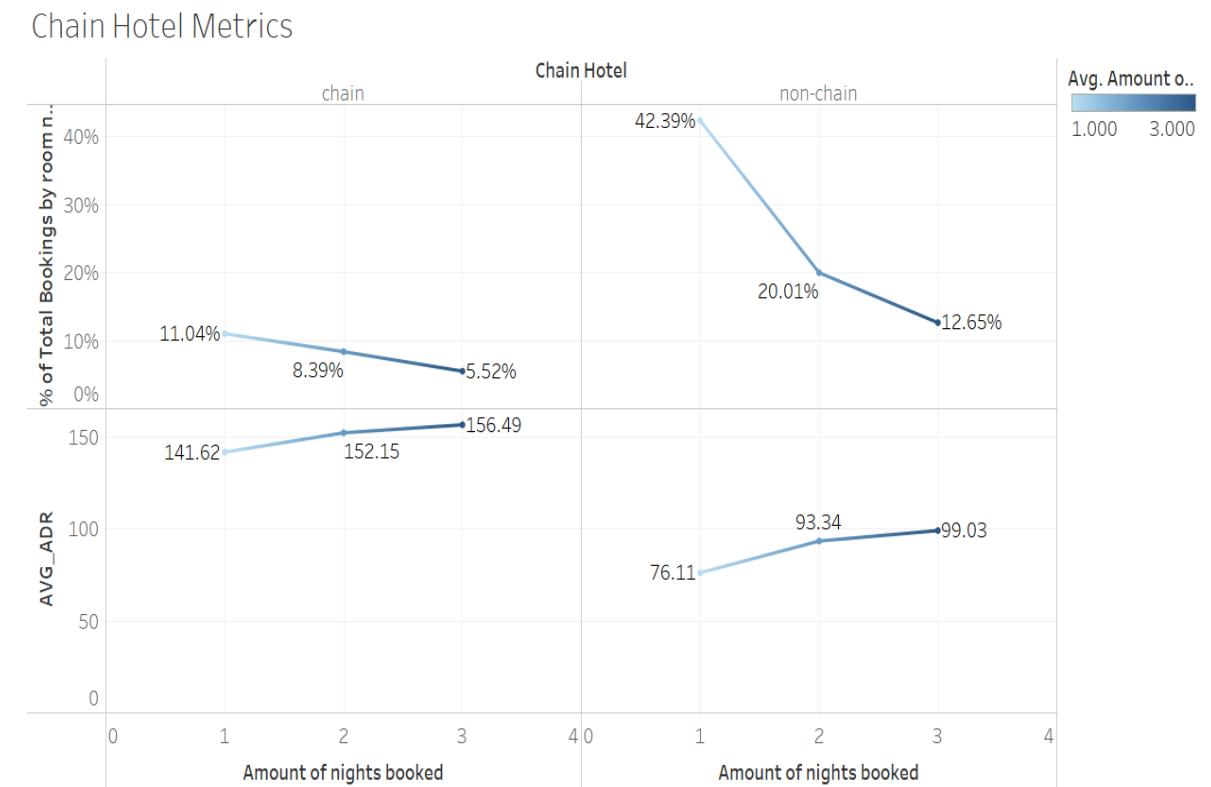
More than 50% of bookings are of 1 night stay in City A

In 42% of the cases, customers prefer 1 night stay at non-chain hotel while in just 11% of cases, they prefer 1 night stay at chain hotels.

Non-chain hotels also has significant 32% of the bookings with more than 1 night stay.

Chain hotels just has approx 14% of bookings with 2 or 3 night stays.

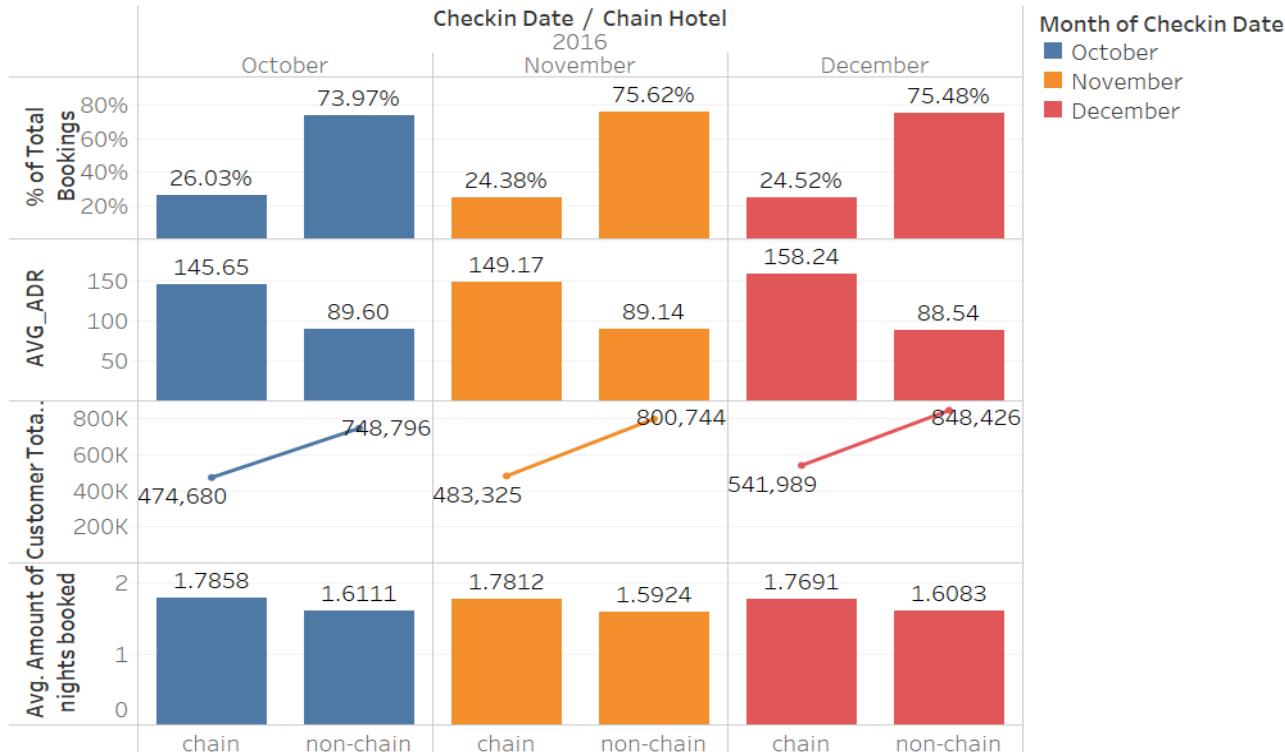
Avg ADR increases with amount of nights booked for both chain and non-chain hotels



The trends of % of Total Count of City_A and AVG_ADR for Amount of nights booked broken down by Chain Hotel. Color shows average of Amount of nights booked.

Check-in Month vs Chain Hotel in City A

Checkin Date and Chain Hotel



The trends of % of Total Count of City_A, AVG_ADR, sum of Customer Total amount USD and average of Amount of nights booked for Chain Hotel broken down by Checkin Date Year and Checkin Date Month. Color shows details about Checkin Date Month.

Average ADR for chain hotel increases gradually from Oct-Dec whereas it decreases for Non-chain hotel.

Chain hotel is quite expensive.

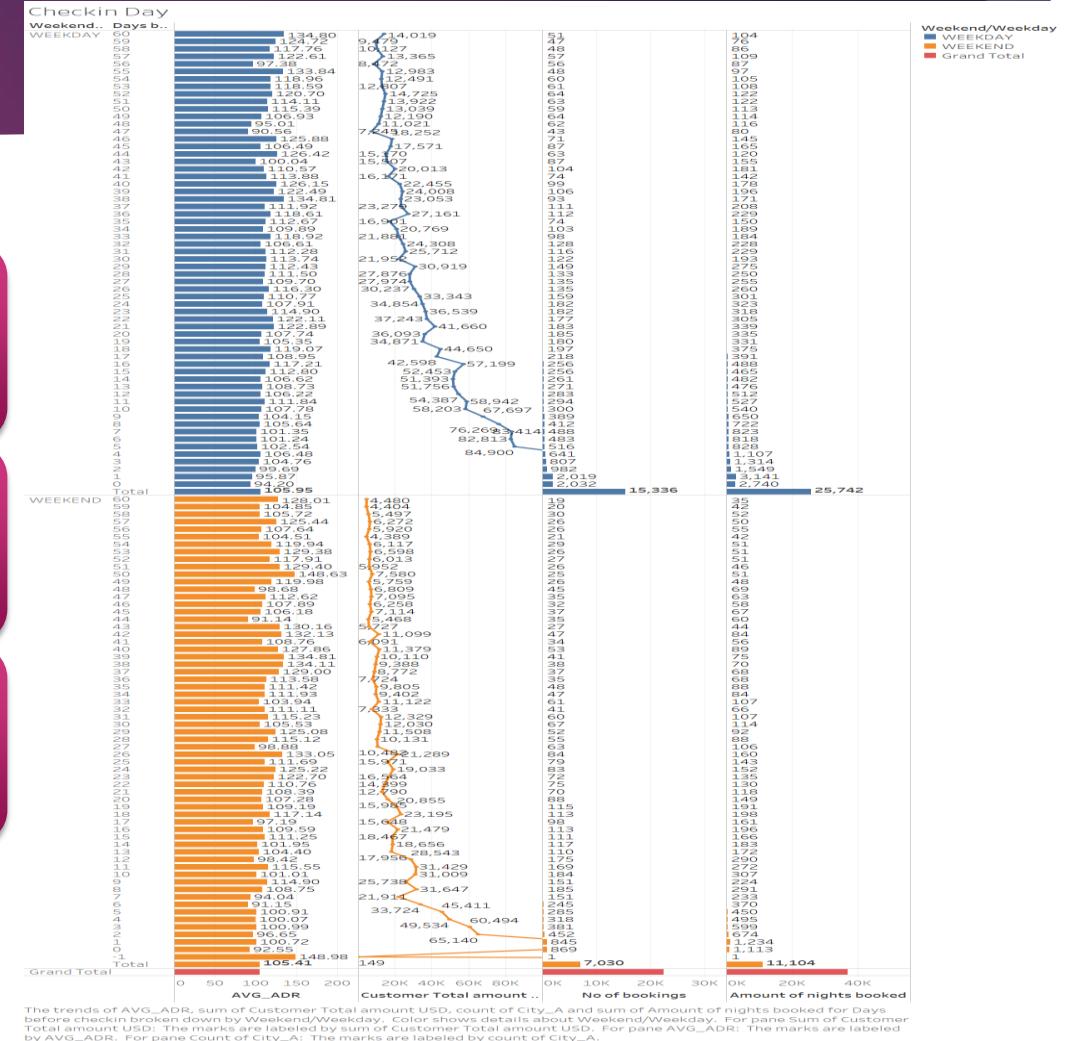
Despite having significant higher bookings across all Check-in Months, avg length of stay is lower for non-chain hotel.

People generally prefer to travel on Weekdays as compared to Weekends in City A

Average ADR is showing similar variation or movement on both Weekends and Weekdays

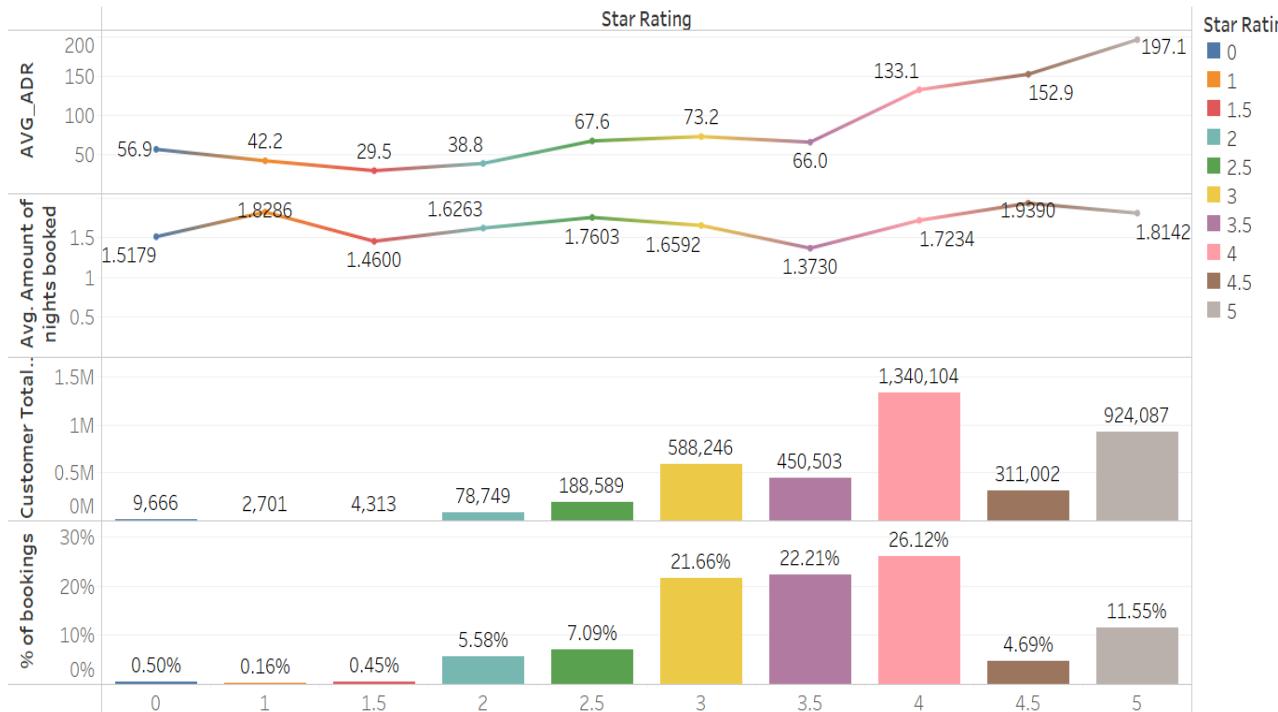
People generally prefer to travel on Weekdays as compared to Weekends.

Total room revenue or customers amount paid is increasing gradually towards the check-in date on both weekends and weekdays.



Higher ADR and higher % bookings for top rated properties in City A

Metrics by star rating



Properties with star rating ≥ 4 has more than twice the average ADR as compared to those with < 4 .

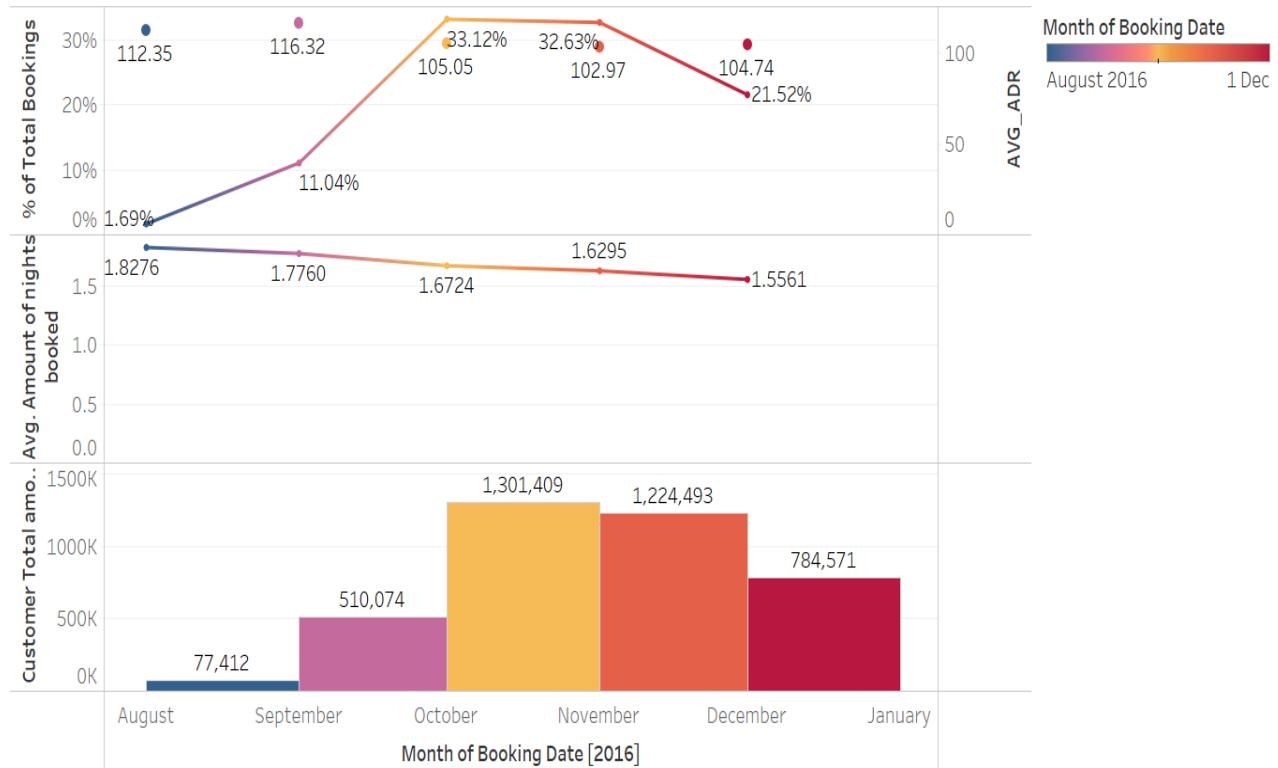
Avg length of stay is maximum for property with rating of 4.5.

Property with 4 star rating has highest % booking of 26% and maximum room revenue.

The trends of AVG_ADR, average of Amount of nights booked, sum of Customer Total amount USD and % of Total Count of City_A for Star Rating. Color shows details about Star Rating.

Average length of stay decreases with Booking Month in City A

Metrics by booking Month



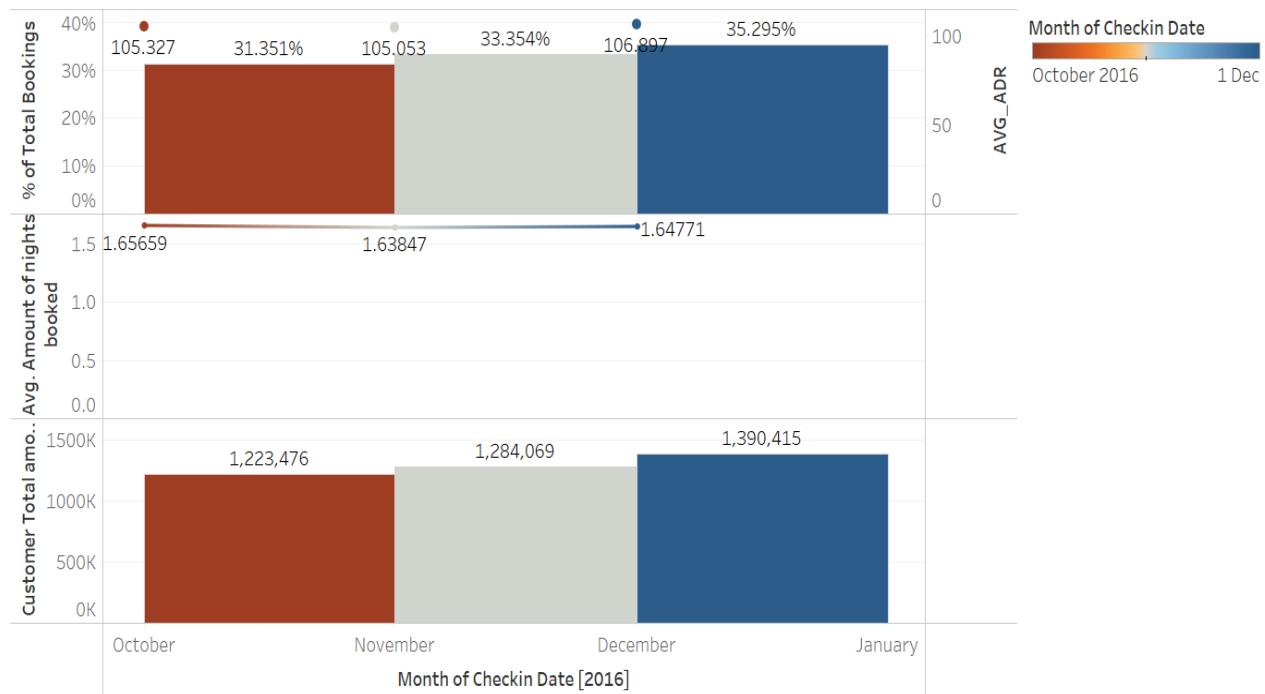
Average amount of nights booked is highest for Booking done on Aug and decreases gradually for rest of months.

Total room revenue & %bookings is highest for Booking done on October.

The trends of % of Total Count of City_A, AVG_ADR, average of Amount of nights booked and sum of Customer Total amount USD for Booking Date Month. Color shows details about Booking Date Month.

Metrics movement with Check-in Month in City A

Metrics by Checkin Month



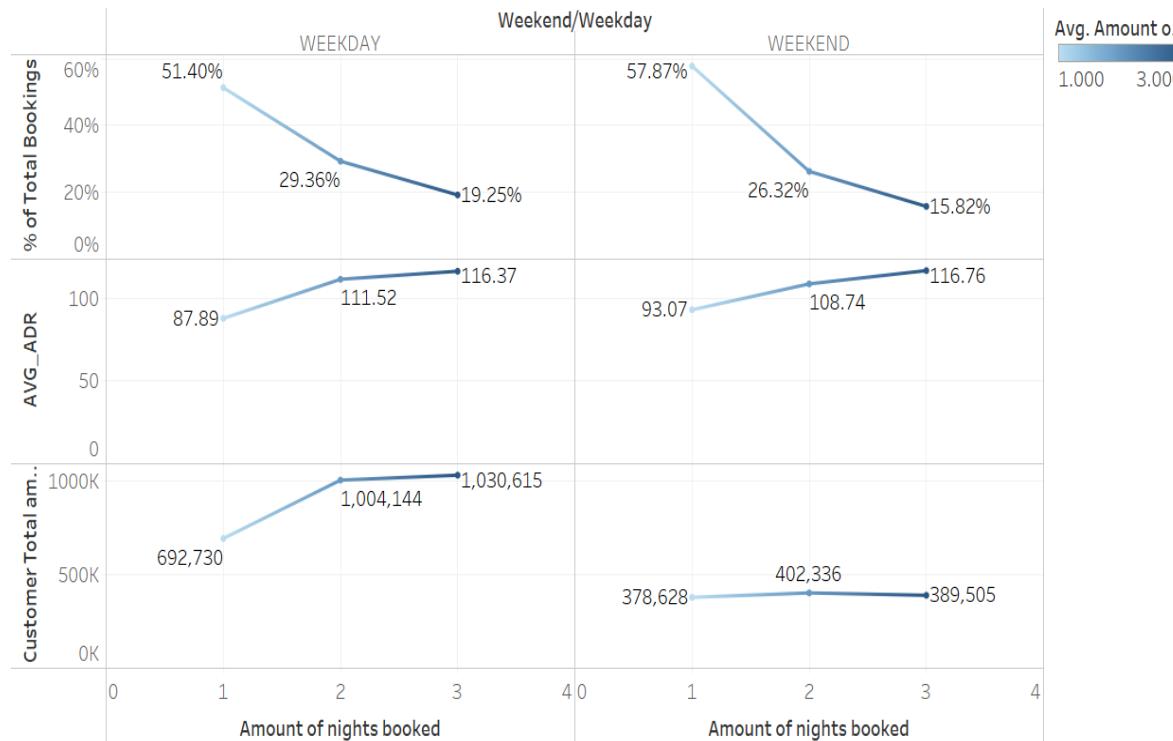
% of bookings increases gradually with Check-in Month.

December has highest Average ADR and Total room revenue .

The trends of % of Total Count of City_A, AVG_ADR, average of Amount of nights booked and sum of Customer Total amount USD for Checkin Date Month. Color shows details about Checkin Date Month.

Shorter stays preferred on weekend compared to weekdays in City A

Weekend/Weekday insights



The trends of % of Total Count of City_A, AVG_ADR and sum of Customer Total amount USD for Amount of nights booked broken down by Weekend/Weekday. Color shows average of Amount of nights booked.

Average ADR is directly proportional to Amount of nights booked on both weekday as well as weekends.

Majority chunk of room revenues comes from multiple night stays although its booking % is low compared to one night stay.

People tends to book one night stays slightly higher on weekend compared to weekdays

Price movement before check-in date for City B,C,D,E

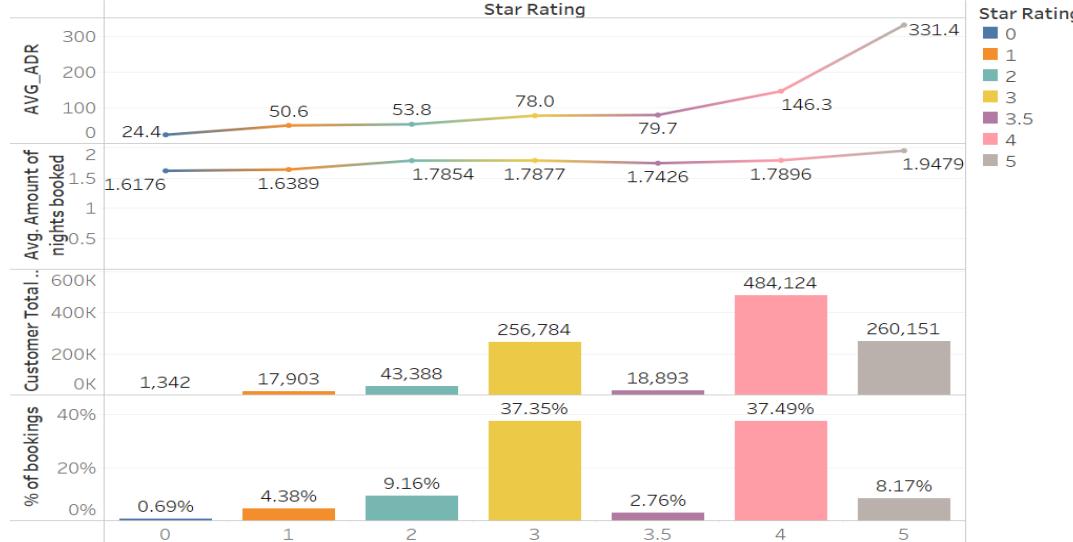
Similar kind of no fixed trend is observed in movement of ADR or price before the day approaches the check-in date for cities B,C,D and E. On some cases, its slightly increasing while in other cases its decreasing.

Movement was observed across Accommodation types, chain/non-chain hotel, property star rating, Check-in Month, Weekend/Weekday and hotel ids.

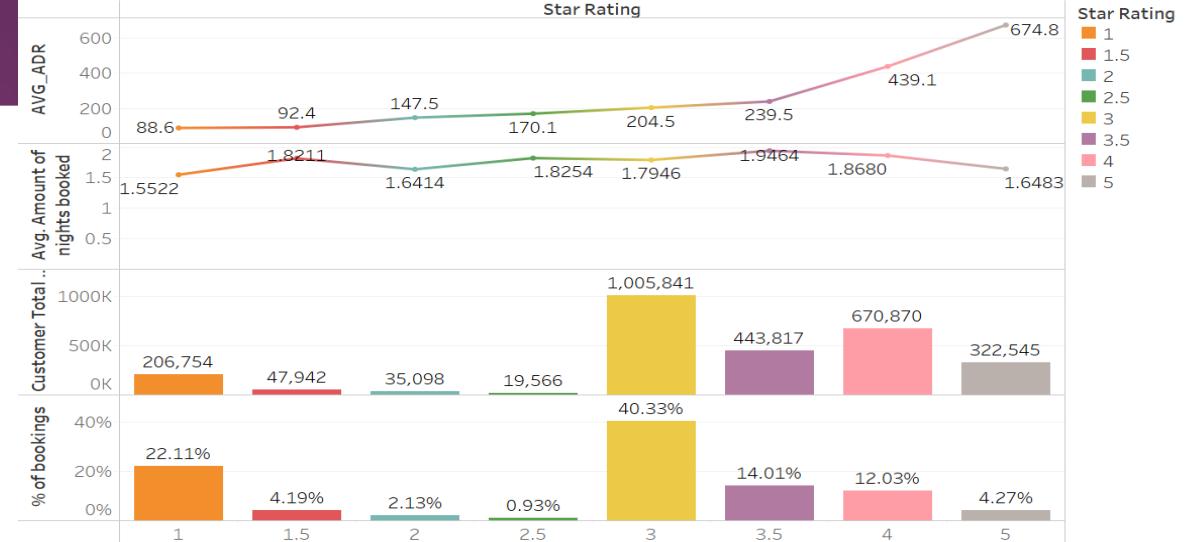
This trend is different for room revenue, no of bookings and no of room nights which is showing a gradual increasing curve before the day approaches the check-in date for cities B,C,D and E across all the variables.

Higher ADR and higher % bookings for top rated properties in City B and C

Metrics by star rating



Metrics by star rating



Higher Avg ADR for higher property ratings

Property with rating 4 has highest % bookings and room revenue

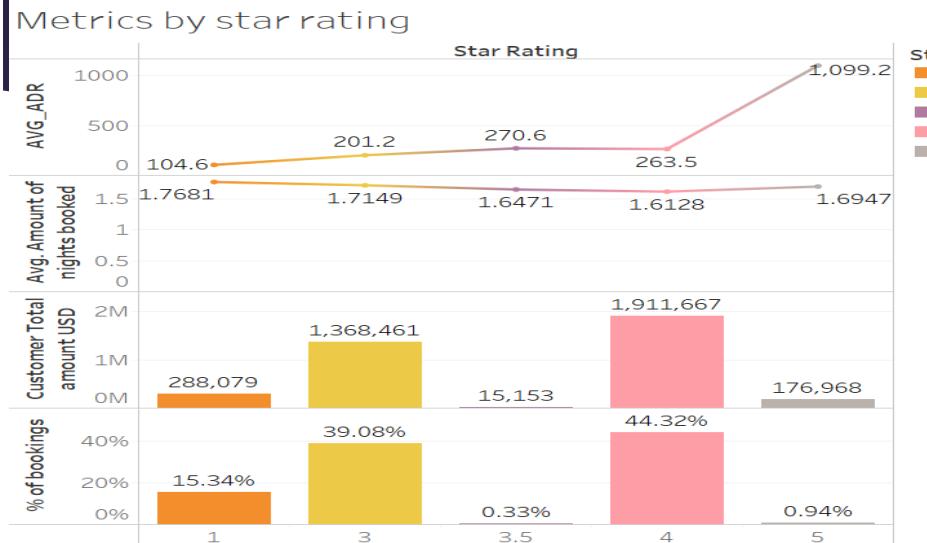
Avg length of stay is maximum for 5 star property but due to high ADR, low bookings % in City B

ADR is directly proportional to star ratings

Property with rating 3 has maximum bookings and room revenue

Property with rating 1 has second largest bookings of 22% in City C

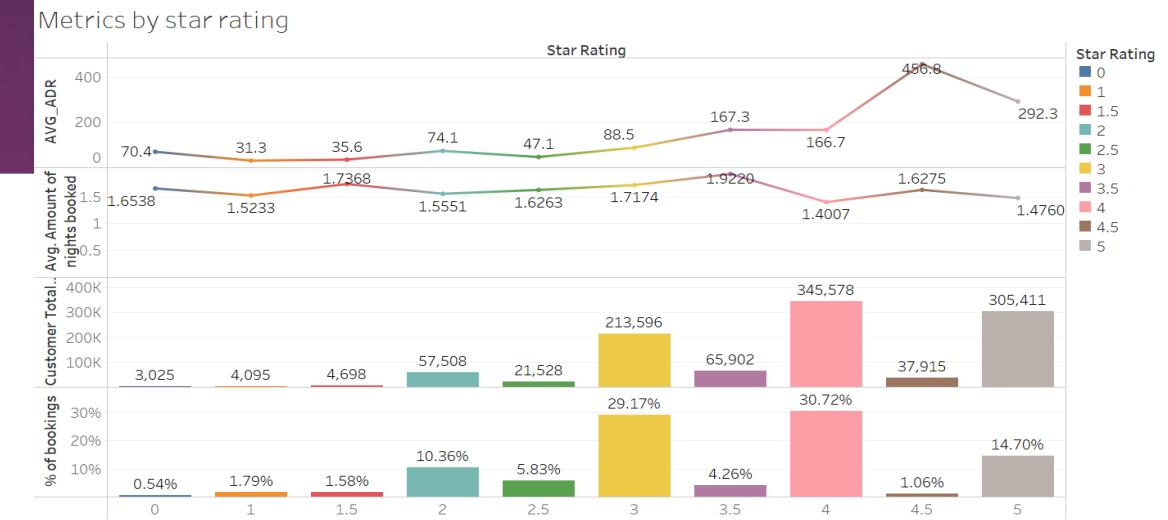
Metrics movement by property rating in cities D and E



Higher Avg ADR for higher property ratings

Property with rating 4 has highest % bookings and room revenue followed by rating 3 in City D

Avg length of stay is maximum for 1 star property but decreasing afterwards till rating 4



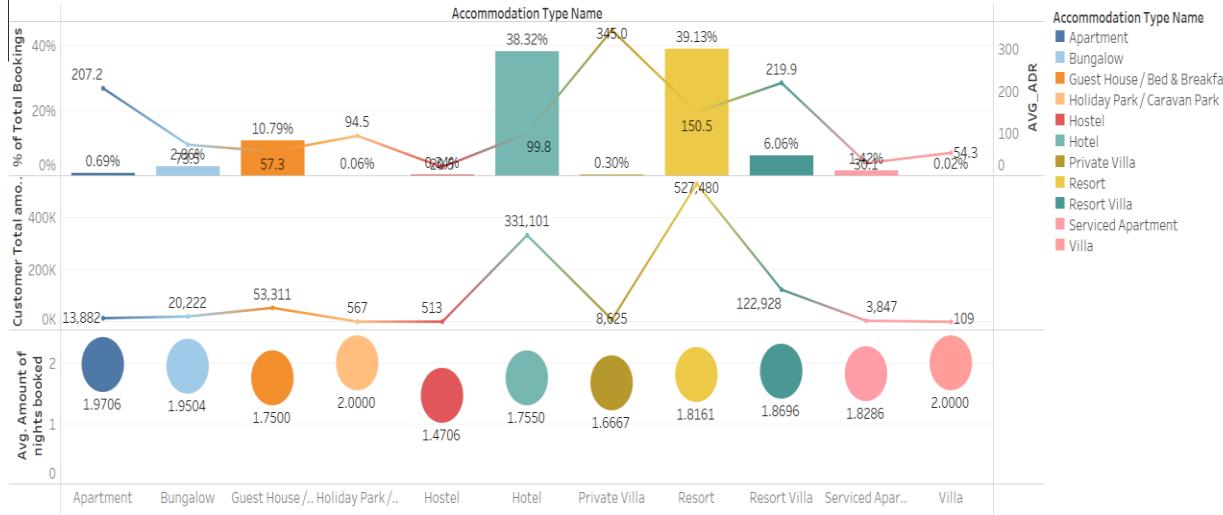
ADR is increasing gradually from 2.5 – 4.5 property rating in City E

Property with rating 4 has maximum bookings and room revenue

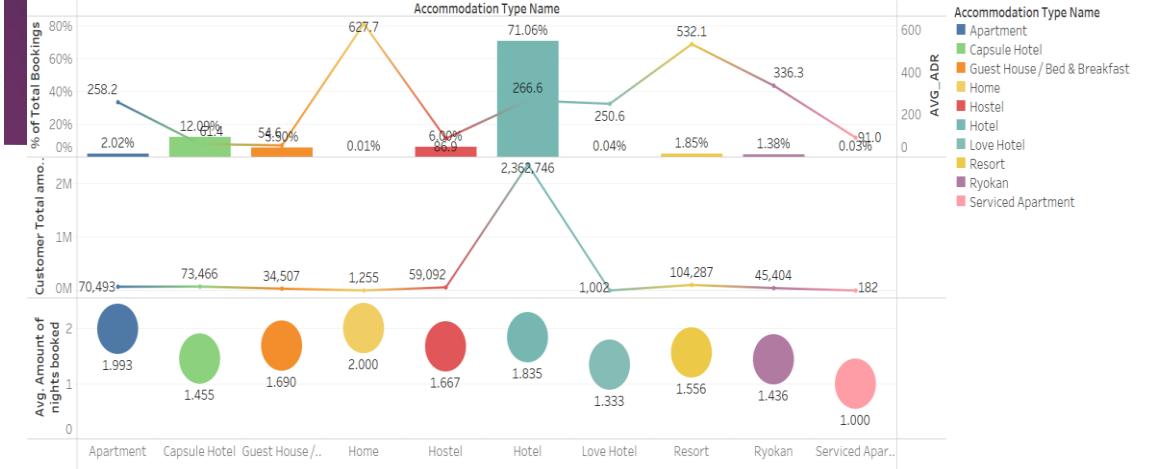
80% of bookings is for star rating ≥ 3

Metrics by Accommodation Type in City B and C

Metrics by Accommodation Type



Metrics by Accommodation Type



The trends of % of Total Count of City_C, AVG_ADR, sum of Customer Total amount USD and average of Amount of nights booked for Accommodation Type Name. Color shows details about Accommodation Type Name.

Resort are the most preferred accommodation in City B with 39% of bookings followed by Hotel

Private Villa is most expensive followed by Resort Villa while Hostel and Serviced Apartment are cheapest option

Avg length of stay is highest at Villa and Holiday Park

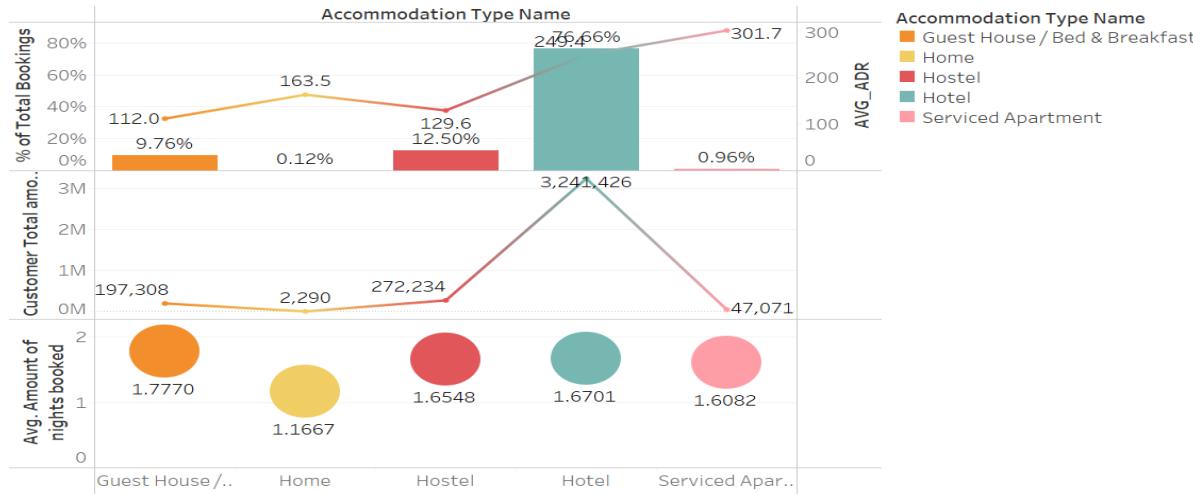
More than 70% of bookings are at the Hotel in City C

Avg ADR is highest for Home followed by Resort and minimum for Guest House and Capsule Hotel

People generally book 1 night at Serviced Apartment and approx 2 nights at Apartment, Home and Hotel

Metrics by Accommodation Type in City D and E

Metrics by Accommodation Type

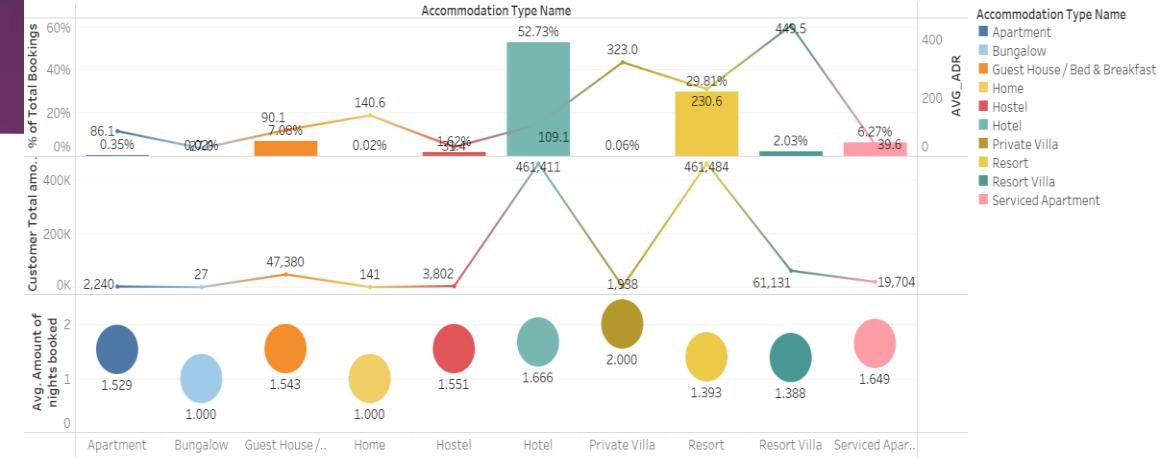


Hotel are the most preferred accommodation in City D with 77 % of bookings followed By Hostel

Serviced Apartment is most expensive followed by Hotel while Hostel and Guest House are the cheapest option

Avg length of stay is highest at Guest House and Hotel

Metrics by Accommodation Type



The trends of % of Total Count of City_E, AVG_ADR, sum of Customer Total amount USD and average of Amount of nights booked for Accommodation Type Name. Color shows details about Accommodation Type Name.

More than 50% of bookings are at the Hotel followed by 30% at Resort in City E

Avg ADR is highest for Resort Villa followed by Private Villa and minimum for Hostel, Bungalow and Serviced Apartment

People generally book 1 night at Bungalow and Home and approx 2 nights at Private Villa

Avg ADR / Room price is higher on weekend for 1 and 2 nights in City B and C

Weekend/Weekday insights

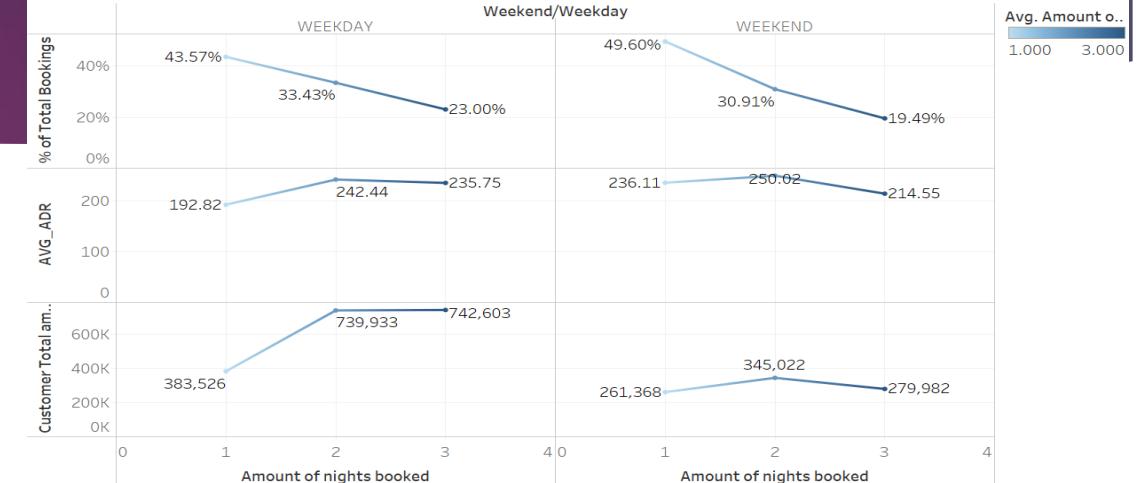


Average ADR or Room price per night is higher on Weekend against Weekday irrespective of length of stay in City B

People prefer 1 night stay more on weekend against weekdays

Maximum room revenue is from 2 nights booked on both weekday and weekend

Weekend/Weekday insights



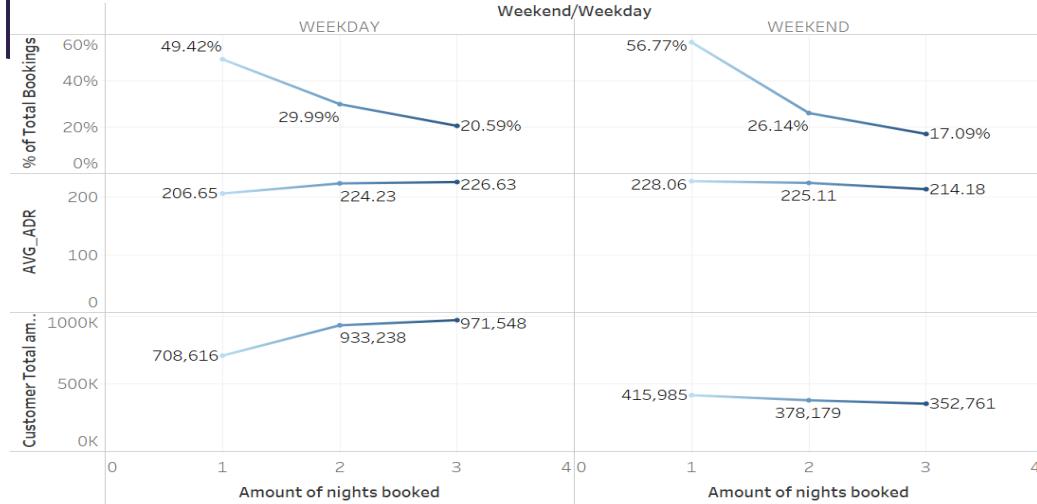
Average ADR is higher on weekend for 1 or 2 night stays except 3 night stays in City C

People prefer multiple night stays on weekdays and single night on weekend

Maximum room revenue is from 2 night stays on weekend and 3 night stays on weekday

Comparing weekend and weekday in City D and E

Weekend/Weekday insights

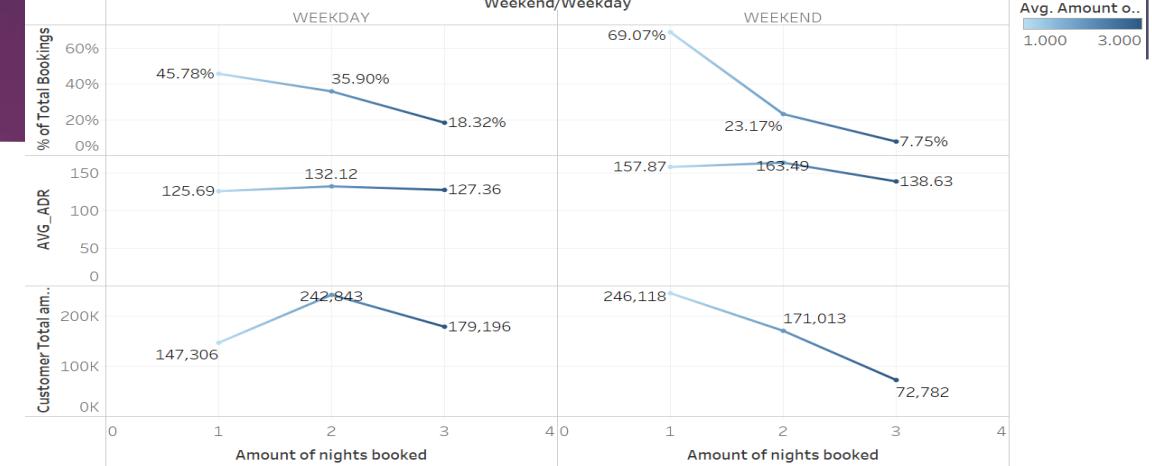


Average ADR or Room price per night is higher on Weekend for 1 or 2 night stays in City D

People mostly prefer 1 night stay on weekend against weekdays

Room revenue increases with length of stay on weekdays and decreases on weekends

Weekend/Weekday insights



The trends of % of Total Count of City_E, AVG_ADR and sum of Customer Total amount USD for Amount of nights booked broken down by Weekend/Weekday. Color shows average of Amount of nights booked.

Average ADR is higher on weekend against weekday for all length of stay in City E

People highly prefer 1 night stay and least prefer 3 night stays on weekend

Weekdays observe higher multiple nights bookings compared to single night bookings.

SOME IMPORTANT QUESTIONS

- **At which part of the funnel should the CTA or Urgency message be implemented ?**
- Urgency in customers mind should be created the moment they land on search results page with list of properties , their room prices and CTAs for some properties . That will force users to click on a particular property with urgency messages. When a user lands into property details page, we can still show the message via notifications at the top or at the property details. After clicking on book now or reserve button, user lands into booking form page where they have to enter their customer details and payment details. We still need to create urgency at this page too but with a different message like '**We have limited availability at this price – Book Now to lock in your rates**'. We will talk about the messages and how to implement it in recommendations.
- **What assumptions are you making about the data ?**
- Data is at a booking level and its clean.
- **What factors play a role on price in this analysis ?**
- Days before checkin
- Accommodation Type
- Chain/Non-Chain hotel
- Check-in Month
- Check-in Day : Weekend/Weekday

SOME IMPORTANT QUESTIONS (contd.)

- ❑ Property Star Rating
- ❑ Hotel Id
- ❑ Amount of nights booked
- ❑ Booking Date or Month
- **What other factors may influence the analysis ?**
- ❑ Total no of available rooms : Total no of rooms – Rooms out of inventory
- ❑ Occupancy rate
- ❑ Competition with other OTAs
- ❑ Cost per occupied room (Fixed + Variable)
- ❑ Customer rating/Guest rating
- ❑ Room or property amenities offered
- ❑ Payment options – Pay online or pay at the hotel
- ❑ Bed type : Single/Double/King
- ❑ Location rating

SOME IMPORTANT QUESTIONS (contd.)

- ❑ Hotel brands
- ❑ Nearby popular attractions
- ❑ Deals or discounts offered
- ❑ No of bedrooms
- ❑ Room Types and Size : Superior , Deluxe, Club, Family etc
- ❑ Free cancellation or refund policy
- ❑ Proximity to Airport, Public transporation, Hospitals, ATMs etc
- ❑ No of guests
- ❑ Local taxes or surcharges
- ❑ Type of customers like Business, Tourists, Government etc
- ❑ Market conditions or industry changes
- ❑ Currency exchange rate
- ❑ External factors like weather, natural calamity, covid, festivals etc.

CONCLUSIONS

Average ADR decreases for Apartment, Guest House, Hostel and Serviced Apartment while it increases for Ryokan as the day approaches the check-in date in City A

Average ADR increases for Apartment, Private Villa while it decreases for Hotel, Resort and Guest House as day approaches the check-in date in City B.

Non-chain hotel shows a decline in ADR or price as compared to Chain hotel as check-in date comes closer in City A,B,E

No of bookings and amount of room nights booked is significantly higher for Non-chain hotel as day approaches check-in date in City A,B,E

Check-in Date falling on weekdays has shown a declining price trend as day approaches the check-in date in Cities A,B and E and vice versa for City D and E.

Property with star rating ≥ 4 generally has increasing price movement as day approaches check-in date as compared to low rated properties across all cities.

People generally prefer to travel on Weekdays as compared to Weekends across all the cities. So most of the people travelling are business people and less people are travelling for spending holidays.

Hotels and Resort are most preferred properties with approx 82% bookings in City A, 77% in City B , 73 % in City C, 77% in City D and 80% in City E.

So overall, Hotels and Resorts are busier than other properties and carries majority of revenues.

Average Room price is higher for Resorts, Villas and Hotels in majority of cities.

CONCLUSIONS

Mostly guests stay for more than 1 or 2 nights at Villas, Resorts, Hotels and Apartments and very few stay for 1 night.

ADR for properties increases with star ratings for all cities except City E.

Guests prefer to stay for more than a night in property rated ≥ 3.5 in City A and B.

Non-chain hotel is highly popular in City A,B,D and E with more than 70% of total bookings and very high revenues as compared to Chain hotel.

Chain-hotel is equally popular to non-chain hotel in City C despite having very high ADR of close to 300 in all Check-in Months and brings majority of revenues.

People mostly prefer to stay for 1 night on weekend as compared to weekdays across all cities.

Majority of revenues comes from multiple night stays despite having low % bookings across all cities except City E where single night stay on weekend contributes maximum revenue.

Weekend has higher ADR compared to weekdays across all cities and amount of nights booked.

December is the most busiest and profitable month with highest % bookings, highest ADR and maximum room revenues across majority of the cities.

Avg ADR increases with amount of nights booked for both chain and non-chain hotels across majority of cities.

RECOMMENDATIONS

□ **Highlighting Property's popularity to potential guests :**

We can use certain urgency messages in search results page to let the guests know how popular the properties are :

- 20 people are viewing this hotel right now.
- 10 people have booked this room in last 24 hours.
- Most recent booking for this hotel was 10 min ago.

□ **Creating scarcity through low availability :** When a room is soon to be unavailable, this immediately becomes more desirable.

- Hurry ! Rooms are filling up
- Only 5 rooms left on this date, Book now.

□ **Offering limited time offer :** Limiting the offer to certain days, hours or minutes creates urgency.

- Hurry ! Just 5 rooms left at this price.
- Offer for this room will expire in 2 hours. Be quick and lock in your rate.

□ **Using certain terminologies :** Todays best deals, Most booked hotel/room, Best rated hotel, daily deals. We can show these keywords at top of search results page.

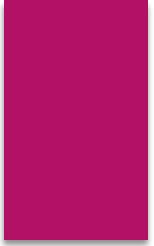
□ **Sending email to users who wanted to book a property :** We can send email to users who were interested in a property with certain discounts or offers if its available.

□ **Customizing urgency message or CTA :** We must use proper colors , fonts and placement/location of urgency messages or CTA buttons like Book Now / Reserve buttons using A/B testing.

□ **Send personalized email to users :** Based on user search preferences, we can send them personalized email or recommend them properties with similar amenities or room price

RECOMMENDATIONS

- ❑ **Using Demand based pricing :** From our analysis, we observed that there is no significant increase in price or ADR as day approaches the check-in date even though the no of bookings and total room nights has shown significant increase. So, for each days before check-in, we can analyze, bookings/demand and room price at that date. Then, using demand price curve and pricing model, we can maximize revenue by varying the price using Excel Solver add-in which will ultimately give us the optimal price by choosing price range as a constraint.
- ❑ **Targeting customers based on past booking history:** Chain hotels have higher ADR as compared to non-chain hotels. When a user searches for properties in a particular location, we can show them the properties similar to their past bookings like Star rating, accommodation types, chain hotel, room amenities, guest reviews, Room type, Room price, cancellation/refund policy etc. This will increase retention and therefore bookings.
- ❑ **Onboarding more hotels and resorts on Agoda platform:** Since more than 70-80% of bookings are at Hotels and Resorts across all cities, we can try increasing our inventory of Hotels and Resorts, offering variety of choices to customers and smartly distribute the prices at a wholesale rate for increasing bookings and revenues.
- ❑ **Special service for customers willing to spend more than 1 night :** People willing to spend more than a night at any property can be given special services or offers compared to 1 night stay. This will tempt users to spend more than a night if he books again and increase hotel revenues as ADR increases with Room nights booked.
- ❑ **Marketing Chain Hotels in Cities other than C :** Chain hotel is very popular in City C despite very high ADR. We can try to understand the reason of high bookings in City C and then accordingly increase their bookings in other cities as well.



THANK YOU