Demystifying Customer Satisfaction | Hyatt Corporation

Understanding KPI Drivers and Improving Net Promoter Score

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Agenda

Executive Summary

› We got data for 1 year across multiple categories including:

  » **Customer Aspects:** Contained customer demographics and profile information such as Age, Gender
  » **Booking Factors Information:** Contained data such as check-in date, length of stay and Type of room
  » **Hotel Details:** Hotel characteristics like the Hyatt Corporation brand, location, and available amenities
  » **Customer feedback:** detailed customer feedback on different aspects of the service, along with customer's eventual Likelihood to Recommend rating and NPS_Type

› The data was viewed from multiple angles and based on the above data we did extensive analysis of Hyatt's Performance and customers' feedback

› Using descriptive and advanced data analysis techniques we have been able to identify key levers for improving customer satisfaction and have impact on the NPS KPI

› The identified factors have been proved correct and powerful enough to accurately predict NPS score in 80%+ cases

› With these insights Hyatt group will be able to get actionable insights on how to improve NPS

I. Data and Key Performance Metrics

Given feedback on multiple columns, Based on feedback data , three key metrics available

Understanding the Available Data

Column Name	Definition
ROOM_TYPE_DESCRIPTION_C	Room type description (specific to the property) of the guest's room upon checkout
CHECK_IN_DATE_C	Check in date; for WALK status adjusted to the first in-house stay date
CHECK_OUT_DATE_C	Check out date
ADULT_NUM_C	Number of adults on the last day of the stay
CHILDREN_NUM_C	Number of children on the last day of the stay
POV_CODE_C	Purpose of visit
ENTRY_TIME_R	Time the reservation was made
NUM_ROOMS_R	Total number of rooms booked under the reservation
ADULT_NUM_R	Number of adults for which the reservation was made
CHILDREN_NUM_R	Number of children associated with the reservation
LENGTH_OF_STAY_R	Total length of stay (calculated as Departure Date minus Arrival Date) represented in days
Gender_H	Guest's gender
Age_Range_H	Guest's age range
Likelihood_Recommend_H	Likelihood to recommend metric; value on a 1 to 10 scale
Overall_Sat_H	Overall satisfaction metric; value on a 1 to 10 scale
Guest_Room_H	Guest room satisfaction metric; value on a 1 to 10 scale
Tranquility_H	Tranquility metric; value on a 1 to 10 scale
Condition_Hotel_H	Condition of hotel metric; value on a 1 to 10 scale
Customer_SVC_H	Quality of customer service metric; value on a 1 to 10 scale
Staff_Cared_H	Staff cared metric; value on a 1 to 10 scale
Internet_Sat_H	Internet satisfaction metric; value on a 1 to 10 scale
Check_In_H	Quality of the check in process metric; value on a 1 to 10 scale
City_PL	City in which the hotel is located
State_PL	State in which the hotel is located
Postal Code_PL	Zip code in which the hotel is located
Country_PL	Country in which the hotel is located
Brand_PL	Hotel's brand
Business Center_PL	Flag indicating if the hotel has a business center
Convention_PL	Flag indicating if the hotel has convention space
Golf_PL	Flag indicating if the hotel is near a golf space
Mini-Bar_PL	Flag indicating if the hotel has mini-bar
Pool-Outdoor_PL	Flag indicating if the hotel has an outdoor pool
Resort_PL	Flag indicating if the hotel is a resort
Shuttle Service_PL	Flag indicating if the hotel has shuttle service
Spa_PL	Flag indicating if the hotel has a spa
Valet Parking_PL	Flag indicating if the hotel has valet parking
Booking_Channel	Defined booking channel as per the NPS analysis
NPS_Type	Indicates if the guest's HySat responses mark them as a promoter, a passive, or a detractor

Relationship between Key Performance Indices(KPI's)

Likelihood_to_recommend vs. NPS_Type

Given we had two versions of customer feedback score: *NPS_Type* and *Likelihood_to_recommend,* the relationship between the two was first carefully examined Below table shows number of observations for each combination of the values:

		Likelihood to Recommend $\longrightarrow$									
		1	2	3	4	5	6	7	8	9	10
NPS_Type	Detractor	11628	11379	13891	13147	30404	28341	0	0	0	0
	Passive	0	0	0	0	0	0	56956	121365	0	0
	Promoter	0	0	0	0	0	0	0	0	201018	436249

Based on this analysis, it was established that Likelihood_to_recommend and NPS_Type are directly related.
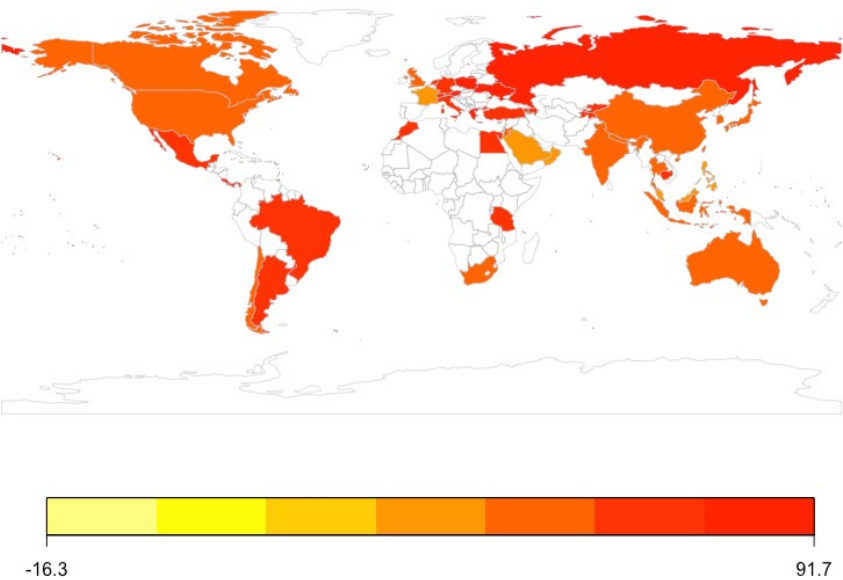

Net Promoter Score = % Promoters - % Detractors

II. Understanding Current Performance

Analysis of Countries

BQ 1. How is Hyatt doing overall in general? In the Hyatt dataset provided, after cleaning, what is the count or spread of customers worldwide with respect to different Purpose of Visit and the three NPS types?

Net Promoter Score by Country

Population by Country

Country Name	LTR	Population	NPS
Poland	9.65	48	91.67
Ukraine	9.48	378	88.10
Russia	9.36	1887	80.71
Greece	9.29	369	79.13
…	…	…	…
United States	8.65	744959	57.39
…	…	…	…
Philippines	8.20	1239	38.01
France	7.99	10241	34.15
Guam	7.90	1503	27.28
Jamaica	6.23	92	-16.30

-16.3   91.7

Number of Reservations by Country

- Key Observations and Insights:
- Average NPS across all countries has been found to be 60.69% (average LTR 8.76)
- Poland is having the highest NPS 91% (average LTR of 9.64)
- Jamaica having the lowest NPS -16% (average LTR of 6.22)

- Observations:
- United States has the highest number of reservations which accounted for 81% percentage of total reservations. Observations in many other countries are significantly less
- There is scope for improvement in general for Hyatt Corporation
- United States brings in most business to Hyatt group and there is scope for improving performance as its NPS score is 57% and is lower than average NPS score of 61%.
- Further, Hyatt has a good opportunity to analyze expanding its presence in countries outside the United States, as currently it has very low presence outside United States including countries which are bigger and more populous than USA (India and China).
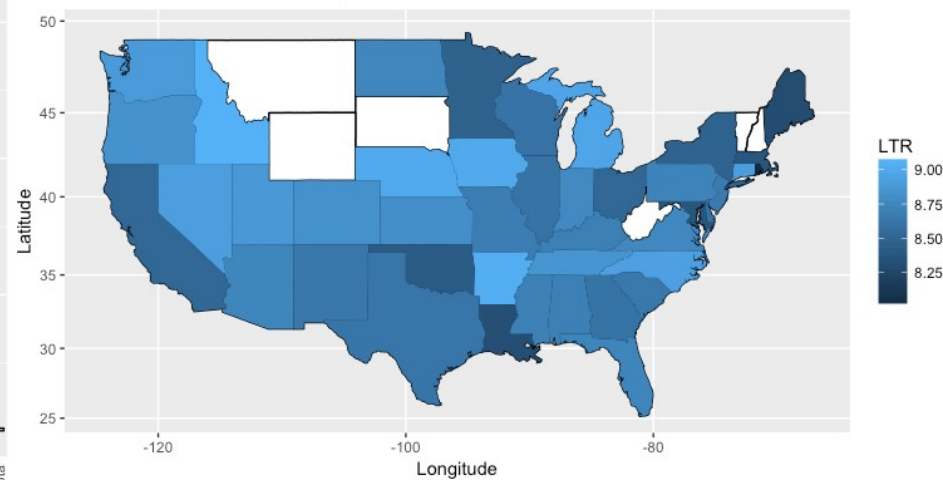
III. Understanding Current Performance
Analysis of States of the USA

Number of Reservations by States of the USA
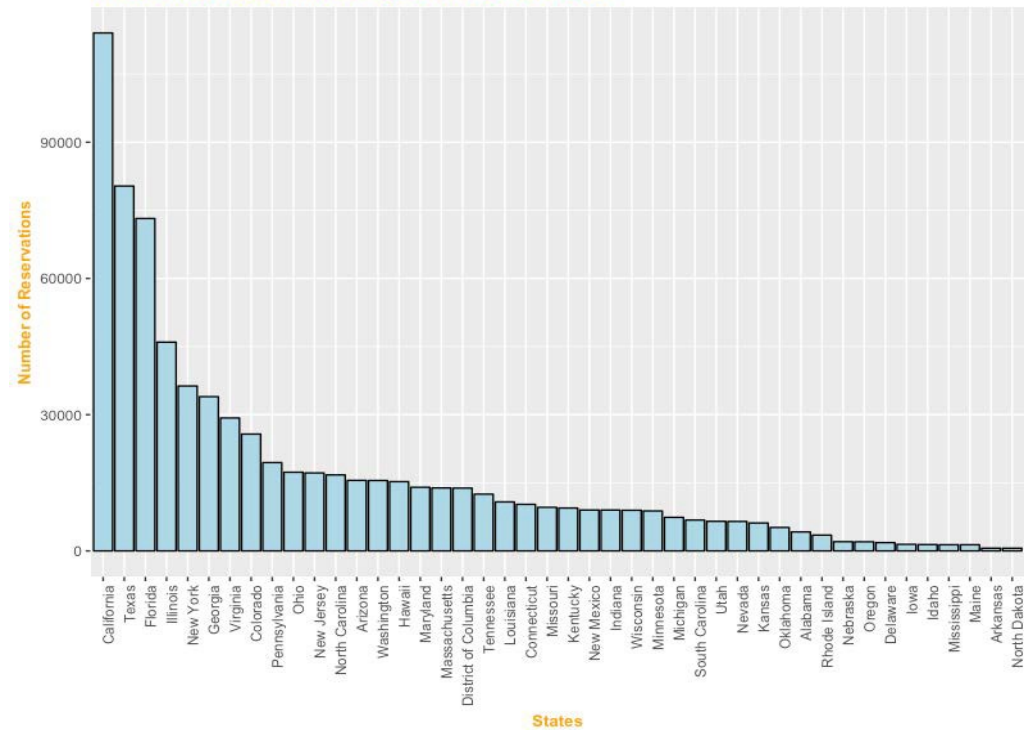
Likelihood to Recommend by States in the USA

ACTION POINTS

- In United States, for fastest gains, Hyatt must of focus on states of Colorado, Virginia and Florida as their average LTR is very close to 9 and they are amongst the top most contributors by reservation counts after California.
- Bigger states of California and Texas have highest reservation count of 114,063
- the State of 'California' as it provided the most population for doing data analysis.
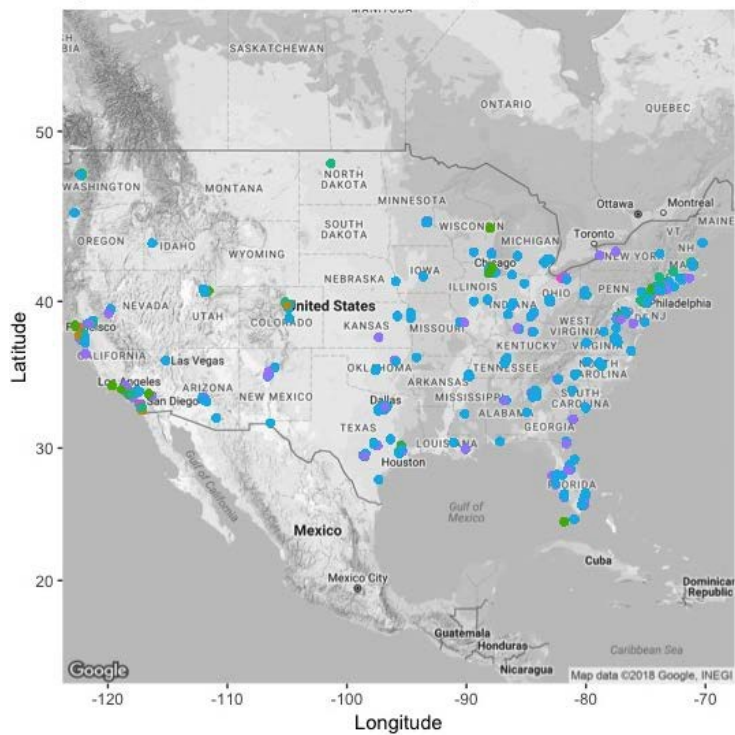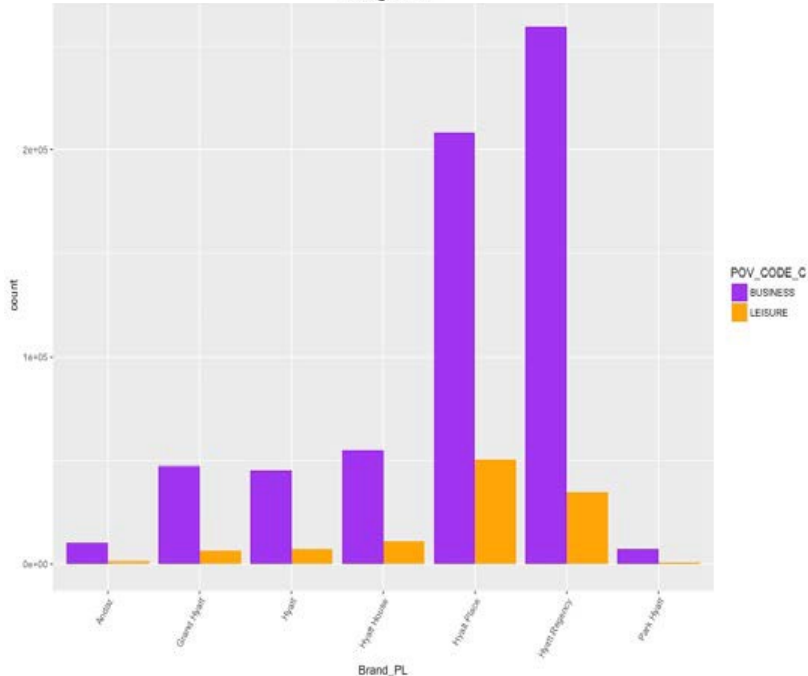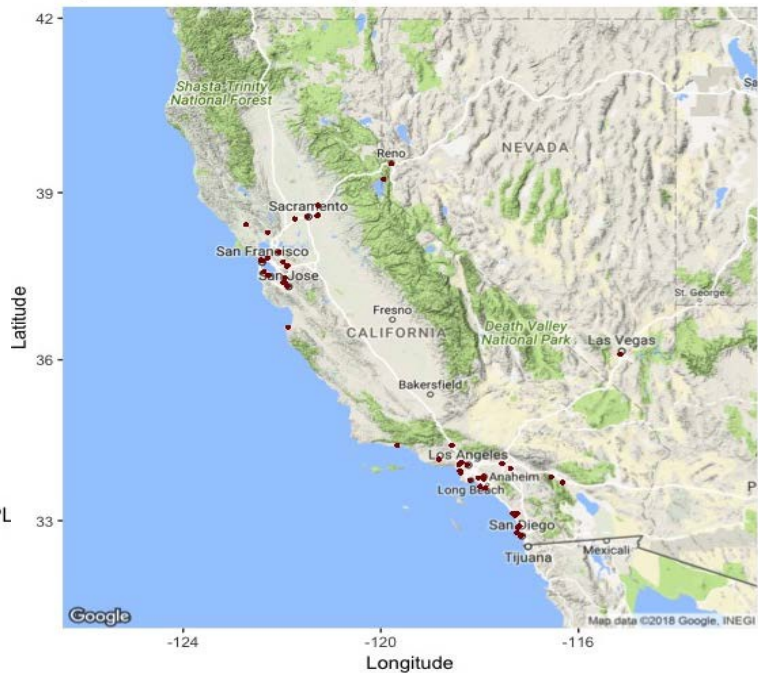
Analysis of Brands

BQ 2. What is the comparison between Hyatt Hotels sister brands and their effect on NPS?
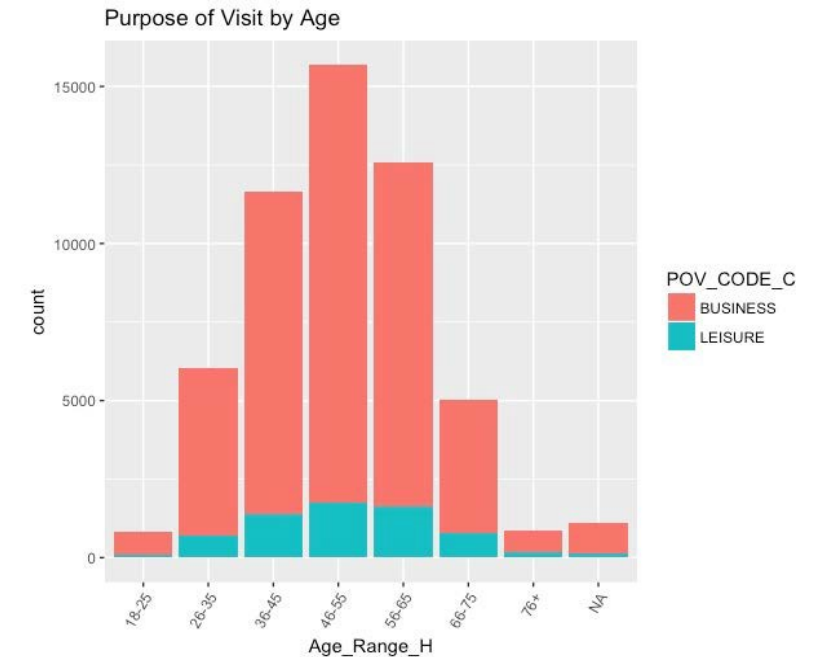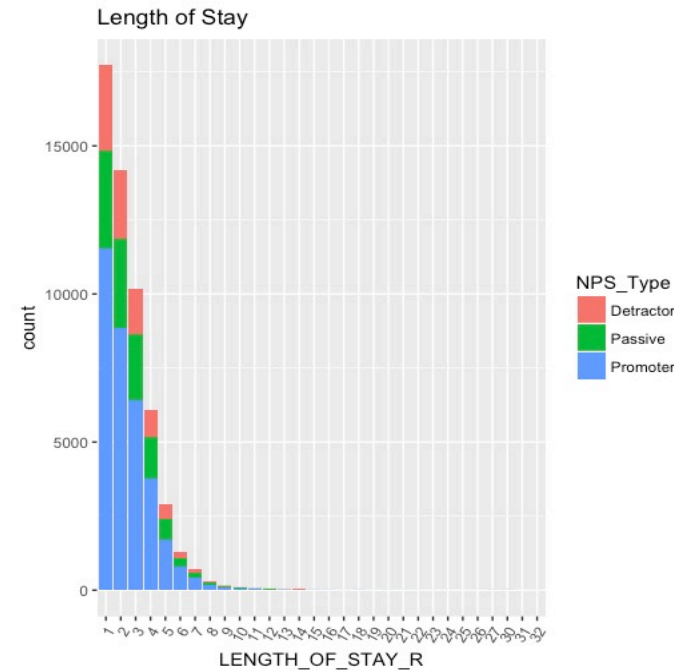

Hyatt hotel Brand Locations on US Map

usdata$Brand_PL
- Andaz
- Grand Hyatt
- Hyatt
- Hyatt House
- Hyatt Place
- Hyatt Regency
- Park Hyatt

Hyatt Hotels location Per Zip Code in and around CA state

ACTION POINTS

- Hyatt Regency had the least NPS score when compared to other sister brands.
- Also, working on higher population data ensured a robust analysis.
- Further working on Hyatt Regency allowed to focus on a small region and ensured capturing of regional phenomena well.
- Analysis of reservation counts for each brand within California showed that Hyatt Regency seems to have the most data and maximum no. of reservations of each type, making it the ideal brand to focus on

POV_CODE_C
- BUSINESS
- LEISURE

Some more Descriptive Analytics before we move to Validation
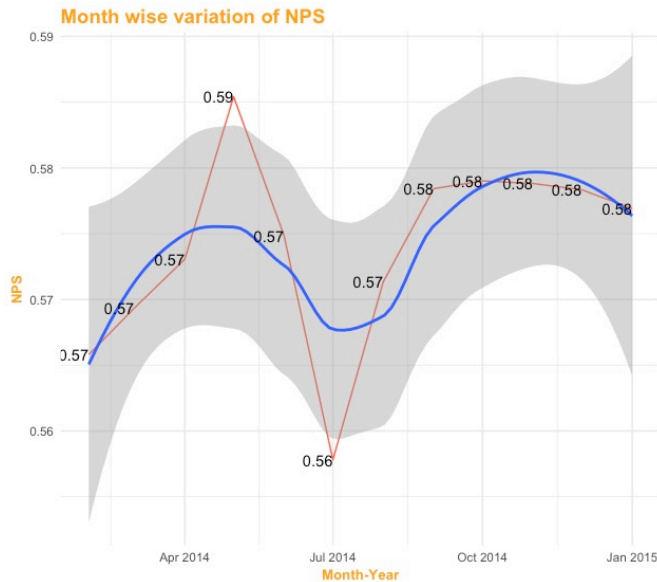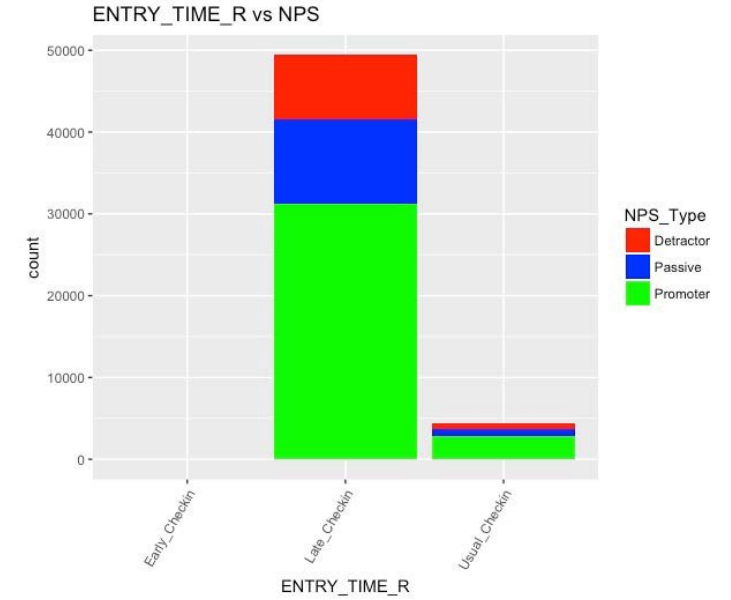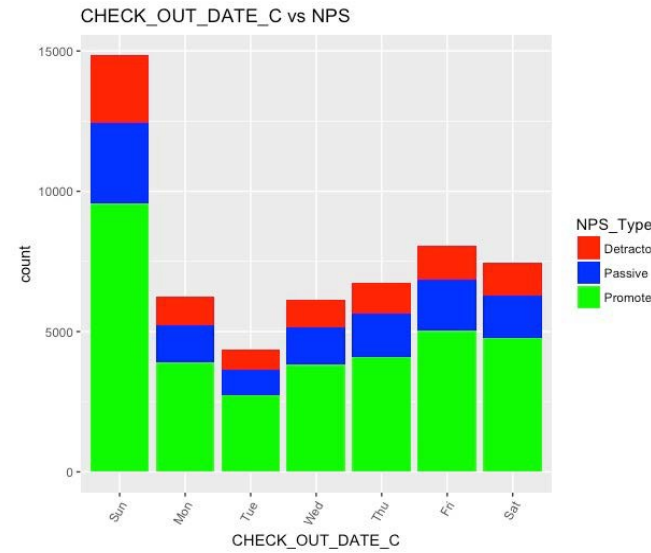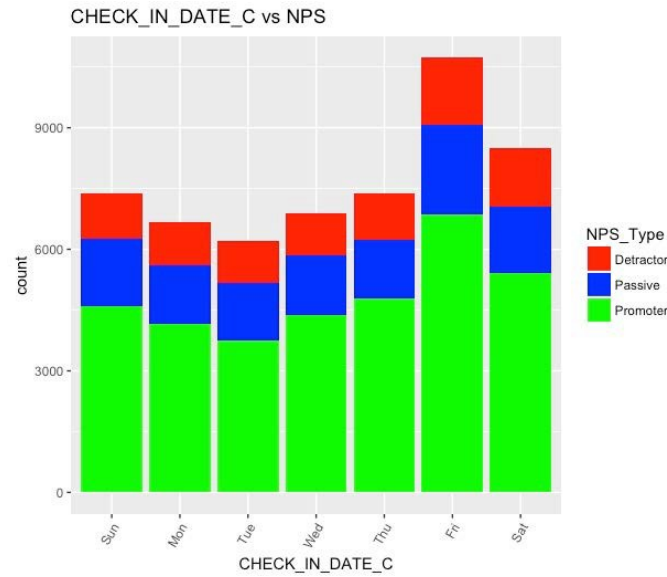
IV. Approach going forward

Process Followed

12 months data(56 countries) → United States of America → California State → Hyatt Regency Brand → Purpose of Visit: Business / Purpose of Visit: Leisure → Insights & Action Points for Hyatt

| Data Cleaning Preprocessing	Data Exploration and Analysis	Model Development for Advanced Insights	Insight Generation
- Initial total columns in the given 12 months of datasets: 237 - Columns retained: 40 - Rows read: 15,711,552 obs. of 40 variables - comprehensive identification of missing values. All blank cells were converted to the value NA to ensure all missing values are marked as NA - Columns having more than 90% missing values were dropped - Columns which didn't have any relevance to LTR or NPS_Type were dropped - All rows having missing countries were removed - **Final Clean Data: 924378 obs. of 40 variables**	Data across all geographies and brands was first analyzed in depth, and then it was iteratively sliced into subparts that had the highest data volume at each level. Hypothesis was that focusing on parts having most data will allow us to generate analysis based on wider customer behavior patterns. In United States, California had the largest dataset, because California also has the largest population. Similarly, Hyatt Regency was chosen as the next dataset as it was found to have the highest observations.	- Linear Regression - Support Vector Machines - Association Rules - Boruta Random Forest	- Customer Service - Hotel Condition - Guest Room are the most powerful variables affecting NPS Score and Likelihood_to_recommend. -Other local patterns

V. Key Factors Impacting NPS Across the Board

BQ 3. How is guest feedback related to NPS & how do these numerical factors impact on customer's likelihood to recommend? How can NPS Score be improved with these?

Correlation
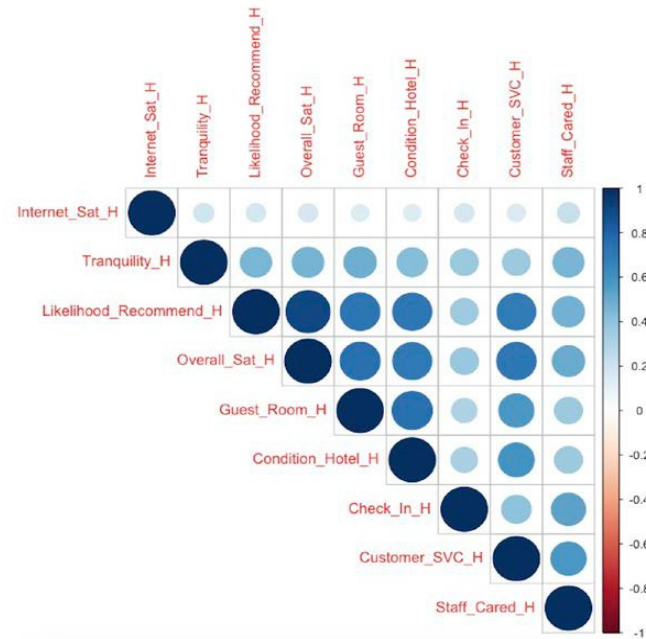
Model Details
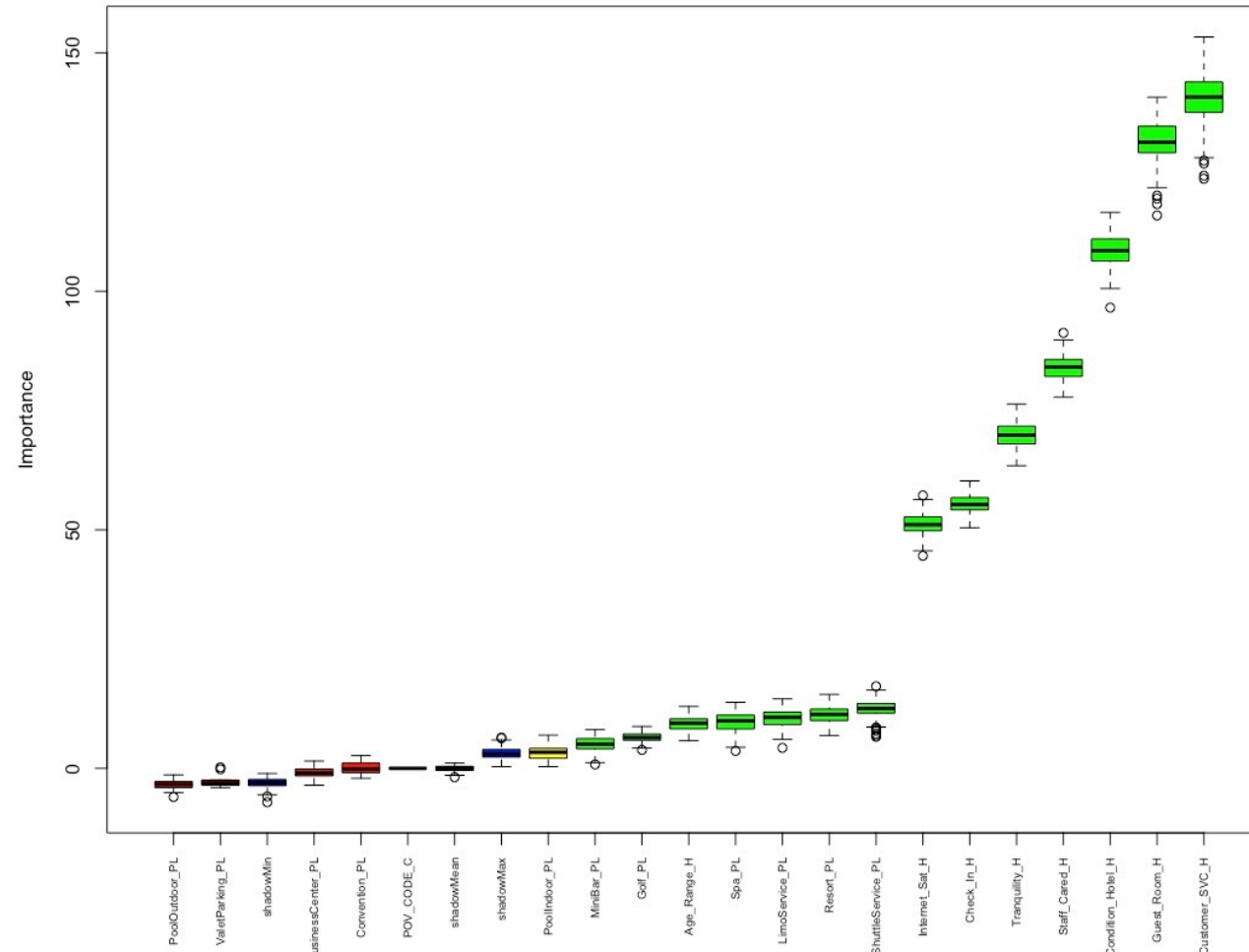
FACTORS IDENTIFIED

- Overall Key levers for NPS seem to be same across the board for all Hyatt Regency customer
  - ✓ **Customer_SVC_H:** Quality of customer service metric; value on a 1 to 10 scale
  - ✓ **Condition_Hotel_H:** Condition of hotel metric; value on a 1 to 10 scale
  - ✓ **Guest_Room_H:** Guest room satisfaction metric; value on a 1 to 10 scale

- These patterns in full data get sometimes mixed and hence might look like noise , Hence in order to get finer local patterns we, divided the data into specific Business and Leisure population.
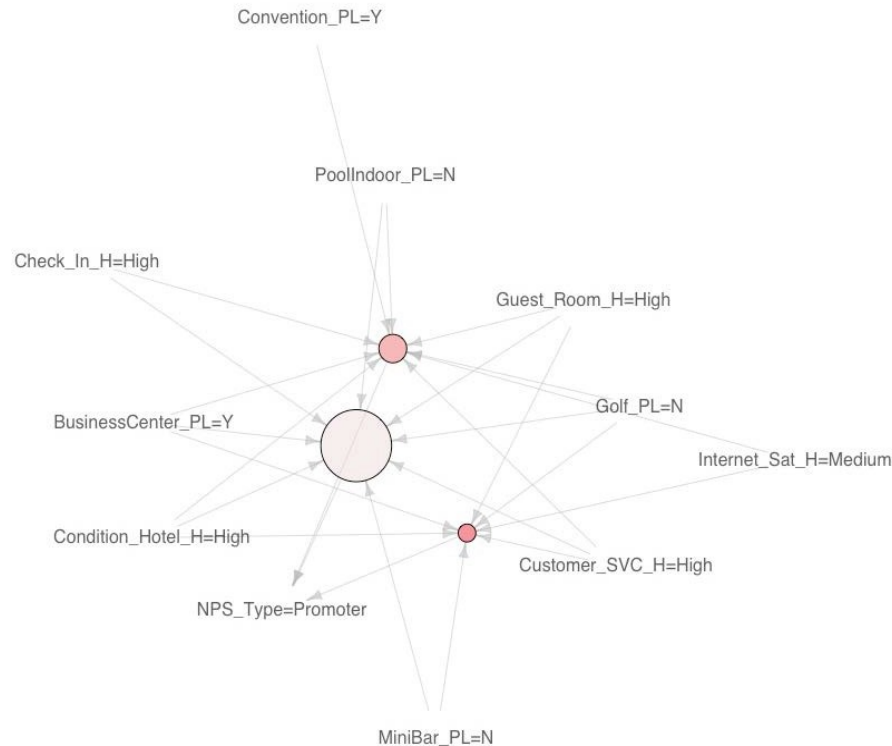
Business Traveler

BQ 4. Which of factors related to hotel amenities across different purpose of visits (Business and Leisure) are important in determining NPS score? How to improve NPS Score using these factors?

Business Promoter

Business Detractor
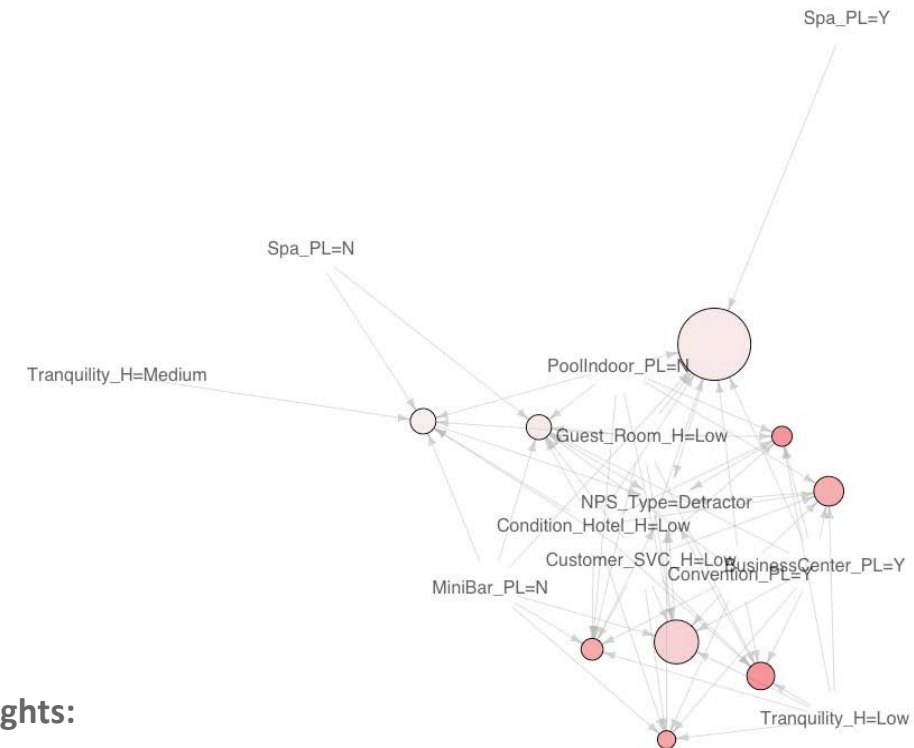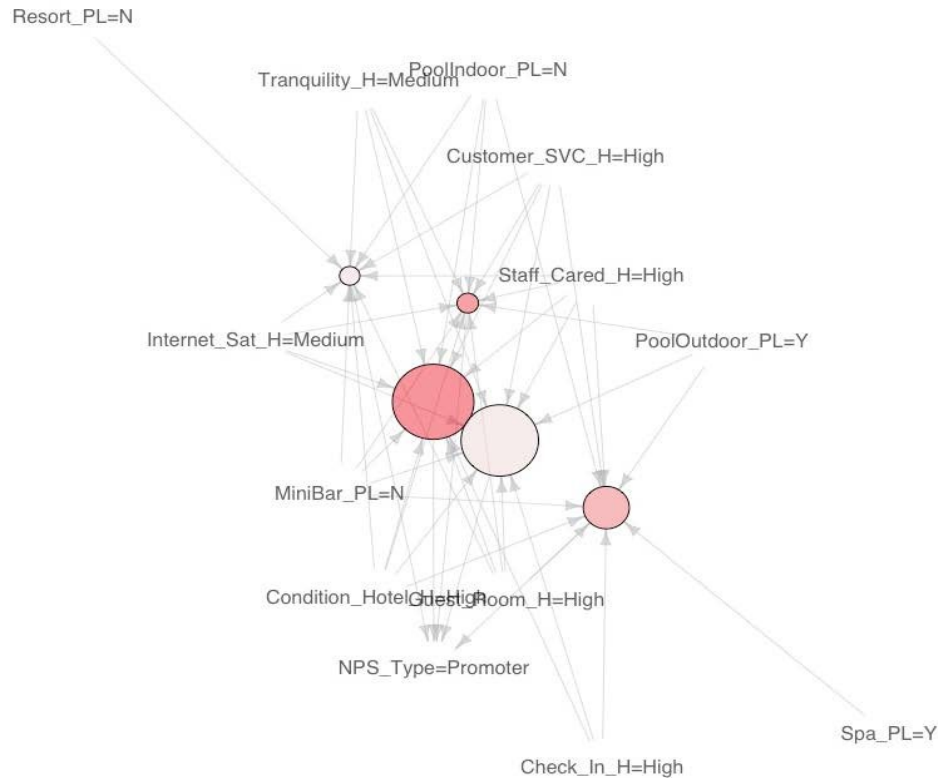

Observations & Insights:

- Beyond the three common categories of Guest Room, Condition of Hotel and Customer service which are universally true for making a customer to be promoter, we also found that business customers value Tranquility, Good internet connection and presence of Business centers and Convention centers at Hyatt Regency in California.
- Hence, to increase Promoters, we recommend to Hyatt that they put high effort in providing guests with Tranquility and internet satisfaction in hotels so that business meetings flow in the best way possible as meetings at hotels need to be peaceful and adequate infrastructure including high speed internet connection will boost business conversations and outcomes. This can be done by providing rooms to business travelers **on higher floors and away from common lobbies and other noisy spaces**.
- Apart from this Hyatt must also focus on constructing indoor pools and providing minibars as absence of these factors might lead to even worse overall satisfaction leading to low NPS.

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Leisure Traveler

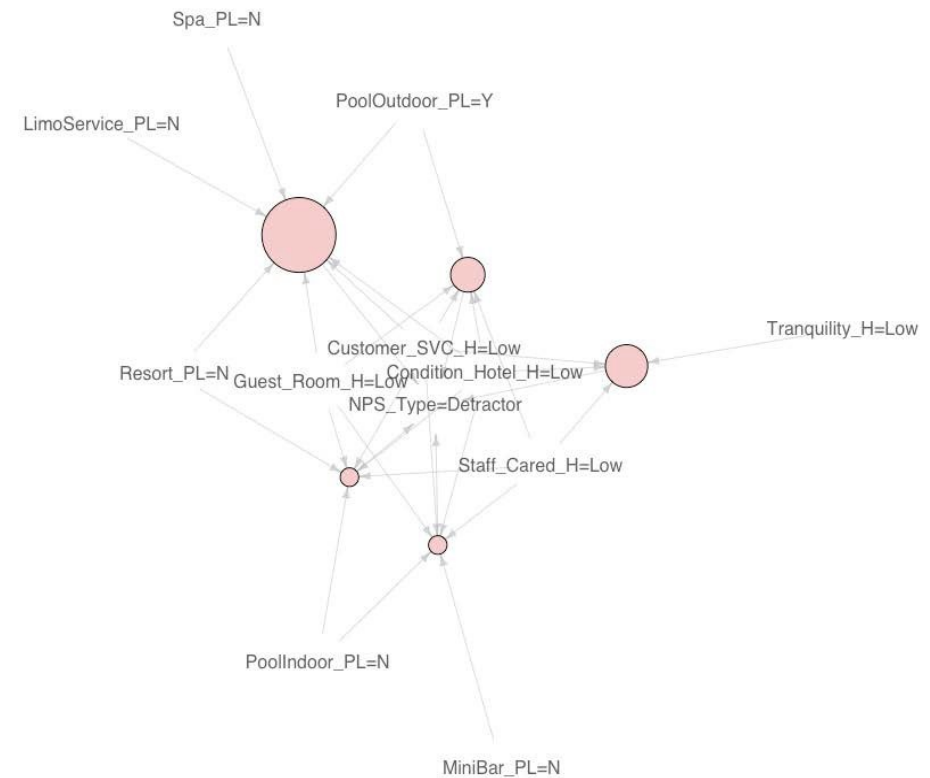## Leisure Promoter

Graph for 5 rules

size: support (0.148 - 0.164)
color: lift (1.472 - 1.474)

Resort_PL=N

Tranquility_H=Medium
PoolIndoor_PL=N

Customer_SVC_H=High

Staff_Cared_H=High

Internet_Sat_H=Medium
PoolOutdoor_PL=Y

MiniBar_PL=N

Condition_Hotel_H=High
GuestRoom_H=High

NPS_Type=Promoter

Spa_PL=Y

Check_In_H=High

Leisure Detractor

Graph for 5 rules

size: support (0.012 - 0.013)
color: lift (6.13 - 6.13)

Spa_PL=N

PoolOutdoor_PL=Y

LimoService_PL=N

Tranquility_H=Low

Customer_SVC_H=Low
Condition_Hotel_H=Low
Resort_PL=N Guest_Room_H=Low
NPS_Type=Detractor
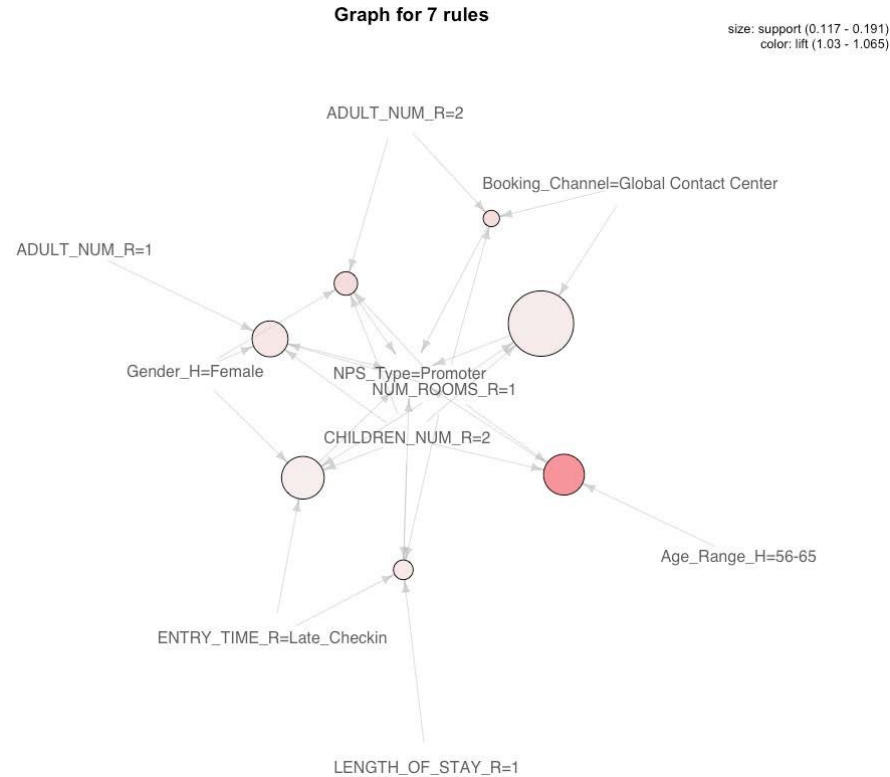
Staff_Cared_H=Low

PoolIndoor_PL=N

MiniBar_PL=N

Observations and Insights:
- Leisure Promotor travelers also concentrate on presence of outdoor pool, spa, great check in experience and caring staff.
- Other parameters prove that leisure customers highly value personal experience with the hotel, like a good check in and caring staff.
- To increase promoter counts amongst leisure travelers we recommend Hyatt focuses on **ensuring best customer service at check in and prompt and empathetic service staff.** The detractor patterns are highly correlated to patterns of promoters. The top parameters that lead to Leisure visit detractors are low tranquility, lack of caring staff and lack of amenities like Spa_PL and LimoService_PL.
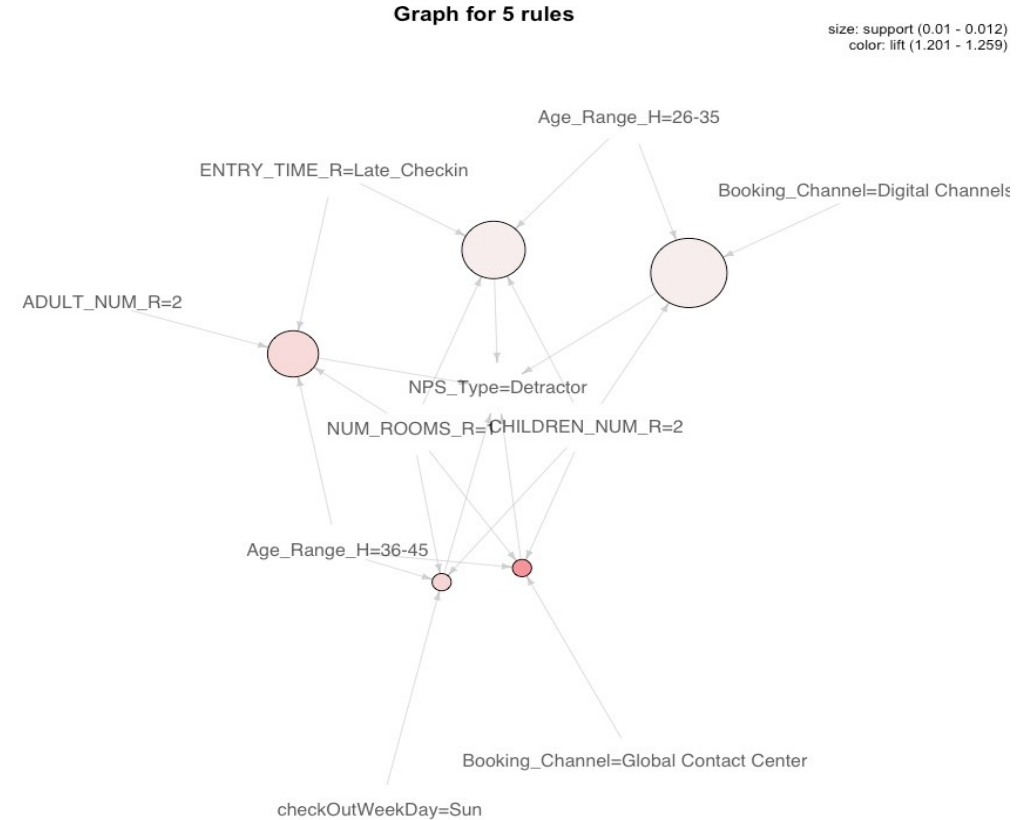
Consumer Demographic

BQ 5. What is the relationship of various booking factors on NPS? How can it be improved?

Booking Factors Promoters

Booking Factors Detractors

Graph for 7 rules

size: support (0.117 - 0.191)
color: lift (1.03 - 1.065)

ADULT_NUM_R=2

Booking_Channel=Global Contact Center

ADULT_NUM_R=1

Gender_H=Female

NPS_Type=Promoter
NUM_ROOMS_R=1

CHILDREN_NUM_R=2

Age_Range_H=56-65

ENTRY_TIME_R=Late_Checkin

LENGTH_OF_STAY_R=1

Graph for 5 rules

size: support (0.01 - 0.012)
color: lift (1.201 - 1.259)

Age_Range_H=26-35

ENTRY_TIME_R=Late_Checkin

Booking_Channel=Digital Channels

ADULT_NUM_R=2

NPS_Type=Detractor

NUM_ROOMS_R=1 CHILDREN_NUM_R=2

Age_Range_H=36-45

Booking_Channel=Global Contact Center

checkOutWeekDay=Sun

Observations and Insights:
- Younger parent(s), especially if single, seem to have a harder time at the hotel and give less ratings when with 2 children, especially when compared with older parents who are travelling together.
- We recommend making the hotel friendlier and helping to needs of young parents, by providing services **like play area/care centers and staff for kids.**
- We also recommend providing **family discounts to parents visiting the hotel**.

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Conclusion

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- Total, this project used **over 3 Data Science analytics models** – Linear regression, Association Rules, Support Vector Machines and Boruta and generated following insights. Also, the data was viewed from multiple angles, and the business questions quoted before having led to generation of trends and patterns which were validated through modelling. Hence these tangible and actionable steps can be used by Hyatt Corporation CEOto improve NPSScore.

- Through our analytics techniques, Overall Key levers for NPSseem to be **UNIVERSAL** across the board for all Hyatt Regency customers:

  - ✓ **Customer_SVC_H:** Quality of customer service metric; value on a 1 to 10 scale
    - ✓ **Condition_Hotel_H:** Condition of hotel metric; value on a 1 to 10 scale
    - ✓ **Guest_Room_H:** Guest room satisfaction metric; value on a 1 to 10 scale

  - Once again like Boruta , Association Rules also proved our assumption and factors having the highest variable importance were: (in this order)
    - ➢ Customer_SVC_H
    - ➢ Guest_Room_H
    - ➢ Condition_Hotel_H
    - ➢ Staff_Cared_H
    - ➢ Tranquility_H
    - ➢ Check_In_H
    - ➢ Internet_Sat_H
    - ➢ LimoService_PL
    - ➢ Spa_PL

- The local patterns in full data get sometimes are mixed and hence might look like noise , Hence in order to get finer local patterns we, divided the data into specific Business and Leisure population. Having figured out that in order to generate patterns and association between the above important factors, Association Rules mining was performed which will helped predicting rules that tell exactly what is the pattern between these factors . **By understanding and improving on the recommendations, Hyatt will be able to increase % Promoters and decrease % Detractors and this will help raise its overall NPSScore.**

Thank You.