



Data Glacier

Your Deep Learning Partner

G2M Case Study

Virtual Internship

08-Jan-2022

Overview–G2M(cab industry) case study

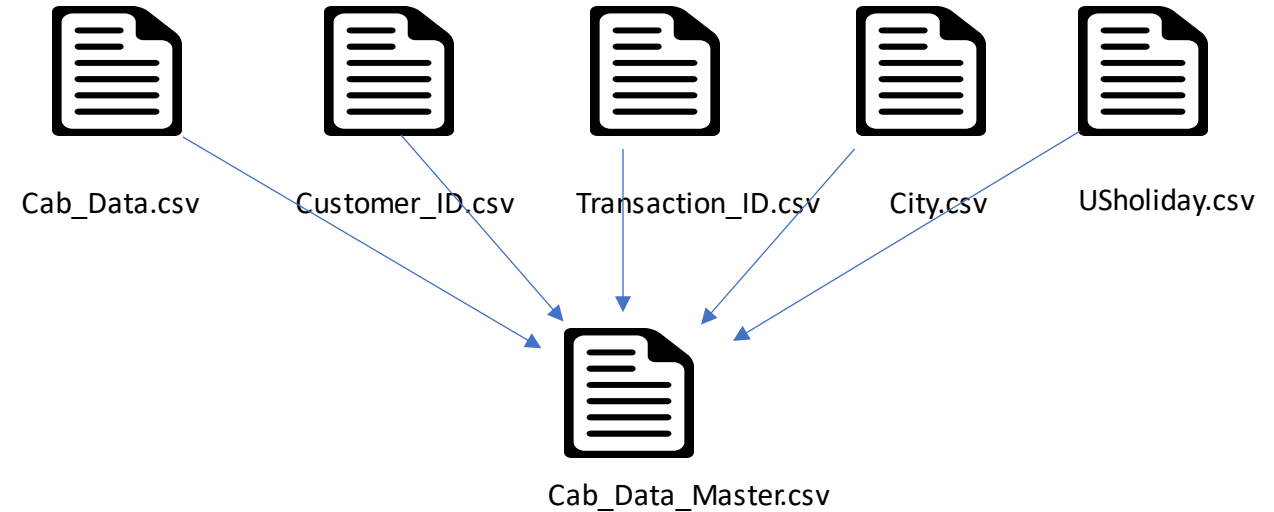
- XYZ is a private equity firm in US. Due to remarkable growth in the Cab Industry in last few years and multiple key players in the market, it is planning for an investment in Cab industry.
- Aim: To understand the market before taking final decision
- Objective : Provide actionable insights to help XYZ firm in identifying the right company for making investment.

The analysis has been divided into four parts:

- Data Understanding
- Forecasting profit and number of rides for each cab type
- Finding the most profitable Cab company
- Recommendations for investment

Data Exploration

- 24 Features(including 9 derived features)
- Timeframe of the data: 2016-01-31 to 2018-12-31
- Total data points :355,032

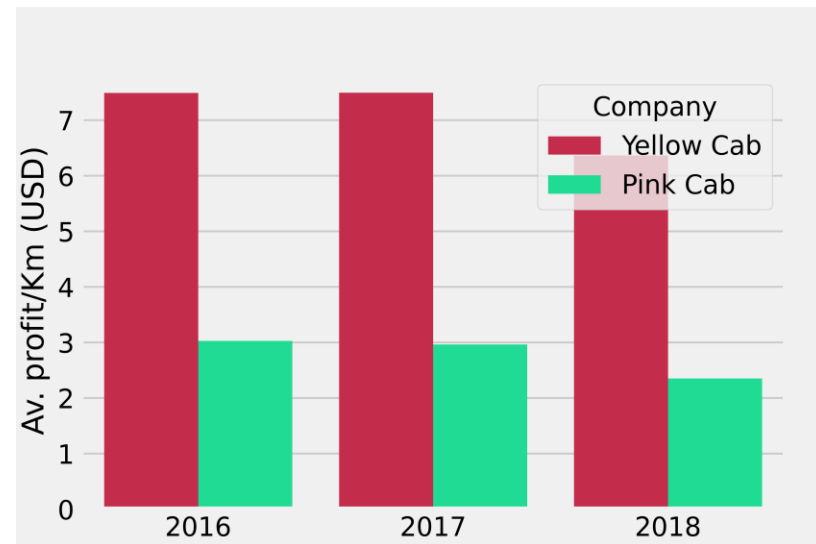


Assumptions:

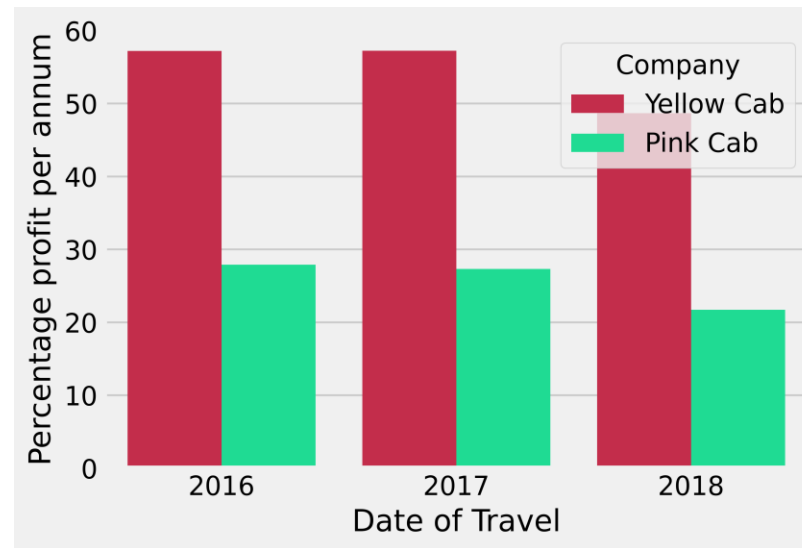
- Transaction IDs are unique, Customer IDs can be repetitive
- The price charged data is normally distributed. i.e Outliers are present in Price_Charged feature, but due to unavailability of trip duration details, we are not treating any value as outlier.
- Keeping other factors constant, only the Price_Charged and Cost_of_Trip features are used to calculate the profit of rides.
- Users feature of city dataset is treated to be the total number of cab users in the city, this is assumed to be all other cabs in addition to Yellow and Pink cab users.

Profit Analysis

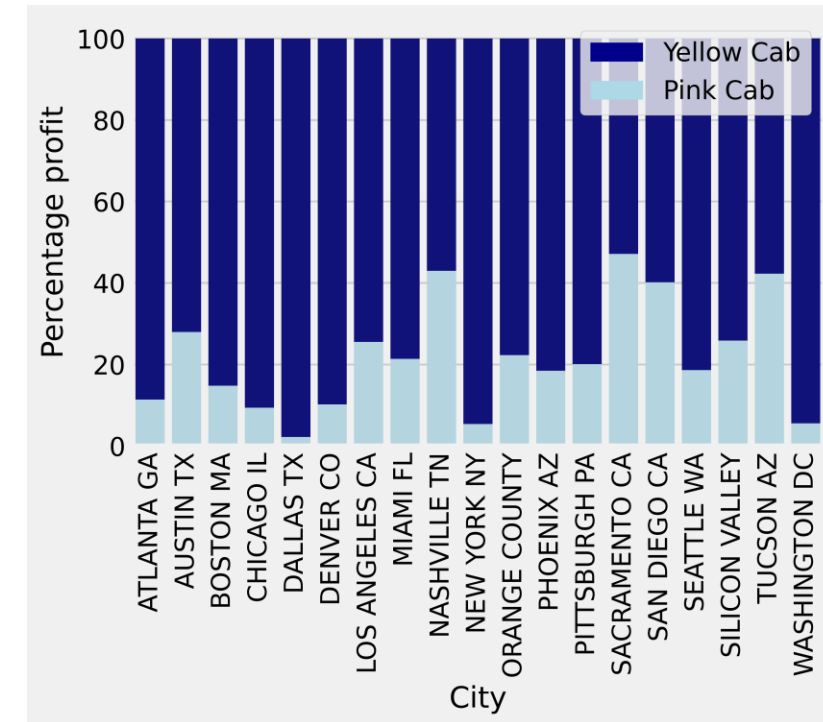
Average profit per KM



Percentage profit per annum



Profitable ride citywise

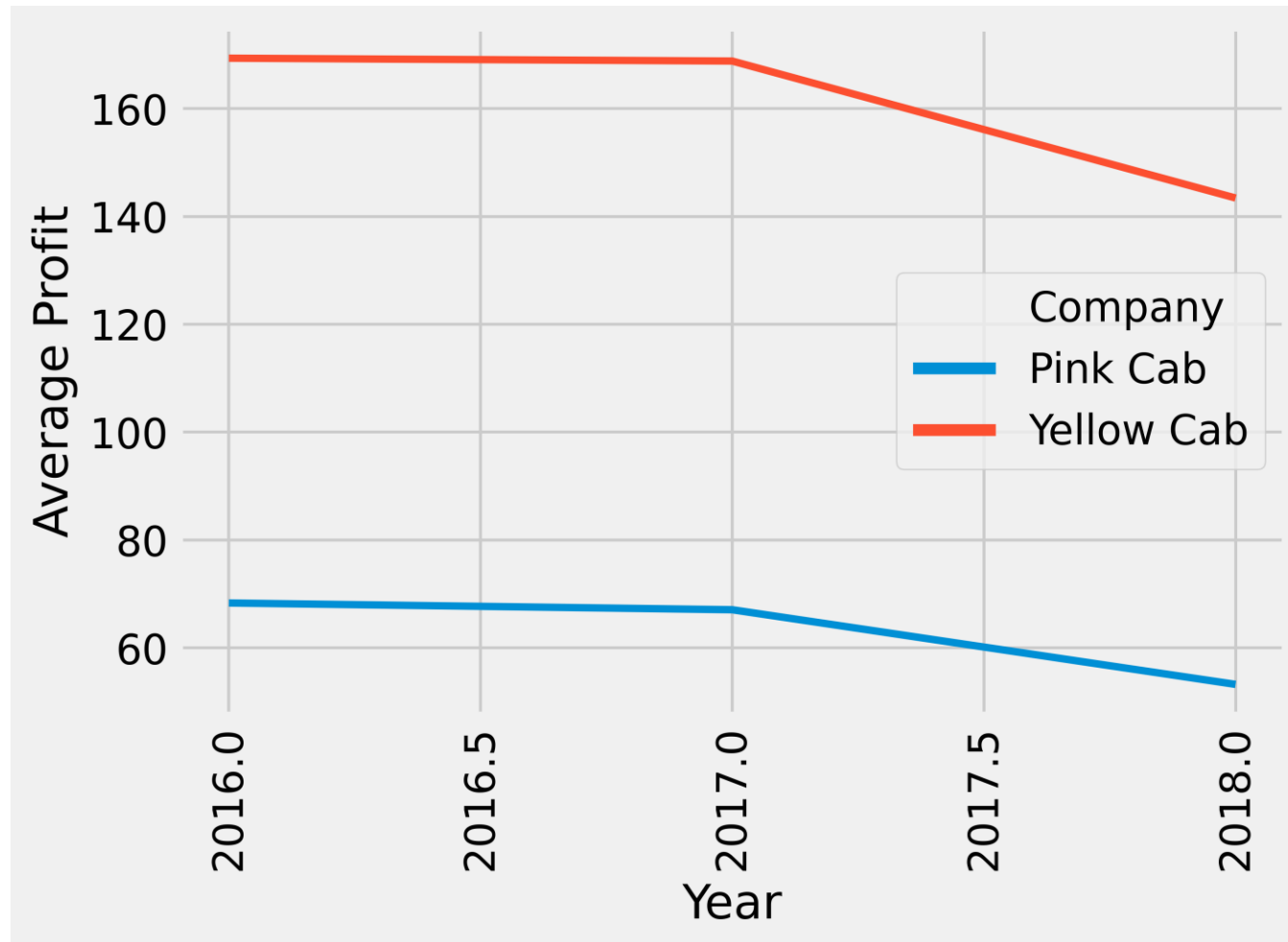


Company	Total profit (USD)	Total rides	Profit per ride (USD)
Pink Cab	5307328	84711	62.65
Yellow Cab	44020370	274681	160.26

Conclusion: Yellow cab generates more profit in general and per ride

Yearly Profit Analysis

Average Profit trend across the years

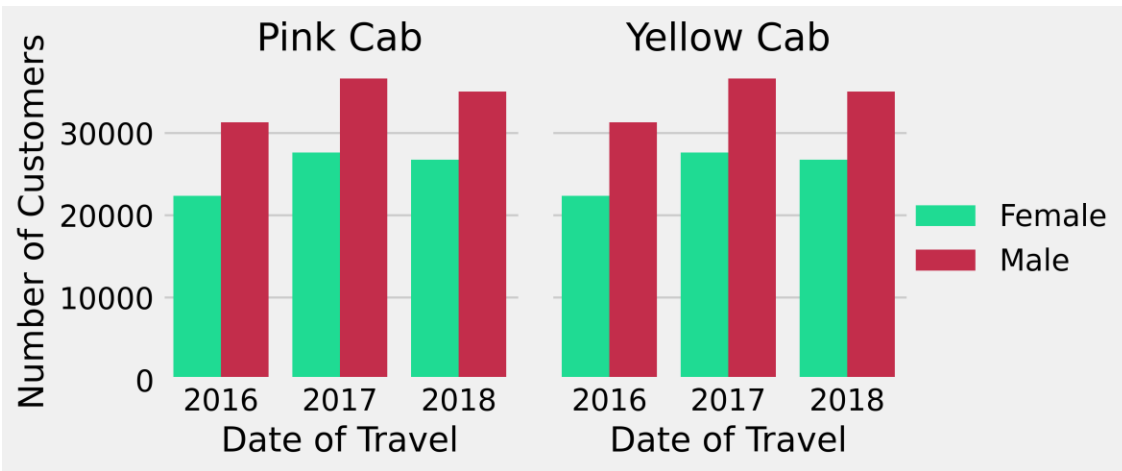


Conclusion:

Yearly profit steadily decreases from 2016 to 2017 and sharply drops in 2018 for both companies.

Profit and customer base Analysis Gender wise

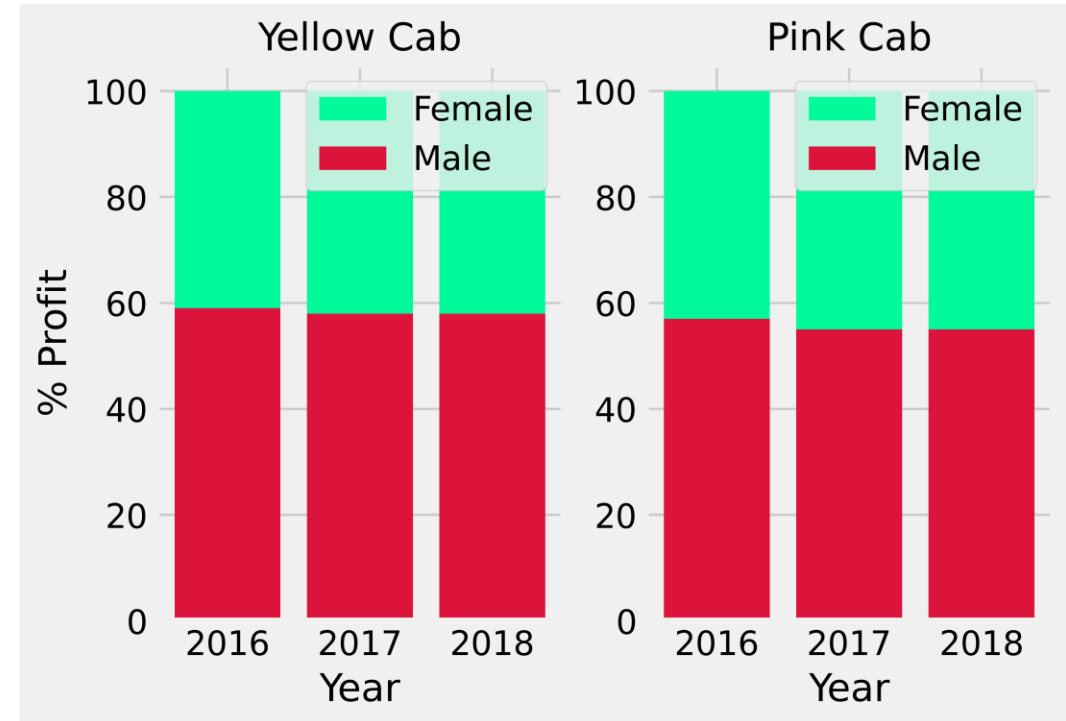
Customer base gender-wise analysis



Conclusions

- The numbers of male and female customers change each year. The trend remains nearly similar for both companies
- Generally more males than females use Yellow/Pink Cabs as their mode of transport

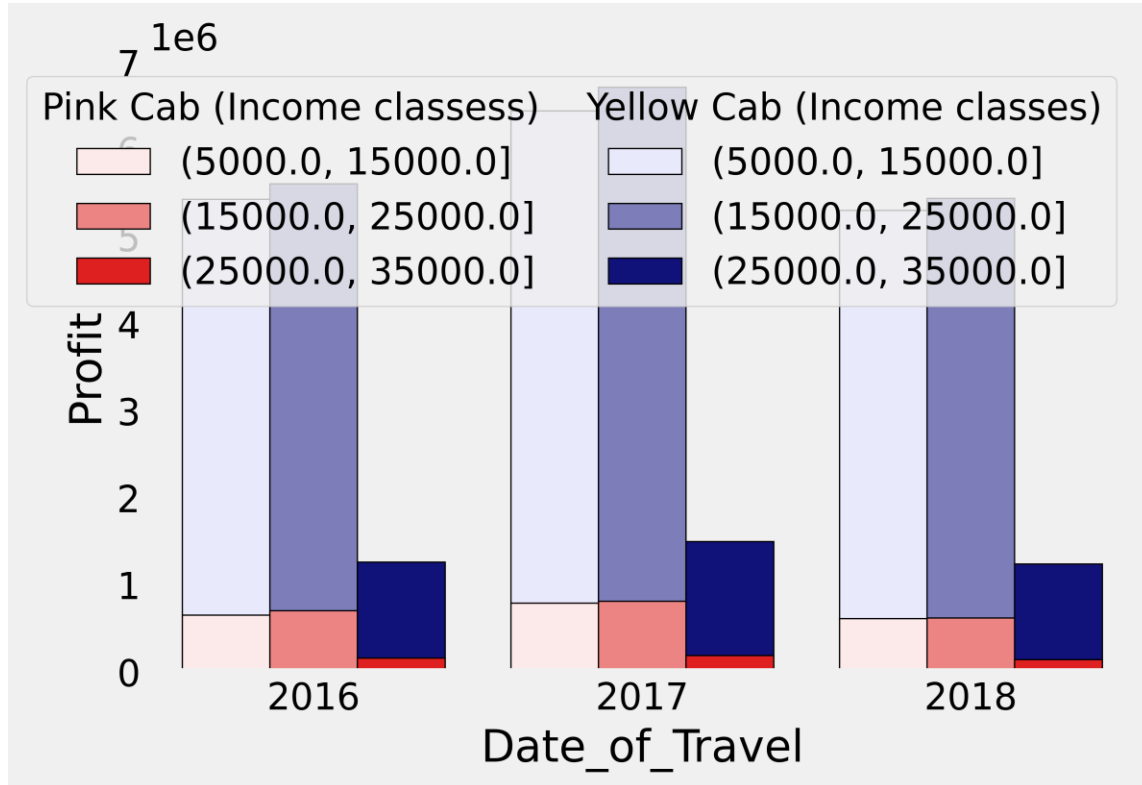
Genderwise contribution to profit



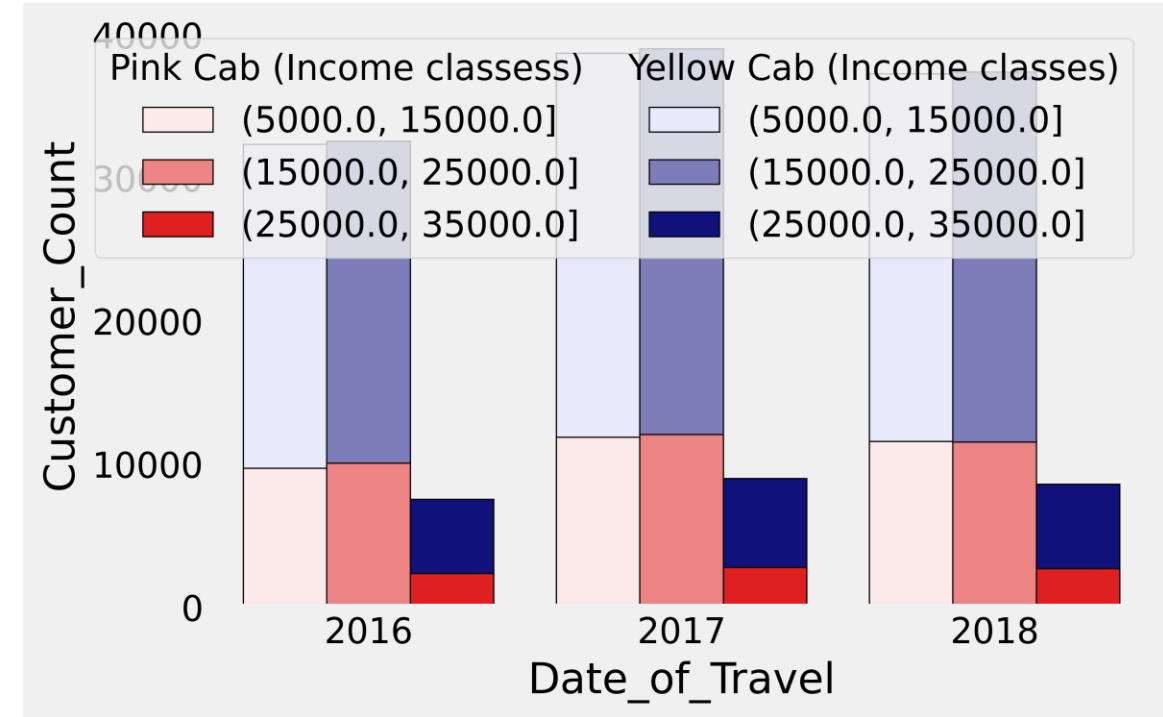
Conclusion: Males largely contribute to profits in both companies (range 50-60%) than females (range 40-50%)

Income Class wise Profit and customer base Analysis

Income class-wise profit analysis



Income class-wise customer-base analysis



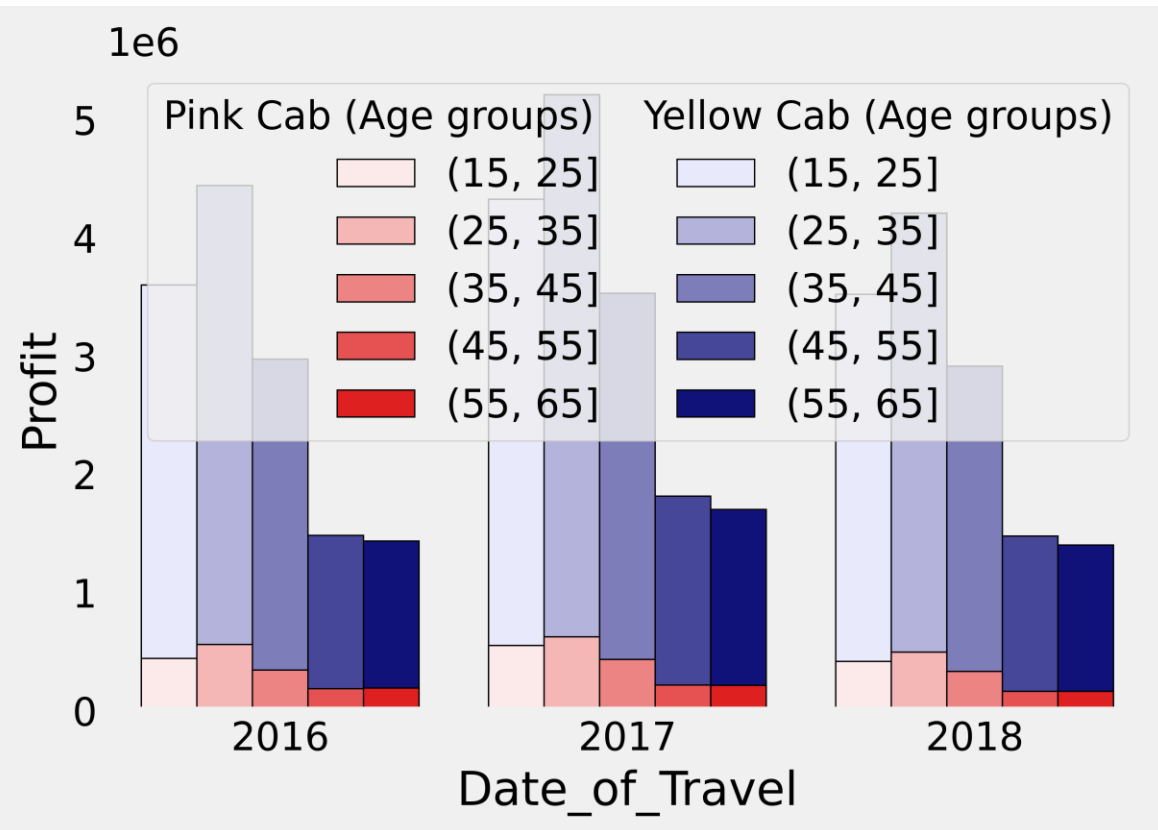
Conclusions:

Middle income earners (15000 - 25000) generate the largest profits for both Companies

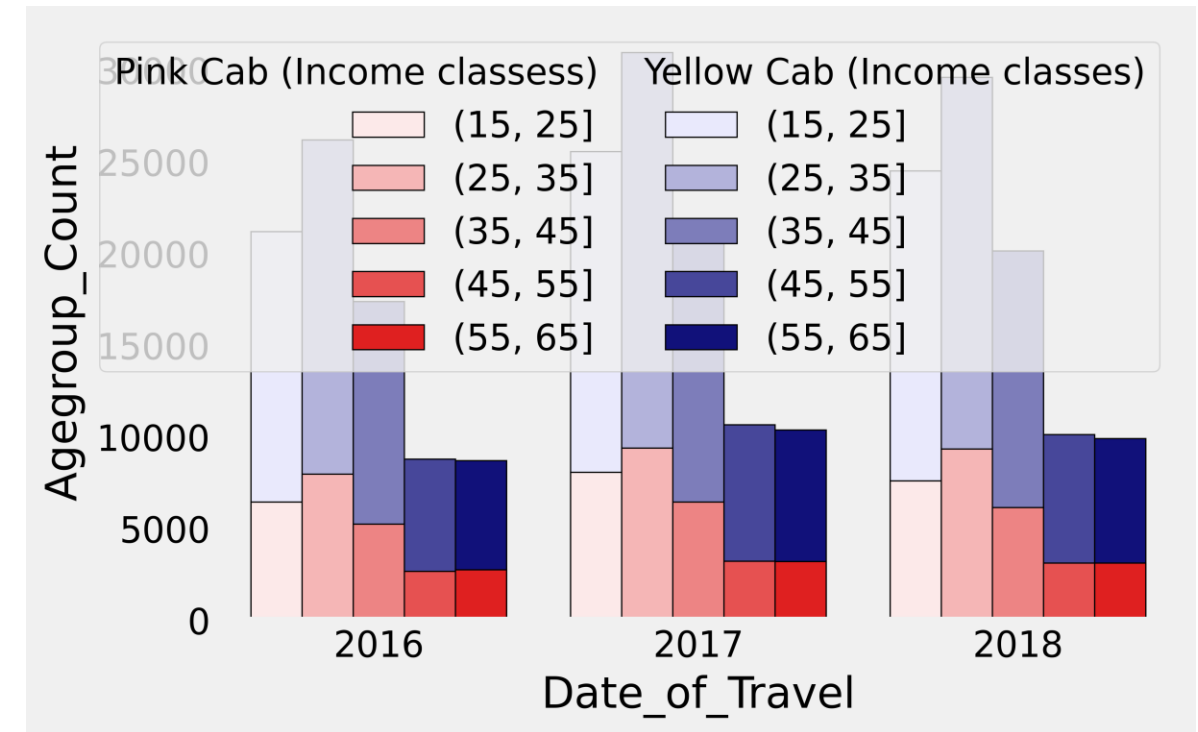
Middle income earners (15000 - 25000) form the largest customer base for both Companies

Age GroupWise Profit And Customer Base Analysis

Agegroup customer-base analysis



Agegroup contribution to profit



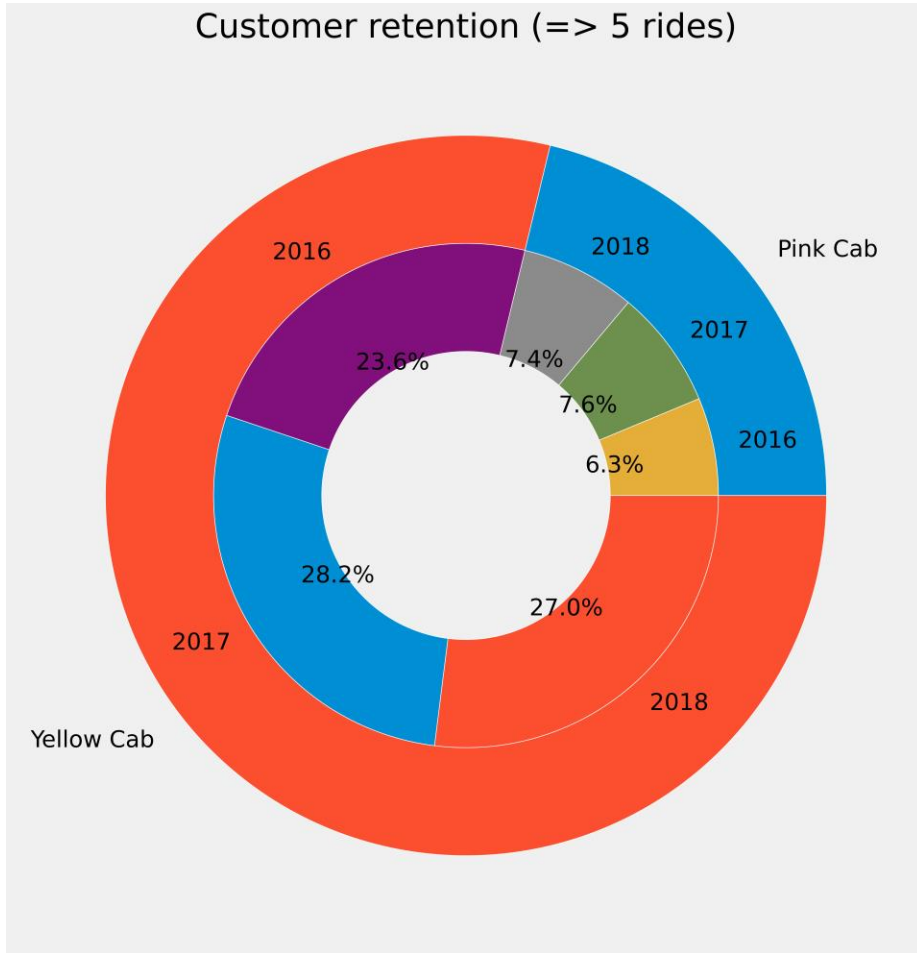
Conclusions:

Junior adults (Age 25-35) contribute the largest amount to profits for both Companies

Likewise, Junior adults (Age 25-35) form the largest customer base for both Companies

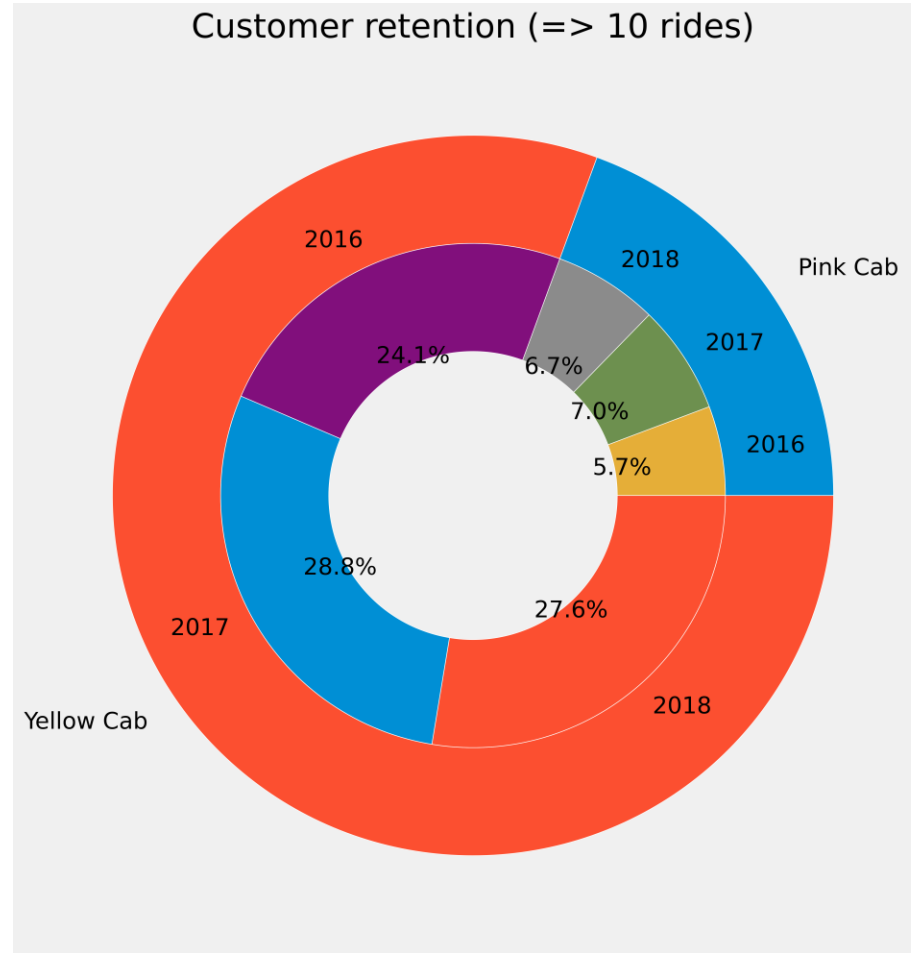
Customer Retention

Customer retention (atleast 5 rides)



Pie 1

Customer retention (atleast 10 rides)

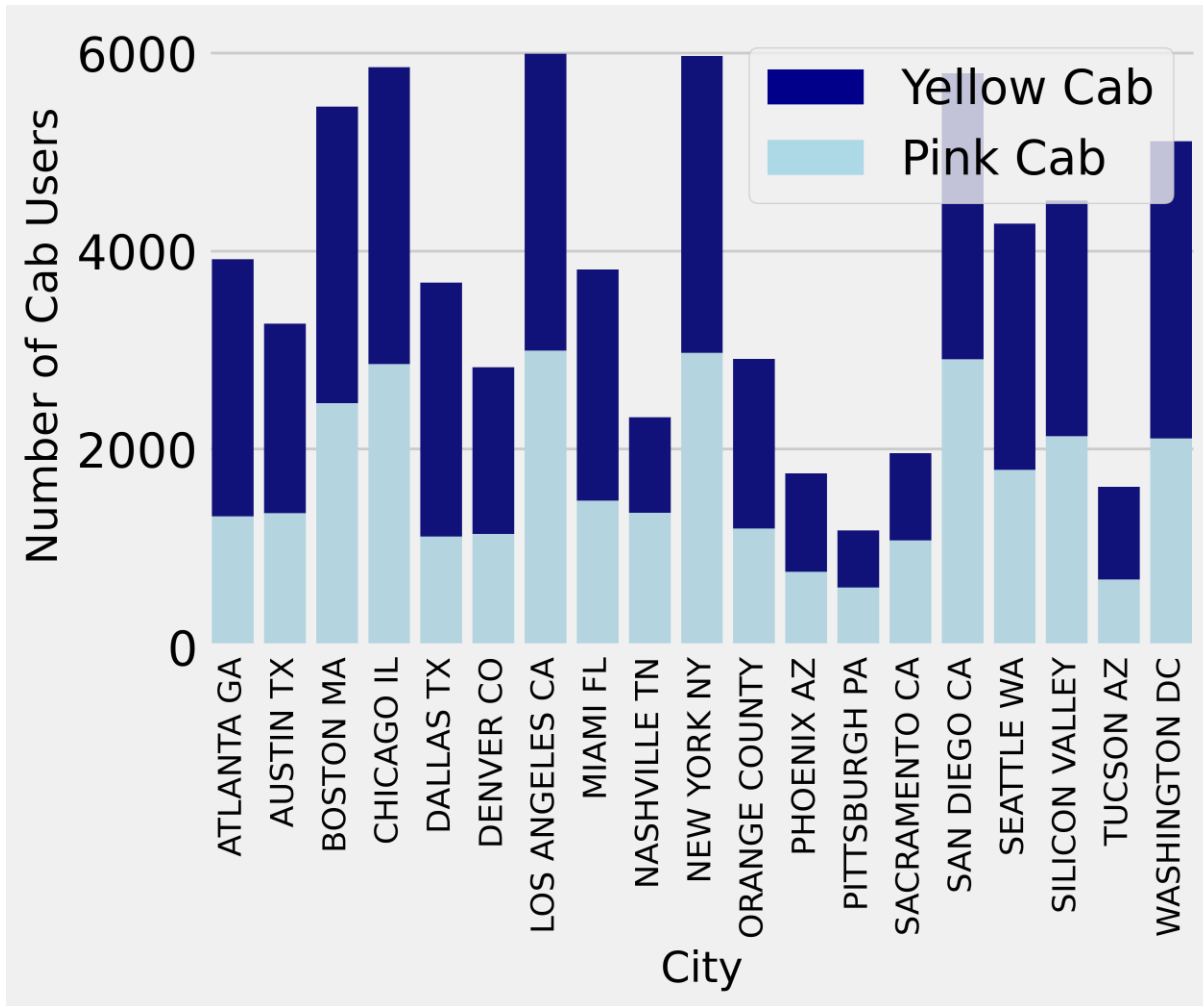


Pie 2

- Customers who have taken at least 5 rides of the same cab company is considered for Pie1.
- In Pie2, only customers who have taken at least 10 rides of the same cab company were considered
- Yellow Cab is able to retain more customers compared to the Pink Cab.
- Yellow Cab has a better customer retention capacity than Pink Cab.

City Wise Cab Users Covered By Company

City-Wise Cab users covered by each company

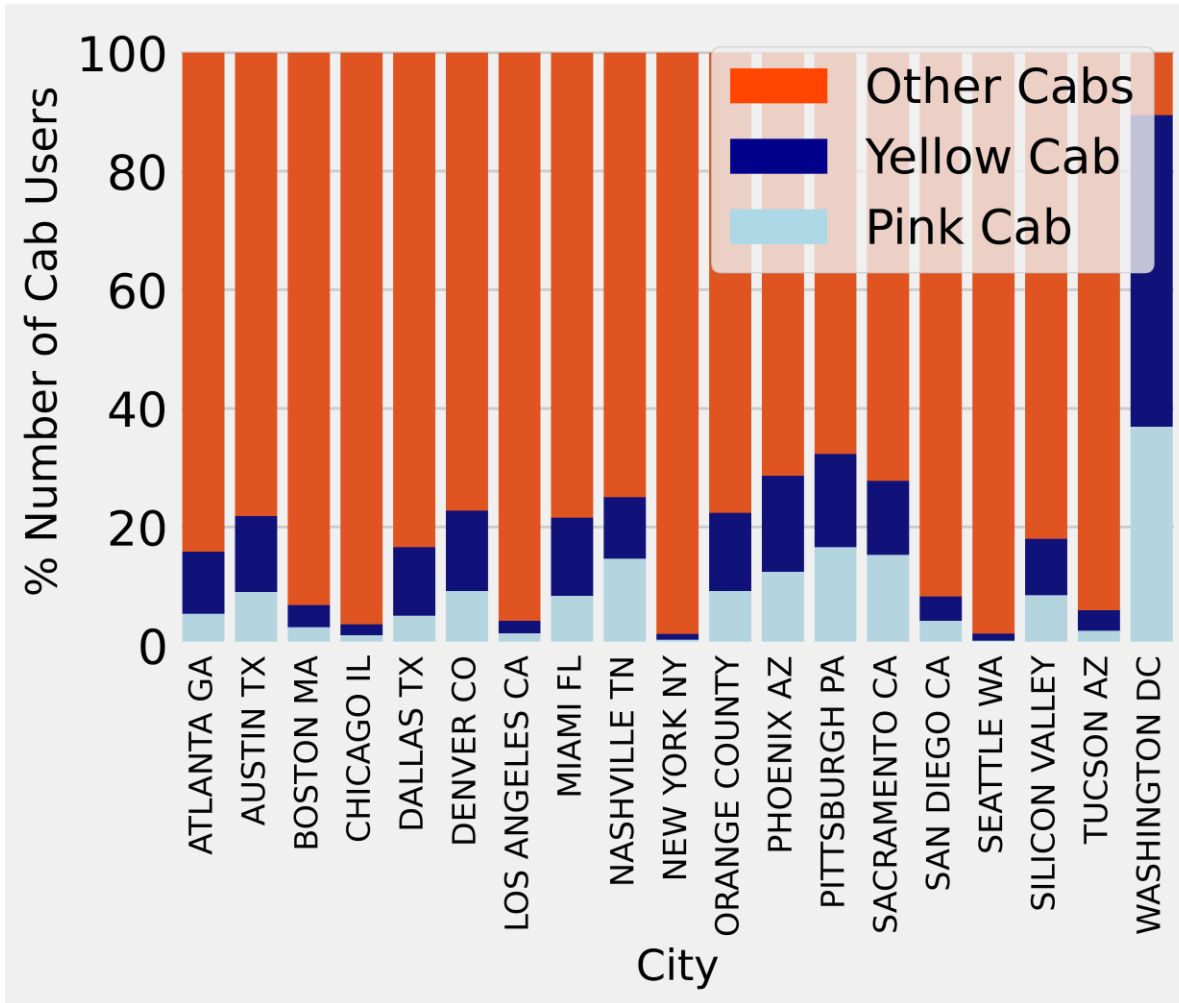


Conclusion:

- Yellow Cabs cover a larger number of cab Users compared to Pink Cabs across most cities

Customer Presence of Yellow and Pink cab city wise

City-Wise Cab users covered by each company as a percentage of the total population of cab users

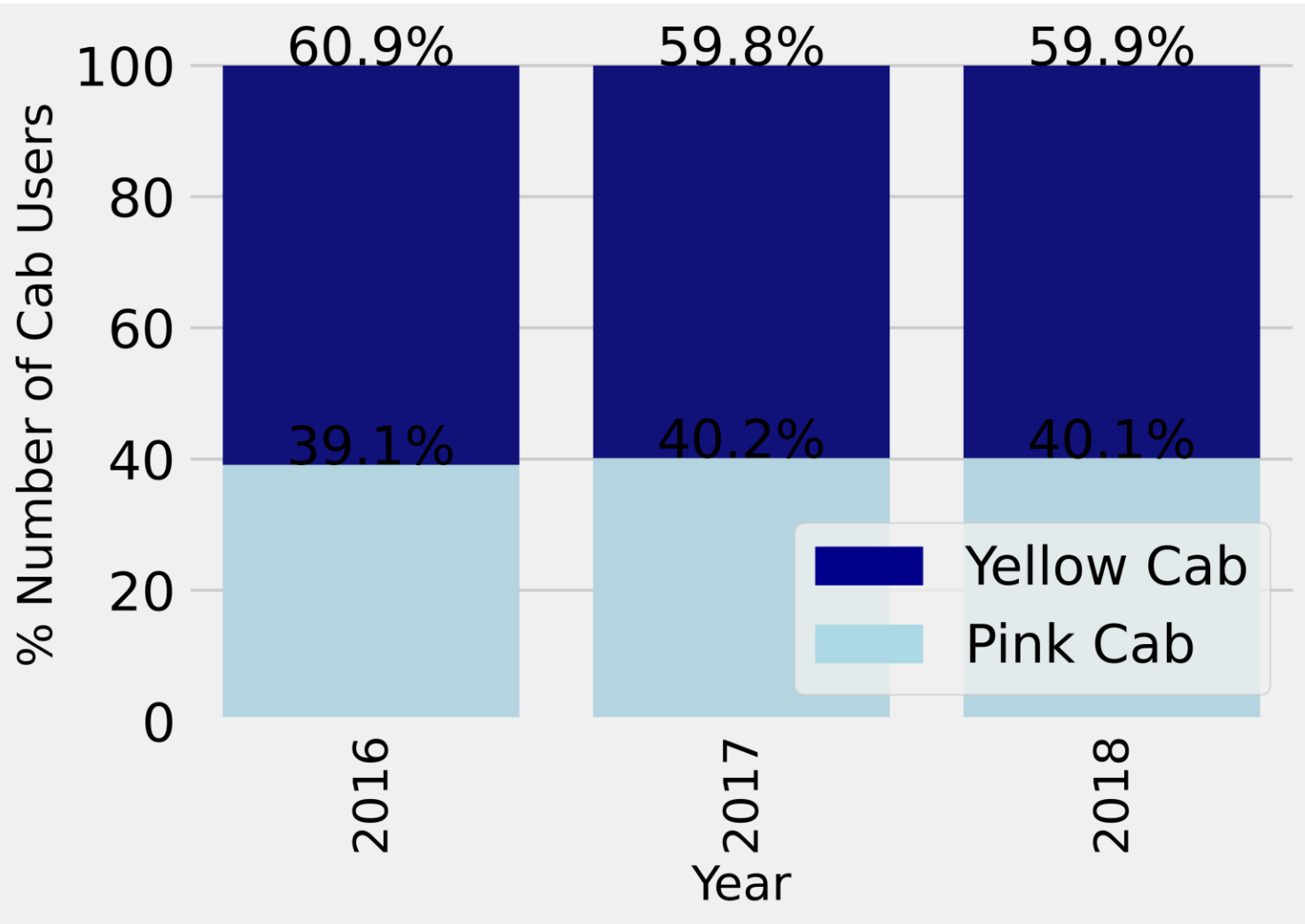


This is the number of users covered by Yellow and Pink cabs in each city against all cab users present in the city

Conclusion:

- Pink or Yellow Cabs contribute the largest percentage of cab users in Washington DC

Users Covered by Company Year wise



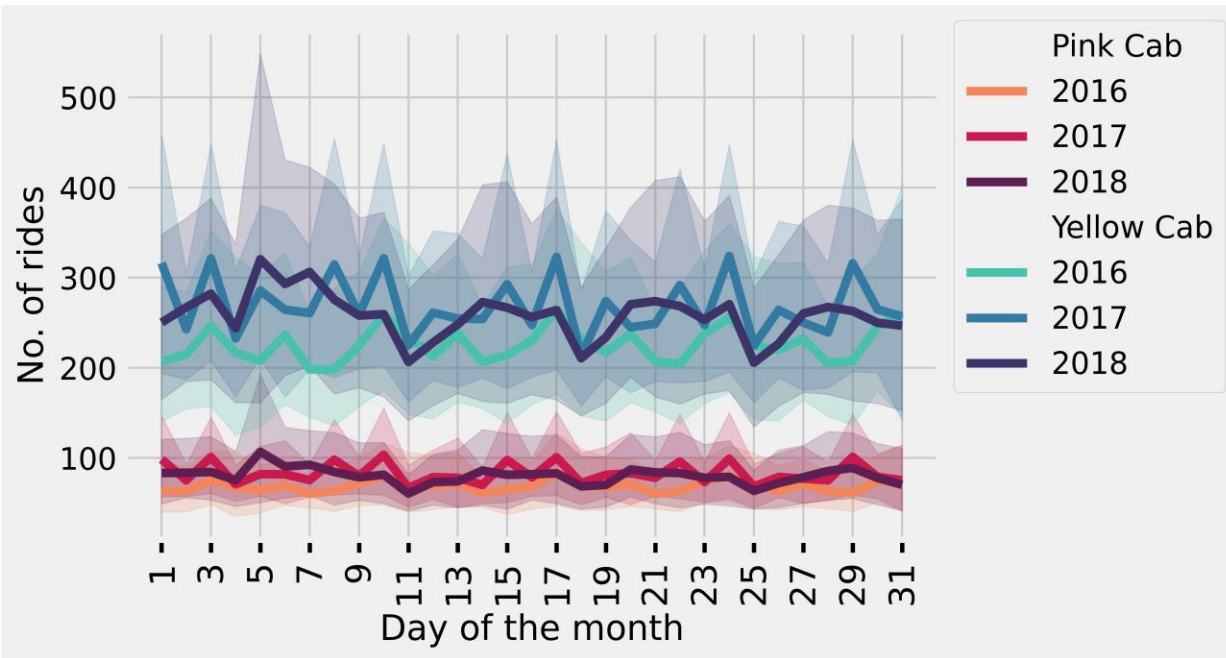
- This is cab user numbers covered by each company as a percentage considering their sum across all 19 Cities (National coverage) per year

Conclusion:

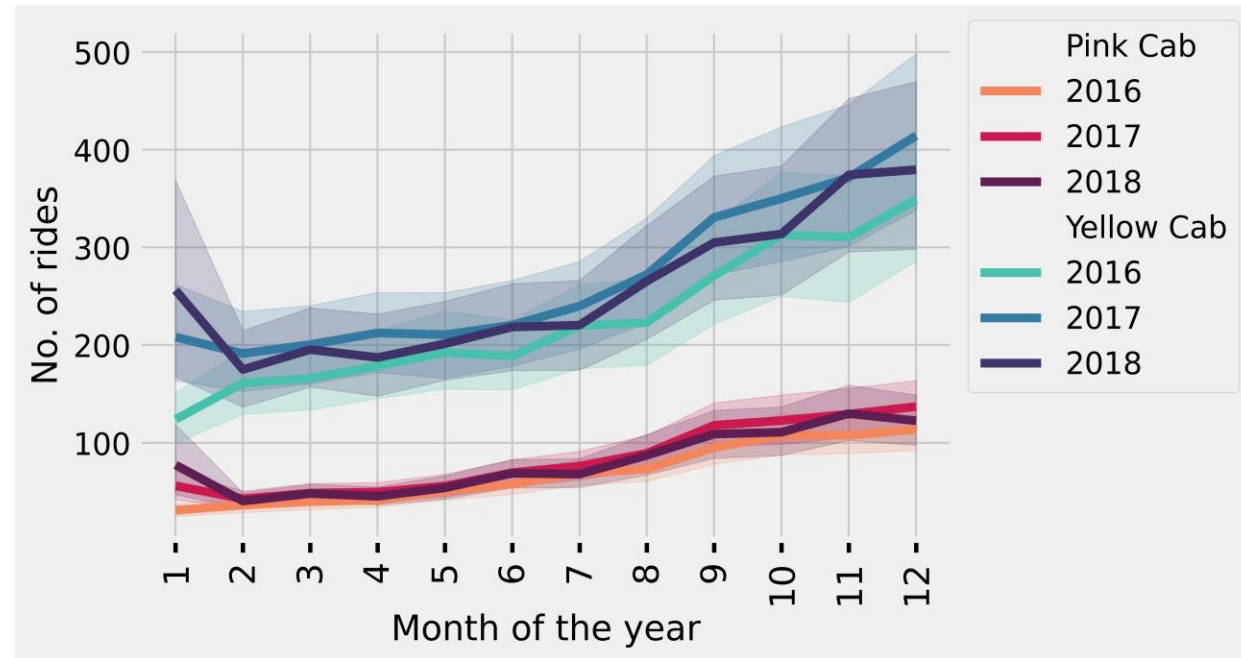
- Yellow cab has a wider reach to customers compared to pink Cab

Seasonality in the demand

Day VS number of rides



Month VS number of rides



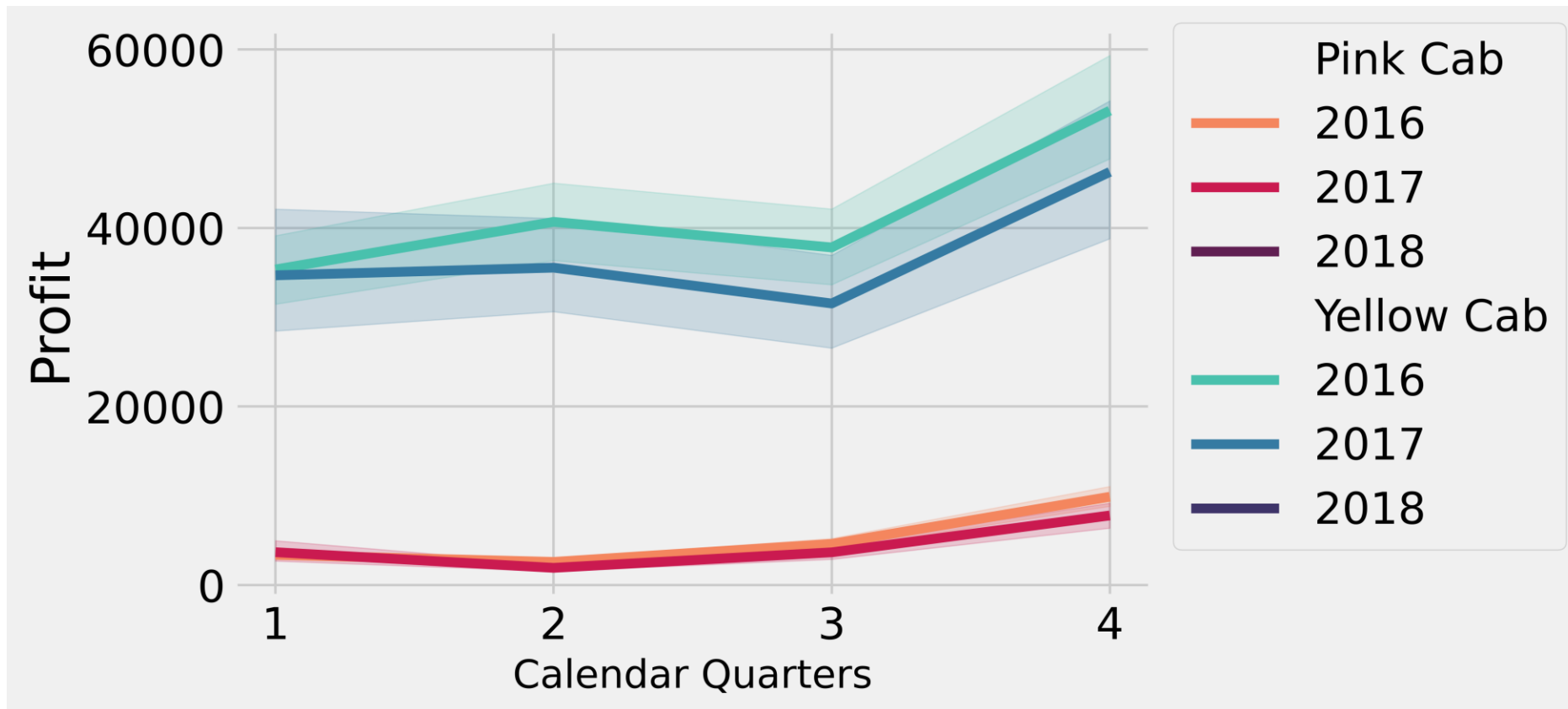
- Seasonal component is present in both cabs.

Conclusion:

- Demand is high on the 5th day of the month for both cabs
- Demand increases exponentially towards the end of the year

Seasonality in the Profit

Seasonality in profit levels



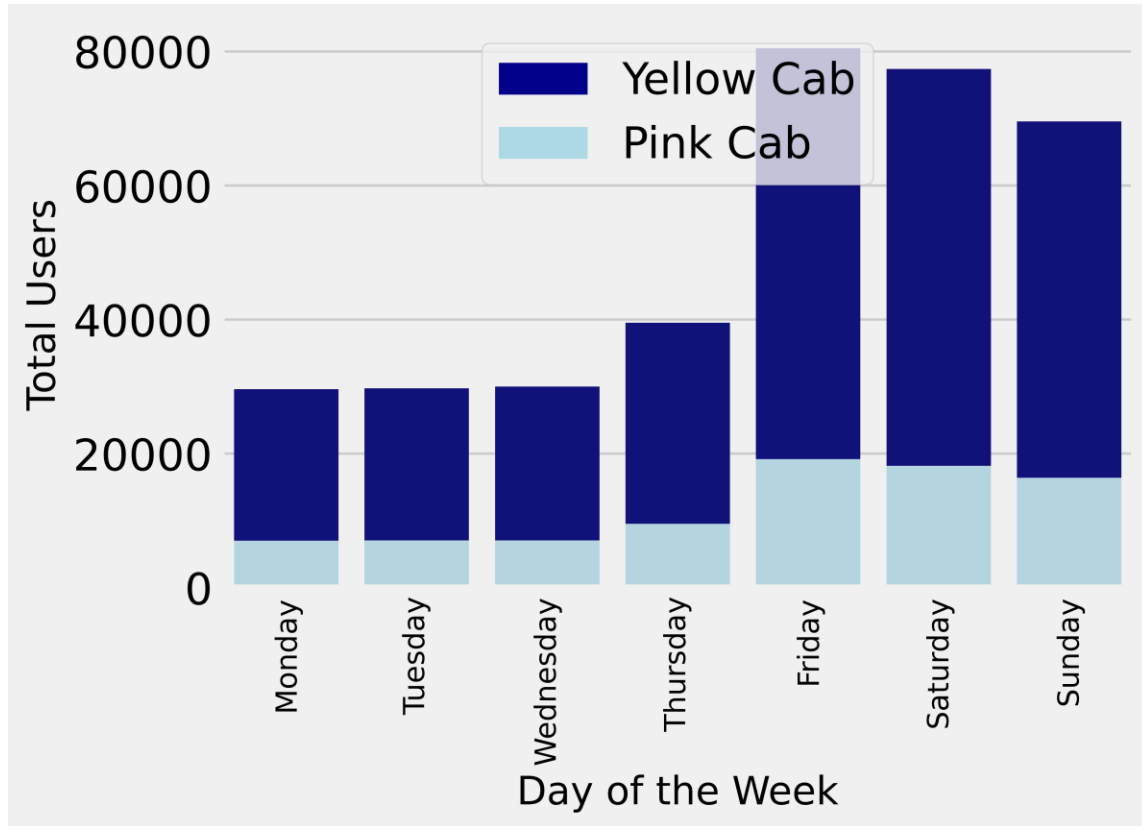
Seasonal pattern for 4 Quarter cycles

Conclusion:

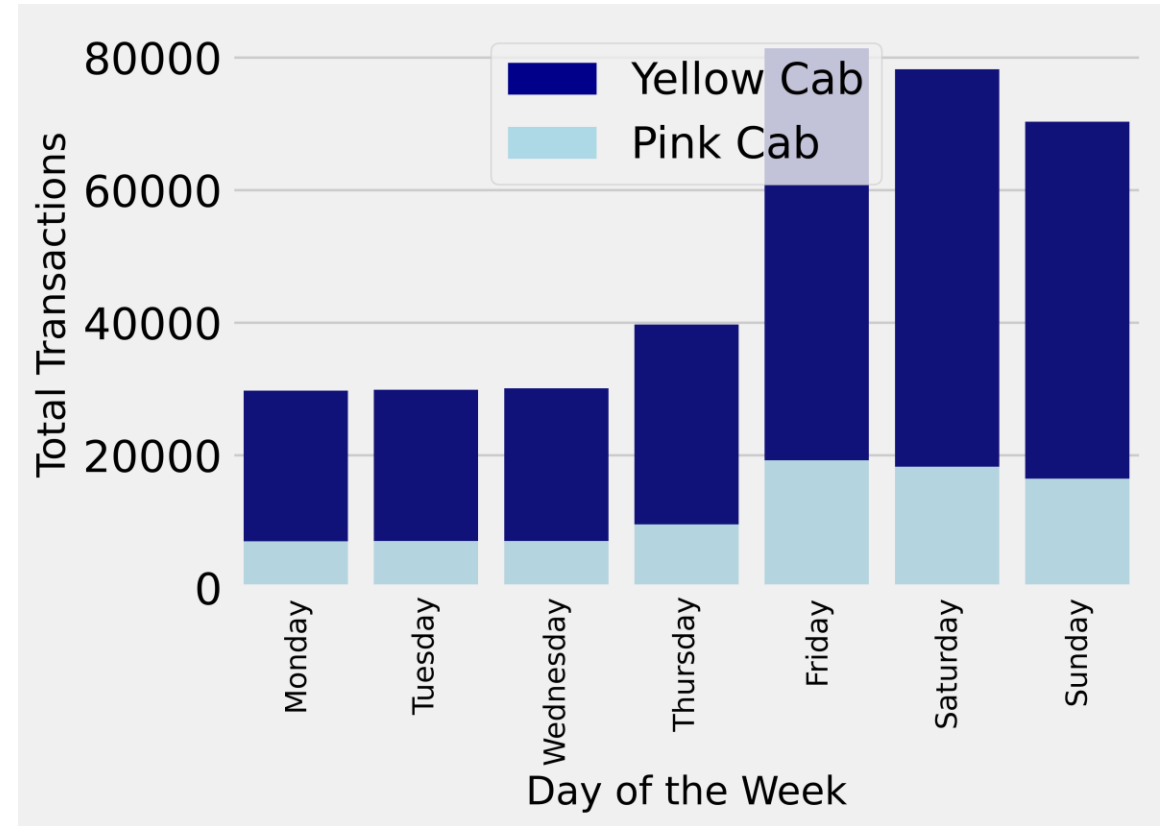
- Yellow Cab registers increased profits in the second quarter of the year, whereas Pink Cab records reduced profit levels.
- Both companies exhibit increased and largest profit levels in last quarter of the year

Customer And Ride Analysis Day Wise

Customer analysis daywise



Ride analysis daywise

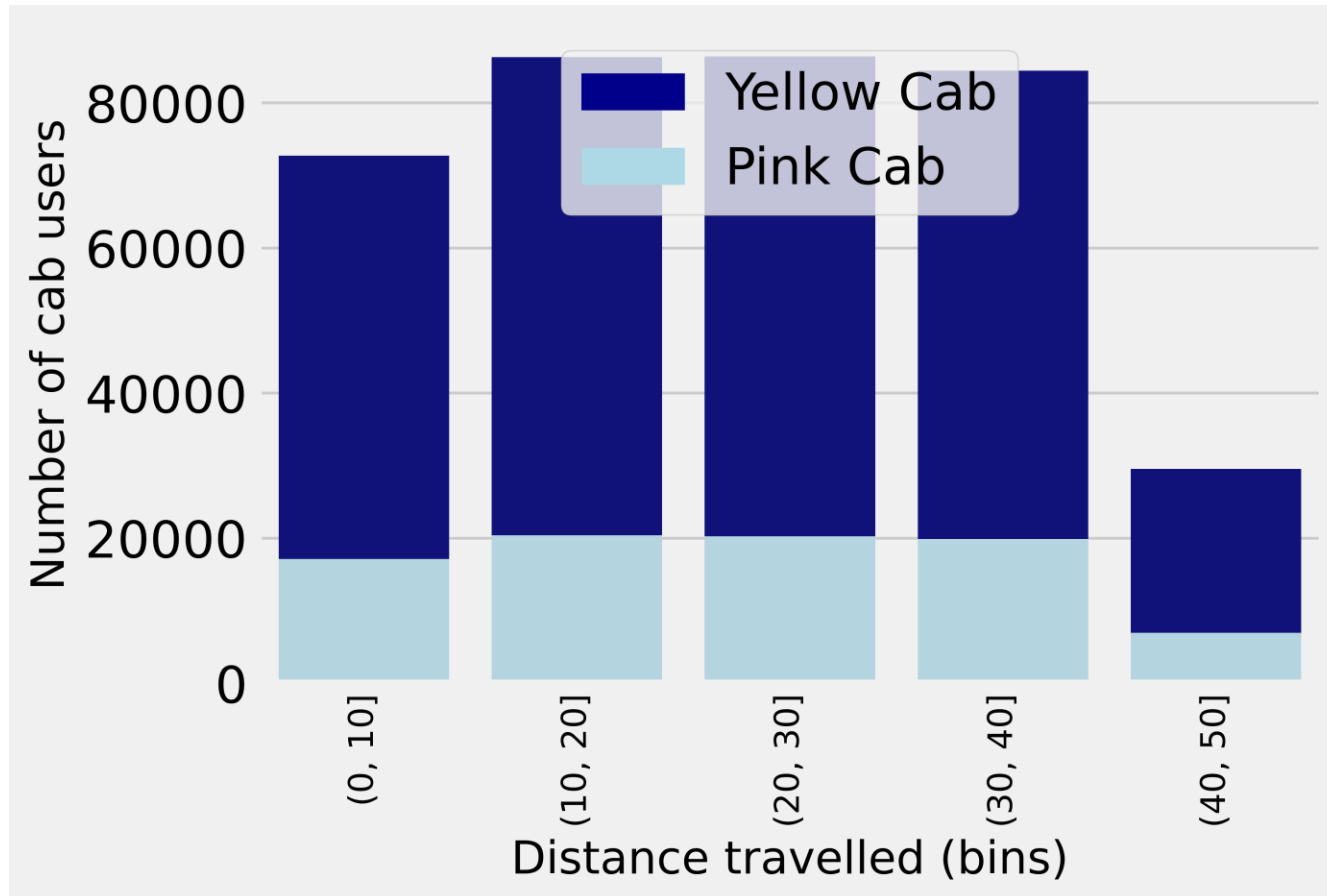


Conclusion:

- Both cabs record higher number of customers on Friday, Saturday and Sunday
- Both cabs record larger number of transactions on Friday, Saturday and Sunday

Customer analysis based on ride distance

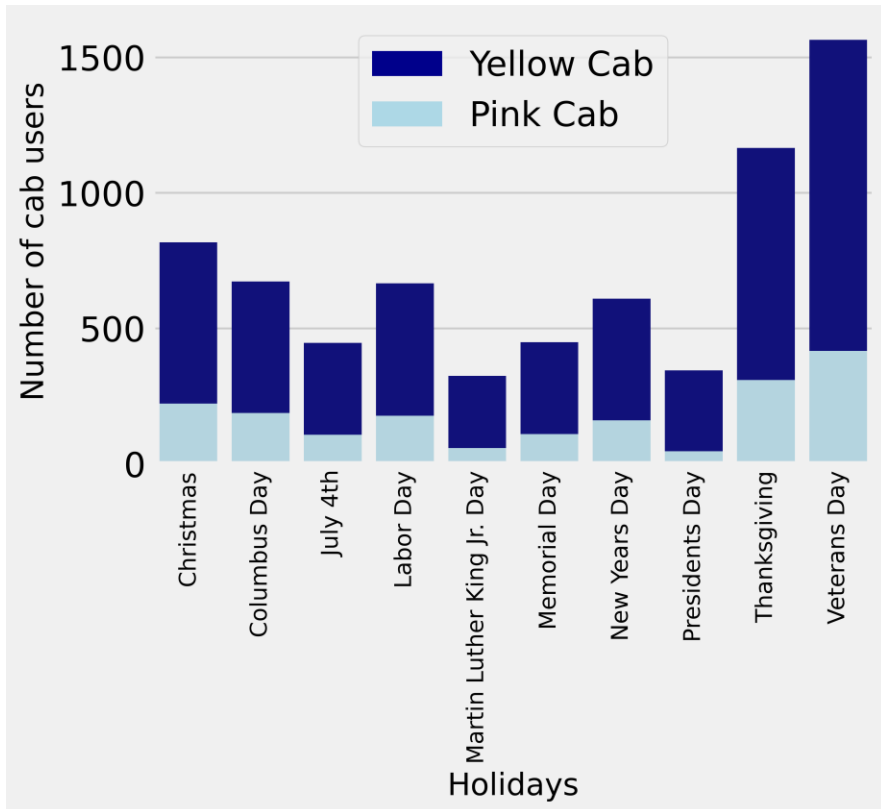
Distance (Km travelled) VS number of customers



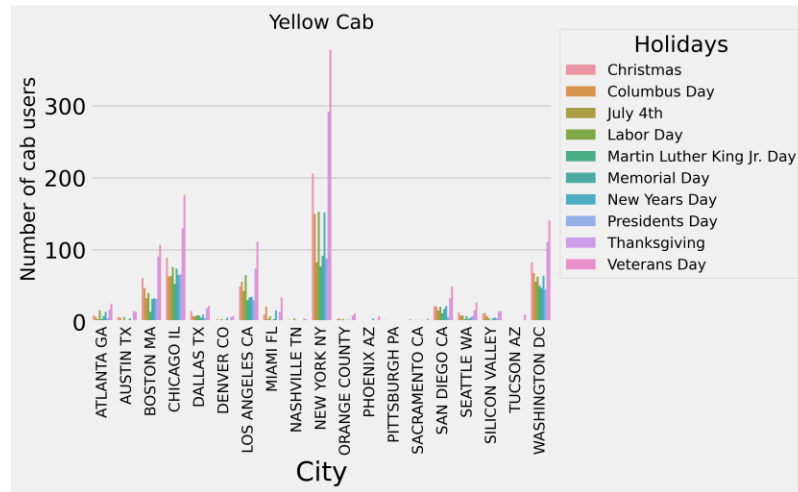
- Both Yellow and Pink Cabs exhibit nearly uniform number of customers plying short and medium distance (<40KM)
- In both Cabs, a smaller number of customers travel long distances (> 40KM)
- Yellow Cab has a good customer reach across all distances

Customer Preference on Holiday

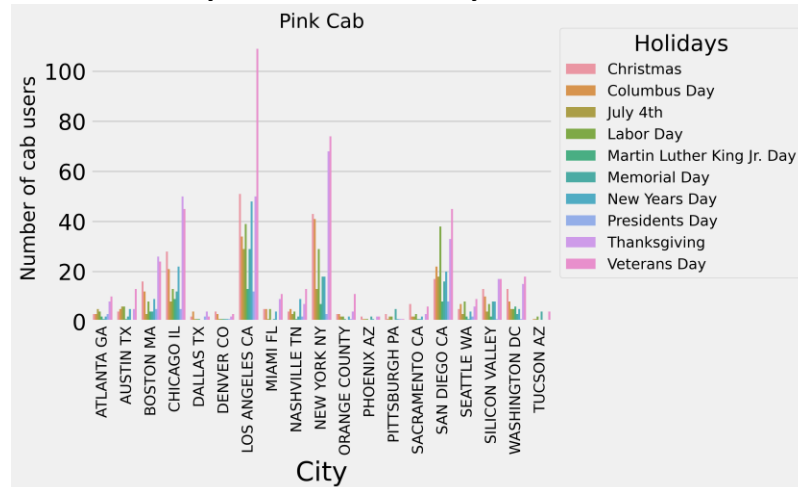
Customer preference on holiday



Ride analysis on holiday for Pink Cab



Ride analysis on holiday for Yellow Cab

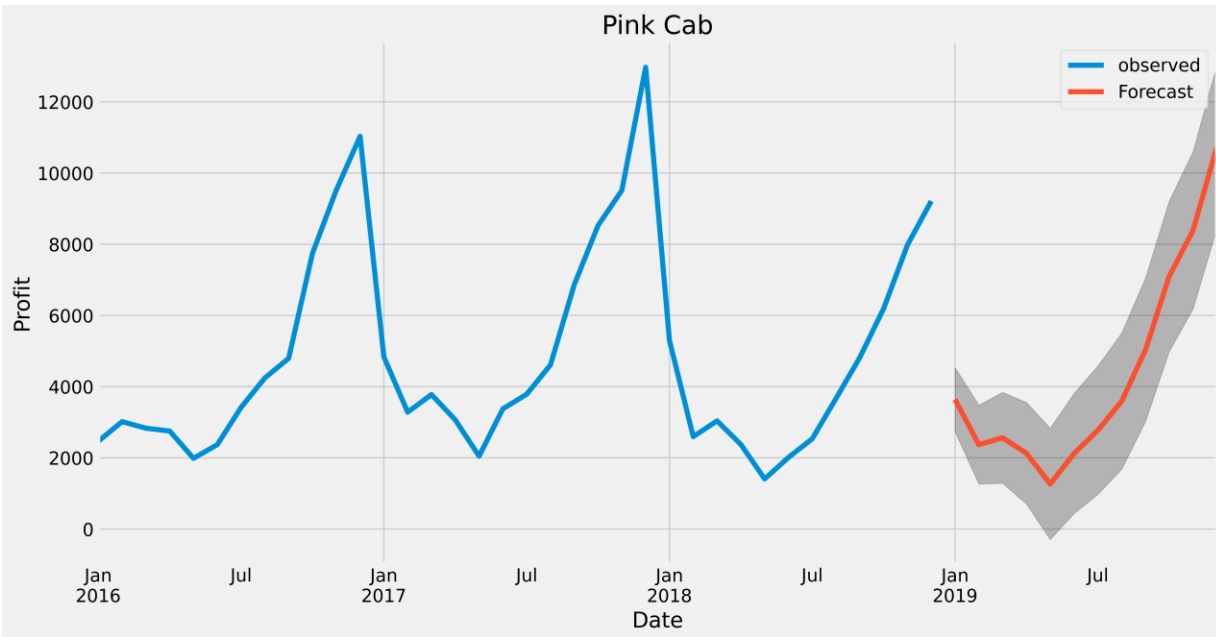


Conclusions:

- Yellow Cab attracts more customers on holidays than the Pink Cab
- Thanksgiving and Veterans holidays record the largest number of cab users compared to other holidays.
- Yellow Cab attends to more customers on holidays in New York, Boston, Chicago, Los Angeles, and Washington.
- Pink Cab attends a larger number of customers on holidays in Chicago, Los Angeles, New York, and San Diego.

Profit Forecasting for 2019

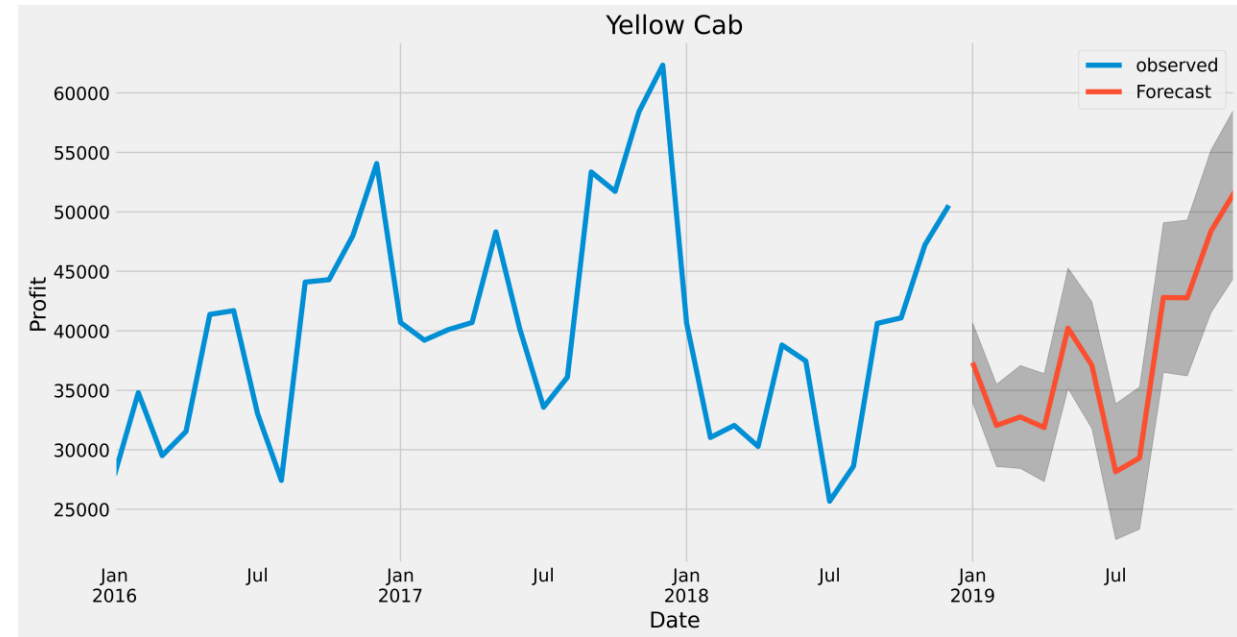
Profit forecast for 2019 (Pink Cab)



Conclusions:

Pink Cab profit is likely to increase in the year 2019
(Average profit increase = 46.56)

Profit forecast for 2020 (Yellow Cab)

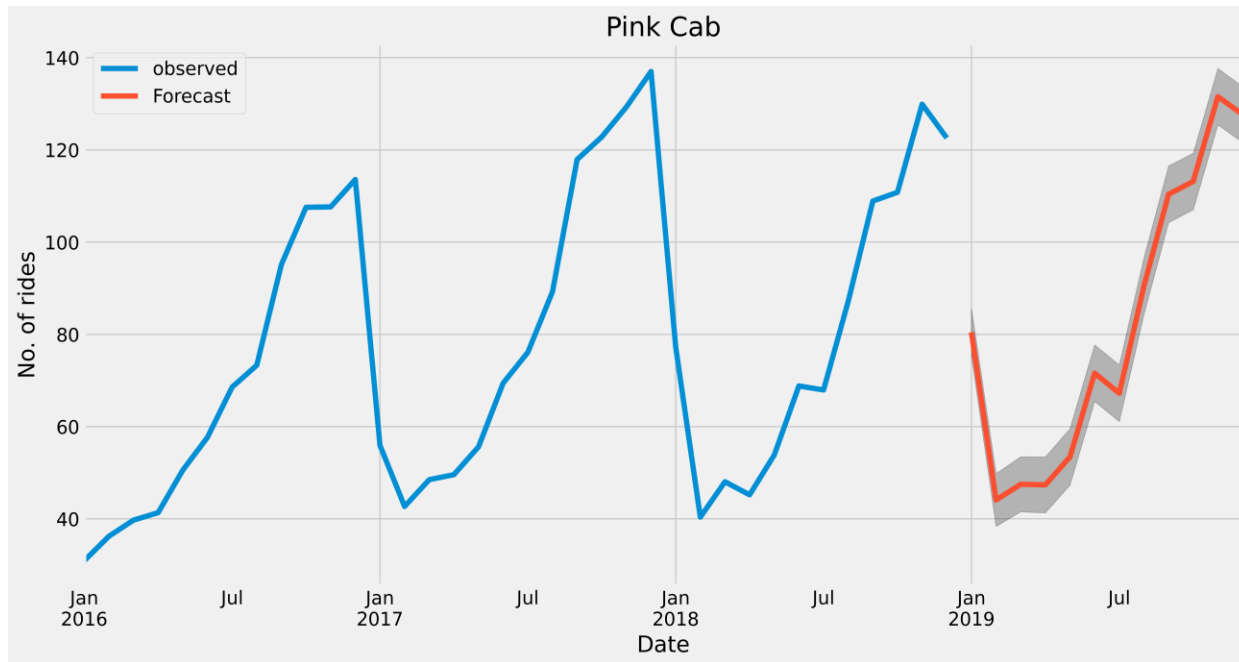


Conclusions:

Yellow Cab profit is also likely to increase in the year 2019
(Average profit increase = 866.20), although with a larger margin relative to Pink Cab

Forecasting of no. of rides for 2019

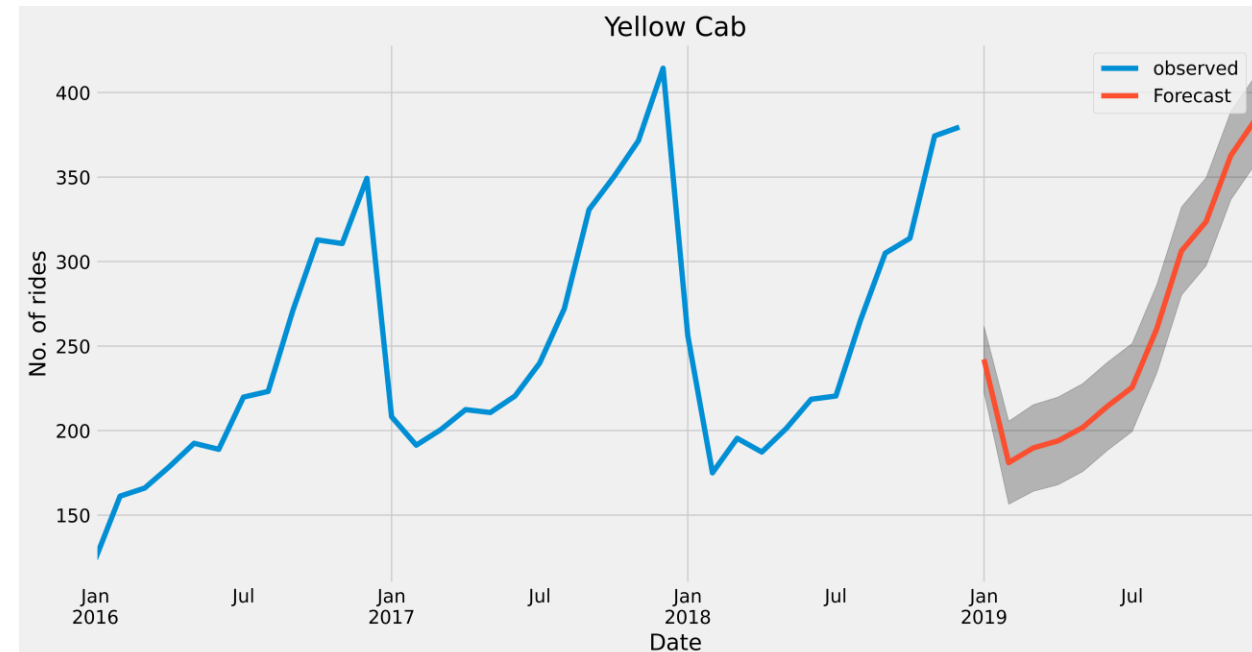
Ride forecast for 2019 (Pink Cab)



Conclusions:

Pink Cab rides are likely to increase in the year 2019
(Average ride increase = 2)

Ride forecast for 2020 (Yellow Cab)



Conclusions:

Yellow Cab rides are also likely to likely to decrease in the year 2019 (Average ride decrease = 1)

Recommendations

We have evaluated both cab companies and based on the following points found Yellow cab better than Pink cab:

- **Customer Reach** : Yellow cab has higher customer reach in 14 cities while Pink cab has higher customer reach in 5 cities.
- **Customer Retention:** Based on the analysis of the two retention capacities (at least 5 rides and at least 10 rides per customer with the same cab company), we found that Yellow cab is doing better than Pink cab in retaining cab customers.
- **Age wise Reach** : Yellow cab is used by a higher number of customer in all age group, and it has been observed to be popular in junior adults (age 25-35).
- **Average Profit per KM:** Yellow cab's average profit per KM is almost three times the average profit per KM of the Pink cab.
- **Income wise Reach** :Both the cabs are very popular in low and medium income class. Also Yellow cab is performing better than Pink cab in offering services to all the three income class groups (low, medium and high)
- **Ride count and Profit Forecasting** : Both the companies are likely to have increased profits in 2019 (46.56 usd (Pink Cab) and 866 usd (Yellow Cab) on average). Pink Cab rides are likely to increase (by 2) whereas Yellow rides are projected to decrease (by 1) on average in the year 2019.

On the basis of above points, we will recommend Yellow cab for investment.

Thank You



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