

G2M Case Study

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1. Business Problem

- The Client

XYZ is a private 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 and as per their Go-to-Market(G2M) strategy they want to understand the market before taking final decision.
- Project Objective:

To generate insights to help XYZ identify the right company to make their investment.
- In next sections we will analyze data in the following process:
 - Data Intake and Preliminary Processing
 - Compare Yellow Cab and Pink Cab from different aspects
 - Recommendations for investment

2. Data Intake and Preliminary Processing

Cab_Data.csv – this file includes details of transaction for 2 cab companies

Customer_ID.csv – this is a mapping table that contains a unique identifier which links the customer's demographic details

Transaction_ID.csv – this is a mapping table that contains transaction to customer mapping and payment mode

City.csv – this file contains list of US cities, their population and number of cab users

US_Holiday_Dates.csv – this file contains list of US holiday dates.

We merged them to create a **Merged_Data** with 359854 entries

And **21 features** (including 6 created features)

3. Compare Yellow Cab and Pink Cab from Different Aspects

Our analysis is designed to answer the following questions:

3.1 What's the profit rate of Cab market? Which company has higher profit rate?

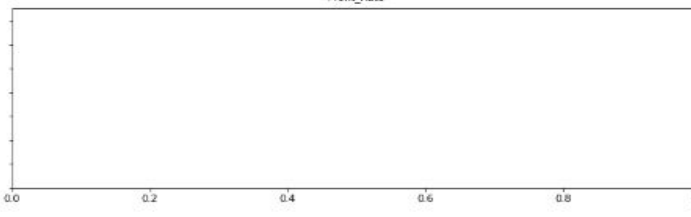
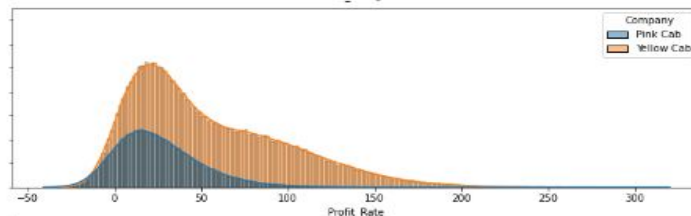
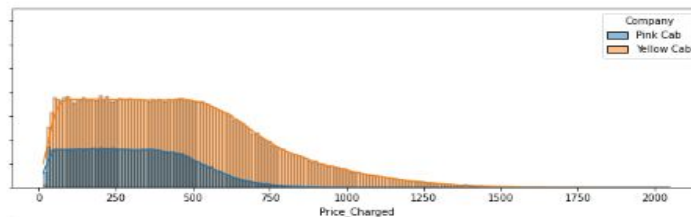
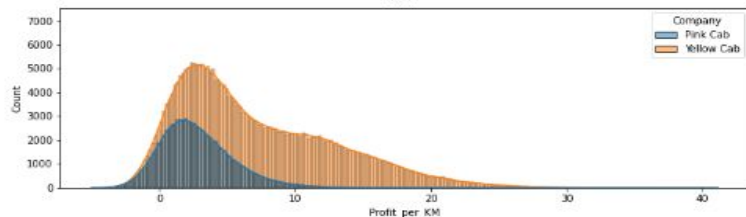
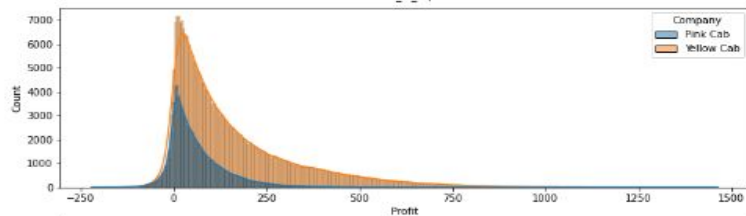
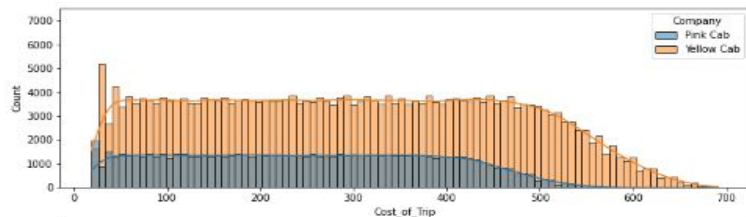
3.2 Does Yellow Cab have bigger market share than Pink Cab?

3.3 Do Customers prefer Yellow Cab to Pink Cab?

3.4 Who serves the higher income

3.5 Which company prevail in which city?

3.6 Can Yellow Cab make more profit in the future?

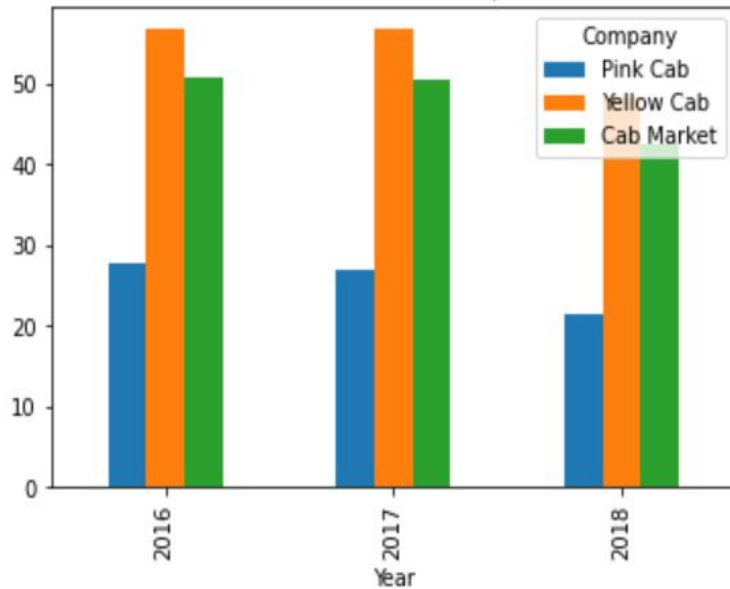


We can see from the last three figures that distributions of profits are all right skewed. But Yellow Cab has a visible bump to the right of peak in the distribution of Profit Rate and Profit per KM, which will probably lead to higher total profit rate. So we will check company's profit rate next.

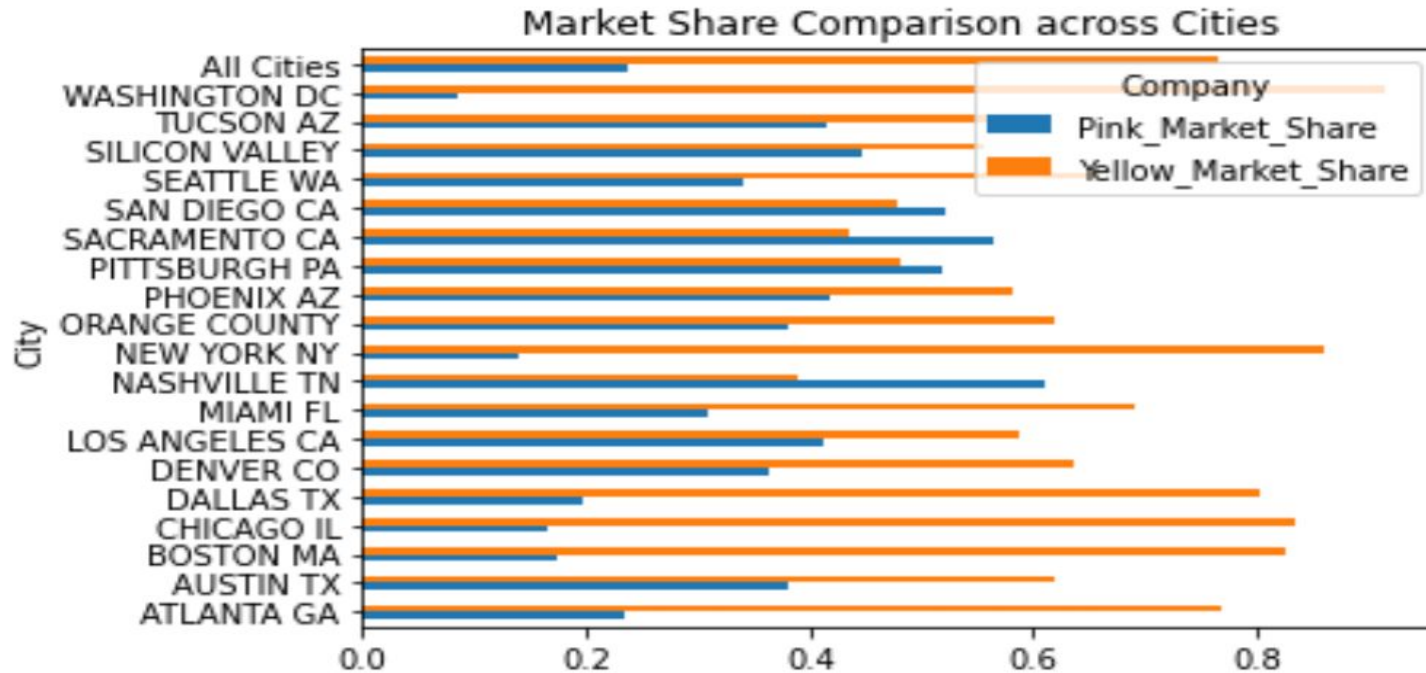
Annual Profit Rate of Cab Market

Company	Pink Cab	Yellow Cab	Cab Market
Year			
2016	27.659727	56.719546	50.864915
2017	26.937759	56.744110	50.639303
2018	21.427914	48.213674	42.691567

Annual Profit Rate Comparison

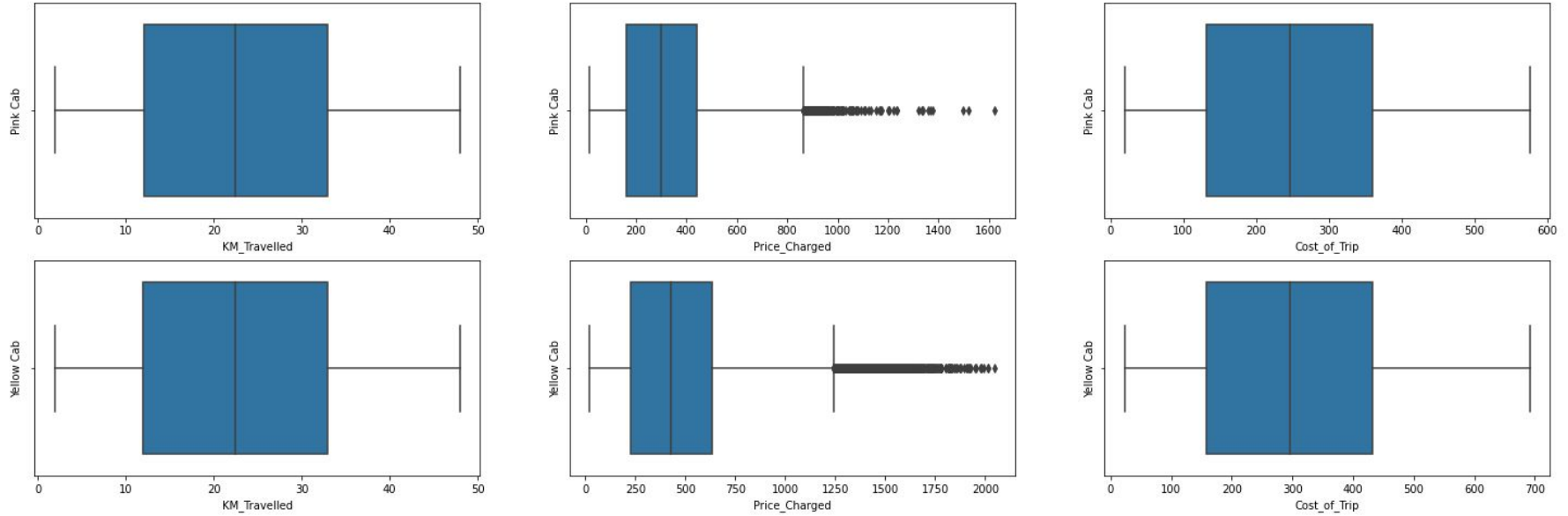


From these figure and table, we can see that Yellow Cab does have higher yearly profit rate (48% - 56%) than Pink Cab(21%-27%) in each of the recorded year. And one of the reasons is Yellow Cab have more high-profit-rate rides proportionally than Pink Cab.



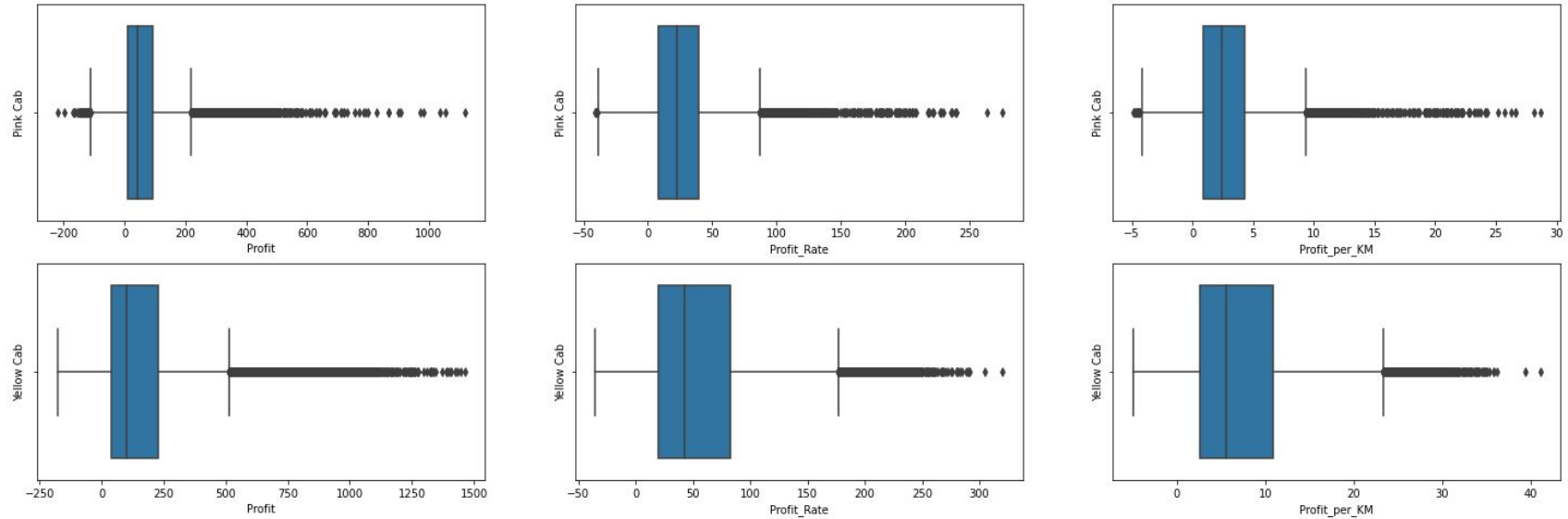
Assume Pink and Yellow Cap are the only cab companies in USA. Yellow Cap's market share is two times greater than that of Pink Cap nationally. And Yellow Cap's advantage exists in most cities. As market share is highly related to the number of cabs owned by each company, this can be seen a stable advantage of Yellow Cab.

Boxplot Distributions of the Variables



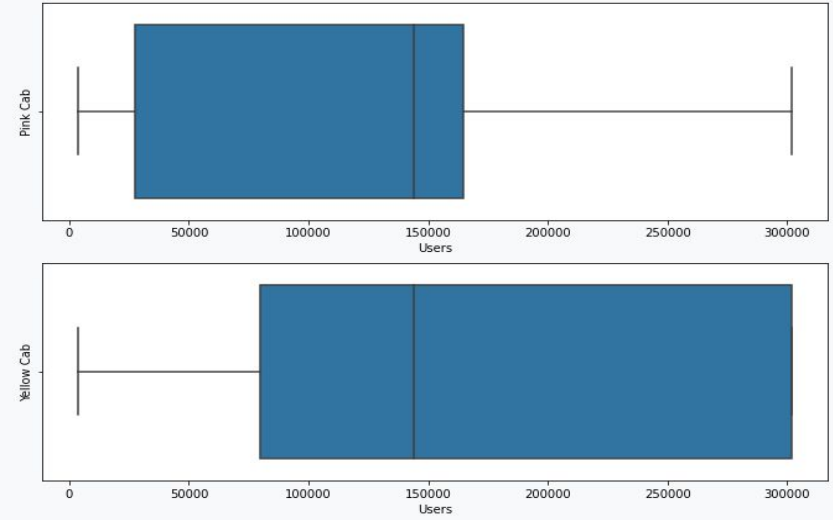
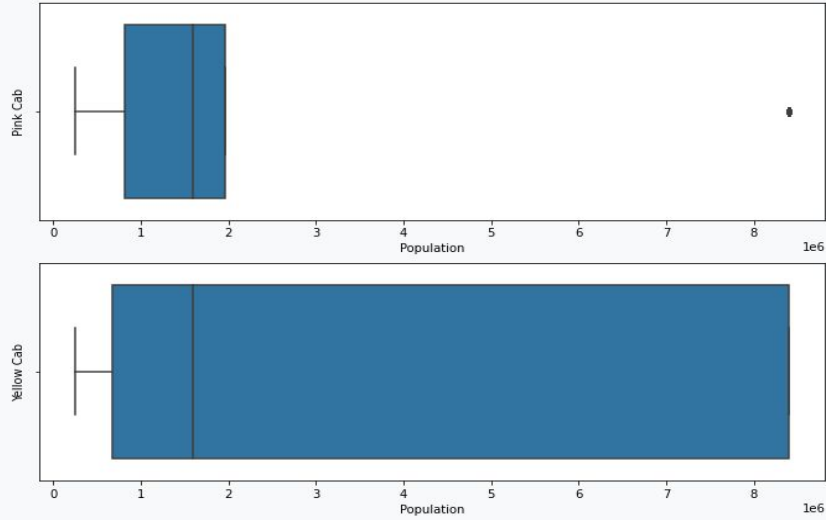
The distributions of KM_Traveled and Cost_of_Trip are similar for both companies. But Yellow Cab have greater medium in Price_Charged and higher proportion of rides with higher prices.

Boxplot Distributions of the Variables



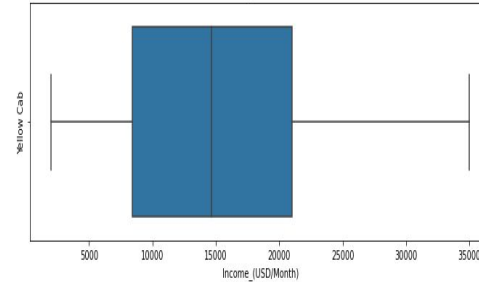
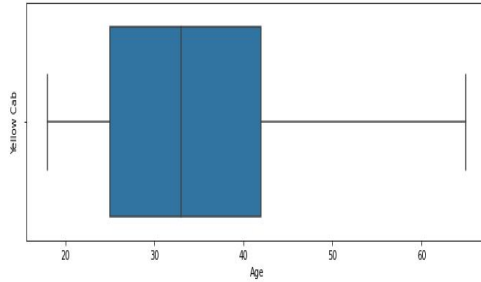
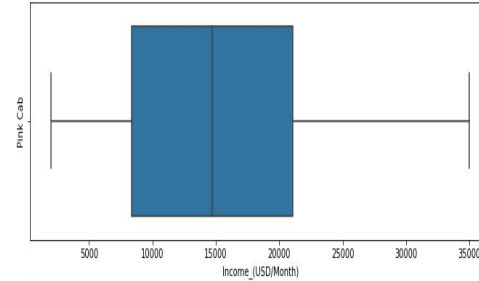
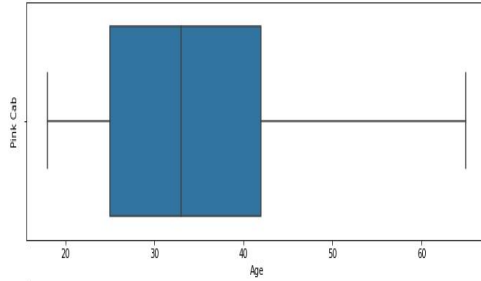
Though Yellow Cab has lower Profit medium, it has more high-profit rides proportionally. What's more, Yellow Cab's Profit_Rate and Profit_per_KM also outperforms Pink Cab in terms of medium and high-profit-ride ratio. This also gives us a hint of pricing strategy of Yellow Cab: lower start rate but higher average rate per KM.

Boxplot Distributions of the Variables



From the boxplot of 'Population' and 'Users', we found that Pink Cab serves mainly small cities while Yellow Cab has more transactions happened in big cities.

Boxplot Distributions of the Variables



	Customer ID		Female_Rate
Gender	Female	Male	
Company			
Pink Cab	14819	17511	0.458367
Yellow Cab	18394	21502	0.461049

From the boxplot of 'Age' and 'Income_(USD/Month)' and the table of Customer_Gender, customers of Pink Cab and Yellow Cab have similar statistics.

Customer Number of Yellow Cab

Customer ID

Year

2016 25937

2017 27789

2018 27470

Customer Number of Pink Cab

Customer ID

Year

2016 16661

2017 18643

2018 18400

Company

Year 2016 2017 2018

count 31152.000000 33418.000000 32938.000000

mean 1.367424 1.389431 1.392616

std 0.482111 0.487629 0.488340

min 1.000000 1.000000 1.000000

10% 1.000000 1.000000 1.000000

20% 1.000000 1.000000 1.000000

30% 1.000000 1.000000 1.000000

40% 1.000000 1.000000 1.000000

50% 1.000000 1.000000 1.000000

60% 1.000000 1.000000 1.000000

70% 2.000000 2.000000 2.000000

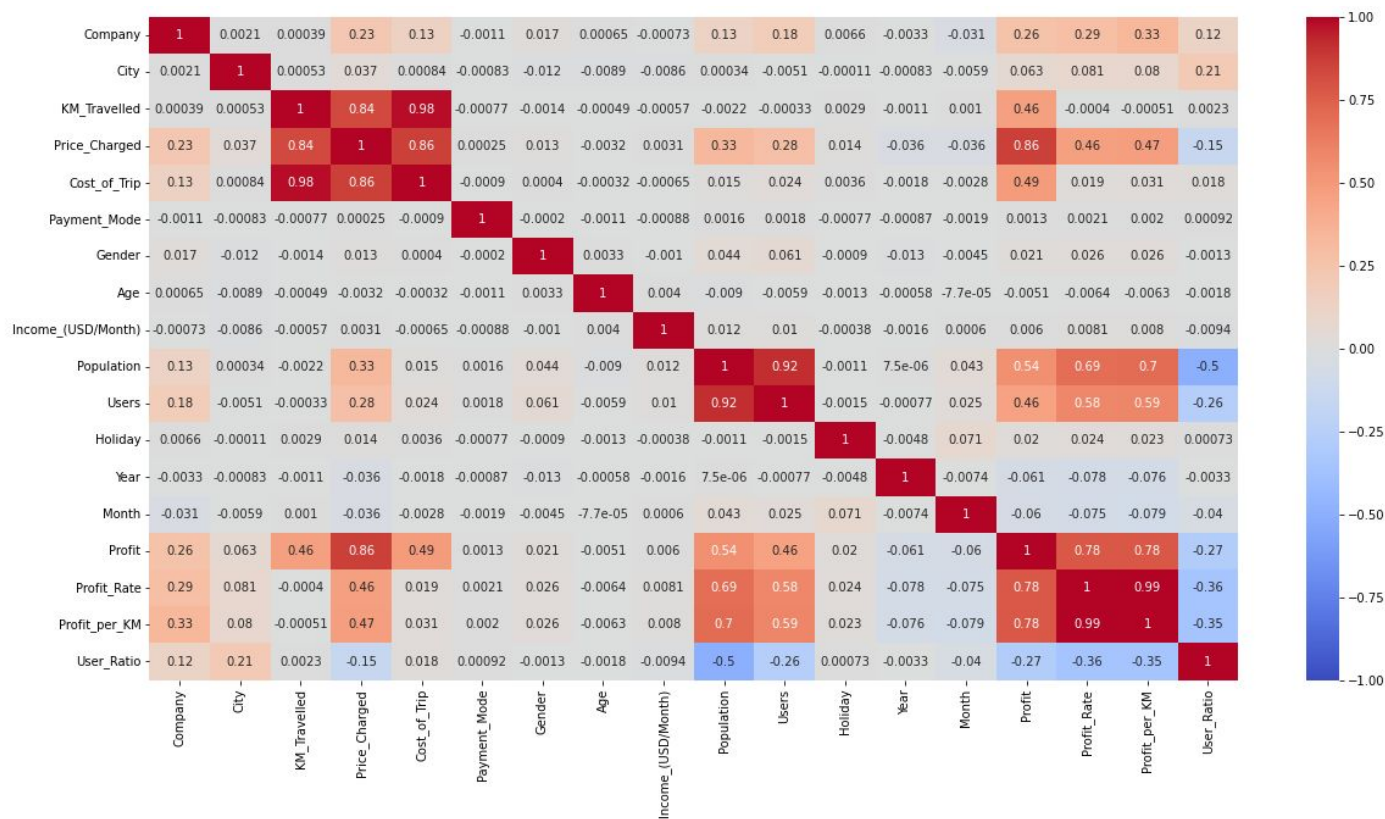
80% 2.000000 2.000000 2.000000

90% 2.000000 2.000000 2.000000

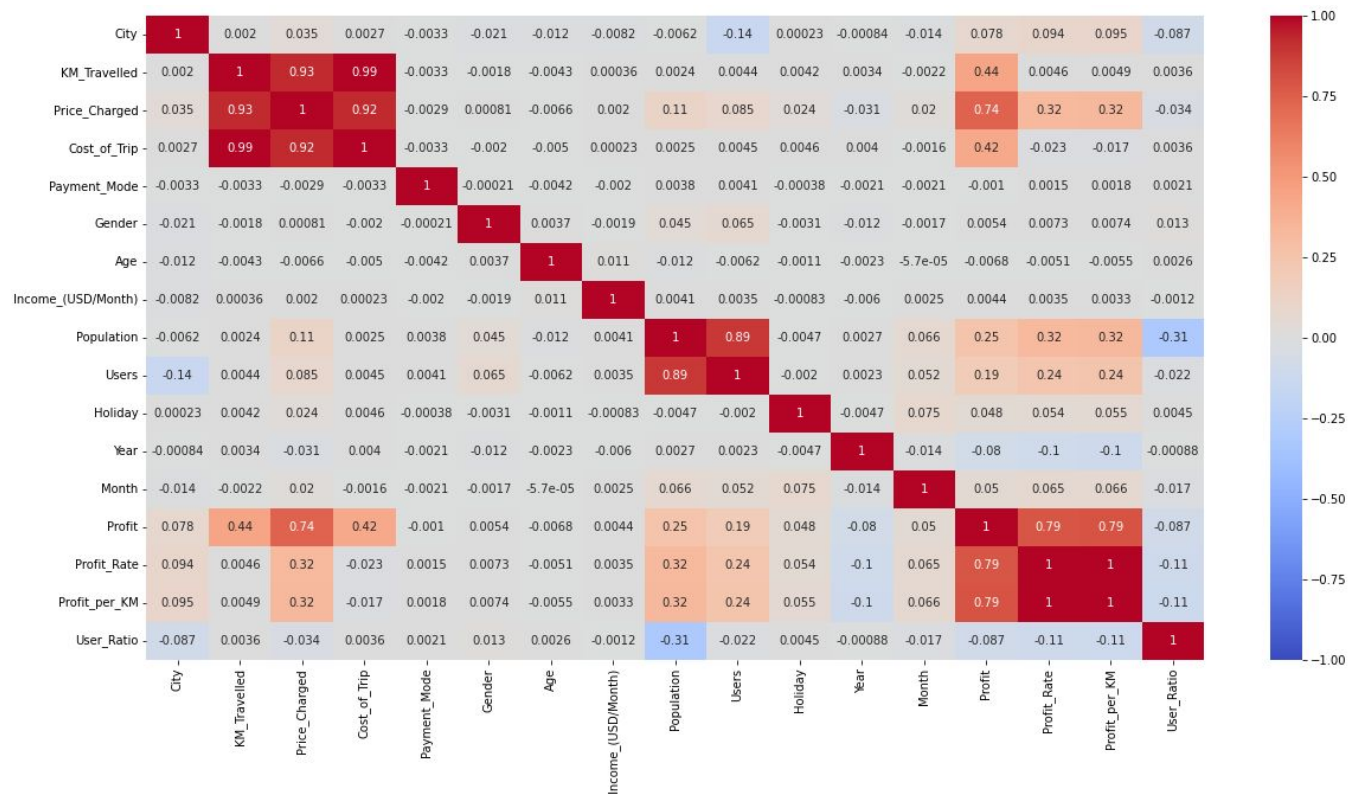
max 2.000000 2.000000 2.000000

Yellow Cap has more customers in all years and 60%-70% customers use only Cap company.

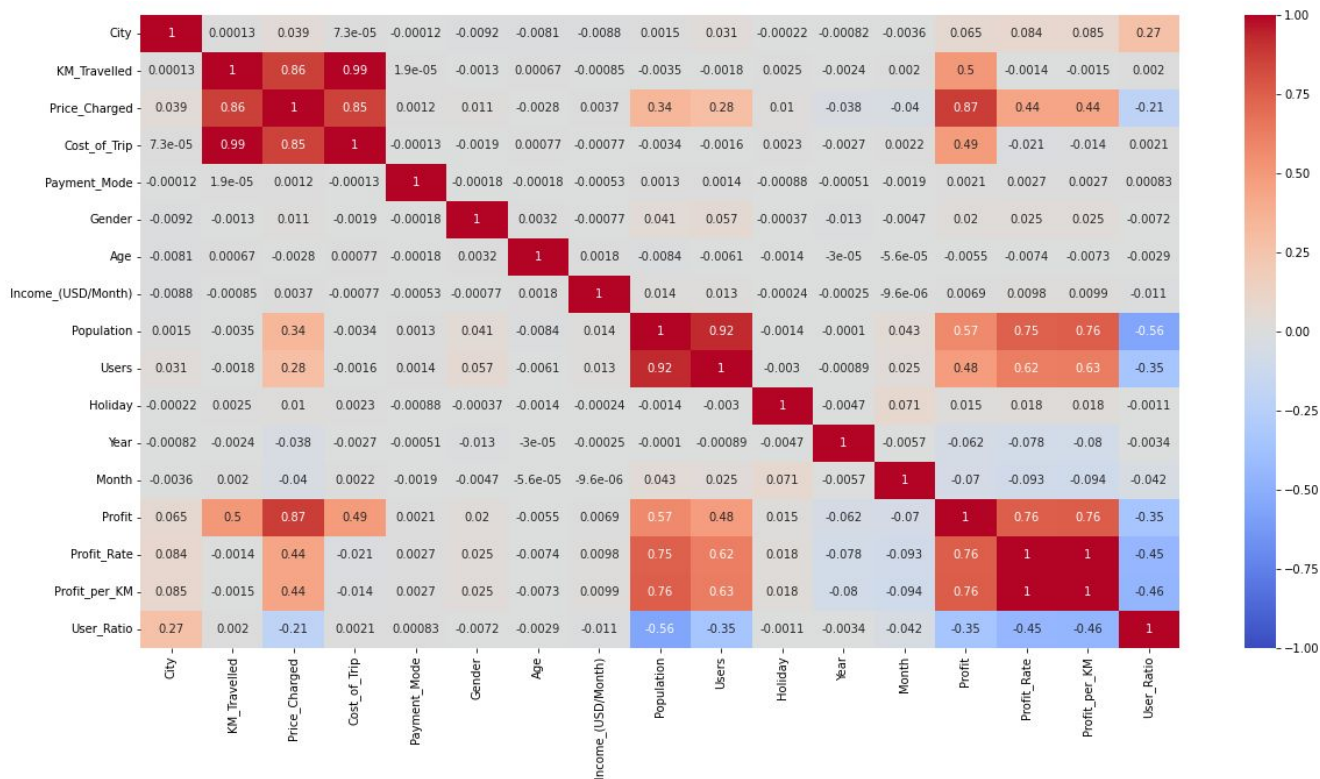
Heatmap: the correlation of different features (full data)



Heatmap: the correlation of different features (Pink Cab)



Heatmap: the correlation of different features (Yellow Cab)



Information from Heatmaps

Heatmaps show us some intuitive truth: Price_Charged is positively related to profit indexes, i.e., Profit, Profit_Rate, Profit_per_KM. However, we also find that the correlations between Population, Users and profit indexes of Yellow Cab is much higher than those of Pink Cab. This review the pricing power of Yellow Cab in bigger cities. Or we can say that geographical price differentiation is the strategy Yellow Cab uses to increase profit.

Questions answered:

1. **What's the profit rate of Cab market? Which company has higher profit rate?**

Ans: 50% is the profit of Cab Market, and Yellow Cab has higher yearly profit rate (48% - 56%) than Pink Cab(21%-27%) in each of the recorded year.

2. **Does Yellow Cab have bigger market share than Pink Cab?**

Ans: Yes, Yellow Cab's market share is two times greater than Pink Cab's, though customer number is just 0.5 time greater.

3. **Do Customers prefer Yellow Cab to Pink Cab?**

Ans: Not very clear from the data.

Questions answered (continue):

4. Who serves the higher income

Ans:There isn't very high difference in customer characteristics of both companies.

5. Which company prevail in which city?

Ans:Yellow Cab prevails in most cities except San Diego, Sacramento, Pittsburgh, and Nashville.

6. Can Yellow Cab make more profit in the future?

Ans:There are only three years of data, we are not sure whether Yellow cab can keep up their profit indexes as there is a decreasing in 2018 compared to 2016 and 2017. But Yellow Cab should be able to continue to earn more profit than Pink Cab with dominant market share and better pricing strategy.

4. Investment Recommendation

According to previous analysis, we recommend to invest in Yellow Cab.