Data Glacier
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Exploratory Data Analysis

G2M Case Study

21-05-2024

Introduction

- Cab Services is a growing and promising industry due to its steady demand in offering urban transport solution.
- With the advancement in technology and careful implementation of a suitable strategy, an investment in the cab industry has a compelling opportunity to achieve profit.
- XYZ is a private firm in the US that wishes to flourish its business by investing in the Cab industry.
- This presentation is involved in a study about the US market and critically analysed various attributes contributing to the profitable running of the business based on previous statistics.
- The study is conducted on data obtained from the Pink and Yellow Cab industry from 2016 to 2018.

Goals

- Data Exploration
- Find how profit is dependent on attributes (City, gender, age, population etc)
- Understand about the habits of people to implement business strategies.
- Prediction for future profit
- Useful insights for XYZ firm .

Dataset

- Used four different datasets containing 18 feature points.
- Datasets are merged to form a master dataset.

Cab data   City Data   Customer ID data   Transaction ID data   Master data

Initial Findings and Assumptions

- No null data or missing values found.
- No duplicated values were found within the dataset.
- Outliers are present within the price for the trip feature, neglected this value as it is independent of other features.
- The number of users is considered to calculate the market share of companies.
- Profit is evaluated using the price charges and cost of trip features.
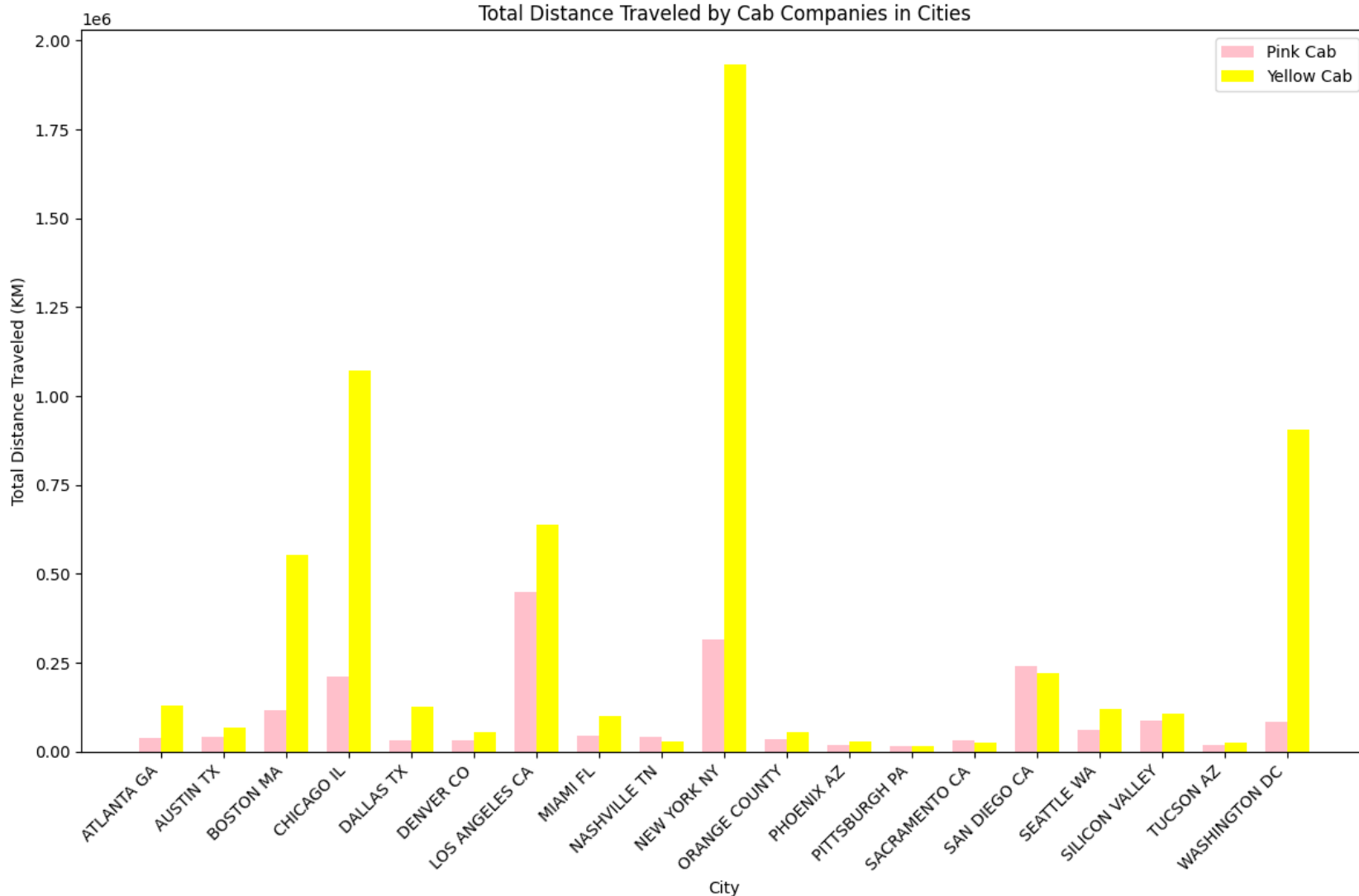
Kilometres Travelled by the Cab Companies
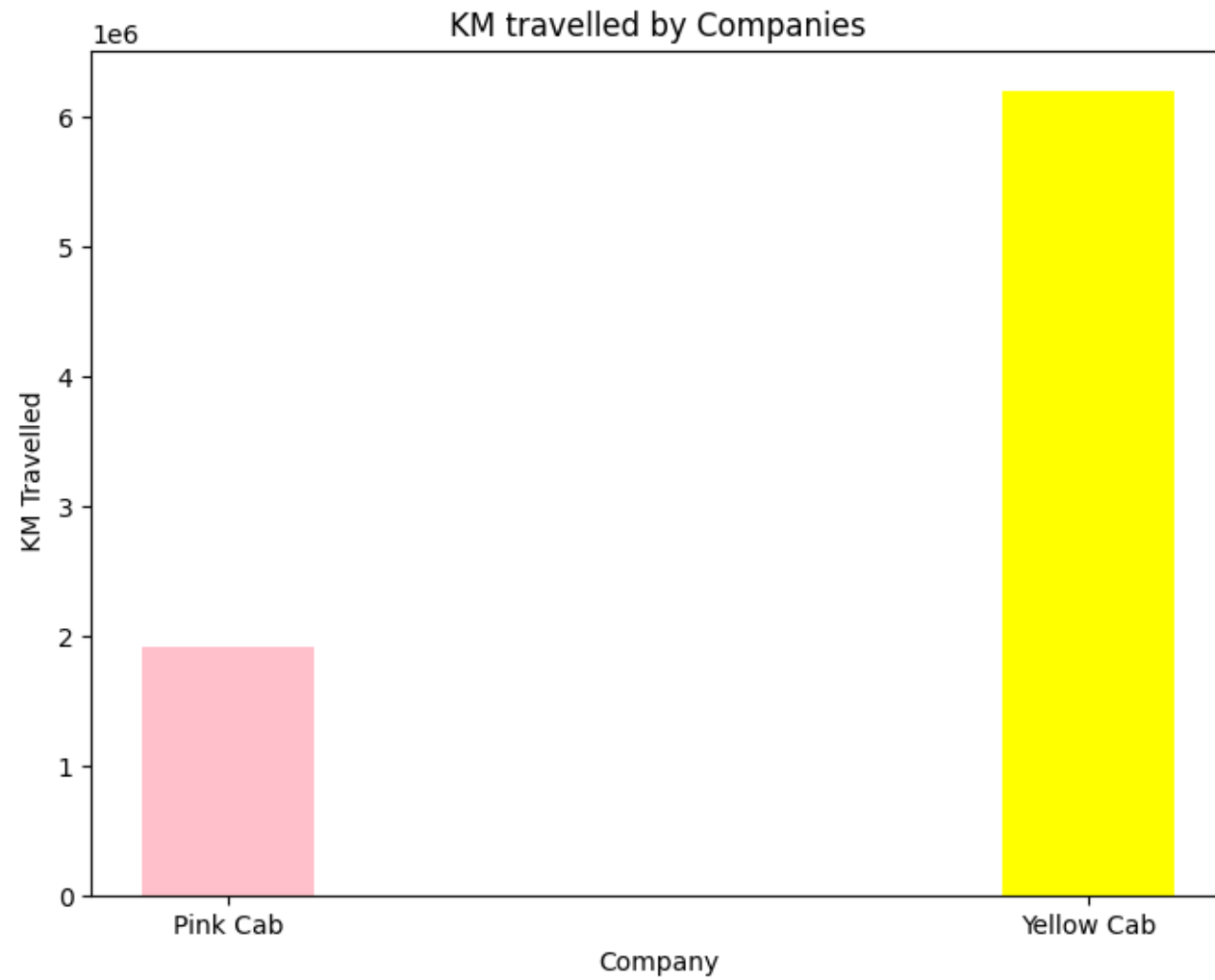
KM travelled by Companies
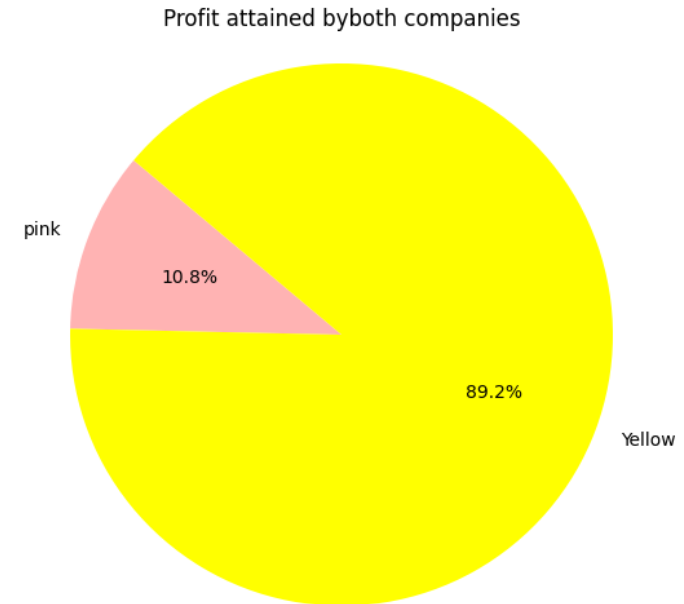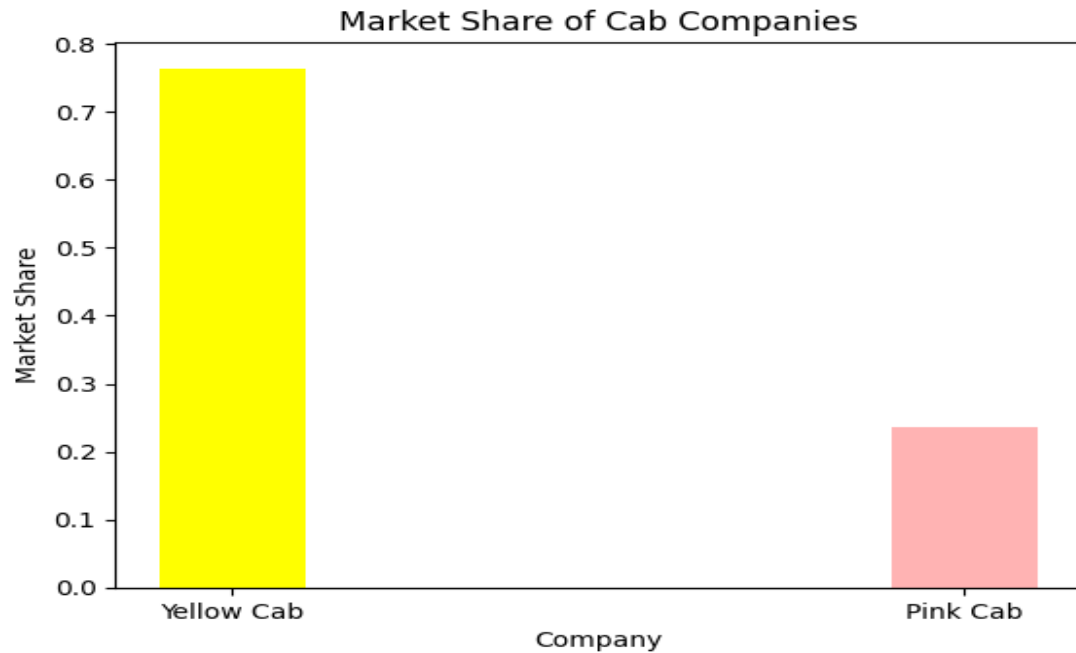
- Yellow Cab company attained a higher share in the Industry by 43% in terms of number of rides.
- The total profit earned by yellow cab service is immensely high.

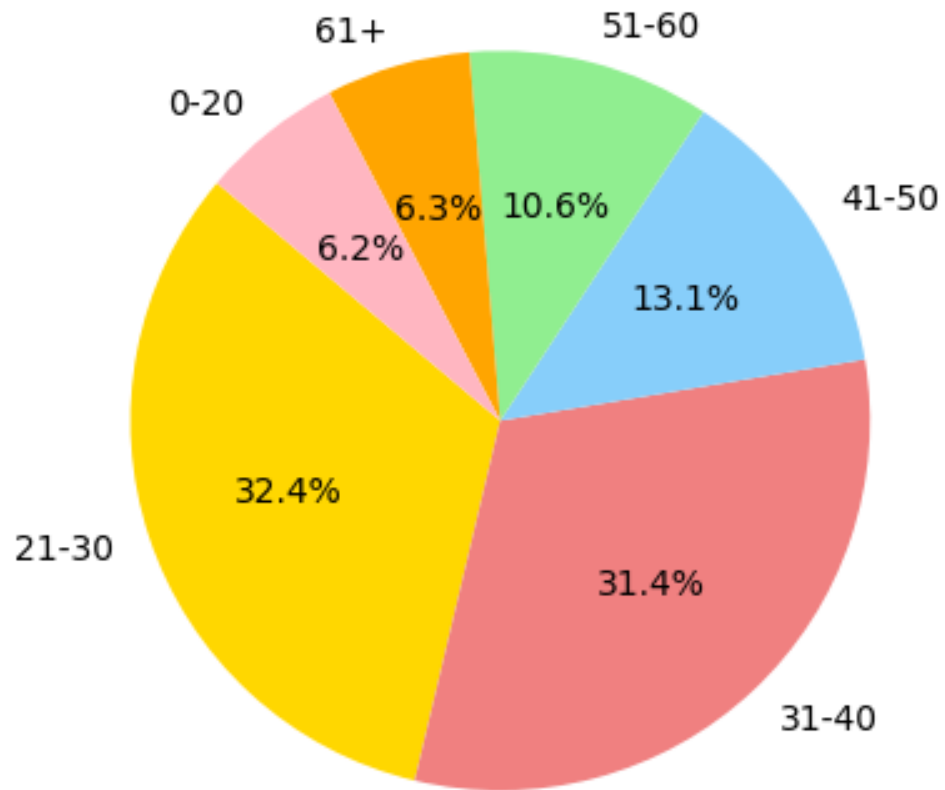Total Distance Traveled by Cab Companies in Cities

Five major cities that are highly dependent on Cab services
- New York
- Chicago
- Los Angeles
- Washington DC
- Boston

Within the 19 cities, pink cab services are dominated over Yellow only at Santiago and Sacramento

Yellow Cab is highly preferred and offers its services in highly populated cities like New York, Washington, and Chicago.

- People aged between 21- 40 mainly prefer the services.
- The Cab preference of people aged between 51 and 65 is poor. This indicates they are more dependent on public transport since it is free for senior citizens.

Preferences for Pink and Yellow Cabs by Gender
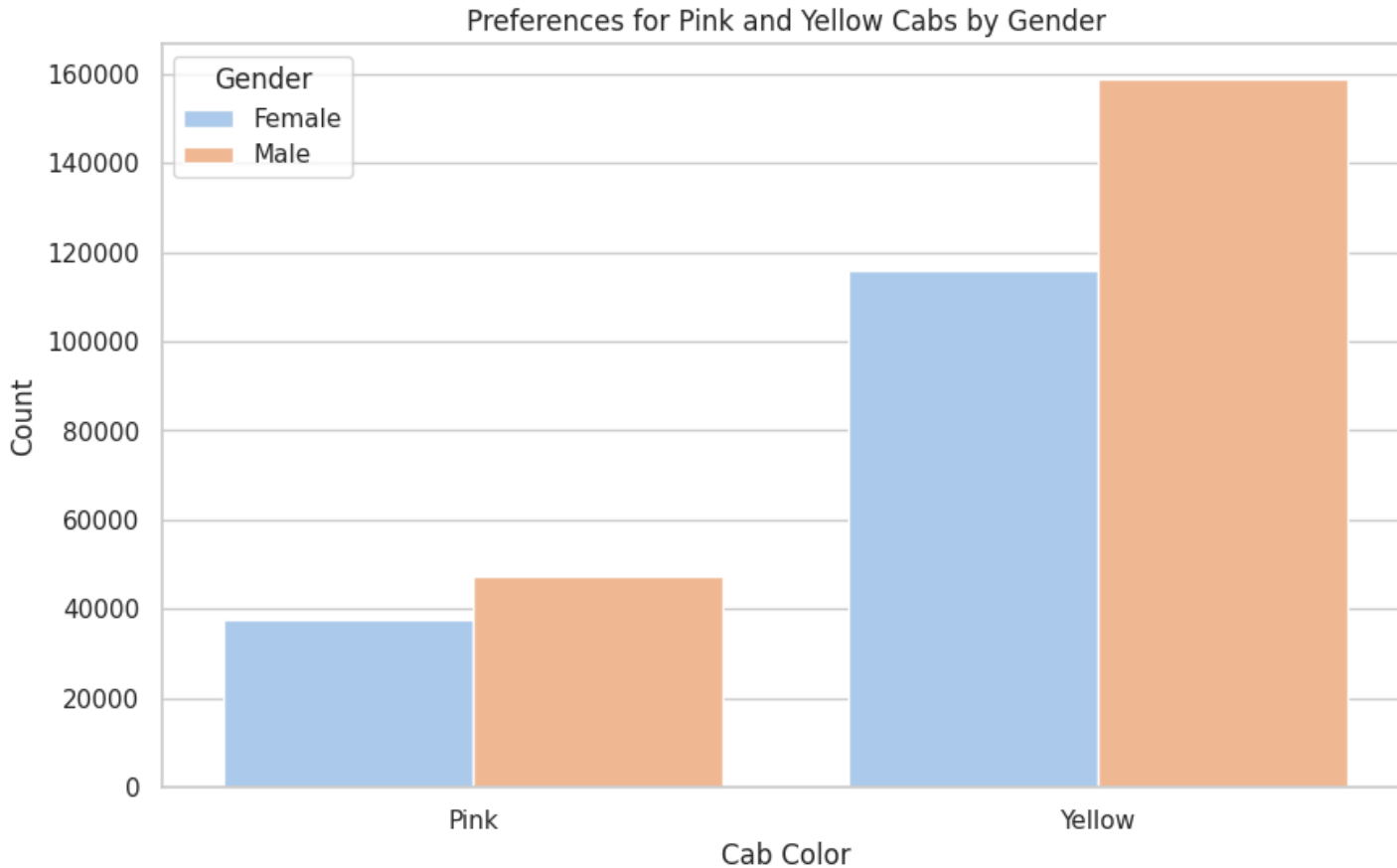
Males are more dependent on cab services rather than females. It may be because of
- **Work Travel**: Men travel more for work.
- **Safety**: Women avoid cabs due to safety concerns.
- **Income**: Men have more disposable income.
- **Social Norms**: Men travel alone more.
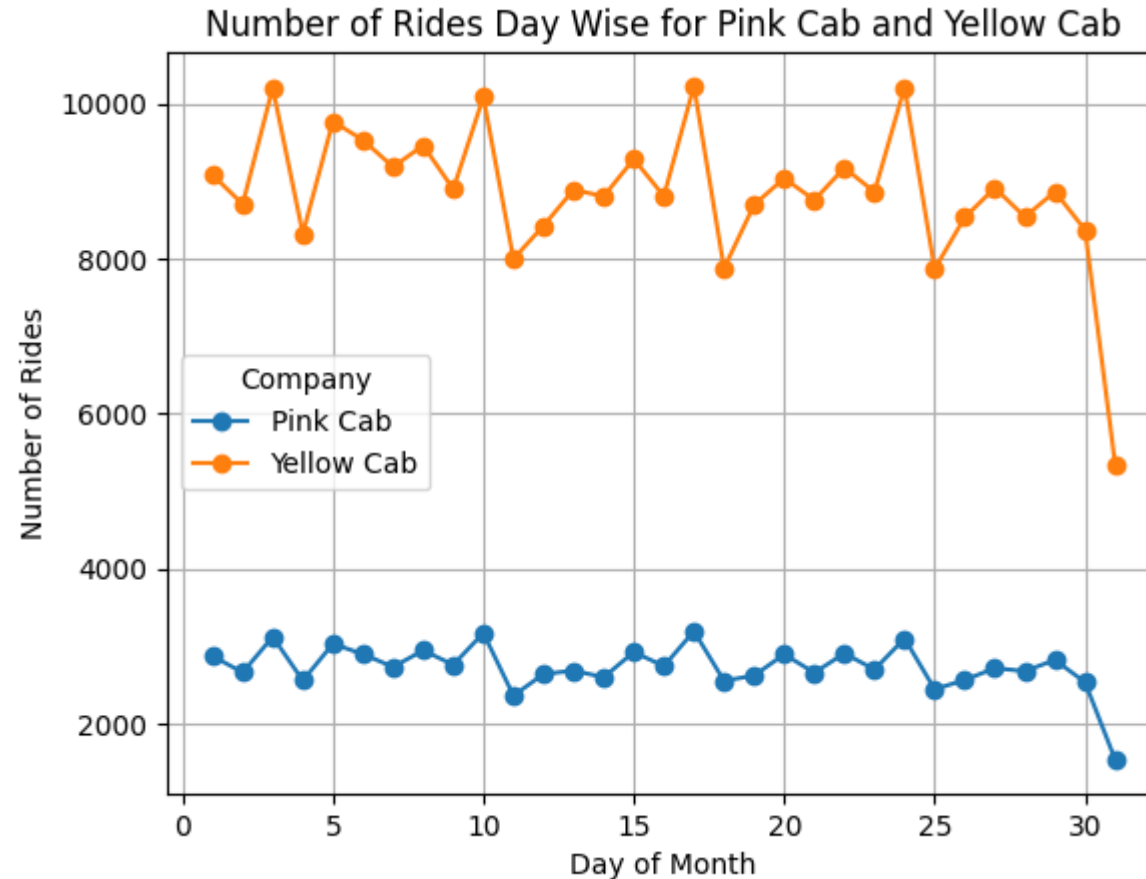- **Convenience**: Men prefer cabs over public transit.

Most of them prefer yellow cab over the pink service

Which company has the maximum number of cab users at a particular period?

Number of Customers Yearly for Pink Cab and Yellow Cab
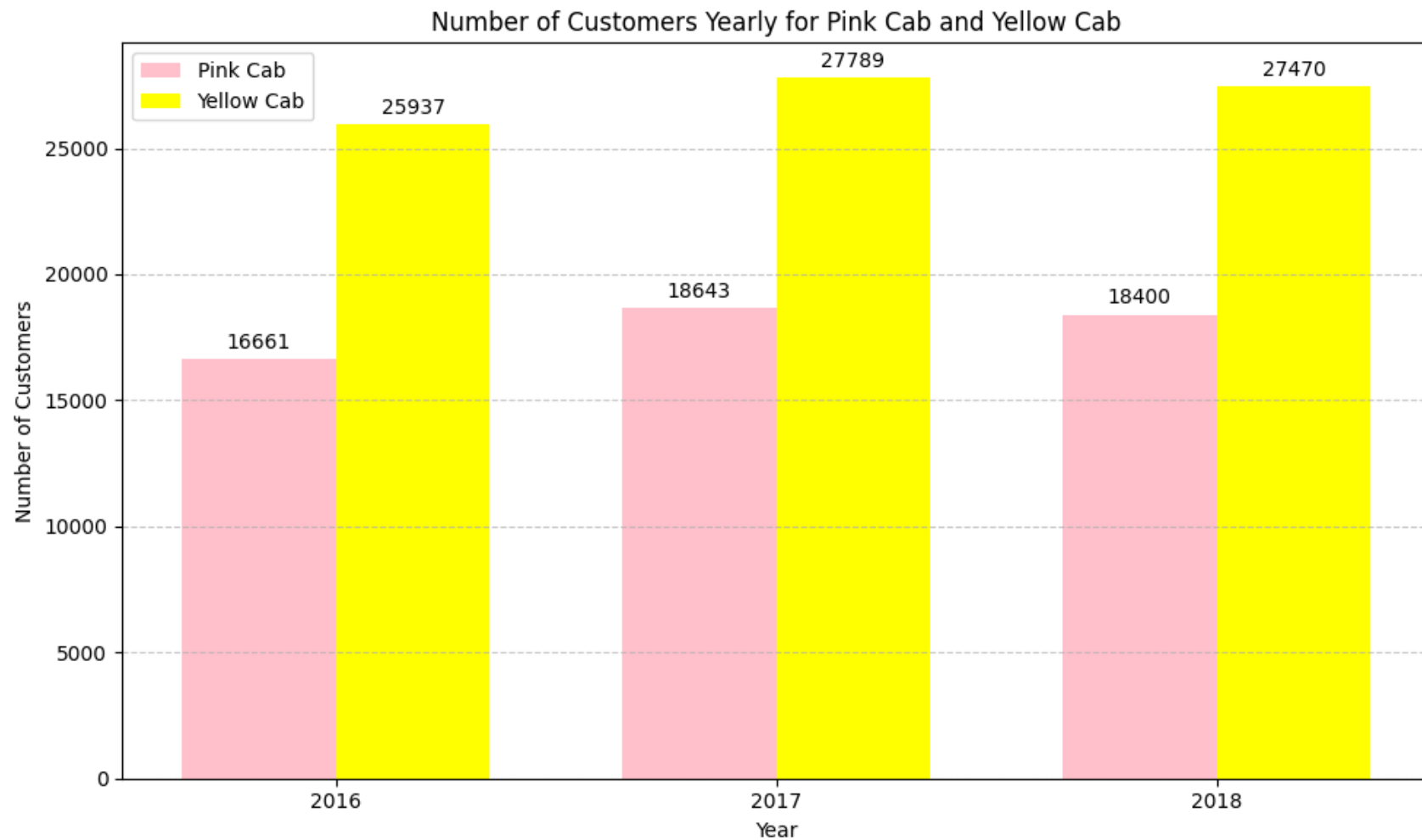
An overall analysis of how cabs are preferred on different days of a moth


Number of Rides Day Wise for Pink Cab and Yellow Cab

- Cabs are utilised the most during the middle of every month
- Pattern indicates there is less demand during the end and beginning of every month

Number of Rides Day Wise for Pink Cab and Yellow Cab (including holidays)
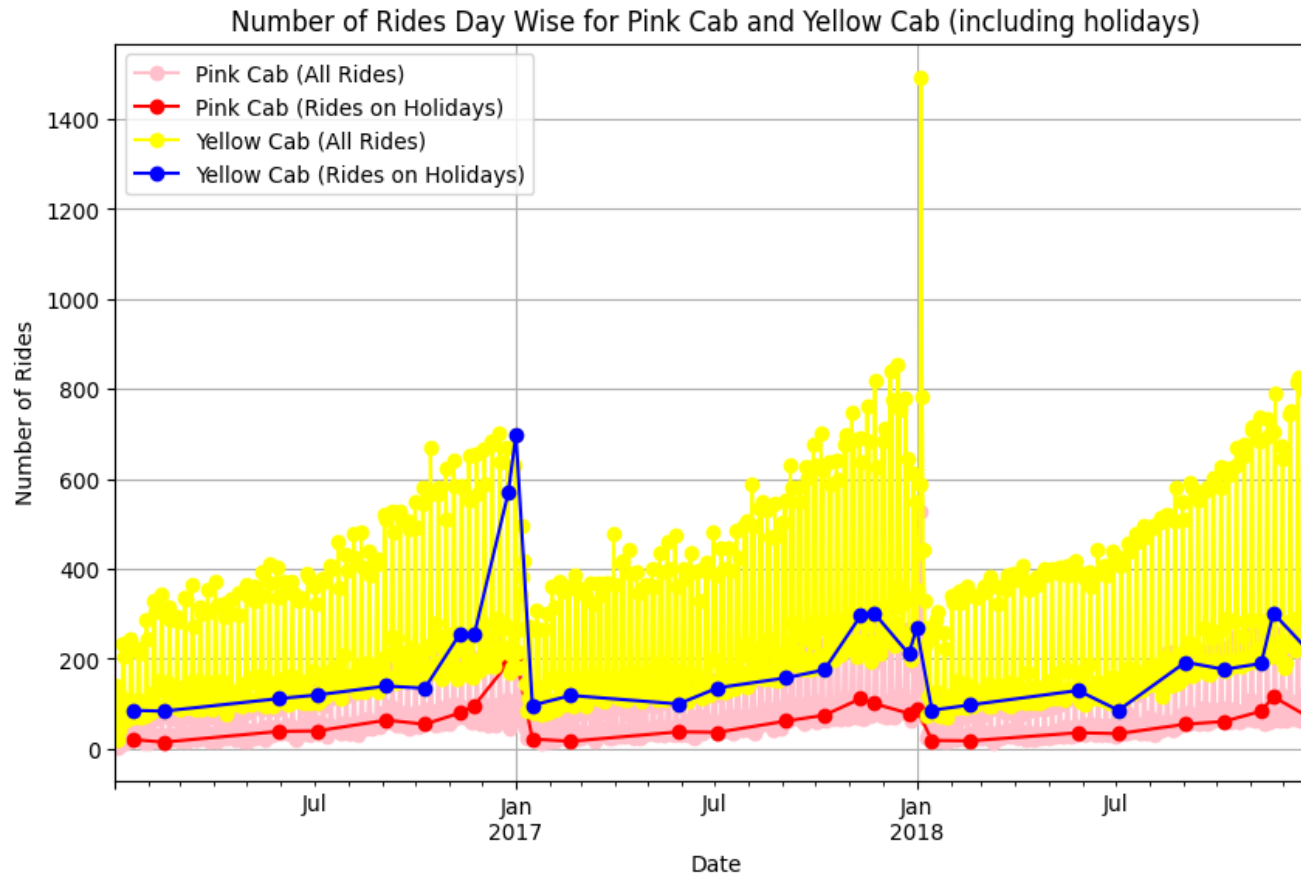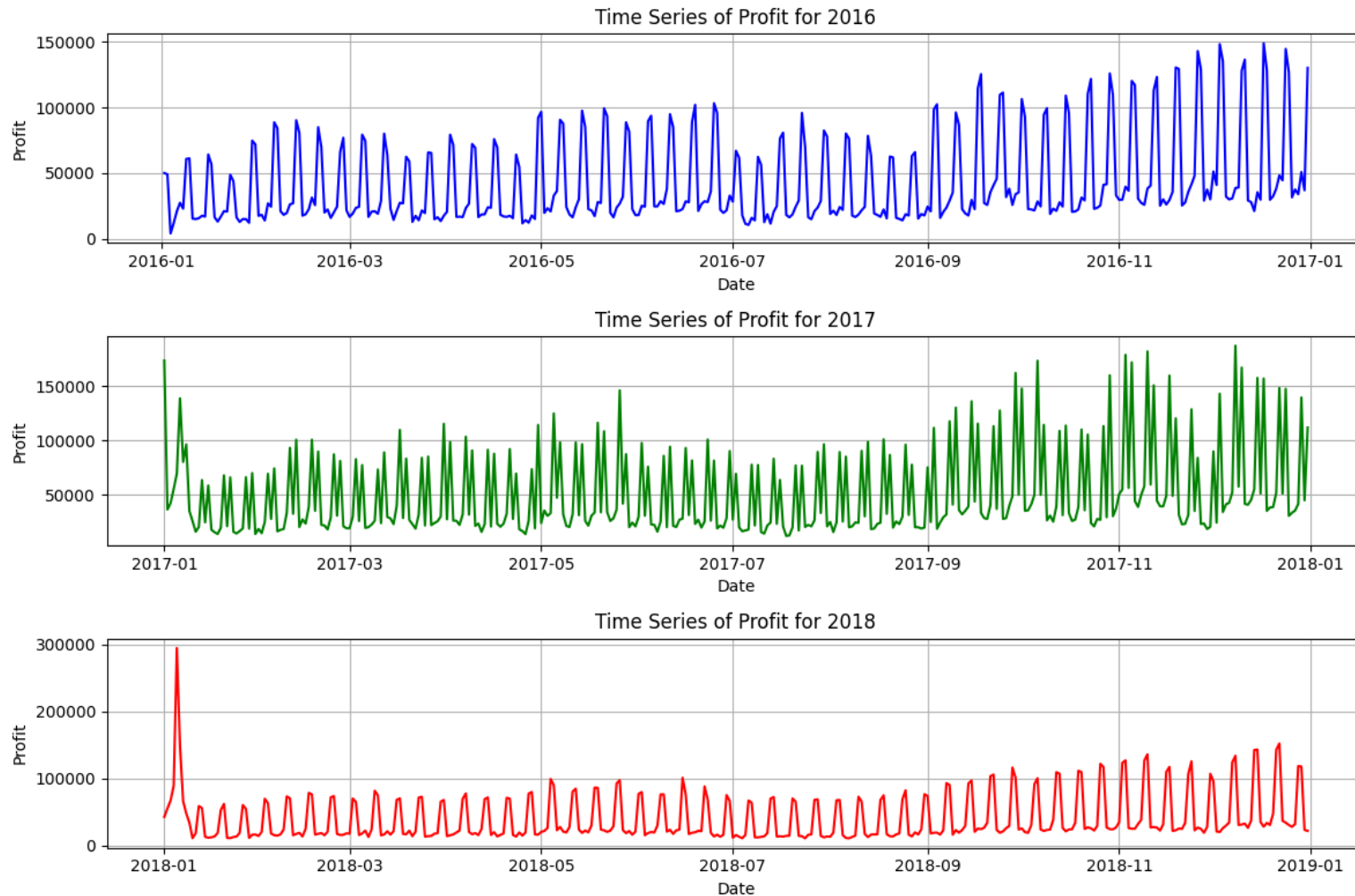
Service used in holidays except Christmas and Thanksgiving days is much lower than other working days. It indicates people prefer to spend holidays at home.

Time series Analysis of Profit

Time Series of Profit for Pink Cab and Yellow Cab
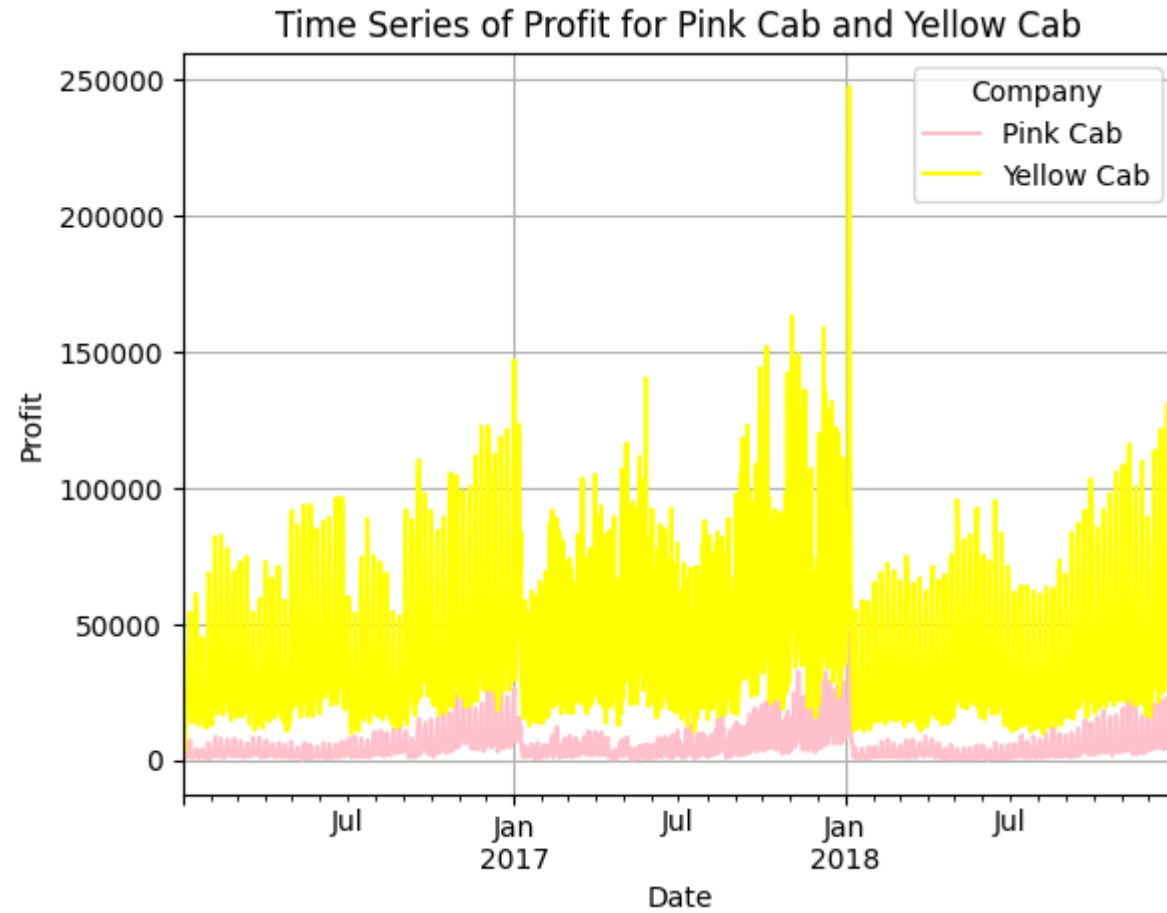
- Profit is high for Yellow Cab
- It has an increasing pattern towards the end of every year

- Combining each analysis, the cab industry is a safe business area to invest in. No sudden drop in income was observed during the year 2016-2018.
- The total profit over each year has an increasing patten

ARIMA model forecast on profit for year 2019

Profit per annum with Forecast
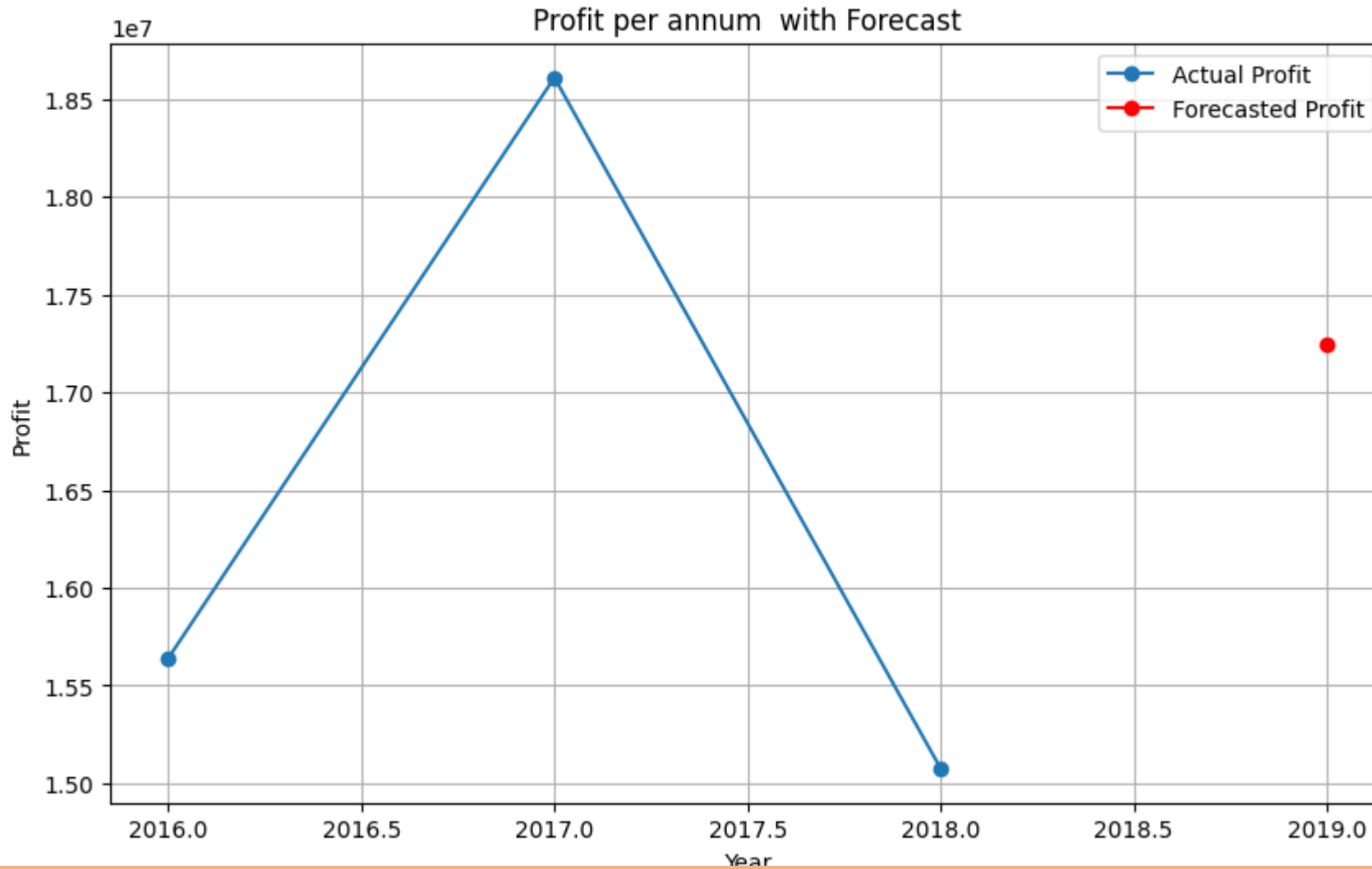
Forecasted Profit for the Next Year: 17247612.1552456

- Yellow Cab is running with higher profit in cities than Pink. It travelled a distance 3 times higher than the Pink.
- Major market share is possessed by Yellow Cabs.
- Yellow Cab concentrates more on major populated cities by offering more services.
- No: of males taking the rides is more than that of females.
- People aged between 21 – 40 prefer more services.
- No: of customers using a pink cab is 1.5 times less than Yellow cab customers.
- people choose more rides during the middle of every month and the count diminishes towards the end. This could indicate the spending habits of people.
- Pink has a relatively lower profit than yellow and the profit has an increasing trend towards the end of every year.
- A forecast on the profit for the year 2019, is expected to have a higher profit by the end of 2019 in the Cab industry, by an amount of 17247612.15 USD estimated.

Recommendations

- **Investment in the Yellow Cab industry would be more profitable**.
- Using the current Yellow cab policy it is estimated to achieve a high profit in year 2019. The appropriate change in the strategy could have room for enhancing more profit.
- Improve the quality of the ride by ensuring more safety.
- Provide discounts for frequent users and referral bonuses.
- Provide easy ways for users to give feedback and act on it.
- Offer carpooling options to reduce costs.
- Ensure sufficient cabs are available during peak hours.
- Ensure the vehicles are well-maintained and comfortable

Thank You