Factors Effecting Price surge for Uber and Lyft

Introduction

In today's era for our daily transit we are heavily dependent upon online cab services like Uber and Lyft. But isn't it strange that sometimes we get cab for lower rate and sometimes it is very high, it would be so great if we can understand what causes this price surge and by how much?

Data Acquisition

We have used the dataset provided by https://www.kaggle.com/ravi72munde/uber-lyft-cab-prices for the Uber and Lyft rides in Boston area.

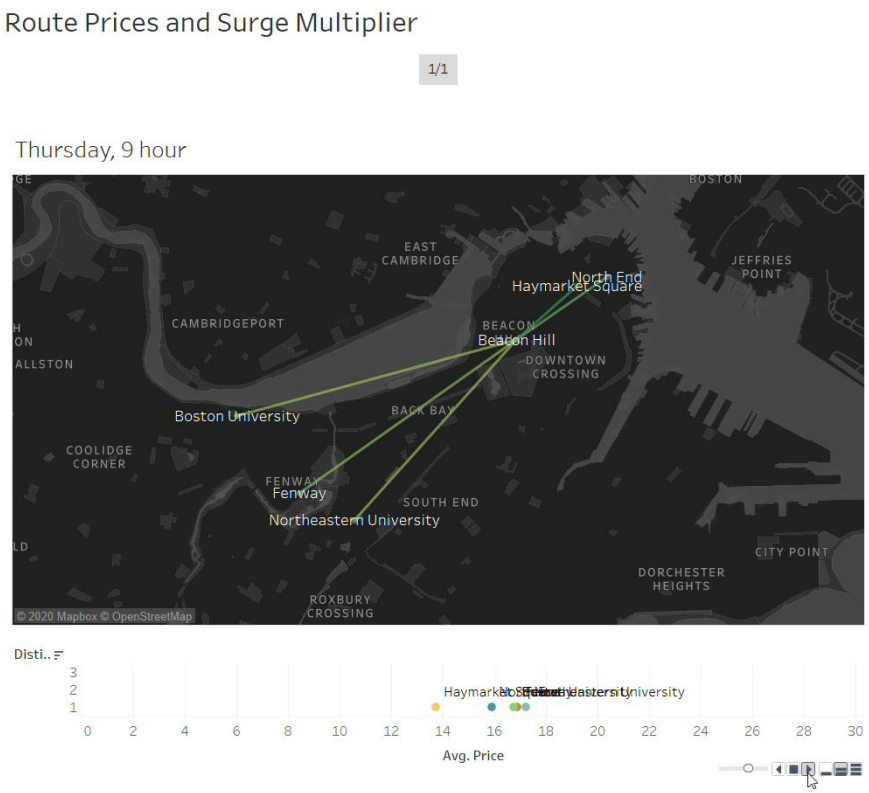
Data Manipulation

We have taken data from Kaggle.com which has around 690,000 records and 20 attributes. Data is focused upon Uber and Lyft ride in Boston, MA in the month of November and December. Data set include information can be used to visualize the price surge in different areas of Boston. Data was removed with cab type as Taxi as there was no price attribute for this. Joined data tables Weather and Cab rides using an inner join on attributes Location, Date and Time.

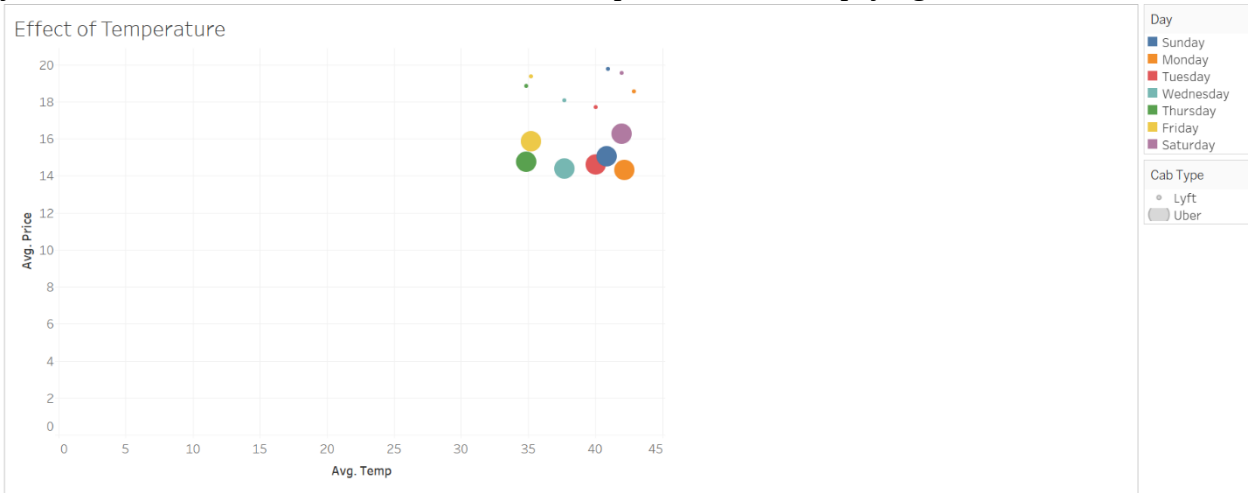
Visualizations

To test our hypothesis and to gain few more insights about the dataset that was available with us, we decided to play around with different weather parameters and its impact on average prices and surge multiplier charged by the two leading ride sharing companies called Uber and Lyft.

Impact of route, time and day of the week on Average Price charged and price surge multiplier used:



Explanation: In the first visualization it is an interactive route map, which shows rout from Beacon Hill to various location and routes are represented by the lines. Color of line change according to the average price. Low price is indicated by green, fair price by yellow and high price by red. Below route map, it avg price X price surge multiplier chart which shows use if the price charged at a particular time on particular week of the day includes any multiplier or not, if yes then how much times extra than the normal price customer is paying.



Impact of Temperature on Average Price charged by Uber and Lyft on different all the days of the week:

Figure 2.1

Explanation of Figure 2.1: As per the graph, there is clearly positive linear correlation between the average price and the temperature. As the temperature increases, the average price for both the companies also increases.

Deep analysis of prices per mile for Uber and Lyft:

We exported our joined file of cab and weather to analyze it deeply in python and we came up with above chart which shows the average price per mile for both Uber and lyft.

As per the graph, it is clear that,

Uber Vehicle Categories on Average price per mile:

Lowest Average price per mile within Uber Vehicle categories: $4.87/mile by Uber Pool

Highest Average price per mile within Uber Vehicle categories: $15.53/mile by Uber Black SUV

Lyft Vehicle Categories on Average price per mile:

Lowest Average price per mile within Lyft Vehicle categories: $3.03/mile by Lyft Shared

Highest Average price per mile within Lyft Vehicle categories: $14.56/mile by Lux Black XL

Comparison by Month:

Month	Average price per mile (in Dollars)	
Carrier	Uber	Lyft
November	8.3324	8.0621
December	8.3900	8.1756

Comparison by Hour:

Hour of Day	Average price per mile (in Dollars)	
Carrier	Uber	Lyft
1PM	8.9290	7.9740
2PM	8.5420	7.5260

More details can be understood seeing the tableau workbook where price by mile has been interpreted.

Average Price based on day of a week:

Insights:

- Temperature affects the average price per mile for both Uber and Lyft and it is positively correlated.
- Uber pool is expensive than the Lyft shared ride.
- Uber was expensive than Lyft in the month of November and December.
- Average Price was high on Friday and followed by Saturday.
- Time of a day and day of a week has effect on cab prices.

Conclusion:

We had null hypothesis that no factors effect the price surge and we can prove from our visualizations that the Alternative Hypothesis is true and null is False.