Insight

Problem Definition

In this project, we want to detect a product named 'Tap & Cap'. 'Tap & Cap is a financial product that wants to make bus travel simpler and affordable for customers. Passengers using this system have been charged a single flat fare for each journey until they reach a daily fare cap, after which further travel is free. A weekly fare cap has also been configured to offer savings to frequent travelers, limiting their seven-day spending.

The founders claim that " 'Tap & Cap' not only provides a fast, frictionless payment experience, it also reassures passengers that using public transport can be seamless, safe and affordable." They believe "expanding payment options with 'Tap and Cap' is fundamental to making bus travel more accessible and convenient for passengers, whilst also building confidence that buses are a safe way to travel. Operators further benefit from a new wealth of journey pattern data to run more efficiently, maximize the use of their vehicles, and reduced boarding times."

Now we want to know whether this product affected the customer's behavior or not. Could this product be successful in the future? Therefore, we analyzed the dataset of adjusted and unadjusted trips between 2019-06-01 and 2019-10-01.

To evaluate the effect of the product, the following statement has been chosen to be answered:

- By visualizing the growth of the transactions volume and comparing the amount for before and after the product was applied, conclude if the capping product was effective.

Approach

To answer the presented question, we need to get the date in which the product was applied and according to that, separate the transaction volume for before and after it for comparing purpose.

To do this we first sum up all the transactions in each day to get the daily transaction volume in the whole timespan.

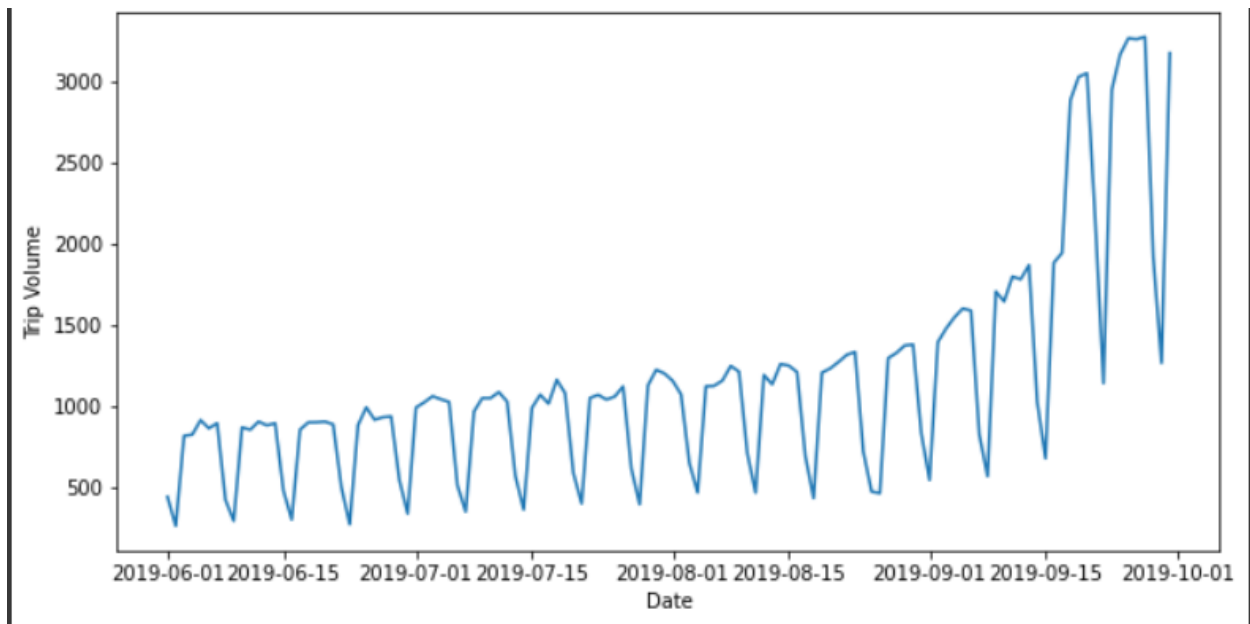Then we visualize it to see the overall trend (figure 1).

Figure 1.

The overall trend is increasing with a sudden increase around 2019-09-01. This might be the time adjustments are applied.

At this point we need to mark the starting point of applying product and compare the volumes.

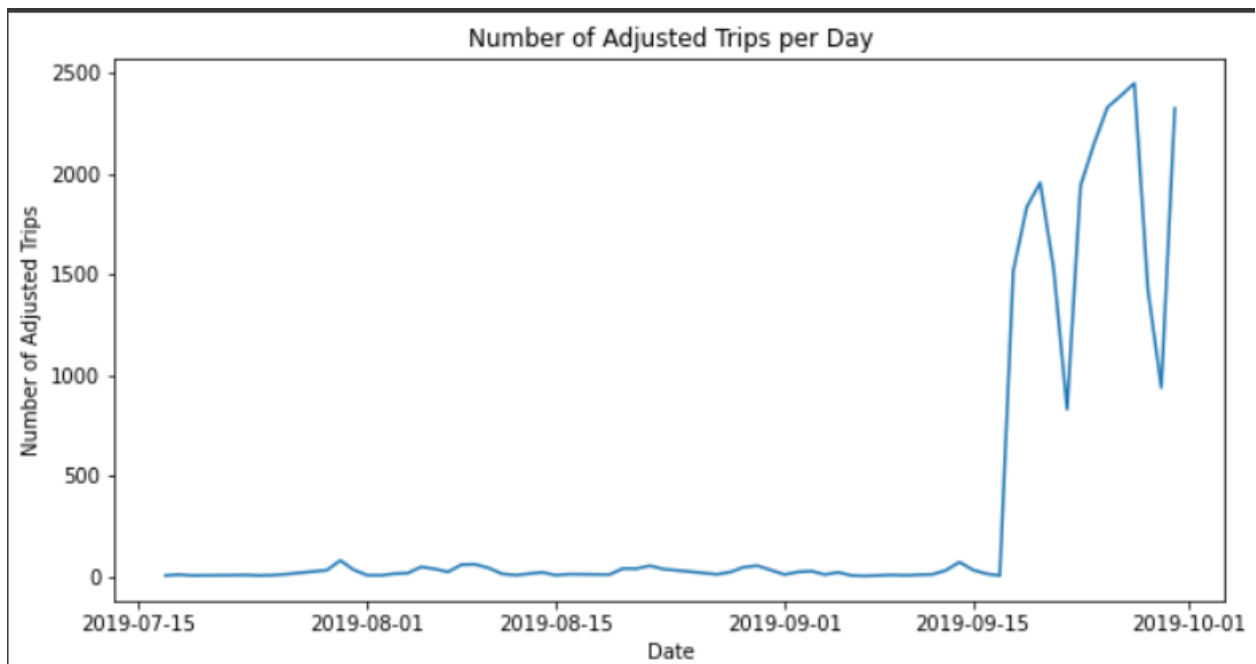In figure 2 the volume of transactions which are adjusted is shown.

Figure 2.

Note that the starting date is 2019-07-15 which is not the same as the previous plot. This is in fact the starting date of applying the product.

To see the growth of transactions with the starting date of it marked, both plots are combined (figure 3).
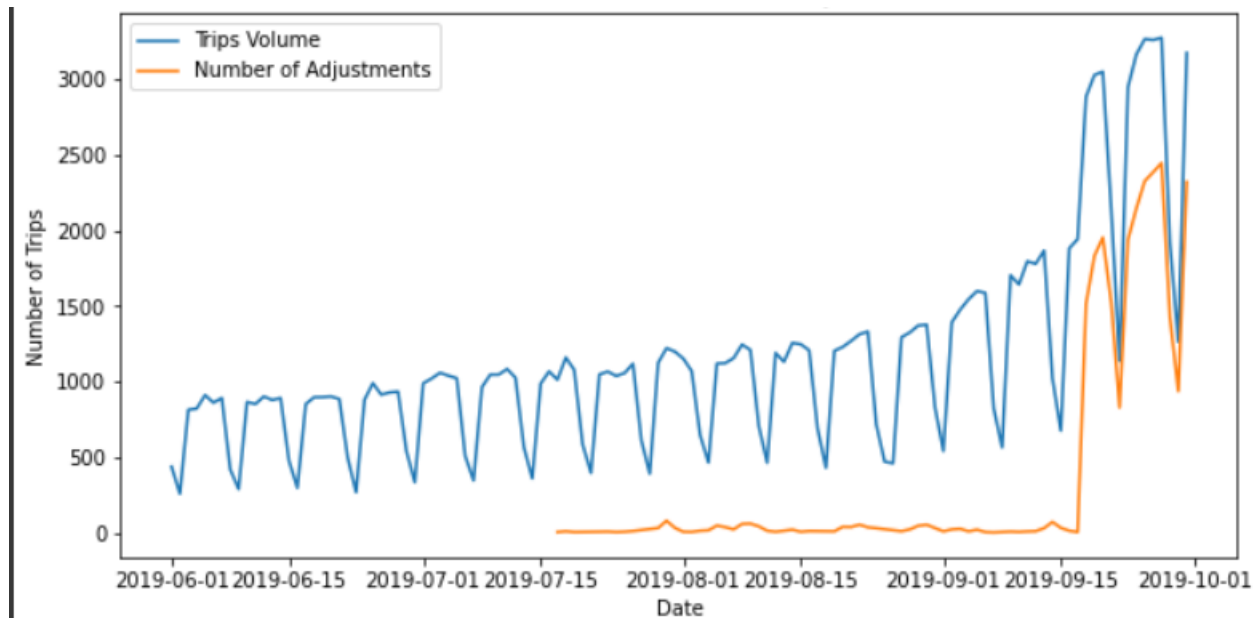

Figure 3.

Conclusion and Insights

Through analysis it was found that the product was applied around 2019-07-17. There are very small ups and down in the line of Number of Adjustments and the product didn't have much effect on the transaction growth until around 2019-09-17. At around this date, the plot sees a very sharp increase in daily transactions volume. The volume increased almost twice as it was before. This is mainly due to the product because a large sum of daily transactions starting from this date were adjusted.

This result shows that the product was clearly effective by increasing the volume almost twice as it was before. The sharp upward trend also shows that by each day the effect has been increasing, meaning more people are becoming aware and are using it.