

# Ultimate Inc

## Part 1

Inferences:

1. The demand peaks around midnight and noon.
2. The demand peaks on Sundays of the month with Saturday on the second place.

## Part 2

1. The key measure of Success should be the ratio of number of rides by the driver in other city to the total number of rides by driver. I would choose this metric because it will precisely tell if the driver is serving the other city than home city. This will keep in consideration other factors like if a driver drove only a few rides. If we use going through toll as metric that a driver might go through the toll few times a day without serving the other city.
2.
  - a. The practical experiment that I would design would be comparing the driving activity for the month before the implementing the toll reimbursement and the month when toll are being reimbursed.
  - b. I would state the null and alternative hypothesis. Then use t-test to compare the data and check for the p-value.
  - c. If null hypothesis is rejected then I would suggest the city operations to propose more experiments like rewards for taking more rides in other city.

## Part 3

EDA:

- The android users churn more as a percentage of total users of that category.
  - The city of Winterfell sees more churning with highest retention by King's landing
  - The non-active black users tend to churn more.
  - The other factors are non-conclusive or have less effect.
1. A new column containing labels was created containing the value of 1 for those who retained and 0 for those who did not retain. For the month of May, 6.59% of users were retained. But for June, the percentage fell to 2.73%.
  2. Using the factors above, I will do feature engineering and predict the labels using a binary classifier. I can run multiple algorithms like SVM, XGBoost and tune the hyper parameters to get the best accuracy.
  3. The factors shows that their android app may be having issues, Ultimate might want to check that. Also analyse why one city has much more retention than other city. For this they will have to look at other factors. They can push users to use Ultimate Black service as it sees less churn.