Weekly report: October 5th, 2015

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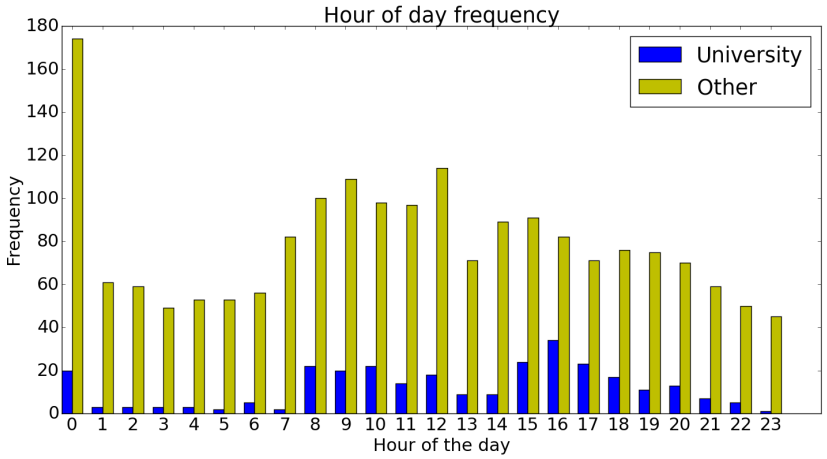
1 Activities

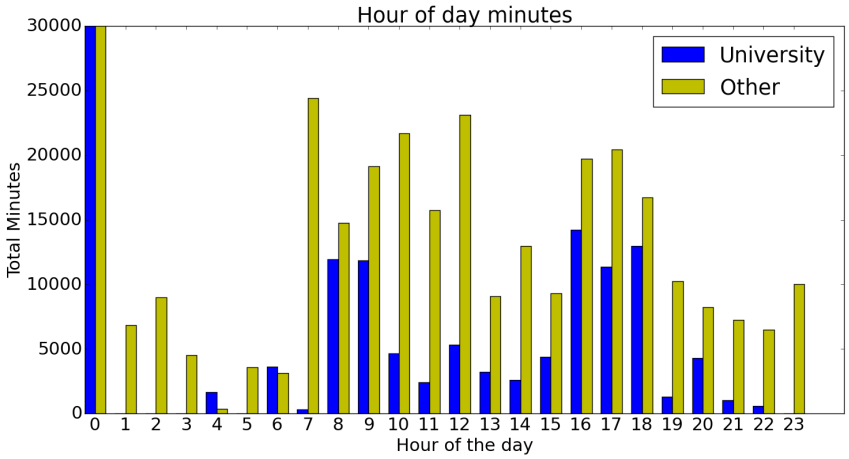
- Finish implementing webike webpage to allow users to save feedback.
- Modify the script that uploads trips to directly insert them into the DB.
- Repeat clustering exercise without GPS data dependent variables in order to understand their effect on the results.
- Analyze correlation of remaining answers of the survey with the number of trips and number of minutes ridden by participants.
- Analyze charging habits based on the location where the battery is being charged.

2 What I learnt (insights)

- Webpage is complete and ready to accept feedback from users now.
- The results of clustering did not vary from the original ones after taking out the GPS data dependent features selected. This confirms the fact that the features are being mainly dominated categorical features such as gender, and occupation.
- I analyzed the correlation of the rest of the answers with the number of trips and minutes ridden by each participant and again, no correlation was found. All the R square values calculated were less than 30%.
- I was interested in analyzing where people were mostly charging their batteries, and how this data could be related to the price electricity at different times of the day. Originally, I was expecting to see that during times when the prices of electricity are high, people would mostly charge at university (or not charge at all) and then probably a higher number of charging events in other places when the prices go down. Here, are the results obtained when analyzing charging events during weekdays:



The previous graph shows the number of charging events that start a different times of the day. Here, we can see that most of the events happen outside university (most likely at participant's homes). Additionally, we can see that the peaks of each graph are different, generally people who charges outside of school do it from 7 am to 4 pm with a higher peak at noon. Conversely, participants who charge their batteries at school generally do it between 8-10 am or at 4 pm.



The previous graph shows the total number of minutes of charging events that started at each specific hour of the day. Here we see that most of the charging times started at midnight. In a similar way to before, participants who charge it at school tend to do it at 8 or 9 am or between 4-6 pm. On the other hand, events that did not take place at school are more scattered with peaks between 7 am and noon, and between 4-6 pm.

This shows that most of the charging events do not show any influence by the change of price rates of electricity in Ontario. Most charging events still

happen during on-peak or mid-peak times and people do not consider saving money by adjusting their charging schedule to this prices variations.

- This is how the structure of my thesis will look like:

1. Stats and Description

2. Trip Detection

3. Model and Prediction

  3.1. Clustering and profiles

  3.2. Prediction of mileage

  3.3. Prediction of total trips

  3.4. Validation

4. Implications

  4.1. Correlation with Electric Vehicles

  4.2. Carbon Footprint