Car2go EV selection model draft

- 1. Define whether the EVs were rented
- (The difference of latitude or longitude is more than a specific value, and the battery level decreases)

- 2. Find out the other EVs surrounding the rented EVs
- (Record the starting time of step 1, and find out the other EVs while appeared at same area/similar latitude and longitude during the same timepoint)

- 3. Add dependent variable in the dataset
- Use binary variable to define the customers' choice, set the rented EVs as 1, set the EVs which are not rented but located at nearby area at the same time as 0

- 4. Arrange independent variables
- (1)battery level
- (2)interior
- (3)exterior

- 5. Remain concerns about other variables
- (1) time/date
- (2) distances (the gap between departure location and arrival location)
- (3) availability (the number of EVs nearby at the same timepoint)
- (4) OR weather/ temperature/ wet/…
- *Concern: The data are related to whether the customers choose the EVs, but not related to which EVs they choose. But I can't analyze whether the customers choose, because once they didn't choose and directly leave, the dataset doesn't reflect the behavior. So, I can only do descriptive analysis for these variables but not add them into regression.*

Car2go Updates

Collect the time point: (Confirming with `files.download('cleaned_data.csv')`)

- Some records are not checked between 15 minutes. (For sure)
  - One way, to discard;
  - The other way, to calculate the average time slots and distance.
- To check whether an individual trip would be longer than the time slots of two consecutive records

Unsolved question Nov/03/2023

(1)Think over the condition in the filter, only for each license. For loop might be used.

(2)Same on the filter, we will use minus to get the gap between time points, so we will discard the records whose filter row and shift -1 is not at the same day.

(3)Get rid of the middle 1s from 1, 1, 2 or more like, 1, 1, …1, 2,

MNL model

- Battery level/ 100, to get it closer the rang of (0,1)
- Option2: Battery level normalized