JOSEPH NJUGUNA

HYPOTHESIS TESTING REPORT

Problem Statement

Just like before, we have been tasked to understand electric car usage by solving for another research question. We will work as a Data Scientist for the Autolib electric car-sharing service company to investigate a claim about the blue cars from the provided Autolib dataset.

In an effort to do this, we need to identify some areas and periods of interest via sampling stating the reason to the choice of method, then perform hypothesis testing with regards to the claim that we will have made. An example of claim to test would be "Is the number of Bluecars taken in area X different than in area Y? Is it greater in area X than in area Z? Etc.”. The selected periods of interest be either weekdays or weekends but not a mix of both. You can also consider postal codes 75015 vs 75017 to some of the areas of interest.

Data Description

The data contains the following fields:

* + Postal code - postal code of the area (in Paris)
  + Date - date of the row aggregation
  + N\_daily\_data points - number of daily data points that were available for aggregation, that day
  + DayofWeek - identifier of weekday (0: Monday -> 6: Sunday)
  + Day\_type - weekday or weekend
  + Bluecars taken sum - Number of bluecars taken that date in that area
  + Utilib taken sum - Number of Utilib taken that date in that area
  + Utilib returned sum - Number of Utilib returned that date in that area
  + Utilib 14 taken sum - Number of Utilib 1.4 taken that date in that area
  + Utilib 14 returned sum - Number of Utilib 1.4 returned that date in that area
  + Slots freed sum - Number of recharging slots taken that date in that area.

The glossary to the dataset could be found in the following [Link](https://view.officeapps.live.com/op/view.aspx?src=https%3A%2F%2Fia801009.us.archive.org%2F34%2Fitems%2Fcolumns_explanation%2Fcolumns_explanation.xlsx&wdOrigin=BROWSELINK).

Hypothesis Testing Procedure

Our original claim is that The averages of bluecars hired on weekends is equal to the averages of bluecars hired on weekdays (H0: mu= mu1).

The alternate claim is that The averages of bluecars hired on weekends is not equal to weekdays) (HA: mu! = mu2).

We will use a z-score statistic as our sample size is larger than 30.

The level of confidence we will use is 95%.

Hypothesis Testing Results

P = 0.908 therefore we fail to reject our null hypothesis.