

Daily Trips: How often do Americans Leave Home?

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Abstract

- Most people in America leave their houses on a regular basis, but some do so at a much higher or lower rate than others. The Department of Transportation has recorded data on how often people leave their homes daily in each state.
- The goal of this project was to see if machine learning can be used to predict how often people will leave their homes in the future on a given date.
- In this project I will be using various applications such as Python (with packages), SQLite, and Power BI to do my analysis, visualization, and testing.



Applications and Materials

Data: "Trips by Distance" by data.gov

- Department of Transportation

Clean-Up/Analysis: Python

- Pandas, Matplotlib, NumPy

Storage: SQLite

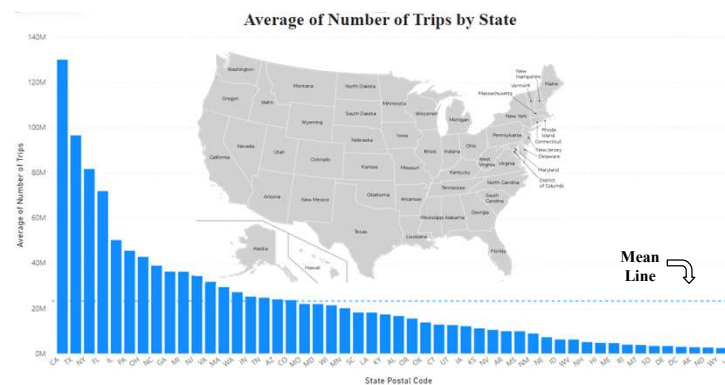
Visualization: Power BI

Machine Learning Tools: Random Forest and/or Decision Tree

Objectives

- Import the Trips Data from Data.gov into Python and make a Pandas data frame with the data inside
- Store the Pandas data frame in the SQLite application
- Pull the data from SQLite and import it back into Python for cleaning, exploratory analysis, and basic visualization
- Use Power BI for data visualization by making graphs and charts that accurately depict the Trips Data
- Run machine learning techniques to experiment with and test the data with the goal of predictive analysis to predict future trips

Results



- After cleaning and analysis, the trips data set ended up with a total of:
 - 20 Columns
 - 45,267 Rows
 - 0 Missing Values
- Each states has exactly 887 values for each column
- After being imported into Power BI, the data was converted into charts in graphs like the one found above.
 - This graph shows the average number of trips taken in each of the 50 states
- Machine Learning techniques were used on the data in Python for the predictive analysis step of this project. This will be discussed in the "Conclusions/Future Work" section.

Conclusions/Future Work

References

- <https://catalog.data.gov/dataset/trips-by-distance>
- <https://sqlite.org/index.html>
- <https://www.python.org/>
- <https://powerbi.microsoft.com/en-us/>

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