

# Prediction of Bike Share Demand

## Project Plan

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### Project Abstract:

With the popularity of shared bike in big cities like San Francisco, it is becoming more and more important to predict the real demand of shared bike based on previous data. We try to predict the daily demand of shared bike and duration of each trip based on several weather and date features. Since there are several features and targets, we consider it as a multi-regression problem. We got data from Kaggle.com<sup>[1]</sup> and try to fit it in models we learned in class, such as linear regression, ridge regression, LASSO regression, and neural network. We compare the accuracies of different models to get the optimized solution. After getting different accuracies from these models, we will discuss how to improve it in future work.

### Milestones:

Date	Week	Goal
4.16 -- 4.22	Week 1	Project plan
4.23 -- 4.29	Week 2	Analysis dataset and build training and testing data
4.30 -- 5.8	Week 3	Train models: linear regression, ridge regression, LASSO regression, and neural network.
5.9 -- 5.13	Week 4	Catch up if behind schedule. Start writing project report.
5.14 -- 5.16	Week 5	Finish project report

## Github:

[https://github.com/irissun96/ml\\_final-pj](https://github.com/irissun96/ml_final-pj)

## Data & Features:

There are four separate files in Kaggle's SF Bay Area Bike Share dataset: staton.csv, status.csv, trip.csv, weather.csv. We will only use trip.csv and weather.csv for this project. We need to compute the daily number of trips and daily average duration from trip.csv as our target. We have several kinds of features:

1. Weather : In the weather.csv, there are 24 columns, including date, temperature, wind speed, humidity and so on.
2. Date: We divide dates into weekdays and weekends because it is supposed to have a higher demand in weekdays and lower demand in weekends.
3. Start/end time: It is classified into two parts(to be discussed further): daytime and nighttime.

## References:

- [1] <https://www.kaggle.com/benhamner/sf-bay-area-bike-share>
- [2] <http://cs229.stanford.edu/proj2017/final-reports/5246290.pdf>