# Group Name

Houston Fury Road-Ragers

* Kasie Wong
* Michael Dowlin

# Topic

Houston metro area traffic congestion, incidents and general displeasure with driving.

# Data Sources

Houston Transtar Data Feeds (<http://traffic.houstontranstar.org/datafeed/datafeed_info.aspx>)

* Speed and travel time data feed
* Incident data feed
* Lane closure data feed

Weather Data

* OpenWeatherMap (API)

Houston Metro Area Population

* <http://www.h-gac.com/regional-transportation-plan/2040/demographics.aspx>
* <https://www.houston.org/houston-data/annual-update-population>

School/Holiday Schedules

* Multiple sites

# Project Scope

The scope of this project is to be able to predict next day congestion on Houston area highway segments, and where/when accidents are likely to occur. The model will also allow the user adjust certain inputs (i.e. lane closure or change in weather) to predict the change in congestion and accident likelihood.

# Type of ML Analysis

We are doing supervised machine learning. We will be using multivariate linear regression to predict congestion (measured by avg speed and time) and number of accidents per road segment. We don’t have the final list of input variables, but they potentially include:

* Average speed
* Time to travel
* Lane closures
* Incidents
* Precipitation
* Temperature

# Potential Models to be Used

Scikit-Learn

# Ideas for Visualizations

* Dashboard with
  + Filter
    - User can enter a date/time to predict Houston traffic conditions
  + Map of Houston area major road segments
    - Current traffic conditions
    - Future traffic conditions
  + Weather forecast for date/time selected (for general Metro area)
  + Chart of historic incidents and predicted (some kind of Pie chart)
  + Seasonal charting (show school/no-school, holidays, pandemics, etc.)