NAME OF OUR PROJECT

Chloe Fortuna, Takumi House, Shahrez Jan, Karam Yang

CS591: Data Mechanics – Spring 2017

**Abstract**

Motor vehicle accidents are an inevitable part of living in a busy city such as Boston. The number of accidents that occur throughout the year account for a lot of traffic in the emergency rooms of hospitals close to the site of impact. Our team collectively decided that, since thousands of accidents occur each year but there are only 24 hospitals in Boston that are able to take in patients of such events, we need to determine how to direct the ambulances to the nearest hospital using the most optimal route. These ideas prompted us to ask these questions: How do we determine the most optimal path from the crash site to the nearest hospital so that it takes the least amount of time from one end to the other? Given a specific crash site, is there an EMS station within a reasonable distance of the crash that will get the victims the care they need as soon as possible?

**Datasets**

Boston Hospitals

<https://data.cityofboston.gov/Public-Health/Hospital-Locations/46f7-2snz>

Car Crashes in Boston

<http://datamechanics.io/data/cfortuna_houset_karamy_snjan19/CarCrashData.json>

EMS Stations in Boston

<http://datamechanics.io/data/cfortuna_houset_karamy_snjan19/EMSStationsData.json>

Using the **retrieveData.py** file we implemented, we retrieve the data from each of the links above and store it in our database (mongoDB).

**Method**

To determine which hospital is closest to the locations of the crashes that had occurred in the past years, we ran the k-means algorithm. TAKUMI AND SHAREYREY WILL FILL IN

In order for us to determine which EMS station should send an ambulance to the crash site to transport the victims, we checked a radius of \_\_\_ miles around the crash site to see whether there is and EMS station nearby. If there is a station nearby, we determine the dispatch route from the EMS station to the crash site, and then we find the optimal hospital to take the victim to and route that as well. However, if there is no EMS station within the \_\_\_mile radius, then we run the k-means algorithm on the set of car crash data to figure out where the optimal location for a EMS station would be and then determine the dispatch route from there to the crash and hospital like we previously mentioned.

**Results**

**Future Work**