Names: Christoper Weeden, Pranav Nair, Mark Meddleton, Ethan Zeigler, John Vartanian

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Professor: Dr. Rory Butler

Stage II - Inception: Proposal and specifications

Problem statement:

- How different factors(income, proximity to nearby towns) impact the population in any town within a span of a few years

Objective of the module:

- To gain a deeper understanding on the change in population at different towns in the United States that could impact other town settings

Description of the desired end product, and the part you will develop for this class:

- access an infographic of counties after a natural disaster which can do some statistical analysis on certain characteristics.

Importance and need for the module, and how it addresses the problem:

- Seeing the movement of people during and after natural disasters could help predict the needs of surrounding towns when some town is hit by a natural disaster. Our program should be able to give a ballpark estimate for how a natural disaster will affect town populations based on previous information.

Plan for how you will research the problem domain and obtain the data needed:

Basic searches are sufficient to find the quantitative data needed.

High level description: census data for populations, disaster types, location and dates

Links to data sets used: *US Census data,[https://catalog.data.gov/dataset?groups=disasters#topic=disasters_navigation]*

https://www.nj.com/data/2018/01/how_njs_population_is_shifting_in_each_county.html

Similar systems:

To the best of our knowledge there is no other program like this.

Possible other applications: with the database implemented there is a possibility to use previous disaster information to predict human migration after a disaster.

Performance:

- Using large files of information can cause strain on hardware depending on how much memory is available. Care must be taken to keep memory overhead down.

Security: Data is publicly available so no worries of needing anonymity. Uploading data will only be allowed through a password protected admin page.

Backup and recovery:

- text dump to csv file every month/week (depending on db size) to maintain consistent backups.
- Github repository for version control in order to have access to previous versions

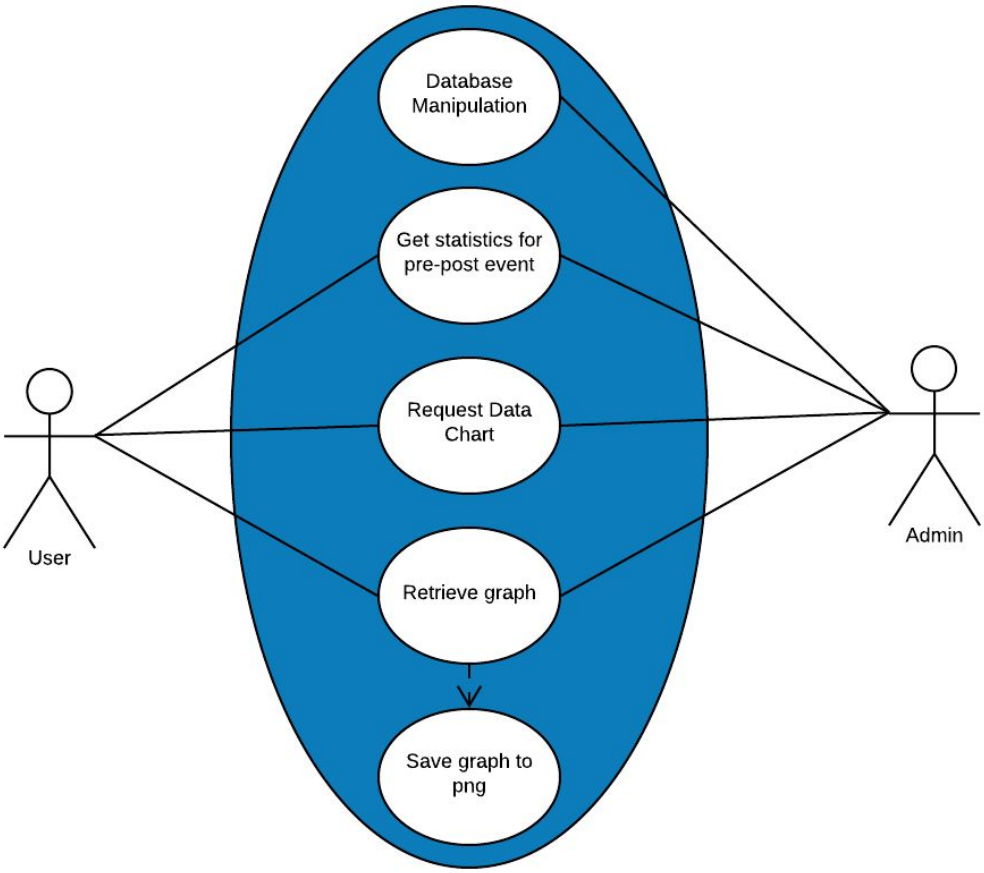
Technologies needed:

- MySQL, p5.js, Java, bootstrap, Eclipse IDE, nginx, Tomcat server

Link to Github Wiki:

- Link: https://github.com/EthanZeigler/Bobby-Tables/wiki

Diagrammatic representation:



- Data to be modeled:
    - Attributes: Population in different towns, factors affecting population (type of natural disaster, socioeconomic statuses), Population after natural disaster
    - Instances: ID numbers for each attribute

- Queries:
    - SELECT * FROM Database_Table.Tables;
    - SELECT Disaster_ID FROM DISASTER;
    - Example: SELECT * FROM Database_Table WHERE Disaster_ID LIKE ‘Flood’;

Pitch:

Project name: Bobby tables

Team name: Quaternions

Project Pitch: Our idea is to determine data of natural disasters that impact the population during certain years, apply statistics to the population shifts from one year to another, and plot a graph to describe the changes in population due to different natural disasters from one time interval to another. Another possibility is to predict the population shifts in the future based on data derived from present change in population.