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Senior Project Write Up

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Scope

The goal of this project is to create a simple, usable application for individuals interested in the sociological impact the great recession had on neighborhoods in Denver and Colorado Springs. The end product should be a web application with an easy to understand interface that displays and visualizes this data according to the users specifications. The application itself will not analyze the data or make conclusions, but instead provide the data to users who can then themselves analyze or manipulate the data to fit their needs. As a user, an individual can specify the time frame, location, or type of data they would like to display by using simple, easy to use drop down menus.

Requirements

To build this application I plan to use Javascript and node.js along with a frontend framework such as react, angular, or bootstrap. I will use SQLite to store the data, which I have received from a number of sources. The bulk of my data is from the American Community Survey for Public Use Microdata Areas (PUMA’s). This is a detailed yearly survey of 1% of the country split into these areas, 6 in Denver and 6 in Colorado Springs (5 until 2012). I will also use housing valuation data from websites like Zillow and Trulia. These sites require API keys that can not exceed 1,000 calls a day and do not permit me to store their data. I also have access to locations of foreclosures in Denver from 2003-2012. This data can be geoencoded using Google’s Geoencode API and then placed in the appropriate PUMA and neighborhood. Trulia and Zillow allow me to pull information based on neighborhood, which are Zillow’s boundaries. These neighborhoods generally encompass 2-5 Census Tracts.

Plan

I imagine this project being split into three distinct parts. The first is collecting the data and determining what the structure of the application will be, including what languages, platforms, API’s, and packages I will use to build it. I may need to spend some time reading and understanding new languages that I don’t have a deep understanding of. This I anticipate accomplishing by the beginning of Block 3. I will also need to pre process my data and determine which variables to look at. The second part, and the bulk of my project, will be creating the web service back end. This will include creating a database and populating it, making API calls to Zillow and Trulia, and querying the data from the database. Throughout this process I will build the skeleton of my front end for testing and visualization purposes. I expect this will take me through winter break. The final part is the final front end of my application. I intend on making this a simple user interface, although I would like it to be as clean and user friendly as possible. Hopefully this can be complete by the end of 5th block and then I can make finishing touches on the application through the end of 6th block.

Deliverables

Hopefully by the end of this project there will be a complete and accessible web application that displays all the data I have gathered. I have not decided how this application will be hosted, potentially on the Computer Science server at Colorado College, allowing it to only be accessed while on campus. Another option is hosting using Amazon Web Services which will allow it to be viewable to the public for free for 12 months, after which I would need to pay to keep hosting it. I will also need to test whether we over-use the account keys for the Zillow and Trulia API’s, in which case I will need to contact them to find a more long term solution.