CS122 Project Proposal

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Project Goal

All current major apartment search engines are not perfect. Best case scenario, they can help narrow down options, but not finalizing decision. Our project plans to take the decision-making process a step further to to help the user make a more informed decision about where do they want to live. The goal of the project is to build a software system that creates a customized evaluation for apartments in Chicago based on user's apartment-hunting preference and geographic information system (GIS) data.

Given one or several apartment address, this system aims to answer the following queries from the user: First, what neighborhood utilities do these apartment have? Second, rank these apartment given my preference. Third, present a more detailed visual (e.g. infographic report) for user to reference.

Data Source

1. Chicago geographic information data
    a. API: Openstreetmap API: http://api.openstreetmap.org/
        i. Alternative: Google Maps API: https://developers.google.com/maps/
    b. Relevant data elements: location, distance calculation
2. Chicago crime data
    a. API: https://data.cityofchicago.org/resource/6zsd-86xi.json
    b. Relevant data elements: date & time, location, crime type, dangerous level
3. Chicago dinning data
    a. APi: https://www.yelp.com/developers/api_console
    b. Relevant data elements: location, type, evaluation
4. Chicago noise data
    a. API: http://elb1.howloud.com/apidoc.html
    b. Given an address, return a score from 50 (active) to 100 (calm), and noises type (traffic, airports, local sources).
5. Other municipal GIS data: Libraries, parks, groceries stores, etc.

Task Required

1. Data gathering and cleaning from above data source

    a. Tools: Python script and corresponding libraries, HTML
    b. Subtasks: data cleaning and munging
2. Data storing and joining data from different sources
    a. Tools: SQL, perhaps JavaScript
3. Data analysis and query realization
    a. Tools: Python, SQL
    b. Subtasks: Apartment evaluation model and ordering algorithms based on the data
4. Data visualization
    a. Tools: Map API, Python, SQL, HTML, perhaps JavaScript
    b. Subtasks: UI, other necessary charts or lists

Tentative Timeline

Timeline	Schedule
January 24th - January 26th	Prepare for proposal presentation
January 26th	Proposal presentation
	Task 1 & 2
February 6th	Progress Check-in #1; Complete Data Processing
	Task 3
February 20th	Progress Check-in #2; Complete Analysis and Query Realization
	Task 3 and 4
March 6th	Project Presentation
	Final touch up
March 14th at 5pm	Turn in completed software