PROJECT TITLE: CRIME STOPPERS

Project Summary:

We plan on creating a map visualization tool using a dataset of crime incidents in LA. With this web application, users will be able to apply certain filters in order to gain better insight into the crimes, the rates, and the general safety in LA and their particular neighborhood. The user would also be able to observe the progression or regression of crime within all these areas over some time period (2020 to present). The visualization would not only generate some sort of heat map to visualize the severity of crime over all the various neighborhoods and areas of LA, but the user would be able to select some time period to analyze the data over and the visualization would adjust itself accordingly. This will allow people to make informed decisions concerning trips, relocation, and general research concerning the Los Angeles area and its general safety.

Description of Data Stored in the Database:

This data was found on the website Kaggle. It consists of all reported crimes in the Los Angeles area since 2020. The data was extracted from written up crime reports and while it is generally complete, it is missing some data fields. Locations are also a bit more generalized in order to protect the privacy of the victims, but this will not cause any deviation as the general area will stay somewhat similar. The attributes and information that would be stored is the area#, the report number, the date occurred, area name, the sub-area, and the crime code and its general description.

Specific Dataset:
(https://www.kaggle.com/datasets/susant4learning/crime-in-los-angeles-data-from-2020-to-present)

What are the basic functions of the web application (what can users on the website do? Which simple and complex features are there):

The web application will allow users to filter, sort, and view crimes in LA. The user will be able to pick and choose filters from a menu. Once specified and submitted, the application will return a tableview and map of incidents that match their filter preferences.

Map integration will be our application's visualization feature. After applying a filter, the user should be able to view the locations (latitude and longitude) of crimes committed. Additionally, the user should be able to click on map markers for further incident details.

Chart and graph visualizations will be our application's secondary visualization feature (depending on the complexity of map integration). Similar to our map feature, the user should be able to apply a filter and have a chart returned.

Creative Component:

The creative component of our project will be the way that we visualize the data on the map. Instead of just parsing the data and displaying it in a table, we can show users where the things that they are reading about are actually happening. We'd also like to add a secondary visualization tool by adding charts/graphs to our webpage. Maps are useful for location based data, but charts may do a better job of illustrating data trends over time.

Application of our Choice:

Our project will allow users to see what parts of LA have the most crime with an interactive map. They will be able to filter by certain types of crime. Additionally there will be a table with the information and statistics that are being visualized on the map. This could be used for relocation purposes when moving to the city of LA. It could also be used as a tool to observe the safety of a given area when purchasing real estate. Otherwise, it will function powerfully as a tool for general research on crime in LA post-2020.

Usefulness. Explain why the application will be useful. Are there similar websites out there? If so, what are they and how is your application different?

The application will allow users to sort and view data to answer the following:

- What communities have the most crime in LA
- What are the demographics of crime victims (age, sex, descent)
- When is a crime most likely to occur?
- Where are certain types of crime localized to?

There are several websites linking crime reports to maps, including UIUC's own police force (https://police.illinois.edu/info/map/). Map functionality varies between websites. Some include interactive maps and tables, whereas others do not.

Our application plans to include both map and table views. The user should be able to apply any filter to the data and have a map and table returned with the appropriate information.

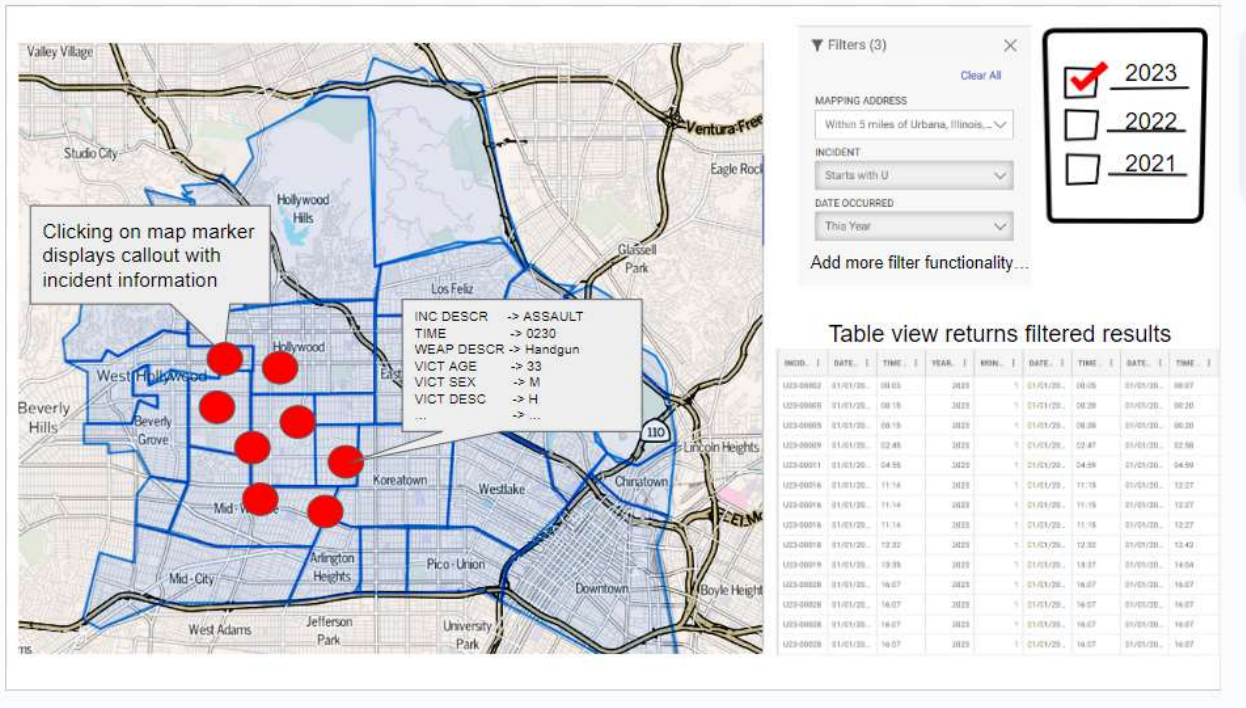
Realness. Describe what your data is and where you will get it:

We'll be using "Crime in Los Angeles Data from 2020 to Present" listed on the course provided datasets. The dataset contains 318,000 records and was provided by LAPD.

Highlighted metrics:

- Date reported, date occurred, time occurred
- Location, approximate latitude and longitude, etc.
- Crime description, MO codes (City of LA provides a document listing MO codes so we can decode this metric)
- Victim age, sex, and descent
- Weapon used, weapon description

Low fidelity UI mockup:



Shown above is our group's UI mockup. Map and chart views will be displayed on the left side of the application, filtering options and table views will be displayed on the right. We plan to have our map indicate the location incidents. These filtering options will allow our user to seamlessly manipulate the data for personal analysis. Clicking on a map marker will display a callout to the user, indicating further details about the incident. We also plan on integrating some 'zoom in' option that will enable our viewer to look into specific areas within LA in more detail.

Project Work Distribution:

Shreyas and Vince will be collaborating to complete the front end map and integrating the chart into the UI with processed data. Shreyas will be handling several of the trigger functions that will be used within this project. Vince will make decisions regarding the UI and handle the selection of relevant data - as well as useful ways to process the data.

Joe and Aadit will be managing the backend queries and handling the filter operations. They will be responsible for creating and implementing the database using the Google Cloud Platform.