Los Angeles Crime Map

This project is a MERN full stack web app that users can see and report visualized data of Crime in LA from 2020-Present.

Dataset: Crime in Los Angeles from 2020 to Present (Kaggle)

1. **Describe what data is stored in the database. (Where is the data from, and what attributes and information would be stored?)**
   We are utilizing the Crime in Los Angeles dataset from 2020 to present. The Crime in Los Angeles dataset stores crime records in the Los Angeles area. The crime record contains data relating to the date of the crime, location of the crime, the type of crime, and various characteristics regarding the victim. In our project, we plan on using the Crime in Los Angeles dataset and utilizing information such as the location of the crime, time of the crime, and type of crime to visually represent on a map crimes that occurred in a certain region of Los Angeles.

2. **What are the basic functions of your web application?**
   The basic functions of our web application would include a visualization of the amount of crimes, a list of the specific crimes, and being able to add new crimes that have occurred. The visualization would consist of a map of LA that we would split up into areas, and color depending on the volume of crimes that have occurred in that area. For example, if an area had 100 crimes in the past year it would be a lighter color than an area that had 500 crimes occur in the past year. When a user clicks on one of these areas, a list showing the specific crimes would be shown. Lastly, users can report new crimes and that would update the database and the visualization as necessary.

3. **What would be a good creative component (function) that can improve the functionality of your application?**
   A creative component we want to include is a time range. The user would be able to choose a specific time range, and the map would change to represent the amount of crimes that occurred in the specified time range utilizing a map visualization.

4. **Project Title**: Los Angeles Crime Map

5. **Project Summary**: This project uses a dataset to create visualizations that showcase crimes in Los Angeles. The goal is to provide a better understanding of crime patterns and trends in the city, as well as to offer insights into how these patterns might be addressed. To achieve this, the dataset is analyzed and processed to extract meaningful information, which is then used to create interactive virtual boundaries using geofencing, maps, and other visualizations. These visualizations are designed to be user friendly, accessible, and informative, providing a clear and concise overview of the crime in Los Angeles.

6. **Description**: This project aims to delve into the issue of crime in Los Angeles and provide a comprehensive and insightful understanding of crime patterns and trends in the city. A large and diverse dataset is used to collect and collate crime-related information in Los Angeles, including details such as type of crime, location, date, and time of occurrence. The data is analyzed and processed to uncover hidden patterns and trends, which are then presented to the user in interactive and engaging ways through a suite of visualizations. These visualizations may include a variety of different graphs and charts, including line graphs, virtual geographic boundaries, etc. to represent different aspects of the data and provide a more in-depth understanding of crime in Los Angeles. Additionally, interactive maps will be created to visualize the geographical distribution of crime, helping identify hot spots and areas that require greater attention. By providing a comprehensive and visually appealing overview of crime in Los Angeles, this project aims to inform and educate the public, as well as to help decision-makers and law enforcement agencies understand the problem and implement effective solutions. With its

user-friendly and accessible design, this project intends to make a valuable contribution to the ongoing efforts to reduce crime in Los Angeles.

7. **Usefulness**: Our project is a useful tool for visualizing the crime data in Los Angeles at a given time. The crime map visualization is useful in providing the public real data regarding locations with crime in Los Angeles. By utilizing a map visualization, we plan on highlighting regions of high crime, color coated, in order to show safe and dangerous regions in Los Angeles.

8. **Realness**: We get data from this dataset https://www.kaggle.com/datasets/susant4learning/crime-in-los-angeles-data-from-2020-to-presen, this dataset would automatically update in every week, therefore we can fetch new data by web crawler.

9. **Functionality**

   For our project we will provide functionalities to insert records, delete records, search the data, update records, as well as integrating the sql queries with a map visualization. The main component of the website would be a map that displays the severity of crime within a certain area of Los Angeles. The user could interact with the map through a drop down search menu, clicking on the map, a time range slider, and add/update/delete buttons. The drop down menu would give options for the type of crime, and the map would then reflect what areas have that specific crime, and how much it occurs. Clicking on the map would result in a list on the side of the map that displays information such as the gender distribution of the victims of the crimes as well as a list of the specific crimes that occurred. The time range would allow users to see how many crimes occurred in a specific time range (incrementing by month). Lastly, the add/update/delete buttons would allow users to report crimes or change records as necessary.

   Database design:

   1. Crime Records Table
   2. Region Table (updated from Table 1.)
   3. Victim table

4. Weapon Table

UI Mockup

Project Work Distribution

1. Front-end: Creating the user interface using React and handle the client-side logic. (Tiffany Seto, tyseto2)

2. Back-end: work on setting up the server and creating the API using Node.js and Express. (Prem Dhoot, premd2)

3. Database: work on setting up the database using MongoDB and integrating it with the back-end.(Emily Kaven, kaven2)

4. Integration and deployment: work on integrating the application, fixing bugs and deploying the final product. (Wen-Hsing Huang, whhuang4)