

**Please list out changes in the directions of your project if the final project is different from your original proposal (based on your stage 1 proposal submission).**

There were no changes made in the project direction. For the most part we carried through with the original proposal with the exception of certain features or design choices.

**Discuss what you think your application achieved or failed to achieve regarding its usefulness.**

Our application was successful in allowing the LAPD or a general user to access the database of reported crime in the local area within a user friendly UI and perform CRUD operations, basic searches, and analyze potential trends. Furthermore, the implemented trigger on manually inserted data allows for an easier process of reviewing as the probability of error would be higher.

**Discuss if you changed the schema or source of the data for your application.**

We used the originally planned data source, being the provided 2020-Present LA crime dataset.

**Discuss what you change to your ER diagram and/or your table implementations. What are some differences between the original design and the final design? Why? What do you think is a more suitable design?**

We didn't change anything significant that would've altered the course of the design.

**Discuss what functionalities you added or removed. Why?**

Originally we had planned on creating maps to highlight specific zones of high interest in regards to safety or frequency of events, as well as a dedicated safety module to more directly aid the users, but decided to not include them for the final design due to time/simplicity. We still grouped the data for analysis, just not in a visual manner.

**Explain how you think your advanced database programs complement your application.**

With the stored procedures, our advanced queries provide a more concise representation of the available reports for the purposes of analysis/understanding. For an interactive application that maintains and displays data on a fundamental level, it's crucial that it can provide the user with a more intuitive understanding of what's available for the benefits of efficiency and general usefulness. This only becomes more important as the database grows larger, as a massive table that only shows the data in a singular fashion would be less useful. As highlighted in the video, using the stored procedures to find trends within age groups or weapon types in this case allows for the police department to more quickly cater their efforts towards the most common categories.

**\*\*\*Each team member should describe one technical challenge that the team encountered. This should be sufficiently detailed such that another future team could use this as helpful advice if they were to start a similar project or where to maintain your project.**

**Eli:**

One challenge we faced initially was determining the best way of grouping/representing the raw data, specifically in regards to establishing the most important columns to group by as well as weak entities, primary keys, and foreign keys. For example, you first should find a unique attribute for each entry to serve as an identifier; In this set it was the directory number. Otherwise, it's largely up to individual group interpretation on what wants to be accomplished with the data. Since we wanted to find useful trends pertaining to safety and prevention, it was also important to keep track of attributes that have a one to many relationship such as crime types, descriptions, statuses, and locations.

**Aashu:**

One technical challenge we faced was writing the stored procedures. It was difficult to learn the syntax and structure of stored procedures as there were many components to making them work successfully. For example, we had to declare and initialize variables, use a cursor, and check if a table already exists and replace it if true. We also had to learn how to use looping and end the looping of the cursor. This was challenging since we did not have much practice with it before. Another challenge in making stored procedures was deciding what to make them do. We had to consider the data and components the stored procedure would access, the capabilities of a stored procedure, and possible useful features for our application, and think of something that fit all these considerations.

**Ben:**

A technical challenge we encountered on the frontend was that we ran into a bug when segueing between html pages. Information wasn't being passed from the database to a new page when we transitioned to it. We eventually realized that it was because we were loading the new

page's html in two different places in the code, which was inhibiting our ability to correctly pass data to display on the new page.

**Jerry:**

The challenge is to derive correct and efficient database schema. It requires understanding of data and knowledge of functional dependency. Sometimes it's hard to determine instances and their characteristics because many stuff are not independent in reality. We had tried several possible construction and finally derive a correct version under suggestion from our project mentor.

**Are there other things that changed comparing the final application with the original proposal?**

Other than the dismissal of some of the initially proposed features, the final application remains the same planned functionality.

**Describe future work that you think, other than the interface, that the application can improve on**

One area of improvement would simply be adding the visual maps as originally proposed to give the user a more tangible sense of what's happening in the local area.

**Describe the final division of labor and how well you managed teamwork.**

Work was not divided in the sense that everyone all worked on each stage equally. Since not everyone was on the same level with front-end development, much of the work in the later stages was completed by members who were the most experienced in that regard. But everyone was still involved in the entirety of the project development.