CS411 Assignment 3: Technological Stack Justification

The front-end and back-end of the prototype we are demonstrating was made using Flask. This is because as a lightweight framework, it was easy to pick up, especially for members of the team who were more experienced with Python. As we move forward with the project, we may decide to write our end product in Django if we need a more heavy framework for our application. The benefit of Python-based frameworks is that they are good for data science applications. In our case, this can help us in analyzing various data inputs in addition to the crime dataset we used in our prototype to determine safer routes, neighborhoods, and locations.

However, we are also thinking of making our application a single page application, since we want our users to be able to view a map of their surroundings while using our safety feature. If a user is on a route, the map should also be able to update periodically to reflect new locations where the user may find many other people if they are walking late at night, as well as show past crime statistics of the area within some radius. Since our app’s safety feature will have a timer counting down independently from the map view, our technology stack should also be good at managing asynchronous components on the page. This means that Angular as front-end and Node.js as back-end may be more suitable for developing our end product, especially if we don't decide to heavily expand on our safety ratings feature.

In any case, for the stage of early prototyping we decided on Flask for its ease of use.