Project Proposal

PUSL3120 Full-Stack Development

Proposal title: **Incident Management System**

Student number:

Problem

In the public there are lot of regulations and law breaking happen every day. Most of these actions remains as unpunished because of lack of evidence to prove them. There could be many reasons to have lack of evidence. One of them is people do not have spare time to report the evidence to the police, because people are busy minded and go to the police and reporting evidence is time consuming.

Solution

The proposing project is a solution for this time-consuming task, develop a web solution to report any regulations and law breaking activities online. This way people can report these illegal activities as soon as they witness. This will also keep the freshness of the evidence. These reports will go on public after the approval by the respective authorities such as the police department, and other registered people can add more evidence to the report and authorities can act fast and more accurately.

Functionality

Interactivity

This system will allow users to register and allows them to report any law-breaking activities that they witness. It could be any illegal activities or incidents such as high speeding, car crashes, robberies or any activities that are wrong according to the law.

After users report these activities with enough evidence, the authorities, in this case of scenario the Police department can approve these reports to go on public and allow other users to add more evidence if they have some. Police agents should also be register to the system with their employee details, and they will be notified of any reports posted by other users in their region.

Websockets

The authorities should be notified for any reports that posting to the system, and it must be fast an efficient. This process will use Websockets, so the police agents that are assign to a certain region will be immediately notified whenever a user in the same region post a report.

After the initial report approval, the report will go on public and if there are more witnesses to the incident, they can also add more evidence to the report. This new evidence should also go through an approval process and the same police agent must be notified who initially approve the report. As these examples, Websockets will be used in this system.

Planned Work

Structure

The development process will follow a good application architecture to promote good separation of concern. MVC is the preferred design pattern to keep all the components loosely coupled.

Mainly, there will be a Data Access Layer to that handle the Mongo Db operations that communicate through an ORM (Sequelize, Prisma …TBD), and that layer will inherit the data services module that directly communicate with the web application.

Node.js will be heavily used in this project alongside with TypeScript and Angular will be used to develop the frontend.

Resources

- Laptop (Windows 11 with Windows Subsystem for Linux)
- Identity verification API – free/costly

Testing

As explained in the structure section, MVC design pattern will be used in the application. So, the most suitable test methodology is unit testing, and a single testing module will be deployed for every module that are mentioned in the structure section.

Work plan

In the first 10 hours I will be go through all the documentation of each third-party module such as selected ORM framework and then the initial project plan will be done by drawing the essential user cases and ER diagram in less than 10 hours, then I will start the development starting from the back end of the application. During this stage I will do booth development and testing the data services as I develop the backend. This will take about 40 hours and the rest of 20 hours will be spent on developing the front end.