1 Tools

The following tools will be used to design this project:

- D3js: JavaScript library to display dynamics and statics graphs
- Leaflet: open-source JavaScript library to display user-friendly interactive maps
- Leaflet.heat: A tiny Leaflet heatmap plugin
- Python: used with Pandas to do the preprocessing and scikit-learn

2 Goals

The goal of this project, to overview of all types of crimes between 2001 and today, are the following:

2.1 Overview

The first focus will be to simply displaying a general overview of statistics with D3js. Firstly a special format which can be seen in Figure[1] will display a circle which, in the center, shows the number of crimes for a given day, and every few seconds the next day is displayed.
Following this, a few general statistics from 2001 to 2020 for each type of crime will be displayed such as Figure[2], and underneath this, statistics about crimes for the community areas, this being Figure[3] and Figure[4].

2.2 Display for specific problematic

A special visualisation for the specific problematic, with the a format similar to Figure[3], will be used. Under the map, a list of questions with a "View" button will be used to visualise these problematic. In addition to displaying data on the map, important statistics will be displayed on the lower left side of the visualisation mainly as graphs. The discussed problematic are described below.

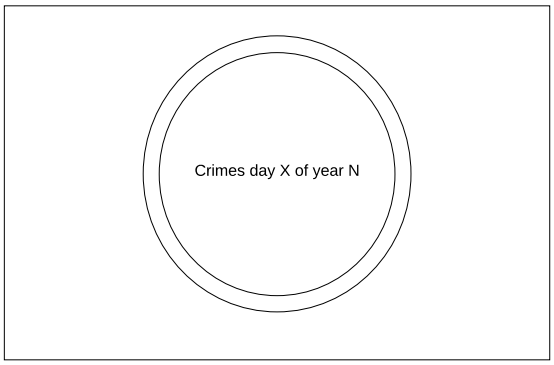

Figure 1: Sketch of the frontpage circle

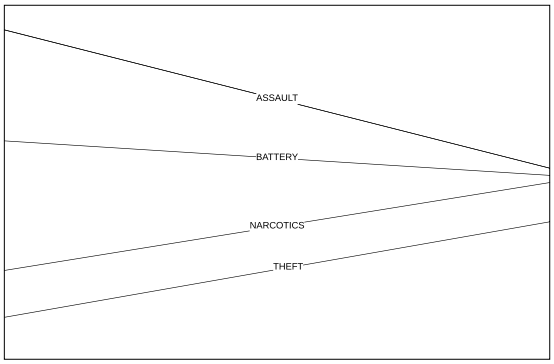

Figure 2: Sketch of the general statistics of crime types

2.2.1 Police stations impact

Since there is a dataset containing the location of police stations in Chicago, this problematic will visualise the impact of these police stations, mainly how the presence and distance of a police station affect crimes.

2.2.2 Crimes rate for specific time

This would show how specific dates or interval of time affects the crime rate in given areas. For example, it can be quickly observed that the 1st of January attracts a high crime rate.

2.2.3 General Heatmap

This problematic will display a heatmap showing a more general view of Chicago. Without having extreme delimiters (community areas). This would help to visualise the data in a more finer way.

3 Extras

As extra ideas we came up with interesting visualisations, improving the display and being able to personalise the data displayed.

3.1 Animations

To enhance the user experience in our data story, animations could be done. When a user click in the *view* button as in the Figure[3], the camera on the map would move at specific location to show to the user interesting facts about our data. Also scripted text will be displayed to explain what is happening on the screen in an animated way.

3.2 Filtering

After the animations, the user might want to explore a bit more the data. Parametric filters will be provided to the user so that he can explore the dataset freely. The filters would be the period of time, the types of crimes, if it's a domestic infraction or not

3.3 Introducing Learning Algorithms

Nowadays making predictions for the number of crimes would be interesting for the Chicago police. We will introduce a simple regression model that takes as input the month, the area and a socio economic indicator to try to predict the number of crimes during that month.

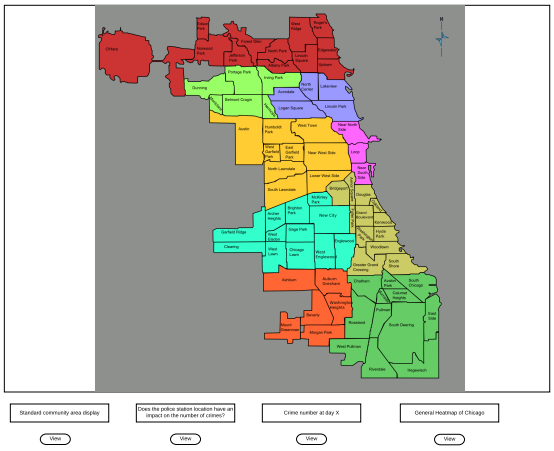

Figure 3: Sketch of the map for the specific problematic

4 Sketch

The final project will be a scrollable page of Figures 1, 2, 3 and 4. The general idea can be seen in the prototype of the project.

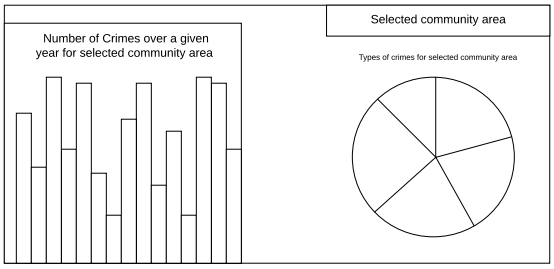

Figure 4: Sketch of the statistics for a specific community area