

# Design Document

## 1. Overview:

In this assignment, we used Panda, Matplotlib and Folium python libraries to manipulate and visualize the data. We generate bar table and multiple maps to show the relationship among neighbourhood, month, and crime.

**The diagram of interface is below.**

```
1: Q1
2: Q2
3: Q3
4: Q4
E: Exit
Enter your choice: 
```

## 2. Detailed design of each tasks:

Task 1: This function allows user to enter a range of years and crime type the program stores a bar chart that shows the total number of the specific crime for different months.

Task 2: This function gets a number from user input and can output that number of most populous and least populous neighbourhoods with the population count. With this output, the function can store a map in html files. There will be circles on the map to indicate those neighbourhoods, and pop up window includes name and population count of neighbourhoods

Task 3: This function allows user to enter a range of years, a crime type and an integer N, the program stores a map which indicates the top N neighbourhood where the specific crime was committed most frequently during that period.

Task 4: This function gets the range of years and number of neighbourhoods from the user input. With these input, the function can output that numbers of biggest crime-population ratio neighbourhoods and the most frequently crime type in such neighbourhoods, which in that years range. With this output, the function can store a map in html files. There will be circles on the map to indicate those neighbourhoods, and pop up window includes name, crime\_population ratio and most frequently crime type of neighbourhoods.

### 3. Testing strategy:

We used online SQLite viewer to exam the data and by entering sql queries we gained a rather small data to test our output. We manually checked the results in the graphs and maps to make sure it matches with the data we have.

### 4. Group work breakdown strategy:

#### **The method of coordination to keep the project on track:**

We use github to share the code and use google doc to edit report together.

#### **The work for Zijian Zhou(2 days):**

- (1) Create A4README.txt and collaborate with Zhentao Lei

- (2) Create A4Report.pdf and collaborate with Zhentao Lei
- (3) Finish task 2,4 collaborate with Zhentao Lei
- (4) Implement the interface of system and collaborate with Zhentao Lei

**The work for Zhentao Lei(2 days):**

- (1) Edit A4README.txt and collaborate with Zijian Zhou
- (2) Edit A4Report.pdf and collaborate with Zijian Zhou
- (3) Finish task 1,3 and collaborate with Zijian Zhou
- (4) Edit the interface of system and collaborate with Zijian Zhou