Abstract:

I want to do the programming project. Public Safety is one of the biggest concern in our daily life, we may want to know how dangerous or how safe for our community. So, I will investigate the safety problem in the city of Rockford, one city in the Illinois state. This project will evolve data processing and data cleaning which are relate to the class. I will find the numbers of criminals occurred in the city from 2011 to present, the criminal type, the frequency of the criminal types, dangerous areas in the city based on the number of the criminals etc.

Expect Deliverables (find out):

The number of crimes from 2011 to present

The number of crimes occur in each years

The types of crimes and their frequencies

The time series of the crimes

The average day for a crime

The areas that crimes occurred

The most dangerous place, the least dangerous place in each year

If the dangers place changed

The distance between dangerous place and the police station

If recent police call occur in the dangerous areas

If I can predict the crime rate for next year

Expected Deliverables:

The number of crimes from 2011 to present

The number of crimes occur in each years

The types of crimes and their frequencies

The time series of the crimes

The average day for a crime

The areas that crimes occurred

The most dangerous place, the least dangerous place in each year

These are deliverables that I plan to complete in the mid point checkin. However, things may change since I may add or drop tasks. This is only a planned outline

Steps:

Since I don’t know how many tasks I will finish eventually, I can only provide an outline.

Load the CSV data:

I will use the two csv files: Rockford Police Department 72 Hour Dispatch Call Log and City of Rockford Crime Offenses 2011-present. I have already downloaded the files from <https://data.illinois.gov/group/safety>.

Data manipulation:

This is the most part I will do in this project. I will filter the data, clean the data, modify the data, transform the data to plot(if possible).

Quantitative research:  
I may do some math to get the output that useful for analyzing

Learning or Installing new libraries:

Some tasks may involve some new libraries for me, so I will learn that and install if I don’t have one such as matplotlib,geopy,datetime.

Plot the data:

I may make some map plot or histogram to show something if I am able to do this.

Challenges:

Data manipulation:

I will definitely have problems with data since some of the column values are disordered. It may take me a lot of time to do that.

Convert int to datetime:

The date column in the file shows integers, I need to convert them to the actual datetime type and I also need to add, subtract the date to get the actual days. I will learn the datetime library for this problem.

Convert coordinate to the actual address:  
This will be kind of tricky, I think I will have to learn geopy library

Plot the data (if possible):

I may learn the matplotlib, or I may use R or matlab to plot the data. (Note this is not the task I must complete)