CRIME IN THE CITY

CHICAGO

The safety of community is one of the main concerns for public. This became a major challenge for authorities and police departments as well. Crimes in big cities are vary with diverse rates and might happen in any time, which in its turn need proper planning and resources to understand its trend and where and when it is necessary to allocate resources in certain area.

Data Acquisition and Cleaning

- Chicago crime incidents dataset from 2001 to present, which has detailed information on the daily cases, such as where it happened, when, case coordinates (latitude and longitude), crime type, etc. From [Chicago Data Portal](#)

- Foursquare, which is geo information platform Its API used to get nearby venues based on the crime case coordinates. From [Foursquare](#)

- After data cleaning, there were 6,705,122 samples and 18 attributes in the data

- We used KNN classifier to complete the missing details with accuracy 99.9%
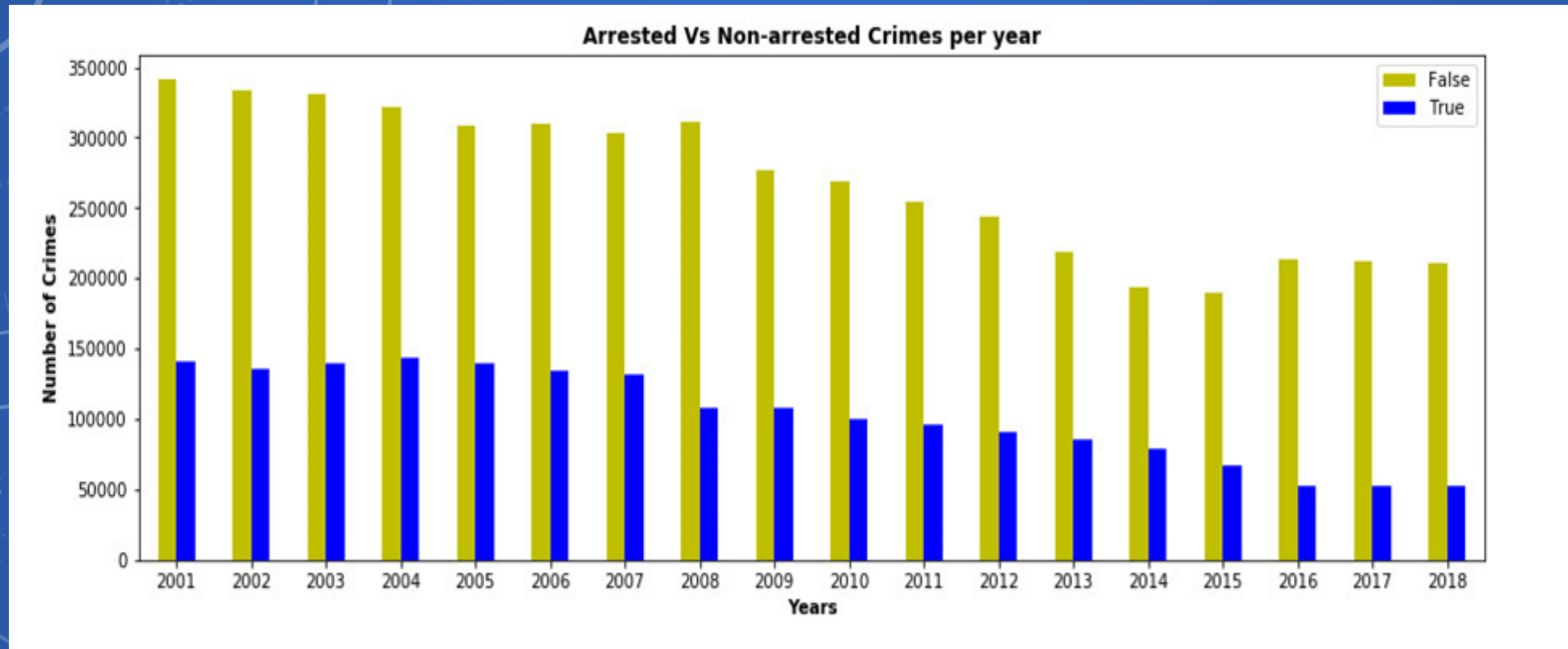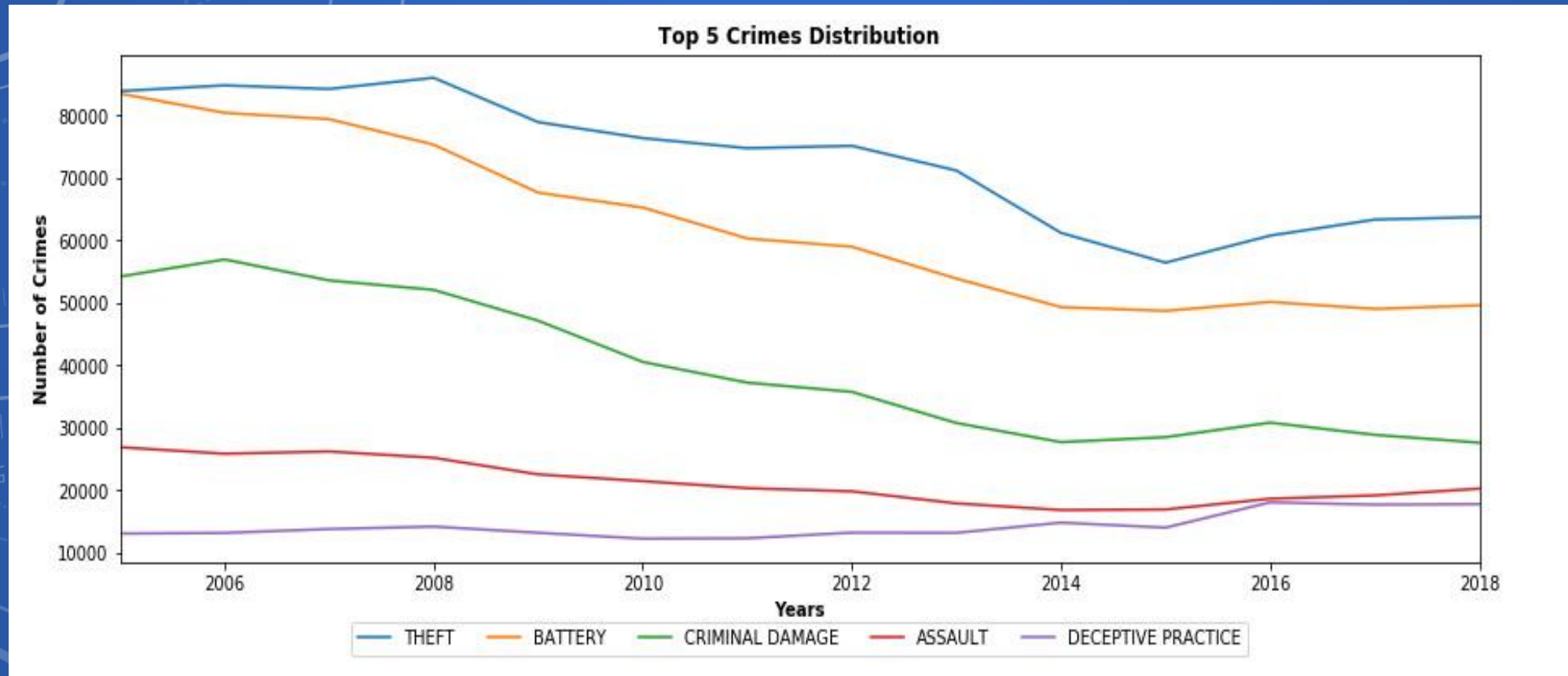
Classifying The Police Districts Per its Load
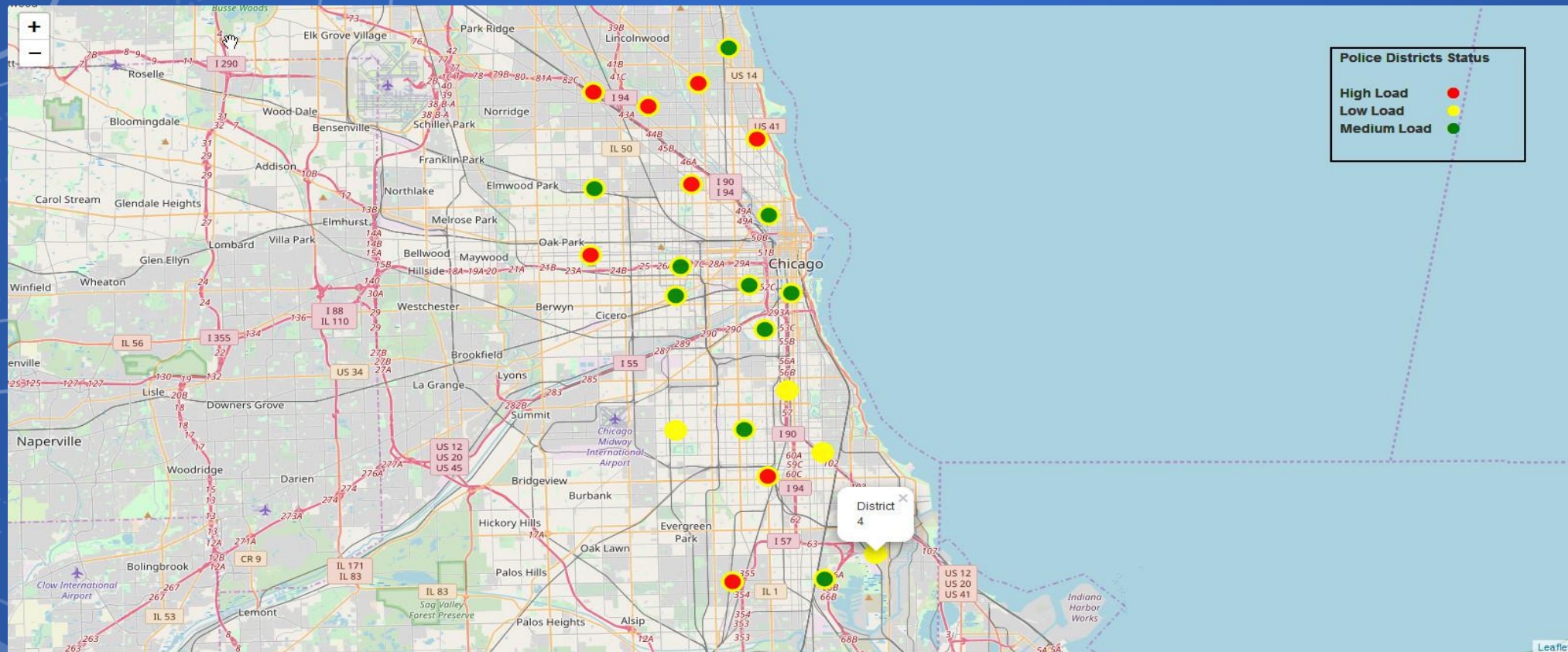
Crime Types Distribution

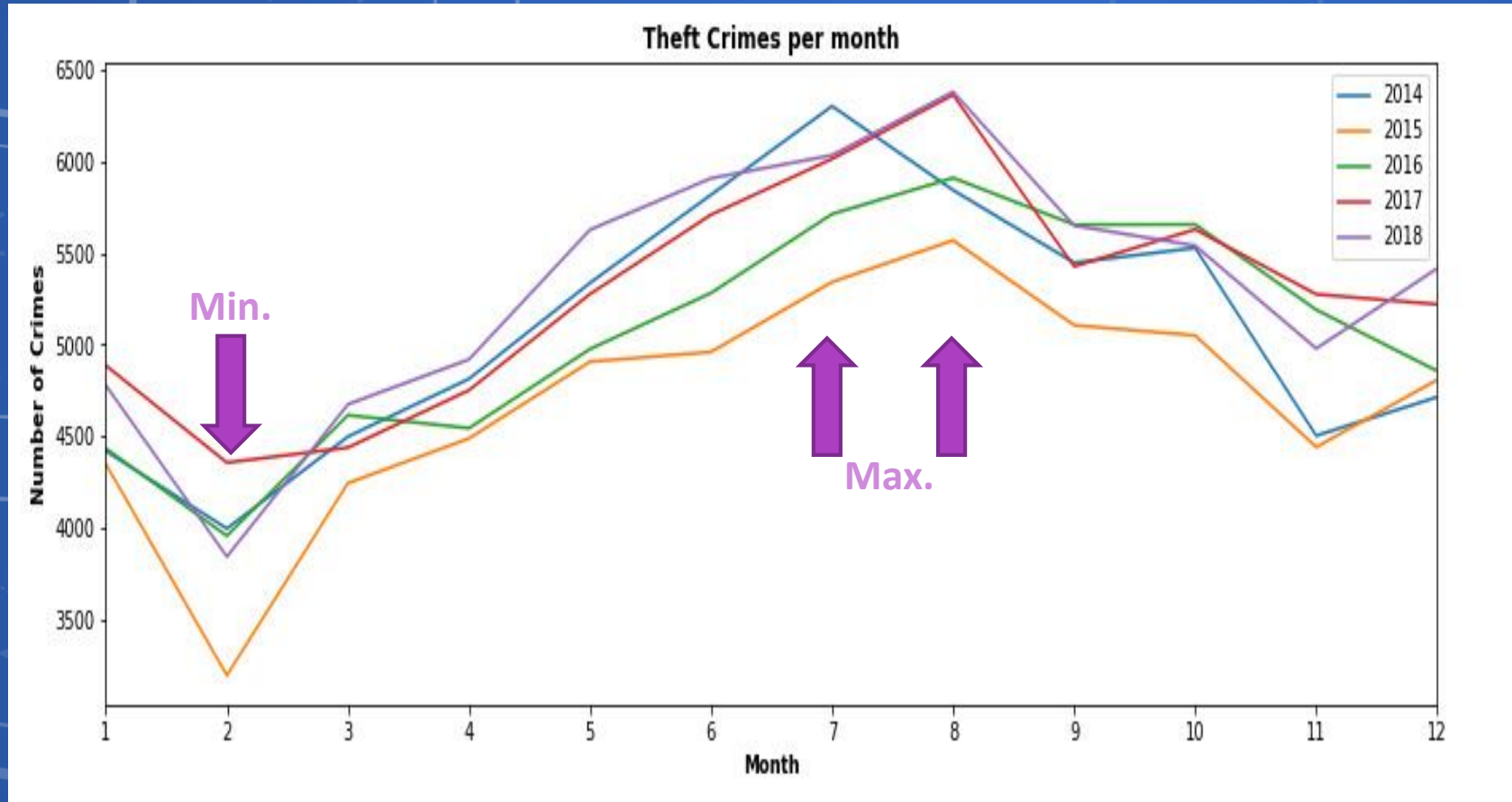**Total number of Crimes per year - sorted**
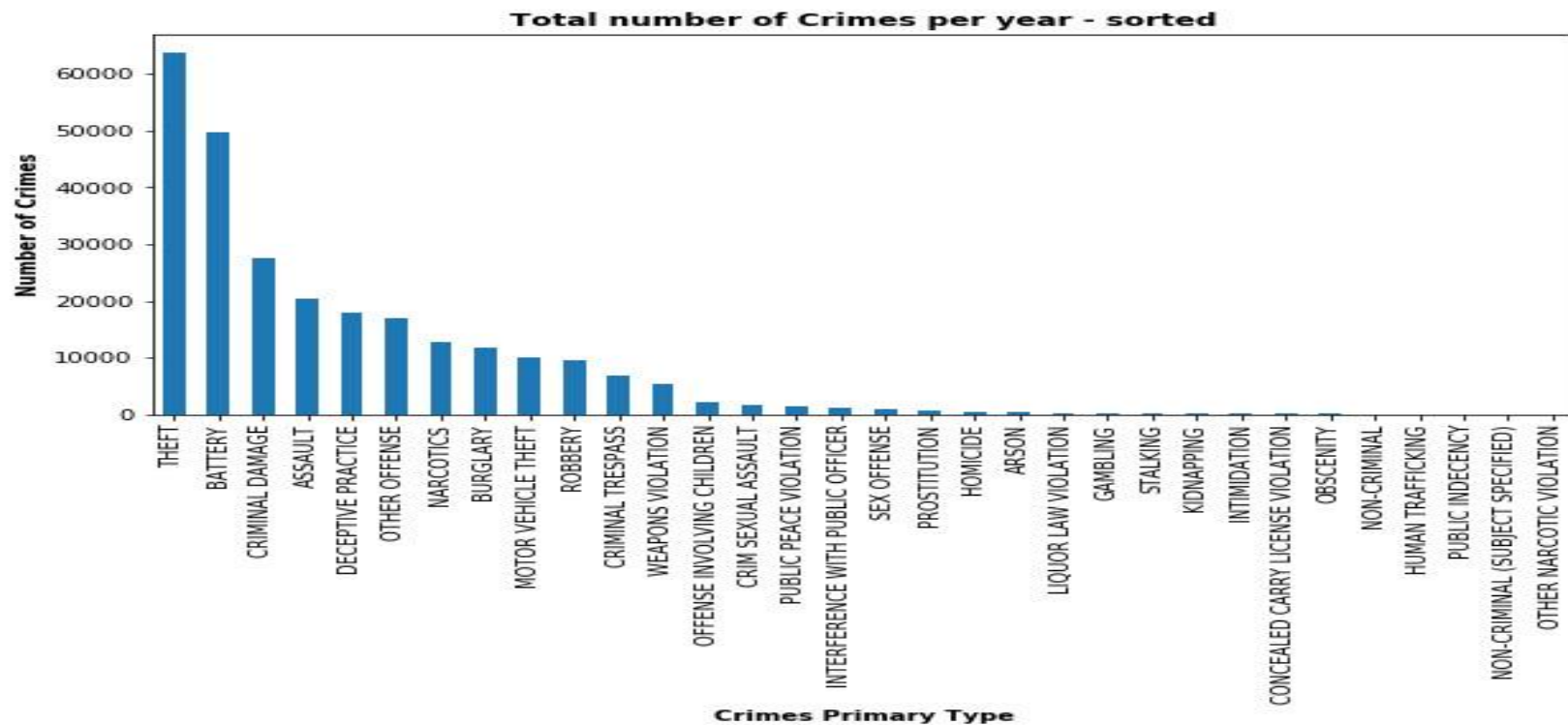
Crime cases: Arrested Vs, Non-arrested

Crime cases: Top 5 Distribution per Year
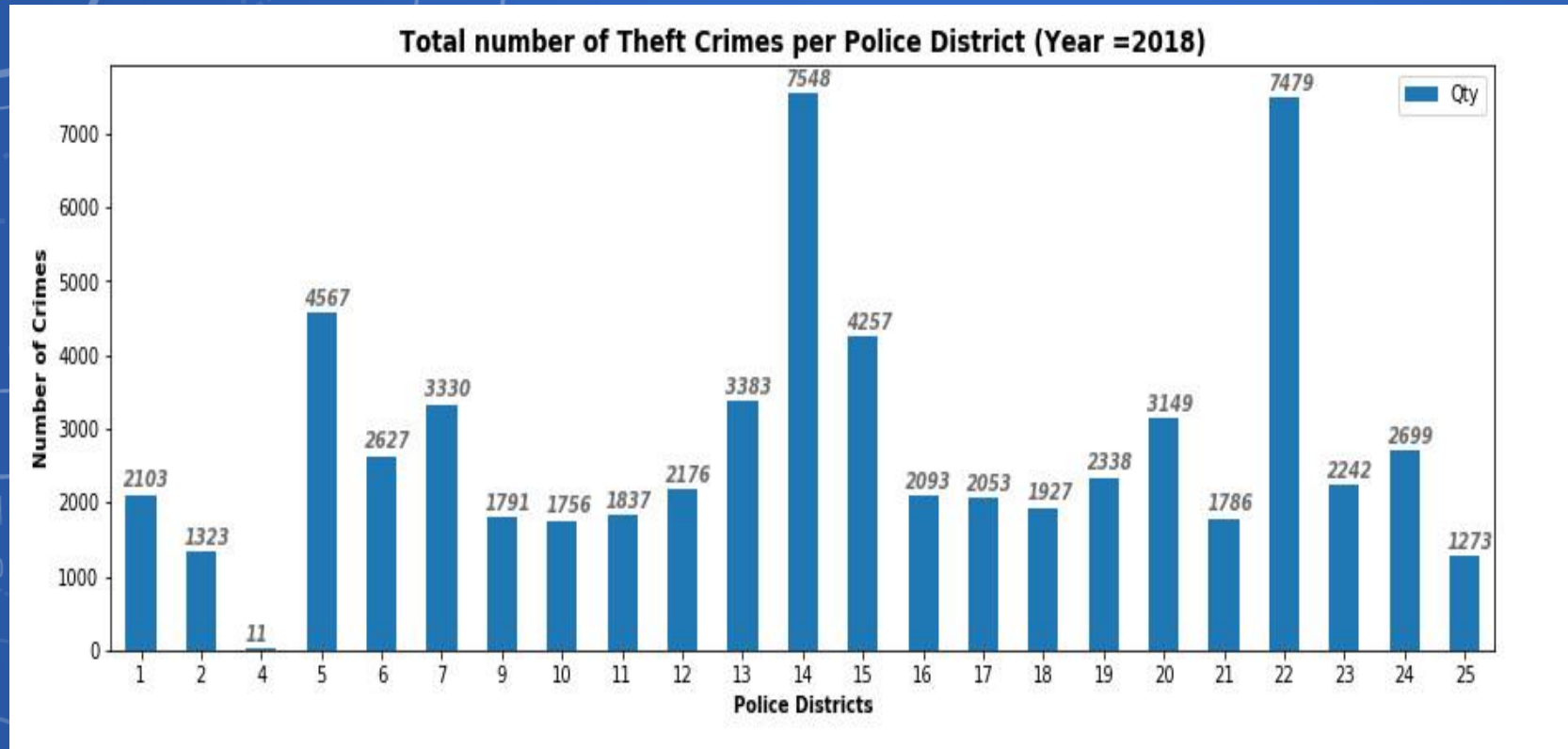
Crime cases: Theft Distribution per Month

It found that:
- Feb. has the minimum rate for the registered case
- July and Aug have the highest rates

Crime cases: Theft Crimes per Police District

Total number of Theft Crimes per Police District (Year =2018)

It found that:
- The District 14 & 22 have the highest rate
- District 4 has rare number of cases

Crime cases: Plotting Theft Crimes per Police District

It found that:
- There is a contradiction with the district location
- e.g. District 18 shown as the nearest one for the major number of cases , while not having such load almost 1/3 comparing to District 22.

Crime cases: Plotting Theft Crimes per Police District

The previous finding has been confirmed as the registered cases on District 22, actually concentrated far from its location and mainly located around Districts 1 ,12, and 18
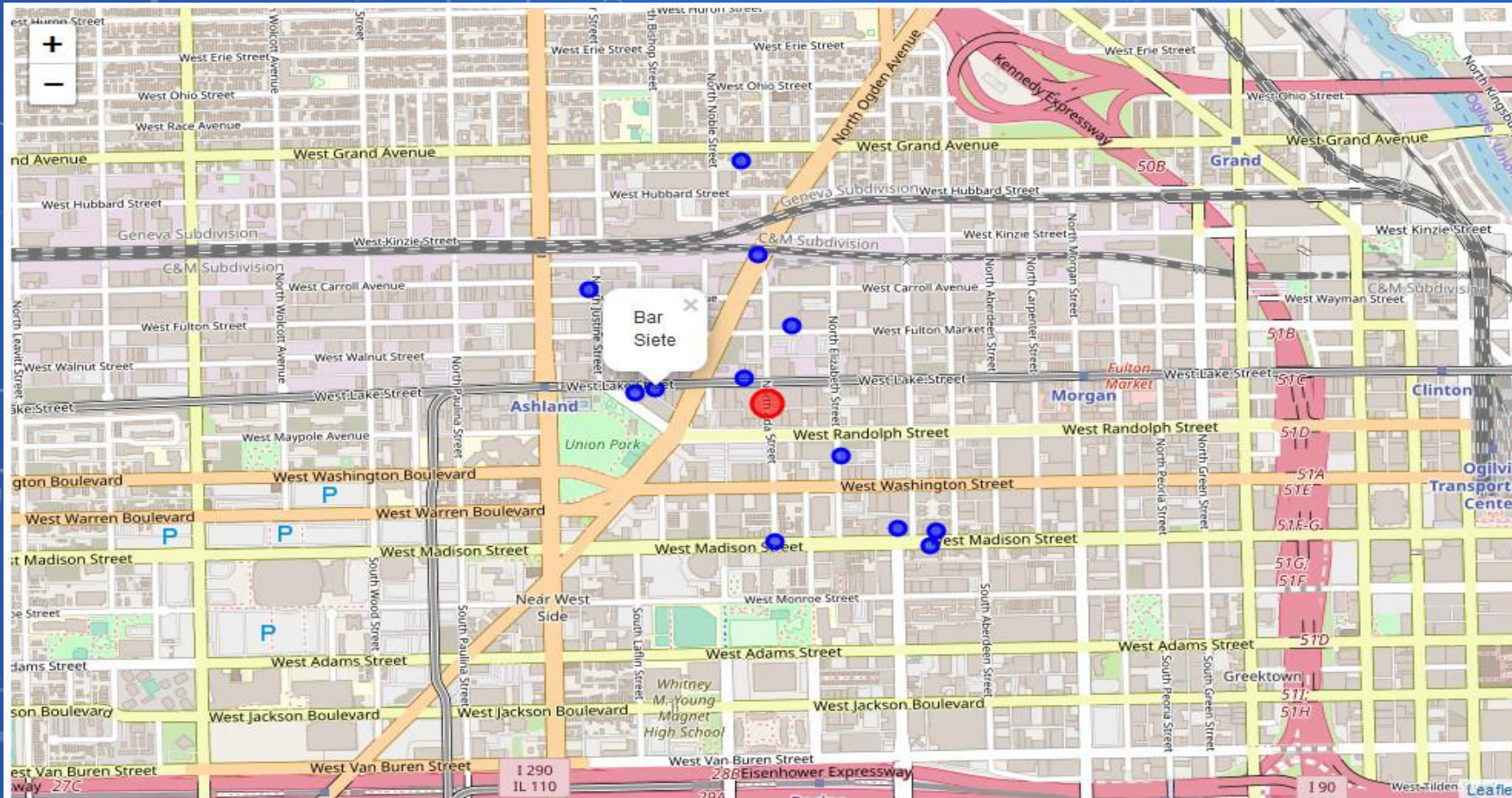
This considered as open issue , as it needs some clarifications from Police dep. side.

Crime cases: Venues nearby to Crime Case

Here the Venues that are nearby to Case No. JB410653 has been plotted

We assumed that the criminal used to be at some bars around the crime location, which can be used as good start during the investigation process.

Conclusion and future directions

- In this study, the main objective was helping the government authorities and police departments in improving the planning and the quality of the provided service. Some primary objective was to understand the crimes and the police load trend and where and when it is necessary to allocate resources in certain area.

- The other direction was analyzing the crimes with focus on how to provide means to improve the arrested %.

- We think the models can be enhanced by capturing other attributes and extend the Foursquare tips use. e.g., cluster the crimes based on specific symptoms such as the social life surrounding the crime location that can provide better investigation process