Crime in Chicago:
An analysis of crime in the City of Chicago from 2001-Present

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Abstract: For our research project, our group will analyze "Chicago crime from 2001 to present date Dataset," a data set provided by the United States Government. This dataset reflects reported incidents of crime (with the exception of murders where data exists for each victim) that occurred in the City of Chicago from 2001 to present, minus the most recent seven days. Data is extracted from the Chicago Police Department's CLEAR (Citizen Law Enforcement Analysis and Reporting) system. Our group is going to use the data to analyse on information such as date and time of crime, type of crime, numbers of arrests, was the crimes domestic level or not, locations, etc and by analysing these data we are going to find out which places are safe for public to live, which are moderately safe and which places are not at all safe and we are also going to find out how active the department to police is to find the man in crime. The 1.50GB data set will be analyzed using Hive, Sqoop, Pig data processing, etc for easy data summarization.

1. Introduction

The City of Chicago is the third largest city in the United States preceded only by New York and Los Angeles, yet has the highest crime rate in the country. Crime is nothing new to any large metropolitan city, most large cities experience higher crime rates because of increased populations and dense areas. Chicago on the other hand has experienced a larger than normal amount of crime.

In this paper we seek to analyze crime patterns occurring in Chicago using the 2001-present Chicago Crimes dataset provided by the City of Chicago. Our dataset contains 22 columns like crime id, case number, primary type, description, location, arrest, FBI code, community area, year etc. And about 4 million rows of data. We are analyzing this data, as this data set contains information from last 16 years and it is been updated everyday until today, the final date of our analysis, November 28, 2017.

Our work was analyzed using the method in figure 1.1

Figure 1.1

2. Analysis

Our team analysed 11 different possilbe trends using the data set provided. We found the following:
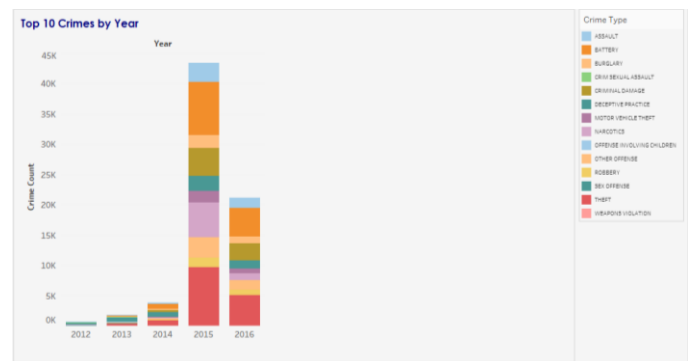
Top Crimes Each Year from 2012-2016

Figure 2.1

First we examined the top 10 crimes that occured each year from 2012-2016 as shown in Figure 2.1. We found that the most commonly occuring crimes each year were burglary and theft as identified by the orange and crimson colors in figure 2.1.

This analysis would help the city in providing useful information on which crimes to be on the lookout for and possibly provide additional resources to ensure that these crimes are minimized. The also provide residents with knowledge of which crimes are prevalent in their neighborhoods.

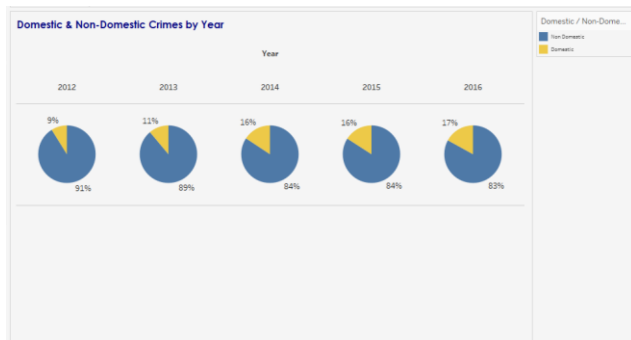## Domestic and Non-Domestic Crimes from 2012-2016

Figure 2.2

Next we looked at crimes from 2012-2016 and whether or not the crime was domestic or non-domestic. Simply meaning if the perpetrator was a member of your household. We found the number of crimes involving domestic disputes were small but have been increasingly growing each year.

This data is important to dispell the notion of stranger danger. The notion that all crimes will be commited by someone that you do not know. While this is the case for most crimes, we found there to be an increasing amount of crimes that involved people you know.
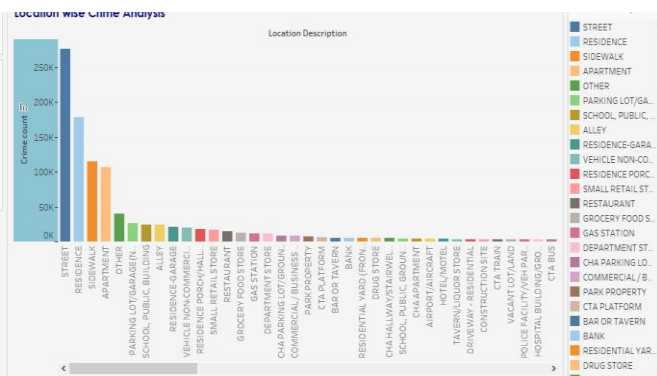
Likely Areas of Crime

Figure 2.3

Our next area of anlysis was looking at different areas that crimes have occurred over the last 16 year. This included places like sidewalks, inside of the home, parking garages, alleys, etc. We found that over the course of the last sixteen the top three places to have a crime occur were in the street, followed by a residence, and thirdly, a sidewalk.

This information is important because it lets residents know which areas are more safe and informs police of which areas need additional patroling. Additional analysisi of all areas can be found in Figure 2.3.

Surprisingly, the bulk of crime occurred in the top five areas with the most crime and the additional 32 places

analysed still had a combined total less than the top five areaas.

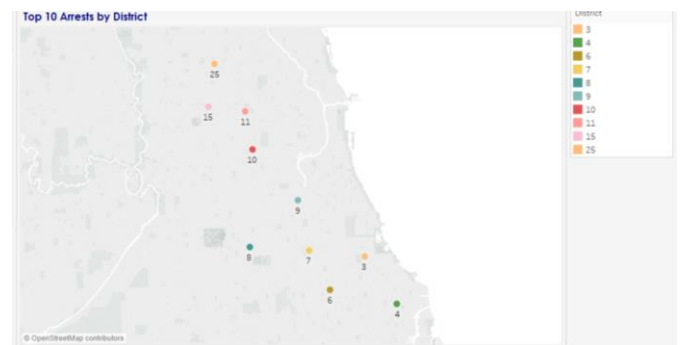## Police Districts with the Most Arrests

Figure 2.4

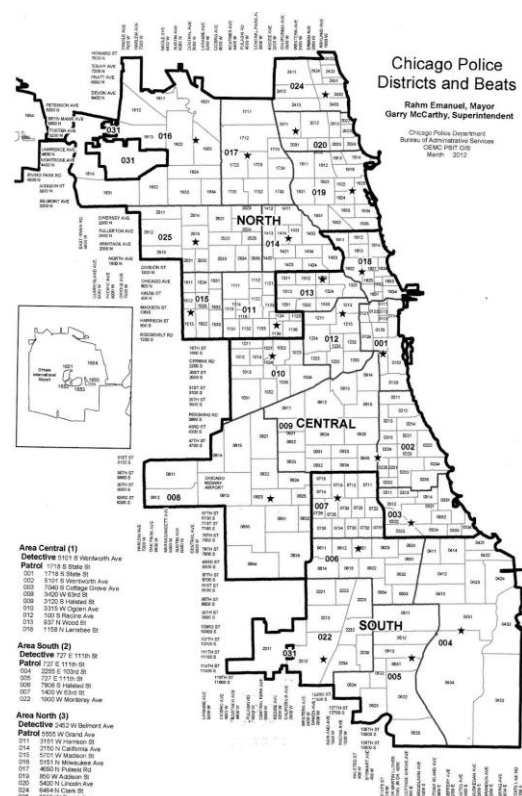## Chicago Police Districts and Beats

Figure 2.5

Our fourth analysis focused on the 25 police districts within Chicago and which districts had the most arrest. We found that out of the 25 police districts, the top 10 arresting districts were 3,4, 6, 7, 8, 9, 10, 11, 15, and 25 as shown in figure 2.4. Figure 2.5 displays a map of all of the police districts in Chicago.

This is important because my orignal hypothis assumed that only districts which lay in more affluent neighborhoods would more arrest but as figure 2.4 displays, arrest were not connected with affluence of the neighborhood.

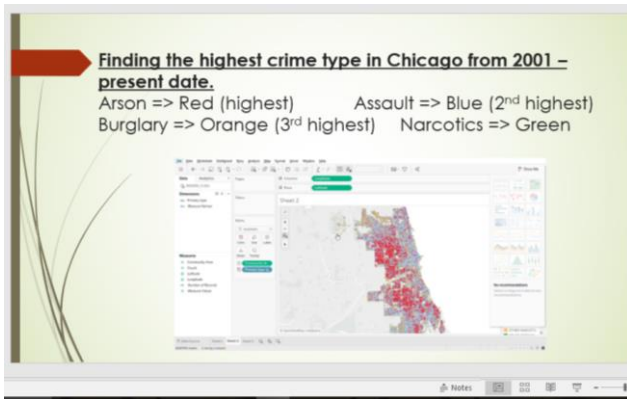## Finding the highest crime type in Chicago from 2001 – present date

Figure 2.6

The above map shows different types of crime in Chicago from year 2001 till 25th Nov,2017 and also distinguishes the crimes occurred highest and so on.We have used longitude and latitude columns for allocating points where crimes have occurred and Community Area and Primary Type to allocate different types of crimes and distinguishing it according to community areas. The highest crimes happing is done by count function.

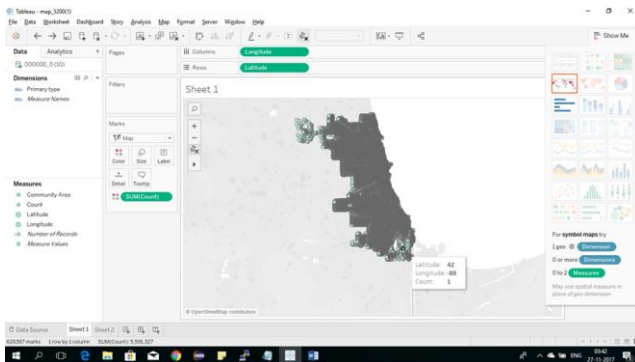## Finding the safest places in Chicago which have the least crimes from year 2001 till present days

Figure 2.7

In the above map we found the areas in Chicago which safest and the areas which are not that safe to live in. The blue dots represent the places where the least crime occurred from the last 16 years,
whereas grey area represents the places where crimes have occurs many time.

There are some areas which are dense dark those are the once where most of the crimes have occurred. We found this by using count function on all the latitudes and longitudes.

Finding The Location Where The Police Are Most Active In Chicago From 2001 Till Present Date
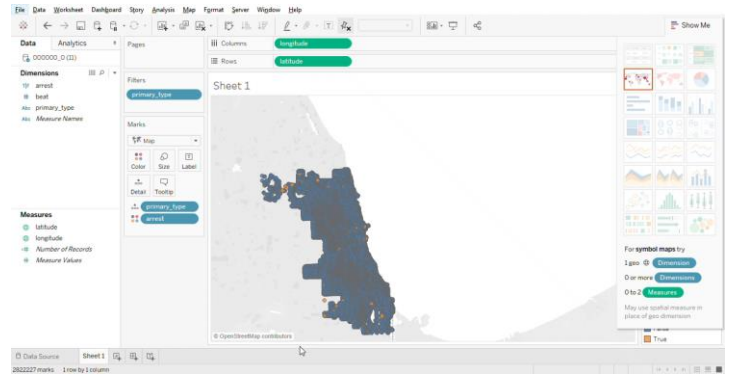

Figure 2.8

The above map represents how much active the police in Chicago are and at what locations they are most active ,we have analysed it using the arrests happening at the location.

As we see that the yellow dots represent the locations where crimes have been taken place but the police are very active and thus all the arrests have been done there successfully.

Where as in the other location the arrests where no that successful.
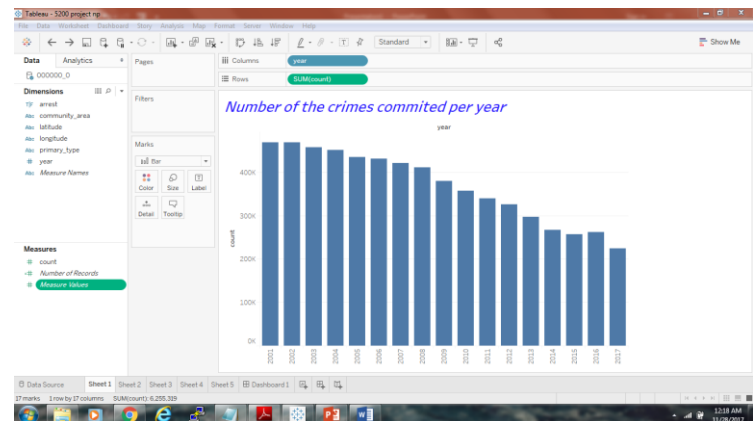
Number of Crimes Comitted Per Year

Figure 2.9

This graph shows the number of the crimes reported from 2001 to 2017 in Chicago. Over the year the crime rate has been decreasing consistency. From year 2001 to 2008 the crime rate decrease was small. Since 2008 the crime rate has drastically reduced. It can be noted that the crime rate in 2017 is approximately half of the crime rate in 2001.
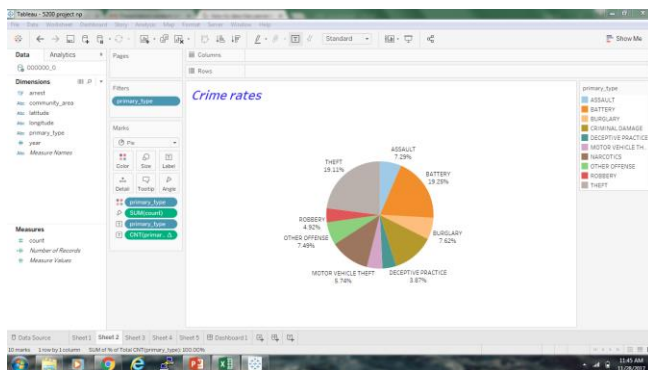
Crime Rates

Figure 2.10

The graph shows that Different crimes reported during the year 2001 to 2017 in Chicago. According to this graph it can be seen that Battery, theft, and criminal damage are among the top crimes reported and Robbery, motor vehicle theft, deceptive practice are the least reported crimes.

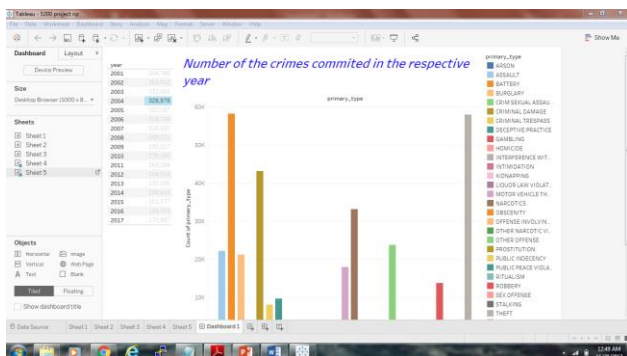**Number of Crimes Committed in the Respective Year**

Figure 2.11

This graph shows Number of the crimes committed IN respective categories each year. Observing all the graphs the battery and theft type crimes have been consistent over the years. while others are not that significant. Preventive majors over battery and theft crime should be done primary.

3. Conclusion

In this paper we sought out to analyze the dataset provided by the City of Chicago titled Chicago Crimes: 2001-presnet to determine, or at least provide some insight as to why their crime rates have been so high over the past 16 years, the amount of time provided to us with the data set. We were able to draw 11 different conclusions using the dataset. We found the top crimes occurring each year, the safest area of towns and the top arresting districts among other attributes.

4. References

Crimes - 2001 to present. (2017, November 28). Retrieved from Chicago Data Portal: https://data.cityofchicago.org/Public-Safety/Crimes-2001-to-present/ijzp-q8t2