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Mini Project Report

*for*

Data Analysis on various crimes in Chicago

using R

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**1. Introduction:**

We have used the crime data set from the year 2019 to analyze the data and retrieve any valuable information. The data has been downloaded from <https://data.cityofchicago.org/Public-Safety/Crimes-2001-to-present/ijzp-q8t2/data> which is publicly available to download. The data consists of basic information such as different types of crimes committed, in the year 2019 from the months of January to November. Initially, there were a total of 227765 records. After removing the rows with NA values in the latitude and longitude columns, there are 226682 records.

**2. Objectives:**

* To demonstrate basic data analytical skills in R using different packages.
* Read the raw data from source, clean it and convert to a R supported data structured.
* Analyze the data and provide any valuable info that can be inferred from the data.

**3. Libraries used to complete this Project:**

* ggplot2
* sqldf
* lggmap
* openxlsx

**4. Some useful Terminologies:**

* Beat is the smallest geographical police unit. 3 to 5 Beats form a sector.
* A Police District is a collection of 3 such sectors.
* Ward is a city Council district.

**5. Problem Description:**

We have identified the below Analysis Questions and tried to provide the best possible solutions to them, from the data provided:

* Q1: How many different types of crimes have been Registered in Chicago in 2019?
* Q2: What is the arrest ratio for each type of crime?
* Q3: Summarize the number of crimes by month.
* Q4: Summarize the number of crimes committed grouping by month and crime type.
* Q5: What are the top 15 location types where crime is very frequent?
* Q6: Which Beat made the highest number of arrests?
* Q7: Which Police district is the best with respect to number of arrests arrests made per crimes registered?
* Q8: Which ward has the safest to live in?
* Q9: Geo Plotting of crimes using google maps API.
* Q10: Find the number of charges that involve Financial identity theft OVER $ 300

**6. Results:**

Some of the results are displayed below.

**Number of crimes by month Numbers by crime Type**

A close up of a logo

Description automatically generated A screenshot of a cell phone

Description automatically generated

**Summary of crimes grouped by MONTH and Geo Plotting of Crimes in Chicago**

**CRIME TYPE**

A close up of a piece of paper

Description automatically generated A picture containing text, map

Description automatically generated

**7. Conclusion:**

* The most common type of crime in Chicago is Theft.
* Crime has been recorded highest for the month of JULY.
* Highest number of crimes have been known to occur on the streets.
* Crimes related to Narcotics, Liquor violation, Gambling, Public indecency and Prostitution have been solved 100 %
* In general, Chicago downtown seems to be recording highest levels of crimes
* Beat #1112 has made the highest number of arrests (1208). And tops the arrest rate charts with 59%.
* Police District #11 has the best arrest rate of 40.5%
* Ward#38 has the least number of crimes registered in the year 2019.
* The highest number of crimes have been recorded in the month of JULY.
* A total of 3303 thefts that are over $300 have been reported during this period.