Team No. 63

Team Members:

Adiba Khan

Iqra Akhlaq

Afshan Fatima

Komal Sharma

Mohd Faizan Saifi

Poorvi Vashisht

Omar Hussain Khan

Mohammad Zaid Nadeem

Deliverable 1

Topic: Analyzing the factors that favor crimes and using them to make a place safer.

Concept of the project

According to World Bank report, India's crime rate and statistics for 2020 was **2.95**, a **0.56% decline** from 2019.

Yet we see homicides, murder, rape, kidnapping and abduction, rioting, trafficking, crimes against women, crimes against children in every nook and cranny of our country. Coming to metropolitan cities, the situation is shadier and when it comes to Delhi, it is the Rape Capital of our country not just for the name's sake.

Our project revolves around analyzing these offences, categorizing them into several types and detecting mostly those locations where these offences are most frequently occurring.

Using our understanding of Data Science and Data Analytics, we will bring out those areas into picture where the hours of the day do not carry any meaning, where certain types of offence are frequent and certain types are rare, for example: in a secluded place, rapes, murder, homicides show a frequent occurrence while in public places like railway stations, robbery, theft, dacoits are in frequent list.

Analyzing different data sets for different variables we will bring out some solutions to curb the menace of such offences.

Knowledge of Python, Machine learning, Data science and Data Analytics will be the main source of our project and we probably are going to come up with a solution such as which areas are in dire need of increasing its CCTV surveillance or Police Patrolling or PCR vans and hopefully

in the upcoming time India would be able to reduce it’s crime rates.

Objective

Crime is a paramount social problem in the country, affecting public safety, child development, and the socioeconomic status of adults. A police officer may have some exposure to dangerous areas, but may not be able to tell what kind of crime might happen. Our goal here is to help law enforcement officers by providing efficacious, hard-to-find information so they can take appropriate action. We'll be experimenting with different features to get better predictions to predict crime type based on location & time and using additional features such as crime description, arrest history, etc. The results would become better regarding the criminal activities going on in different locations around the cities majorly metropolis like Delhi to be having safer streets, also calculating the best locations for safety event resource allocation, and highlighting key areas of safety concern in our communities during unordinary events

In this project, we'll be focusing on two major analyses

Exploratory Analysis:

1) Analyzing the pattern and trends of criminal activities over the years (last updated datasets in 2020).

2) Types of locations where crimes have happened the most and more likely providing a safer route in the time of crisis.

3) A brief literal sense about those crimes.

Predictive Analysis:

1) Predicting type of crime(s) and probability of crime(s) based on geography.

Rationale

According to the last data of 2020 present in our records Total of 66,01,285 cognizable crimes comprising 42,54,356 Indian Penal Code (IPC) crimes and 23,46,929 Special & Local Laws (SLL) crimes were registered in 2020. It shows an increase of 14,45,127 (28.0%) in registration of cases over 2019 (51,56,158 cases). Crime rate registered per lakh population has increased from 385.5 in 2019 to 487.8 in 2020. During 2020, registration of cases under IPC has increased by 31.9% whereas SLL crimes have increased by 21.6% over 2019. Percentage share of IPC was 64.4% while percentage share of SLL cases was 35.6% of total cognizable crimes during 2020.

When talking of metropolitan cities alone, a total of 9,24,016 cognizable crimes comprising 6,68,061 Indian Penal Code (IPC) crimes and 2,55,955 Special & Local Laws (SLL) crimes were

registered in 19 metropolitan cities during 2020, showing an increase of 7.6% over 2019 (8,59,117 cases).

Seeing the bleak state of our country, we try to use our data analytics abilities to detect the locations and probable circumstances where the crime rate is high and what type of offences are commonly occurring reaching to the root cause of that offence and further making use of data science, we will produce a solved report which benefits us to lower the present rate.

Methodology and Visualization

Analyzing the given dataset will be our key to reach the blurry picture of crimes occurring in our country. If we want to get some information and if we want to predict the problems and challenges, we are facing in tackling this crime problem we must analyze the data and for that purpose, we need data that is structured and near to flawless. And to make data appropriate we will use python and its libraries NumPy and pandas for the cleaning and processing of the data.

In refining data, we will remove all the null values and outliers from the data to get better accuracy. We will use the online platform Google Colab. After we finish cleaning the data, to get insights from the data, we will first visualize our data through

graphs and charts and use them to understand the nuances of the data. And for that purpose, we will use python libraries seaborn and matplotlib for the visualization of the data. With the help of plots, it becomes easier for us to see the different trends in the data, which will further provide us with the insights and will make us more aware of the menace.

At the end of all the analysis we will provide the probable solution of what all we can do to stop this menace and make our surroundings safer and crime free.

Probable Outcome

Computer data analytics provides an abundance of information. In this project, we are trying to find the reasons and the patterns of the different types of crimes. We can use these outcomes in predictive policing.

Predictive policing could lead to more objective decision-making, discouraging police officers from making arbitrary decisions that might be based on bias rather than evidence.

It has the potential to make policing fairer. By promoting decision-making based on objective evidence, predictive policing could potentially alleviate certain discrepancies in the enforcement of the law.

By making the use of predictive technologies, we can reduce murders and all other crimes. If we can find the pattern of which areas are facing more crimes and which type of crimes and at what time, then we will be able to take the necessary actions to stop these crimes or at least can reduce the number of crimes happening.

Data Source

1. National Crime Records Bureau
   https://ncrb.gov.in/sites/default/files/CII%202020%20Volume%201.pdf
2. India Crime Rate and Statistics
   https://www.macrotrends.net/countries/IND/india/crime-rate-statistics
3. World Bank
   https://datatopics.worldbank.org/world-development-indicators/
4. Crime in India (Datasets)
   Catalog | Open Government Data (OGD) Platform India
   Crime in India | Kaggle