

Project Report

Project Name: **Capstone Project 1 (Crimes in India)**

Crime is a serious problem in every society, and it is important to understand the factors that contribute to it. In this report, we were given various crime datasets that contain all the data about all districts in each state. ask was to create three clusters, which include sensitive areas, moderate areas, and peaceful areas. We were then asked to create a data frame for each cluster that shows data according to the areas. Finally, we were to analyse the clusters and prepare a report that explains all our observations, including what is impacting more crimes in sensitive areas, what needs to be done to reduce crime, and the most safe and unsafe districts.

Phase-1

Phase-1 of our project objective were to gather and prepare data for further analysis. In this phase we gathered information of each state population, literacy rate, geographic area, crime rate year wise and unemployment rate. Collected the data from variety of government and private organization websites to ensure that it was accurate data.

Phase_2

India is a country with a diverse population and culture. It is also known for its high crime rate and big population density. In this phase, we analyse the relationship between crime rates and literacy rates in India. We also look on the type of crime, year-on-year total crime rate, area, population, and state-wise crime data.

2.1 Analysis of Literacy rate vs Total crimes.

We analysed the correlation between literacy rate and Total crime in India. Analysis shows a negative correlation between literacy rate and total crime rate. As the literacy rate in a region increases, the total crime rate in that region decreases. This suggests that education plays an important role in reducing crime rates in India.

Some important observations after analysis:

1. Madhya Pradesh, Bihar, Rajasthan and Andhra Pradesh have low literacy rates and high Total crime. This suggests that there may be a correlation between the two variables. Lack of education in these states can lead to high crime rates.
2. Kerala has the highest literacy rate among all Indian states. This suggests that education can play an important role in lowering crime rates within the state.
3. we observe a mixed relationship between literacy rates and total crime in some states. For example, Maharashtra has a high literacy rate but also a high number of total crimes committed. This suggests that other factors, such as poverty and population, may also contribute to higher crime rates.

4. Also note that some states have lower total crime numbers due to their smaller populations. Therefore, it is important to consider population size when comparing crime rates in different states.

2.2 Analysis of the type of crime vs each state vs Literacy rate.

In terms of specific types of crime, Uttar Pradesh, Bihar and Madhya Pradesh have the highest number of recorded cases involving murder, rape, kidnapping, death by dowry and Hurt/ Grievous hurt. Maharashtra has the most incidents related to robbery, forgery and arson, while Rajasthan, Andhra Pradesh and Uttar Pradesh have recorded the most fraud or cheating related crimes. Andhra Pradesh has the highest number of insult to modesty of women cases and is the second highest in cruelty by husband or his relatives crime.

Based on our analysis of crime data in India, we find that there is an inverse relationship between literacy rate and maximum types of crime. Low literacy states such as Madhya Pradesh, Bihar, Rajasthan and Andhra Pradesh have the highest recorded crimes such as murder, rape, kidnapping and death by dowry.

However, there are certain types of crimes that have no clear link to literacy, such as her other IPC crimes and cruelty by husband or relatives. In some cases, high literacy states such as Maharashtra still have high crime rates such as robbery, counterfeiting and arson.

Overall, the analysis suggests that while there may be a relationship between literacy rates and some types of crimes in India, it is not a definitive factor. Addressing the specific types of crime prevalent in each state requires a more nuanced approach, given factors such as population size and socioeconomic factors.

2.3 Analysis of year-on-year total crime rate

From the analysis of year-on-year total crime rate, it can be observed that there has been a decrease in the overall crime rate in India from 2001 to 2012. This is a trend in a good direction, and it can be caused by a number of things, including better law enforcement, more public awareness, and stricter punishments for crimes. However, it is important to note that a decrease in crime rates does not necessarily mean a decrease in actual crime numbers.

The inverse relationship between the total crimes committed and the crime rate may be impacted by population expansion. Crime rates could still drop if the increase in crimes is less than the increase in population as a result of growing populations.

2.4 Analysis of area vs overall crime

There is a positive relationship between the area of a state and the total number of crimes committed. This suggests that larger states tend to have higher crime rates.

theft is the most common crime in all areas, followed by burglary. Burglary, robbery, and dacoity crimes have decreased significantly over the years in residential area. Robbery

crimes, however, showed an increase from 2007 to 2010 but decreased afterward. Theft crimes have been constantly increasing.

2.5 Analysis of population vs overall crime

As per the analysis of the data, we can observe that there is a direct correlation between population and the overall crime rate. The states with higher population have a higher overall crime rate compared to states with a lower population.

The five most populated states in India are Uttar Pradesh, Andhra Pradesh, Maharashtra, Bihar and West Bengal. Of these, Maharashtra and Andhra Pradesh are the states with the highest total number of crimes committed. The most populated state, Uttar Pradesh, ranks fifth in total crimes committed.

On the other hand, the bottom 5 states in terms of population are Lakshadweep, Daman and Diu, Dadra and Nagar Haveli, Andaman & Nicobar Islands, and Sikkim. These states have a lower overall crime rate compared to highly populated states. Lakshadweep, which is the least populated state, has the lowest total committed crimes in the country.

We can also draw the conclusion that the overall number of crimes committed rises in a direct relationship to population growth. This can be attributed to a number of factors, including increased population density that increases the chance of crime, insufficient law enforcement, and economic and social factors that increase criminal activity.

Phase-3

In this phase, we will be working with crime data from various districts in India. We will be performing SQL operations on different datasets to extract useful insights from them. We will be using MySQL to perform the SQL operations

The first query (3.2) was to find the maximum number of rapes and kidnappings that occurred in any state, county, and year. They found that most of the rape cases in 2011 (492) occurred in Murshidabad, West Bengal.

The second query (3.3) was to find the minimum number of rapes and kidnappings that occurred in any state, county, and year. Results showed that some districts, such as Nicobar in the A&N Islands, had been rape- and kidnapped-free for several years.

The third query (3.5) was which districts had the highest number of frauds/robberies. The results showed that most robberies (32) occurred in his Dahod district.

The fifth query (3.7) was to find the number of murders in ascending order in district and year-wise. The result showed that several districts had zero cases of murders in multiple years.

The sixth query (3.8.2) was to find which district in each state/UT had the highest number of murders year-wise. The result showed that many districts had a high number of murders, such as Patna in Bihar, Muzaffarnagar in UP, and Mumbai in Maharashtra.

Lastly, we created a data frame (3.8.3) to store the data from query 3.8.2 and analysed districts that appear in 3 or more than 3 years and printed the corresponding state/UT, district, murders, and year in descending order.

Phase-4

The task at hand in this phase is to cluster the given crime datasets based on the districts in each state into three categories - Sensitive Areas, Moderate Areas, and Peaceful Areas. The main objective is to provide the higher authorities with actionable insights for reducing crime in the identified Sensitive Areas.

Sensitive area:

The crime rate in sensitive areas of India is high, and there are many reasons for this. The district experiences significant migration from other parts of India, leading to high population density. Moreover, sensitive districts are industrial hubs with a diverse population, which further exacerbates the crime rate. This report aims to analyse the crime rates in sensitive areas of India and identify the most prevalent crimes.

The data shows that the crime rate in sensitive areas of India is high. The top crimes reported in these areas are murder, attempt to murder, rape, kidnapping, and abduction, dacoity, preparation, and assembly for dacoity, riots, criminal breach of trust, cheating, and counterfeiting.

Moderate Area:

moderate area consists mostly of semi-urban and rural areas and some big city areas, which may contribute to the lower crime rates in comparison to metropolitan cities. Theft and robbery are biggest amounts of crimes in moderate area.

Peaceful Area:

most peaceful areas are rural and semi-urban, with lower population densities and less migration from other parts of India. In peaceful areas, thefts are the top crime, followed by hurt/grievous hurt, robbery and burglary. The lowest five crimes in peaceful areas are importation of girls from foreign countries, children foeticide, procurement of minor girls, protection of civil rights (PCR) act SC and ST, and children exposure and abandonment.

2. What needs to be done to reduce crime

Improve Law Enforcement: To help law enforcement agencies tackle crime, sufficient resources should be allotted to them.

Solve Social and economic Issues: Social and economic problems like unemployment, poverty, and a lack of education are major contributors to many crimes. Crime can be decreased by addressing these issues through programmes like job creation, education, and social welfare.

Improve the justice system: Having a fair and strong justice system is essential for lowering crime. This could involve recruiting more judges, simplifying the court system, and offering better legal help to those who can not afford it.

Improve education: Increased education is important for reducing crime. People who have more education are more aware of their rights and obligations and are able to make better choices. Education can improve the quality of life and lower poverty, which will lower crime.

Use technology: Taking advantage of CCTV cameras and other types of surveillance equipment is one way that technology is able to help prevent crime. By simplifying processes and reducing paperwork, it can also help the criminal justice system work efficiently.

Conclusion

In conclusion, the analysis of crime data in India reveals that there are several factors that contribute to crime rates in the country. Literacy rates are negatively correlated with overall crime rates, but other factors such as population size, geography, and socioeconomic factors also play important roles. Each state in India presents its own challenges and tackling crime rates requires a separate approach that considers these specific factors. even the overall trend of decreasing crime rates between 2001 and 2012 is a positive development, more efforts are required to further decrease the rate of crime across the country. The findings of this project can be used to inform higher authorities and law enforcement agencies to develop effective strategies to reduce crime rates in India.