Crime Analysis for Bangladesh

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Abstract

Bangladesh's crime analysis infrastructure faces challenges such as data fragmentation, limited resources, and outdated technology. This abstract highlight the need to centralize data, modernize technology, and introduce predictive analysis. While these steps offer a path to reducing crime rates, enhancing public safety, and optimizing resource allocation.
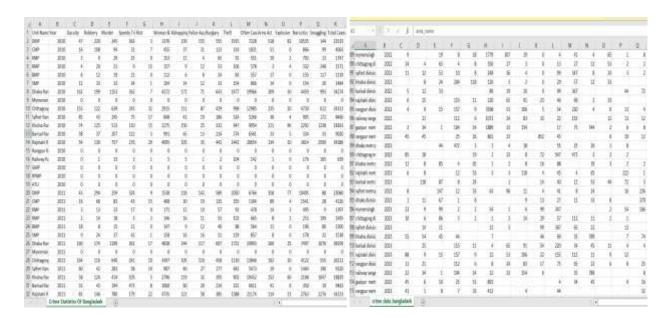
1. Introduction

Crime analysis is the methodical examination of crime data to find trends, patterns, and important information that re effectively and efficiently allocating resources as well as in preventing, solving, and reducing crime. Researchers, decision-makers, and the general public can all benefit from a greater knowledge of the state of crime and how it affects society through the use of crime analysis. The area of crime analysis in Bangladesh is still in its infancy and is beset by numerous obstacles. A few of the main challenges are the dearth of accurate and thorough crime data, the shortage of qualified and experienced crime analysts, and the absence of cutting-edge forensic equipment and methods. The purpose of this paper is to give a summary of the current. Crime analysis is the process of studying crime data and patterns to understand the nature, causes, and trends of criminal activity.

2. Problem Definition

Crime analysis has a big impact on public safety and efficient law enforcement, it's a major concern in Bangladesh. The incapacity of the nation to comprehend, predict, and counteract criminal activity is hampered by the inefficiency and insufficiency of the current crime analytic infrastructure. The absence of predictive analysis, antiquated technology, scarce resources, dispersed and inadequately centralized crime data, and inadequate training for law enforcement officers are some of the major issues. Because of these problems, crime control is done in a reactive manner, which raises crime rates and lowers public safety.
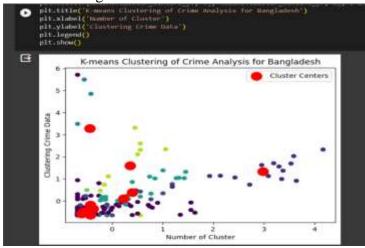
3. Dataset Description

Crime analysis datasets typically contain information related to various criminal incidents and activities. These datasets are essential for law enforcement agencies, researchers, and analysts to gain insights into crime patterns, trends, and hotspots (Incident details, Geographic information, Offender and victim characteristics, Arrest and clarence data, yearly information, Crime location and types).

4. Code Implementation

A. Data Clustering.

K-means clustering data of crime analysis for Bangladesh (label and without label)
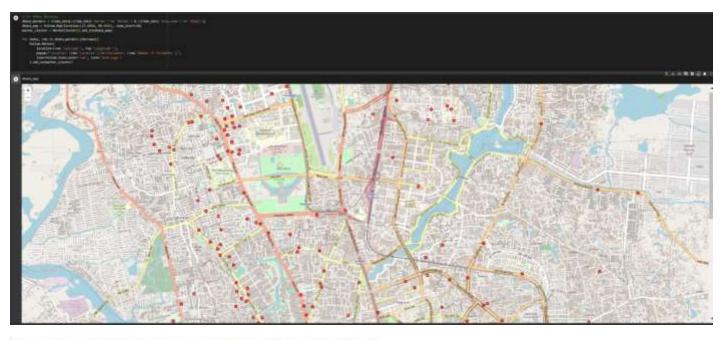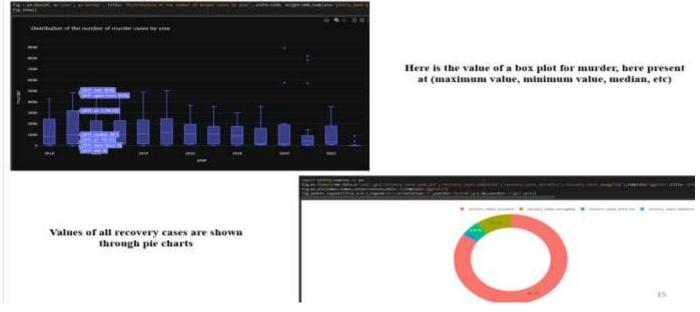
B. Machine Learning Algorithm

We are using 3 machine learning algorithms for this project and show the result.

1. Linear Regression
2. Decision Tree
3. Random Forest

5. Result and Analysis

Most of the places of murder in Dhaka area are identified here by maps

Here is the value of a box plot for murder, here present at (maximum value, minimum value, median, etc)

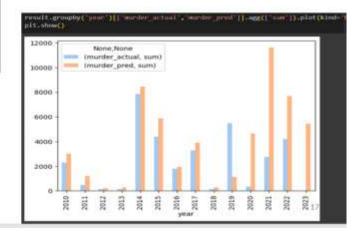Values of all recovery cases are shown through pie charts

Clustering has been important in the work we have done so far, because we have done more work inside, such as preparing something hard work. Then we tried to analyze each crime separately and then make predictions using machine learning algorithms after taking out the value and graphing it, the almost assurance of winning is like 96%

Here the values are plotted according to the murder area and this year

Here is a prediction value generate of what the crime rate would be in any given year, along with the actual values.

6. Conclusion and Limitations

Improving crime analysis in Bangladesh is essential to raising public safety and increasing the efficiency of law enforcement. The goals listed, which include creating a centralized database, updating technology, and creating predictive analysis, present a viable solution to deal with the problems that now exist.

But there are a few restrictions that must be taken into account. Budgetary restrictions, bureaucratic roadblocks, and the requirement for behavioral and cultural changesThe availability of high-quality data and their accuracy in forecasting crime patterns are prerequisites for the efficacy of predictive analysis algorithms. Furthermore, community engagement may present difficulties in some places, necessitating customized approaches. Furthermore, durability and a sustained dedication to enhancing crime analysis

7. References

[1] Crime Statistics | Bangladesh Open Data

[2] www.police.gov.bd

[3] Crime in Bangladesh (kaggle.com)

[4] https://colab.research.google.com/?authuser=1