

WOMEN CRIME PREDICTION

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Abstract: Crime against women these days has become problem of every nation around the globe many countries are trying to curb this problem. Preventive measures are taken to reduce the increasing number of cases of crime against women. A huge amount of data set is generated every year on the basis of reporting of crime. This data can prove out to be very useful in analysing and predicting crime and help us prevent the crime to some extent. Crime analysis is an area of vital importance in police department. Study of crime data can help us analyse crime pattern, inter-related clues& important hidden relations between the crimes. That is the reason why data mining can be of great help to analyse, visualize and predict crime using crime data set of various states of India Dataset is classified on the basis of some predefined condition. Here grouping is done according to various types of crimes against women taking place in different states and cities of India. Crime prediction would help the administration to plan strategies for prevention of crime against women and take effective steps to curb crime.

Keywords: Naïve-Bayes Classification, Time Series, DataSet.

Introduction: India is a vast country with diversified societies. Position of women has been of great importance since ancient times in Indian culture. Unfortunately current scenario depicts a different story. According to National Crime Records Bureau, crime against women has significantly increased in recent years. It has become the most prior to the administration to enforce law & order to reduce this increasing rate of the crime against women. This is

where criminology comes into picture . Criminology is scientific study of crime and criminal behaviour in order to detect crime characteristics. Use of data mining techniques can produce important results from crime dataset. The very step in study of crime is crime analysis .Crime analysis is exploring, inter relating and detecting relationships between various crimes and characteristics of crimes .Police department maintains crime data at the record. This data contains huge amount of data set with complex relationships which needs use of data mining techniques in order to be transformed into useful information. The knowledge extracted from the dataset can be a great tool & support to the police department to prevent crimes.

An ideal crime analysis tool should be able to identify crime patterns in an efficient manner for effective action against crime against women.. However, in the present scenario, the following major challenges are encountered.

- Increase in the size of crime information that has to be stored and analysed.
- Problem of identifying techniques that can accurately and efficiently analyse these growing volumes of crime data Different methods and structures used for recording crime data.
- Investigation of the crime takes longer duration due to complexity of issues.

All the above challenges motivated this research work to focus on providing solutions that can enhance the process of crime analysis for identifying and reducing crime in India. The main focus is to develop a crime analysis tool that assists the police in curbing the rate of crime against women.

Methodology: Crime against women can be brought down only if our strategy about how to deal with crime is clear and determined. This can only be done by the analysis of the past and trending data. The method we adopt here is that we make use of the dataset which contains information on crime against women in various states of our country. Here we take the data of interest of previous years from the data set available to us, now we apply naïve bayes classification and time series algorithm to predict the number of crime that are liable to occur in the coming years. After apply bayes classification we apply time series algorithm on the given set of data. After applying time series algorithm we get to the know the predicted value of particular crime in a particular state of India in coming years or in future. Some of the important terms are explained below:

Naïve bayes classification: The Naive Bayesian classifier is based on Bayes' theorem which states that two features present in a class are independent from each other. A Naive Bayesian model is particularly useful for very large datasets because it easy to build, with no complicated iterative parameter estimation.

Time Series Algorithm: A time series represents a collection of values obtained from sequential measurements

over time. Time-series data mining stems from the desire to reify our natural ability to visualize the shape of data.

Implementation: The whole of the process of crime prediction can be divided into following steps.

- I. Creation of virtual table
- II. Prediction of crime rate.
- III. Graphical Representation.

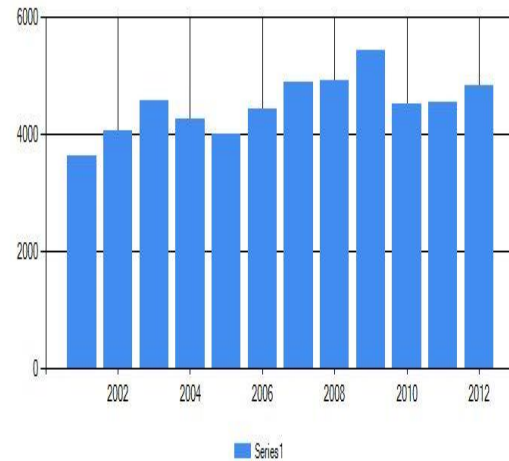
Creation Of Virtual Table: Virtual tables are a property of .net coding language. We make virtual table to depict the previous years crime rate in tabular form. The no. of rows in the virtual table will depend upon the no. of previous years data we take into consideration. The columns would contain the values which we would like to calculate. The example mentioned below has the fields Instance, Value, Forecast and Error.

| Instance | Value | Forecast | Error |
|----------|-------|----------|-------|
| 0 | 4834 | 4834 | 0 |
| 1 | 4554 | 4834 | 280 |
| 2 | 4522 | 4554 | 32 |
| 3 | 5441 | 4522 | -919 |
| 4 | 4922 | 5441 | 519 |
| 5 | | 4922 | |

Virtual Table

Prediction of crime rate: Depending upon the persistent crime rate and after analyzing them we apply bayes naïve classification and time series algorithm to predict the rate of crime against women in a particular state.

Graphical representation: One extra feature that is added here is the graphical representation of the historical data of crime against women along with the predicted value after applying naïve bayes classification and time series algorithm.



Graphical Representation

Future scope: The future scope of this project is that it would help the government and administrative authorities in directing their efforts in a definite direction after analysis and prediction of the crime rates after applying the time series algorithm. From the graphical representation provided along with the predicted value it would help in understanding the crime patterns and accordingly planning the steps to curb crime against women.

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