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An Affirmative Learning Techniques to Analyse The Crime Scene In Jewel Theft Murder

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ABSTRACT: Jewel Theft murder has become a serious issue in today's society as crime rates are increasing rapidly. Police Officials find it difficult to identify things that can accurately and efficiently analyze the growing volume of data due to longer duration of investigation process. Our main aim is to analyze the jewel theft murder occurred over the years 2014-2019 and find crime patterns to reduce the further occurrences. The outcome of our project is to predict the jewel theft murder at a much faster rate and thus reduces the crime rate.

KEYWORDS: analyze, crime patterns, prediction, accuracy, data mining.

I.INTRODUCTION

In a statistical survey, it was found that the crime rates had increased from 2.3% to 7.8% in the year 2014 to 2019 and there was a drastic increase in the jewel theft murder. Despite of many emerging technologies, we are hand behind in solving problems. In solving the jewel theft murder, it would manually take days to months to detect and find evidences in predicting the crime scene. Sothis manual system of predicting the crime will not be efficient. The objective of our project is to predict the jewel theft murder by finding patterns using various parameter involved in the crime scene. The parameters we take into consideration are case number, places, month, year, arrest, week, date. Then we analyze with previous history of records to predict the jewel theft murder. We use classification and clustering based models to identify the crime pattern. Our projectintends to develop an automated tool to predict the jewel theft murder in a much lesser time.

1.1 Goal:

The goal of our project is to understand the patterns in the crime scene in order to predict crime. Data is the vital thing that analyses tremendous amount of time and effort. Data Mining is a powerful tool to analyze data from different perspectives. Crime analyze is a process which explores the way and the behavior of the jewel theft murder and their relationship with the criminal.Data mining techniques are used to analyze the existing crime by detecting patterns to predict the future crime.

1.2 Literature Survey

Saving the time and the effort of investigation officers by aiming and targeting the possible suspect within stipulated interval of time span. Crime Analysis can be used to match the newly reported cases with the similar past case records and display the related case summary report to assist the IO in the investigation process. [1] The problems exist currently are how to develop and generate the model to represent the crime investigation information and how to make good use of the available information represented by the model. The problem is huge amount of data and record in the crime investigation domain which is not well defined in a proper relation. The system only keeps the criminal records, card files and database for the development of the criminal records. [1] It does not construct the information meaningful and therefore it is insufficient in providing the information for crime investigation. The prediction accuracy can be improved by tuning and ensemble both the algorithm and the data for specific applications. It provides a basic framework and growth of the accuracy for further analyses in the crime prediction investigation. Crime affects life quality and economic growth. Increased crime rate. In deep learning system it analyses the designing part, testing model and training model for detecting, predicting crime areas, and the rate using open dataset from police reports. [3] To achieve the good performance and improvising the crime classification and finally coming out with the perfect crime prediction. The challenging issues faced

by the police departments is to have accurate crime forecasts and the details of the criminals to dynamically deploy patrols and other resources so as to improve deterring of crime occurrence and police response times. In this project a particular module includes the forecasting and predicting the crime to help out in the investigation process in which the pattern of crime occurrence in future will be found out. [4] It can help law enforcement officials gauge the crime pattern which are prevalent in a particular area or region or in a planned period of time. This would save time, money and effort. Criminals are being trained up and gained with the excellent knowledge in the new upcoming technology. So law enforcement agencies have to keep up with them. Traditional policy methods are not successful in reducing the crime rates. Process of solving crimes to resolving the criminal rates patterns are increased. The main focus is on the factors of the crime and the criminals and the rest of background are not taken into the notification by the investigator for the analyzing and the prediction. The application helps in reducing crime rate to a certain extent by providing security in crime sensitive area. The crime rates arereduces to certain stage by providing a security.[5] The application used will be helpful for the investigation process for the identification of the crime and the criminals involved. The process of analysis and the storage of the crime records and the criminal data information must be processed. There arises a complexity issues in the analysis of the data due to the inconsistent and incomplete of raw data. Limitations in getting crime record data from law enforcement department. Using the data mining technologies the crime patterns are analyzed and processed. The crime data mining process involves the prediction and detection of the crime scene patterns. Data mining technologies are empowered here for the crime to be analyzed for future verifications. Goal of the employed data mining techniques is to target the analyzing predictive process. Series finder is a method of finding the source individual. For the detecting purpose of the crime and the criminal this method is used. It identifies the crime and the criminal pattern. And the main aim of this finder is to find the crime attempted by the same person. [6]. There is a big confusion in the process where there arises a huge mistake in analyzing the criminal. Where the process is difficult is identify and to predict the criminal who have committed the same crime and the patterns are challenging to identify and thereby it consumes lot of time for the evaluation and the detection process and it becomes a difficult process for the crime analysts to determine the same person who have done the same pattern of crime as there is found to be a huge amount of crime records and the criminals data. [7] For reducing the crime rate in India there are various employed by the investigators to overcome the workload. Therefore a research work is setup for the analyzing the crime and the patterns by the criminals. To identify the patterns and the focus of the crime analysis research work. The scope of the project is to develop a data mining method to solve the problem related to crime. Patterns are analyzed and increase in the size of crime data by identifying techniques to analyze the crime data efficiently and accurately. The data available is inconsistent and are incomplete thus making the task of formal analysis a far more difficult. Investigation of the crime takes longer duration due to complexity of issues all the above challenges.[7] The objective is to analyze the features and train a model for prediction. The model is trained by validating the testing data. by maintaining a proper data and analyze them to predicting future crimes. The clustering and prediction techniques helps to approach criminology in a different manner. K-mean algorithm can reduce the running time to generate the useful clusters. Support vector machine predicts pattern involved in crime scene by extracting useful information from it. [2] Criminals have become technologically brilliant and it becomes difficult for human to process the available data into systematic manner.

II.PROPOSED SYSTEM

A tremendous tool for crime pattern detection and prediction is data mining. The parameters we take into consideration are: evidences, witnesses, method of killing, motive of the murder, weapons used, number of murder, attacks in particular area, month, year, time, using explosive devices.[in fig 2.1] Then we analyze it with history of previous records to predict jewel theft murder. Jewel theft murder crime characteristic the first step of identification with the quality of previous criminal data records and apply the data mining techniques.

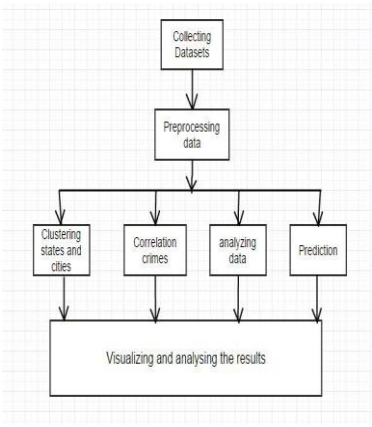

Fig 2.1

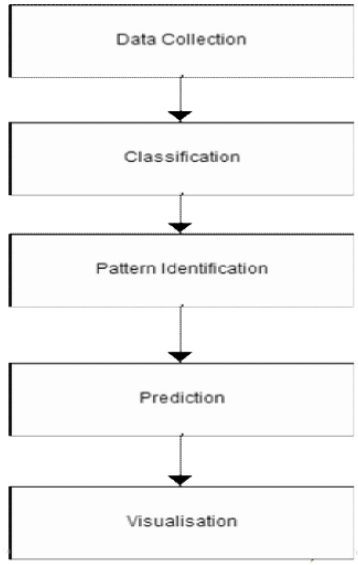

Fig 2.2

More specifically we use the data mining techniques which is clustering and classification based models, that helps to identify the crime and criminal pattern scene. [in fig 2.2] Our project intends to develop an automated tool with help of machine learning using data mining techniques and strategies to predict the jewel theft murder in much lesser time.

2.1 Experimental Analysis:

Crime Scenario of 2014-2019:

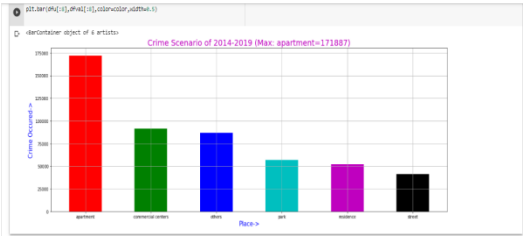

Fig 2.3

The [Fig 2.3] bar graph represents the maximum number of places where the jewel theft murder had occurred for the consecutive years 2014 – 2019. It shows that apartment is the place where the jewel theft murder has occurred frequently.

2.2 Algorithm:

- **Classification and Decision Trees:**

A decision tree algorithm uses a tree shaped graph or model of decisions including chance event outcomes, costs, and utility.

- **K-NN**

It is one of the simplest model that uses a database in which the data points are separated into several classes to predict the classification of a new sample point.

- **Linear Regression**

It is a statistical process for estimating the relationships among variables by modelling the relationship between a scalar dependent variable Y and one or more explanatory variables denoted X.

- **Random forest**

Random forest or random decision forest are an ensemble learning method for classification regression and other tasks that operate by constructing a multitude of decision trees at training time and outputting the class that is the mode of the classes or mean prediction of the individual trees.

- **Logistic Regression**

Logistic regression, is a regression model where the dependent variable is categorical or binary.

- **Support Vector Machine:**

In support vector machine, we find a hyper plane which separate two or more classes and it takes maximum time for processing. implementation under construction.

2.3 Comparative study of Accuracies:

ALGORITHM	ACCURACY
DECISION TREE CLASSIFIER	0.8615302091247152
LOGISTIC REGRESSION	0.6718381382702328
KNEIGHBORS CLASSIFIER	0.8359786876724379
RANDOM FOREST	0.8604002559078732
ENSEMBLING	0.8568315506453678

III. CONCLUSION

The Objective of this work is to detect the jewel theft murder by finding patterns using various parameters involved and analyzing it with the collection of previous history of data sets to detect and predict the jewel theft murder. Criminals are getting more and more technologically developed with skills. The increase, decrease and new trends in crime murder analyzed by various parameters some are approximate number of murders, jewels theft, weapons used, attacking method, evidences, particular month, time, year, scheduled timespan. Crime analysis is a huge process and it requires a lot of manual work. Because of this the time takefor solving the case is more and it also the process is delayed. Our project intends to create an automated tool that analyses and predicts the jewel theft murder in much lesser time and it will also be helpful in solving the crime This tool will be helpful for police investigation for better understanding of patterns from the collected historical data.

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