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Online Crime Management System

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***Abstract*- The Online Crime Management system is designed in such a way that, it can be accessed anywhere through internet. A person who is about to file a complaint approaches the portal and registers into the portal using his information. After that the admin authenticates the user, after a successful authentication the user can login into the portal. The complaint will be received at the police end. And the process will be updated in the portal. For the efficiency of the police, various criminal activities are collected as datasets and analyzed using the KNN algorithm. The crime types like methods, properties used, fingerprints obtained are analyzed using the datasets. Now if the crime filed by the user matches the crime patters occurred before it will be easy for the police to solve the crime.**

***Keywords*- Data mining, crime analysis, K-means clustering, crime.**

I.INTRODUCTION

Data mining is nothing but the analysis of the given data and the usage of software techniques for finding the patterns, in our case we use this process for finding the patters of the crime. The datasets of past crime activities are taken and using that each and every process is made are taken into account. The crime scenes are analyzed and the suspects are classified accordingly. Using the process of data mining we can bring out the hidden information in a particular thing, the particular small details which human cannot analyze.

The data mining has various steps to make, first the data pre-processing is done and then we are creating a data model by applying the concept of data mining, we use various tools to do this process and we are extracting the knowledge from the fetched data. In the modern era of technology the usage of computers have gone to huge peak. Hence the need to be updated in the field of technology for the police department has become a necessity. Humans can make errors, but machines won't. In order to improve the efficiency and easy functionality in the police department, the system has to be updated with the modern technology.

In India majority of the criminal data is kept as hardcopy. As the majority of the data is kept as hard copy it is difficult for the police department to access records easily. Thus the usage of computers and the modern technology has to be implemented in order to improve the efficiency.

So all the criminal data and all other data which are required for the police department has to be fetched in the server and a web portal can be made to access the data anywhere and the analysis of the data can also be made with it. So we propose a new model or method to improve the standards of the police department using data mining techniques and handling all the criminal data efficiently.

Data mining is that the method of analyzing knowledge from completely different views and summarizing it into helpful data. Data processing software system is one among variety of analytical tools for analyzing knowledge. It permits users to research knowledge from many alternative dimensions or angles, categorize it, and summarize the relationships known.

K-means cluster is one among the only and standard unsupervised machine learning algorithms. K -means appearance for a hard and fast variety (k) of clusters in a very dataset. A cluster refers to a group of information points collective along attributable to bound similarities. You may outline a target variety k, which refers to the amount of centroids you wish within the dataset.

Crime analysis may be a enforcement perform that involves systematic analysis for distinguishing and analyzing patterns and trends in crime and disorder. info on patterns will facilitate enforcement agencies deploy resources in an exceedingly simpler manner, and assist detectives in distinguishing and apprehending suspects. Crime analysis will occur at varied levels, together with plan of action, operational, and strategic.

Crime analysts study crime reports, arrests reports, and police involves service to spot rising patterns, series, and trends as quickly as potential. They analyze these phenomena for all relevant factors, typically predict or forecast future occurrences, and issue bulletins, reports, and alerts to their agencies. They then work with their police agencies to develop effective methods and techniques to handle crime and disorder. Alternative duties of crime analysts could embrace making ready statistics, knowledge queries, or maps on demand; analyzing beat

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and shift configurations; making ready info for community or court presentations; respondent queries from the general public and therefore the press; and providing knowledge and knowledge support for a police department's Comp Stat method. The first purpose of crime analysis is to support (i.e., assist) the operations of a local department.

II. RELATED WORKS

Jianming Zhou, Zheng Li, Jack J. Ma, Feifeng Jiang "Exploration of the Hidden Influential Factors on Crime Activities: A Big Data Approach", Vol 8, August 2020. In academia, lots of data related studies have been conducted on crime analysis. Ingilevich and Ivanov adopted three different approaches, including liner regression, logistic regression and gradient boosting, to forecast the number of crimes in different areas of the city of Saint Petersburg.

Rummens et al applied an ensemble model based on logistic 7 regression and made bi-weekly predictions and temporally disaggregated monthly predictions.

Andrii Shalaginov, Jan William Johnsen, Katrin Franke, "Cyber-crime investigations in the era of big data", IEEE, 2018 The amount of data seized in Crime Investigations has increased enormously. Nevertheless, criminal investigations need to solve crimes in a timely manner. New computational methods, infrastructure and algorithmic approaches are required. Although Big Data is a challenge for criminal investigators, it can also help them make to source and detect patterns to prevent and solve crimes.

Kenneth A. Saban, Jan Napoleon Saykiewicz, "A Critical Look at the Impact of Cybercrime on Consumer Internet Behavior", 2013 The development of the Internet and World Wide Web has both a positive and negative impact consumer behavior. The results showed that even the weakest form of cybercrime (Spamming) can decided alter consumer Internet 8 behavior, thus eroding the attractiveness of the Internet as a viable marketing channel.

Javad Hosseinkhani, Suhaimi Ibrahim, Suriayati Chuprat, "Web Crime Mining by Means of Data Mining Techniques", 2014 The purpose of this study is to provide a review to mining useful information by means of Data Mining. Detecting and exploring crimes and investigating their relationship with criminals are involved in the analyzing crime process.

Criminology may be a suitable field for using data processing techniques that shows the high volume and therefore the complexity of relationships between crime datasets.
Therefore, for further analysis development, the identifying crime characteristic are going to be the primary step and obtained knowledge from data processing approaches may be a very useful gizmo to assist and support police forces.

III. SCOPE OF THE SYSTEM

The system aims to help the public and the police department is integrating with each other and enhances the working in the crime prevention measures.

As the public has the only option to complaint a crime, which the in person complaining method. This system gives an easy alternative option as the public can complain and also check their complaint status easily.

The system also reduces the works of the police department by reducing the paper works. As all the details are made in the cloud servers, police people can see the data of another jurisdiction also. The system makes all the records safe and easily accessible when needed. The analysis of crime scene can be made easily.

IV. PROPOSED SYSTEM

In this project, we have proposed a concept to provide proper security to the data and to reduce the manual works in the system. This will reduce the workload from both the police and the public. As the process of filing a complaint is being tedious in India, many users hesitate to file a complaint.

The major thing happens here is redirection, i.e., if the public goes to a police station to file a complaint, the place of crime is asked and many times they are being asked to approach another police station as that crime scene does not come in their area limit. This thing is mainly removed as the public anywhere in the country can file a complaint.

And at the same time the workload of the police is reduced file maintaining all the records in the server safely and also which can be easily accessible 24/7 anywhere in the country. The manual errors can be reduced and the paper works are removed.

V. ADVANTAGES OF PROPOSED SYSTEM

- The system ensures accuracy of the data provided in the system.
- The proper control of data is with the police and the higher officials. This minimizes the manual data entry which may lead to manual errors.
- Better security and efficiency.
- User-friendly and intuitive.
- Minimum time required for data processing.

VI. SYSTEM ARCHITECTURE

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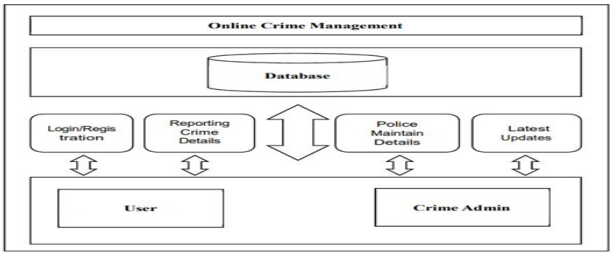

Fig 1. System Architecture diagrams.

VII. REQUIREMENT SPECIFICATION

- **Processor:** Intel i3 and above
- **RAM:** 4GB and above
- **Hard Disk:** 100 GB
- **Speed:** 1.6 GHz and above
- **Monitor:** 15'' LED SVGA
- **Input Devices:** Keyboard, Mouse
- **Operating System:** Windows 7/8/8.1/10
- **Coding Language:** Java
- **Java Version:** jdk 8
- **IDE:** Eclipse
- **Database:** MySQL

VIII. MODULE DESCRIPTION

1. User:
This is the first module of our project. The user logs in into the system using his/her credentials. If they haven't registered, they can register using their personal details like name, email id, mobile number and date of birth. This module has been created for the security purpose. The user can file the complaint directly in the system which is then verified and addressed by the police.

The current status of the complaint which has been filled by the user is shown after the updating of data from the local police or the admin. This can make the user who has filled the complaint to check whether an action is taken on his/her complaint. The user can also check the various types of crimes happening in the location and save themselves from it. The precautionary measures can be taken with the help of having the list and type of criminal activities occurring in the area. This can make the user to be safe and peaceful.

2. Police maintaining the records:
In this module, the local police will be uploading the crime details by area wise and which will be based on type of crime did and specifying the count and the place of crime happened. The local police after successfully logging into the system can get the details of the crime scene and the complaints which are made. The major duty of the local police is to maintain the records which are in the database.

The local police also refers the database to check whether the same type of crime has been happened in the same way which was happened long ago. According to the type and place of the crime the police checks the database to check whether a same person has committed the same crime. This can save some time for the investigation. If the police suspects that the same type of crime has been occurred by the person who has already done that same type of crime, the personal information like name, age, contact details, address can be found in the database.

The local police can also verify the most done crime details in the particular area. If the local police finds that there are huge amount of crime incidents happening in the area which they cannot handle they sends it to the view of DIG who in turn appoints extra force to the area. Thus the crime incidents can be controlled in the places with high crime rate. The local police updates all these information into the database and the after successful completion of the case, the police marks it as solved in the database and that message is sent to the user who has filled that complaint.

3. Crime Search:
In this module, after the registration done by user, the user will be logging in, after that the user can search the crime that happened in the area wise. This module can be used both by the police and the users. The users and the police after successful login can access the search crime page.

This section can make the user aware of what type of criminal activities are happening in his/her area and make the user to be cautious and take precautionary measures to safe guard from them. As the same the police can also use this section to see the crime rate in particular places. Using this the crime rates can be monitored and if the crime rate goes beyond some extend necessary actions can be made in order to reduce the crime rates in that area.

This section is both helpful for checking the crime rate in and around an area and taking precautionary measures and at the same time to analyze the crime rate in and around an area and taking necessary steps to reduce the crime rate. This module makes the processing of analyzing easier. In this section the user has a search bar in the page, the user can type the name of the area which he/she wants to search. The details of the requested area are shown if available.

IX. RESULTS

Fig 2. Output of crime details

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The above screenshot show the results which are the outcomes of the analysis that who the suspect will by analyzing the data's which have already been fetched into the system. This makes the police to find a suspect of a particular crime scene using the patterns and solve the cases efficiently. If the public has filed a complaint in a case the status of the case will be updated to them. Thereby the system improves the efficiency and at the same time reduces the time complexity and manual errors.

X. CONCLUSION

Manual work as a rule expends a parcel of time and is mistake inclined. To create complaining simple and oversee Crime records this application is exceptionally supportive.

Now-a-days everything is getting computerized. Manual work ordinarily expends a part of time and is blunder inclined. To form complaining simple and oversee Crime records this application is exceptionally supportive. In this way, Crime Administration System overcomes most of the confinements of the existing framework in conjunction with being exceptionally user-friendly application. So, the result of all the difficult work done for jail administration framework is here. It is computer program which makes a difference the client to work with the jails and Crimes effortlessly. This computer program diminishes the sum of manual information passage and gives more prominent productivity. The Client Interface of it is exceptionally neighborly and can be effectively utilized by anybody. It moreover diminishes the sum of time taken to compose FIR subtle elements and other modules.

All the points of interest almost any complaint, after death or any other criminal can be checked and can be spared. This Crime Administration Framework could be a arrangement to all the issues related to the Crime reports, postmortems, criminals' subtle elements, their Crime, their punishment and others etc. At the conclusion, we are able say that this program is performing all the errands precisely and is doing the work for which it is made.

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