CRIME PREDICTION USING K-NEAREST NEIGHBORING ALGORITHM

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Abstract- **Brutal crime happening, there must be some protection against this crime. Here we introduced a system by which crime rate can be reduced. Crime data must be fed into the system. We introduced data mining algorithm to predict crime. KNN algorithm plays an important role in analyzing and predicting crimes. KNN algorithm will cluster co-offenders, collaboration and dissolution of organized crime groups, identifying various relevant crime patterns, hidden links, link prediction and statistical analysis of crime data. This system will prevent crime occurring in society. Crime data is analyzed which is stored in the database. Data mining algorithm will extract information and patterns from database. System will group crime. Clustering will be done based on places where crime occurred, gang who involved in crime and the timing crime took place. This will help to predict crime which will occur in future. user will enter source to destination details into the system which is required for prediction. user can view criminal historical data. Crime incident prediction depends mainly on the historical crime record and various geospatial and demographic information**

Key Words: **Web Application, Machine learning, Datamining learning.**

INTRODUCTION

Criminality is a negative phenomenon, which occurs worldwide in both developed and underdeveloped countries. Furthermore, multiple factors such as unemployment, gender inequality, high population density, child labor, and illiteracy, can cause an increase in violent crimes. There is a need for better predictive algorithms, which direct police patrols toward criminals. Several studies have been carried out to predict crime types, crime rates and hot spots of crime by using crime datasets for different areas, for example, in South Korea, and the U.S. (including Portland. Furthermore, different pilot projects are also extended to identify crime geographical locations such as residential and commercial using the Canada dataset. Research has been dedicated to implementing innovative methodologies such as machine learning and deep learning techniques to predict crimes as a rigid approach and maintain a safe and secure environment

LITURATURE SURVEY

1.   **Sunil Yadav: Crimes are a social irritation and cost our society deeply in several ways**. Any research that can help in solving crimes quickly will pay for itself. About 10% of the criminals commit about 50% of the crimes [9]. The system is trained by feeding previous years record of crimes taken from legitimate online portal of India listing various crimes such as murder, kidnapping and abduction, dacoits, robbery, burglary, rape and other such crimes. As per data of Indian statistics, which gives data of various crime of past 14 years (2001-2014) a regression model is created and the crime rate for the following years in various states can be predicted [8]. We have used supervised, semi-supervised and unsupervised learning technique [4] on the crime records for knowledge discovery and to help in increasing the predictive accuracy of the crime. This work will be helpful to the local police stations in crime suppression

2.   **Akash Kumar: For a developing country like India, it is not new that people hear of crimes happening quite often. With the rapid urbanization of cities**, we have to constantly be aware of our surroundings. In order to avoid the unfortunate, we will try to observe crime rates by the KNN prediction method. It will predict, tentatively, the type of crime, when, where and at what time it may take place. This data will give the behaviors in crime over an area which might be helpful for criminal investigations. It will also provide us with the most committed crime in a particular region. In this paper, we will use the k-nearest neighbor algorithm of machine learning.

3.   **Geeta Rani: In the last decade, with the development of new technologies crime rate is increasing rapidly.** Nowadays, the crime rate analysis and identification is one of the systematic approaches to reduce the illegal activities in all around the world. Thus, this is the biggest challenge to the IT field to solve these critical issues by applying some tools and technologies. Data mining along with the machine learning approach is one of the efficient as well as best approaches to solve this critical issue. It provides the method to identify region and criminal in an appropriate time. In paper is basically emphasis on various machine learning algorithms such as K-means, SVM, A priori Algorithm, CART algorithms, Fuzzy-C and FP tree and machine learning is used to learn the pattern and matches it with actual data. This process is used to reduce the normalized the data and to delete all anomalies and provide better result.

4.   **Ying lung-ling: Drug-related criminal activity is gradually rising in Taiwan and has a significant and negative social impact**. This paper proposes a data-driven method based on "broken windows" theory and spatial analysis to analyze crime data

using machine mining algorithms and thus predict emerging crime hotspots for additional police attention. The Deep Learning algorithm has been widely applied in several fields, include image recognition and natural language processing. With fine tuning, we find the Deep Learning algorithm provides better prediction results than other methods including Random Forest, and Naïve Bayes for potential crime hotspots. Furthermore, we improve model performance by accumulating data with different time scales. To validate experimental results, we visualize potential crime hotspots on a map, and observe whether the models can identify true hotspots. Finally, we discuss the applicability of this method, and present future research directions.

EXSITING SYSTEM

Brutal crime happening, there must be some protection against this crime. Here we introduced a system by which crime rate can be reduced. Crime data must be fed into the system, In existing system Crime Prediction system uses recorded data and analyses the data using several analyzing techniques and later can predict the patterns and trends of crime using any of the below mentioned approaches- Fuzzy C Means Algorithm / K-Means Algorithm.

SYSTEM EVALUATION
Software Used:
* Python 3.9.0 or above,
* Kaggle
* PyCharm

Hardware Used:
* I3 processor or above
* 150 GB Hard Disk or above
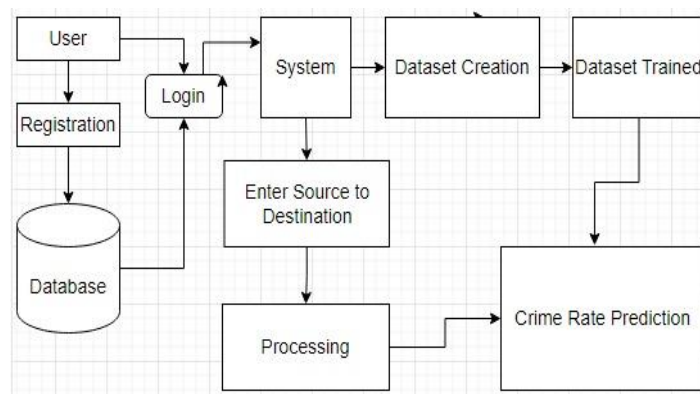* 4 GB RAM or above

PROPOSED SYSTEM

Fig -1: System Architecture Diagram

We introduce system which will help to predict crime which will occur in future. user will enter source to destination details into the system which is required for prediction. user can view criminal historical data. Crime incident prediction depends mainly on the historical crime record and various geospatial and demographic information

IMPLEMENTATION

K-Nearest Neighbour is one of the simplest Machine Learning algorithms based on Supervised Learning technique.
K-NN algorithm assumes the similarity between the new case/data and available cases and put the new case into the category that is most similar to the available categories.

AIM & OBJECTIVES
1. Predict crimes before they occur Reduce crime rates Safety of peoples The system is trained by feeding previous year's record of crimes

2. Taken from legitimate online portal of India listing various crimes such as murder, kidnapping and abduction, dacoits, robbery, burglary, rape and other such crimes.
3. A regression model is created and the crime rate for the following years in various states can be predicted.
4. We have used supervised, semi-supervised and unsupervised learning technique on the crime records for knowledge discovery and to help in increasing the predictive accuracy of the crime.
5. This work will be helpful to the local police stations in crime suppression

MOTIVATION
1. By analyzing the data, we find out for many places the prediction rate of different crimes and use the algorithm to determine the prediction rate of the path.
2. To find out our safe route, we use the KNN Algorithm.
3. This job will assist individuals to become aware of the crime area and discover their secure way to the destination.

APPLICATION:
* Police Station
* Government sector
* Cyber crime

FUNCTIONAL & NON-FUNCTIONAL REQUIREMENTS
Functional requirements: may involve calculations, technical details, data manipulation and processing and other specific functionality that define what a system is supposed to accomplish. Behavioral requirements describe all the cases where the system uses the functional requirements; these are captured in use cases.
Nonfunctional Requirements: (NFRs) define system attributes such as security, reliability, performance, maintainability, scalability, and usability. They serve as constraints or restrictions on the design of the system across the different backlogs.
Functional requirements
* Registration
* User Login
* Creation of database: Users Mandatory Information
Design Constraints:
1. Database
2. Operating System
3. Web-Based Non-functional Requirements
Security:
1. User Identification
2. Login ID
3. Modification
Performance Requirement:
1. Response Time
2. Capacity
3. User Interface
4. Maintainability
5. Availability

CONCLUSION
As compared to the previous work, this work was successful in achieving the highest accuracy in prediction. The KNN Algorithm helps regulation carrying out organizations for improved and careful wrongdoing investigation. By crossing through the wrongdoing dataset, we need to figure out various reasons that lead to wrongdoing**.**

REFERENCES:
1. A. Sivaramakrishnan And Dr.M.Karnan "A Novel Based Approach For Extraction Of Brain Tumor In MRI Images Using Soft Computing Techniques," International Journal Of Advanced Research In Computer And Communication Engineering, Vol. 2, Issue 4, April 2013.
2. Asra Aslam, Ekram Khan, M.M. Sufyan Beg, Improved Edge Detection Algorithm for Brain Tumor Segmentation, Procedia Computer Science, Volume 58,2015, Pp 430-437, ISSN 18770509.
3. B.Sathya and R.Manavalan, Image Segmentation by Clustering Methods: Performance Analysis, International Journal of Computer Applications (0975 – 8887) Volume 29– No.11, September 2011.
4. Devkota, B. & Alsadoon, Abeer & Prasad, P.W.C. & Singh, A.K. & Elchouemi, A.. (2018). Image Segmentation for Early Stage Brain Tumor Detection using Mathematical Morphological Reconstruction. Procedia Computer Science. 125. 115-123. 10.1016/j.procs.2017.12.017.
5. K. Sudharani, T. C. Sarma and K. Satya Rasad, "Intelligent Brain Tumor lesion classification and identification from MRI images using k-NN technique," 2015 International Conference on Control, Instrumentation, Communication and Computational Technologies (ICCICCT), Kumaracoil, 2015, pp. 777-780. DOI: 10.1109/ICCICCT.2015.7475384

6.　Kaur, Jaskirat & Agrawal, Sunil & Renu, Vig. (2012). A Comparative Analysis of Thresholding and Edge Detection Segmentation Techniques. International Journal of Computer Applications.vol. 39.pp. 29-34. 10.5120/4898-7432.

7.　Li, Shutao, JT-Y. Kwok, IW-H. Tsang and Yaonan Wang. "Fusing images with different focuses using support vector machines." IEEE Transactions on neural networks 15, no. 6 (2004): 1555-1561.

8.　M. Kumar and K. K. Mehta, "A Texture based Tumor detection and automatic Segmentation using Seeded Region Growing Method," International Journal of 49 Computer Technology and Applications, ISSN: 2229-6093, Vol. 2, Issue 4, PP. 855- 859 August 2011.