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CLUSTERING OF STORING SENSITIVE DATA BY USING CLOUD SYSTEM TECHNOLOGY

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ABSTRACT
Crime causes terror and damage to our community by several means. In the 21st century, mobile and information technology have become an essential part of our lives. The crime information report of National Crime Records Bureau of India collects analyses and publishes the crime data with the best utilization of data mining and cloud computing. We make cluster analysis by Expectation and Maximization clustering algorithm on criminal datasets. Mobile integrated technology is used for crime reporting in the local zone. The critical part of police is to discover the crime and to store the criminal record. In this application, we use data mining strategies on a huge criminal data set and help police department to eliminate handwritten documents. This mobile application will be useful for the remote access of the criminal data through cloud computing which will be helpful for the investigation carried by the police department and lawyer. It also helps the judge to deal with the cases swiftly.

KEY WORDS: Crime information, Datasets, Cluster.

I. INTRODUCTION
These days, criminal activities are going viral and it has been there for a long time. Crimes are increasing day by day. As we are moving into the digital technology the crime record can be fetched easily and it can be organized. As the criminal data is not available remotely there is a communication gap among the police and also between the police and the lawyer which makes investigation process slower. This negative aspect can be overcome by using this application. This application developed has been developed for police, lawyer and judges. This mobile application has many features to serve the user to speed up the process. By using clustering algorithm, the cases are categorized in crime-wise according to the user requirement. If approved by police, then visible to other users It fastens the investigation process and helps the lawyer to analyze and also judges can take an accurate and a clearer decision. And all of these are managed and accessed in a single mobile application via cloud storage. The mobile application can be used to report minor crimes, stay updated on crimes in progress, receive missing reports and check on stolen property and other. The lawyer and judge can view the report copy. All the crime data is stored in the centralized server and mobile can ne connected to it. The cloud storage, overall, makes it easier for the user to access and update the data. This leads to the actions taken faster to close the case. While physical servers may crash under heavy loads of data, a cloud server is way safer and swifter to use. It allows users to access through Signup/Sign in-Authentication. It provides crime report details- Reads details, analyses the data, adds new data and protects sensitive data. It provides the required data in accordance with the user's choice of preference. It mines through the huge data in a centralized server. The software helps to update the status of a given data. It displays the highly recommended data / case to the required user. To develop a mobile application for the Department of Police for easier access of documents through cloud computing. The project is developed to eliminate the needs of hand written criminal documents. Since the data is in cloud servers, live updates are made across the devices that access the crime data using our mobile application. The project also keeps track of the status of the crime actions taken and to-be-taken in future.

2. PROBLEM DEFINITION

2.1 EXISTING SYSTEM

There is no existing method for storing and analyzing criminal data in a mobile application. At present, there are only written documents for various police records. For example, the police have to write every data they had received into hand written documents. The problem faced in the existing system is, it takes a lot of time to search a specified record through various written documents. Also writing a document may lead to manual errors when done in a hurry. The written records take many heavy notebooks and files to carry along. The crime records can also be lost or misplaced.

2.1.1 ISSUES IN EXISTING SYSTEM

There is no remote access to the documents for easier and faster access of records that has been registered earlier. Therefore, the users find it difficult and also consume a lot of time to handle a single case. Also, there are no possibilities currently for the lawyers and judges to get access to a police document, as soon as it has been registered. The lawyers and judges have to wait till the respected police officer sends them a copy of the filed criminal record. With the growth of technology, there should be an efficient way to overcome all these problems.

II.PROPOSED SYSTEM:

The application that we have proposed helps to eliminate the need of hand written documents. This application helps in saving time and getting easier access to records. The police can work with criminal database manipulation and can access data in clustered forms. That is, we can access the data clustered on the basis of their crime type. The lawyer can also access the crime data. The judges can move the cases swiftly according to the priority given in the application. This mobile application also uses cloud storage instead of physical servers for the faster and easier access of documents. Also cloud servers do not crash under heavy loads unlike physical servers. The application also provides access of criminal documents to lawyers and judges they can also look up to a data according to their priority to be viewed. The cases with the highest priority have to display first. Hence it is easy for the judges to take that case for hearing first.

2.1 ADVANTAGES

- Storage of Large amount of data.
- Reducing the time of Searching of a Particular Crime.
- Reduce the distance and work pressure of the police
- It can be Accessible from anywhere.

III.SYSTEM DESIGN:

3.1 ARCHITECTURE DIAGRAM:

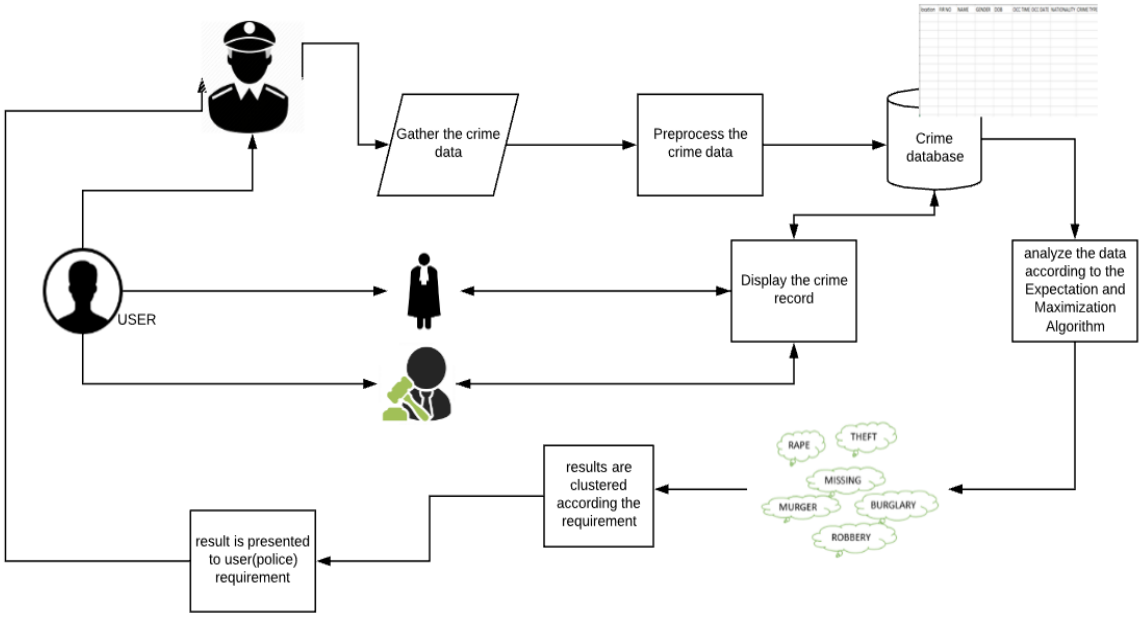

Figure 1. Layout of architecture diagram

3.2 DETAILED DESIGN:

3.2.1 POLICE MODULE

The software helps the police to file new cases via mobile application like FIR number, Nationality, Location, crime type, Date of birth, occurrence of date and time and also it includes verification details like passport number and Aadhar number. It also allows them to update the current status of the case to the centralized servers. The policemen have authenticated user logins to safely access the software and the data in the cloud servers. The policemen also have the facility to register themselves with the software but it is accepted only after certain permission grants. It reduces the time to policemen of searching a unique case from cloud with a specific FIR number. They can also view all the crime reports by clicking the particular crime type which is clustered.

3.2.2 LAWYERS MODULE

There is a lawyer's portal where the lawyers have access to the data or a crime through FIR number that has been registered in the software. This will help them to keep track of the case and have knowledge of the evidence and reports collected by the policemen. According to the law, it is mandatory for the police to give a copy of the FIR report to the lawyer and the respective judge, so the software application does the work for them.

3.2.3 JUDGES MODULE

The judges also have a separate portal where they can view the registered cases. They have separate logins to access their portals and view the data in priority wise which is given by the police officials. This is something new that we have incorporated in this software so that one who comes with a probe reported will be served with a solution first by judges.

3.3 ALGORITHM USED

An expectation–maximization (EM) algorithm is a monotony method for finding maximum likelihood. It seems to be the most popular technique used to it can estimate in the presence when data is incomplete or when it has missing value. This is a specific way of implementing maximum likelihood estimation for this proposed algorithm, The EM repeat alternates between performing an expectation (E) step (i.e. it creates a function for the expectation of the log-likelihood evaluation using the current calculate the parameters), and maximization (M) step, which computes parameters maximizing the expected log-likelihood which is found on the E step. Next E step the inferred variables can be estimated.

3.3.1 The basic steps of the algorithm are:

1. A starting setting is made for the application parameters and a likelihood appropriation is made. This is called as "E-Step" for "Expected" conveyance.
2. New information is to include into the application.
3. The likelihood carrying from the E-step is to alter and to incorporate the new information. This is called as the "M-step." For Maximization conveyance
4. Through fourth, step 2 is rehashed until the point when it gives stable yield is come to. We have used this algorithm to cluster the crime data's according to crime wise.

IV. RESULTS AND ANALYSIS

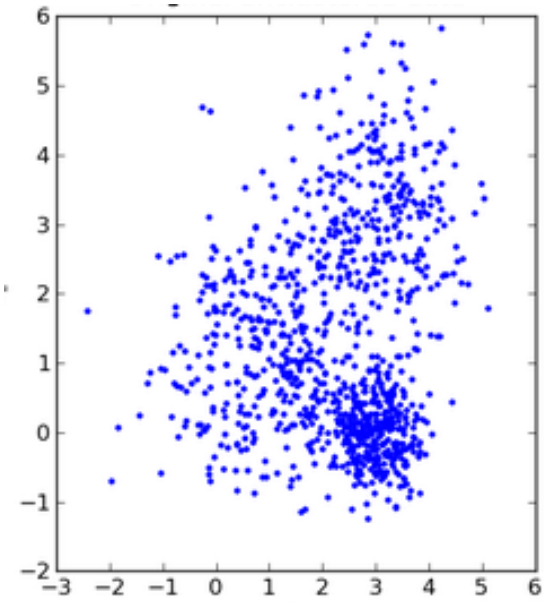

Figure 2.Orginal unclustered data

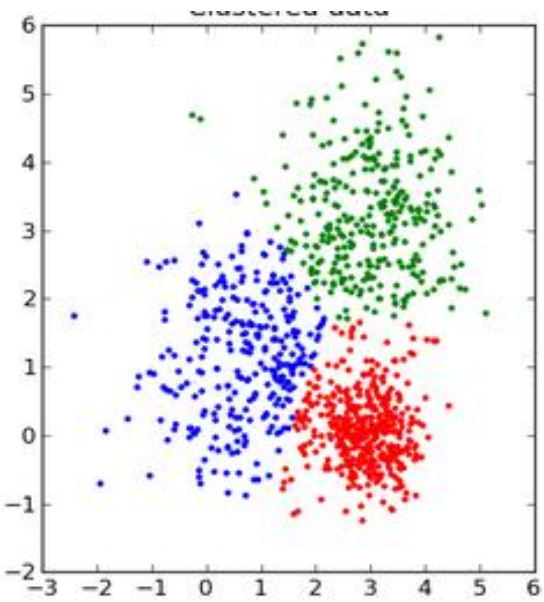

Figure 3.clustered data

We can fetch crime data's easily in order to user requirements. All the data we have stored in database it directly goes into server. The JSON (Java script object notation) has four major important distinctive like array, object, key and value. Here, each and every attributes like seName, sePriority, seFIR number has a different key. They are compared with the flag values in server side (Flag value=key). Through server side, flag values are called in application to a clustered form. Data's can be fetched from a local host https://localhost:3306/onlinecrime.

4.1 COMPARISON OF KMEAN AND EM

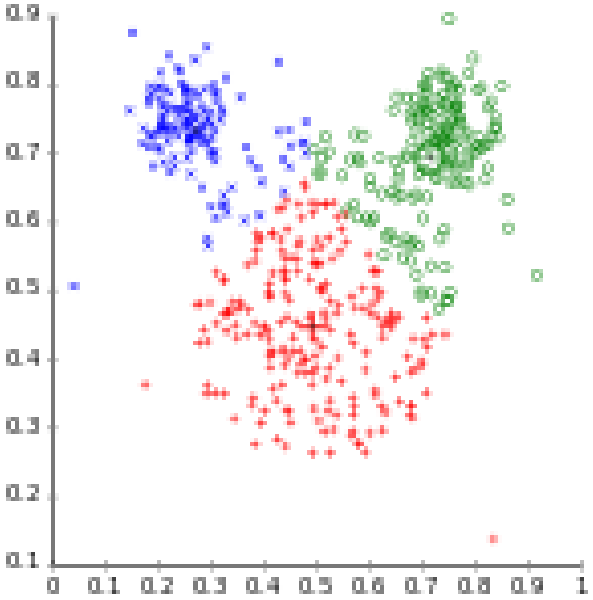

Figure 4. K-means clustering

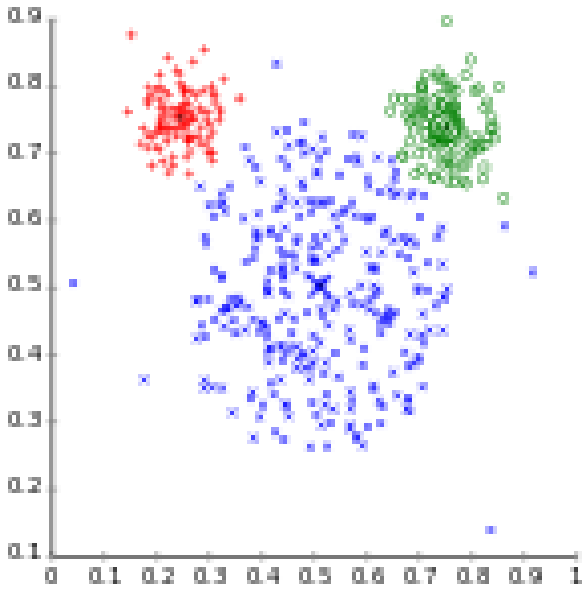

Figure 5. EM clustering

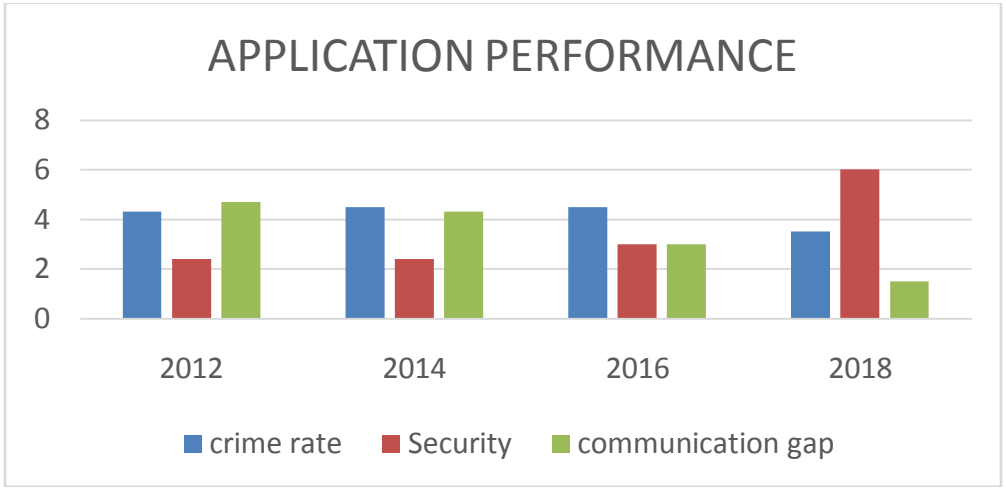

Figure 6.perfomance of crime rate and security.

This software can be extended too many features. For example, processes such as passport verification, fingerprint analysis, forensic report analysis can also be integrated into the software application. All these integrations help the police officers to keep and access data in one application rather than going through various documents. It is also hard to keep track and copy of all the handwritten documents while a case is still ongoing. This software can also be interlinked to fingerprint examining hardware like the ones in sim card registration centers.

CONCLUSION

In this paper we have overcome the problem of communication gap between the police during their investigation. We also provide solution to bridge the gap between police, lawyers and judges. Also, the

criminal information will be readily accessible to the user as it is stored on the cloud servers. Hence, the project is expected to be built with superior performance and that adds value to the Indian Police department. The application is expected to be useful and also a great product for the ease access of police officials. It is expected to reduce the man power and it takes a turn on the technology. In future, some security algorithms can be used to provide better security measures for the criminal database. The Internet connection has to be activated 24x7. Future research can be dedicated for these challenges.

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