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A Study on Design of Crime rate visualization using data mining

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ABSTRACT: Crime is a sensitive issue for any nation and has been increasing every day. People are unaware about the crimes and also about the regions of current crime. In order to make people aware of all these information, the system has been proposed which includes the implementation of Crime Rate Visualization using Data Mining. Data Visualization is best way to make complex & huge data understandable. Data Visualisation stores data in a more colourful & interesting manner, which can be analysed easily. Data Mining provides appropriate data for the process of visualization. The targeted data for crime is huge, unordered and unstructured. Using proper Data Mining, the system can provide clean & essential data for visualization. Data will be mined based on the area, region, date, percentage, gender, age group & also visualized on the same data.

KEYWORDS: Crime analytic, Crime analysis, Crime statistics, Crime visualize, Crime prediction.

I. INTRODUCTION

Nowadays, whenever we open the newspaper we daily sees there crime is rising day by day. For the safety purpose of the people. They have to know about the crime rate in their near area. From that prevention of has a safety. It also help for the police official in crime investigation and analyse the crime database or stores database in online. There is lot of crime data. For almost every reported crime, there is written in paper. The record of different criminal are stored manually on sheets of paper or a register. The record are not available to every stations. To do not aware the people & government about the crimes or increasing crime rate. To gain a foreign record the respective branch need to get contacted. These stuffs consume a lot of time. This implementing system preventing measures will be taken by the government. So we are building this system for the visualization of crime rate using data mining. The aim of the proposed work is to safety for the people and helps the police official in crime investigation as possible. The main objective of the proposed work is to determine the crime rate based upon the data so obtained. To maintain a database that keeps record of the criminals. To provide access of data to only authorized users. To provide an alert system form public safety.

II. RELATED WORK

In order with the help of store crime and criminal database. Police official can used it in crime investigation and predict a criminals. By using a combination of database, Amazon web service, D3.js, crime rate API—each of which serves a distinct purpose, these server and database digitally display crime rates and predicted criminal. The database and server used and its working is as follows-

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1. Database

Database shows the proper information about the criminal records and its crime done by him/her. We have to store all database in criminal and crime in different states and local areas. When we pass the query about any crime related information then database have to show proper information about that.

2. Amazon web service

Amazon web service is the server that all criminal and crime database store. There is no limitation for the storage of database and these server is more secure. When we pass the query in server, the server gives perfect information about that query passed. Only authorize user can be access this server.

3. D3.js

D3.js stands for Dimple 3 java script. When the user wants to see the information about the criminal like gender, places, crime type etc. Then D3.js analyse the database and show it in graphical and statistical way.

4. Crime rate API

API stands for application program interface. When the user pass the query then API analyse the query and send query to the server. After that API collect the data from the server and API visualize as data.

III. PROPOSED SYSTEM

The proposed system initializes by taking input from the user which is a form of selection operation. The user provides the system with its query. The system then begins with simultaneous tasks that include identification of criminal, classification of crime, region, route and jail, visualize crime rate using visualization system. Database will perform cleaning and pre-processing of data and train the system for processing of various queries. The user can have access to the system using a web site created included with feature of a map. The system uses two notations for describing the location of jail and current route of crime. Jails are represented using dot(.) operator and Crimes Routes are represented using Drag and Drop lines (--). Clustering techniques is used for creating smaller datasets which are stored into the database. All the data is stored with the help of amazon web service server. Scripting of data into the server is done using the Java script. D3.js has been used in order to create different types of graph and statistics for different state, regions, and route. It also shows the crime rate for a particular year. It visualize the data and graphs with the help of visualization code. This code is very much useful for defining the red-alert zones to the user.

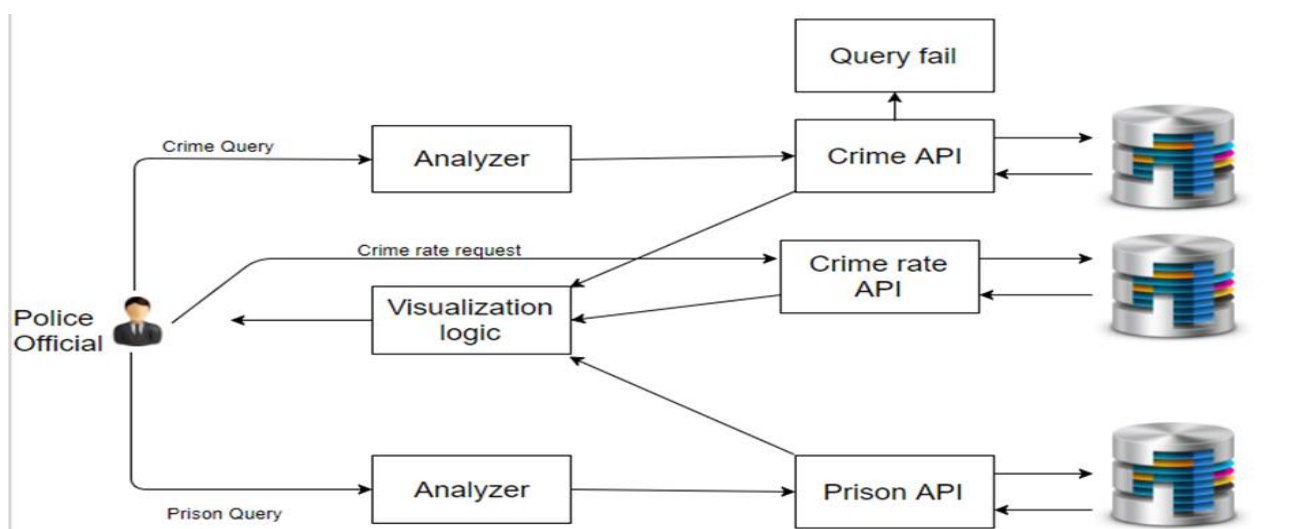


Figure: Block diagram of Crime rate visualization

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In these proposed system we have passes the queries to the analyser. Fig above shown Block diagram of crime rate visualization illustrate Analyser will analyse the data like regions, route, crime, colour etc. Analyser will be distribute the data in database. API get particular analyser query and it take particular database as per given query. API passes the data to the analyser and analyser distribute the data. Visualization logic visualize the data's and output to the police official. And these data will be stored on Amazon Web Services. These database can be managed by police official and administrator only, admin can perform create, store, delete operation on database but police official can only create and store new entries in database.

IV. SIMULATION RESULTS

The simulation studies involve the crime analysis of the country. Firstly the home page consist of criminals records such as the location tab where we can search the crime occurred as per the city or state, Type tab which shows the data as per the criminal type such as murderer, theft, etc. and we also search the criminal directly by the name entering in the search tab. Figure 1 involves the prison data such as the capacity of the prison, the current criminals situated in the prison and how many more can be kept. It also shows the criminal data such as the number of criminals over the particular region, the number of crime done by that particular criminal and types of crimes done by that person. Figure 2 shows the overall analysis, by using the bar graph it shows the total crime rate over a region and by using the pie chart it shows the prison data. By clicking on any region it also shows the information such as different types of crime occurred. For more detailed data it will show the bar graph of overall region. We can also add new data of new criminals and according to that the criminal data rates will be updated as shown in figure 3.

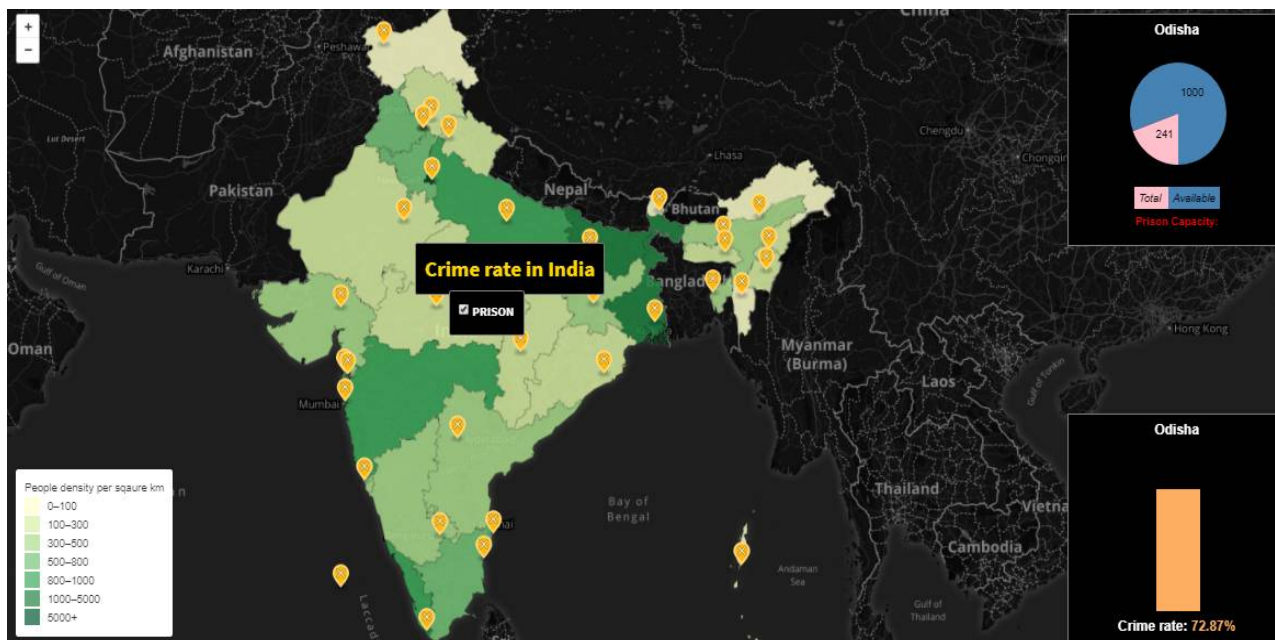


Fig.1



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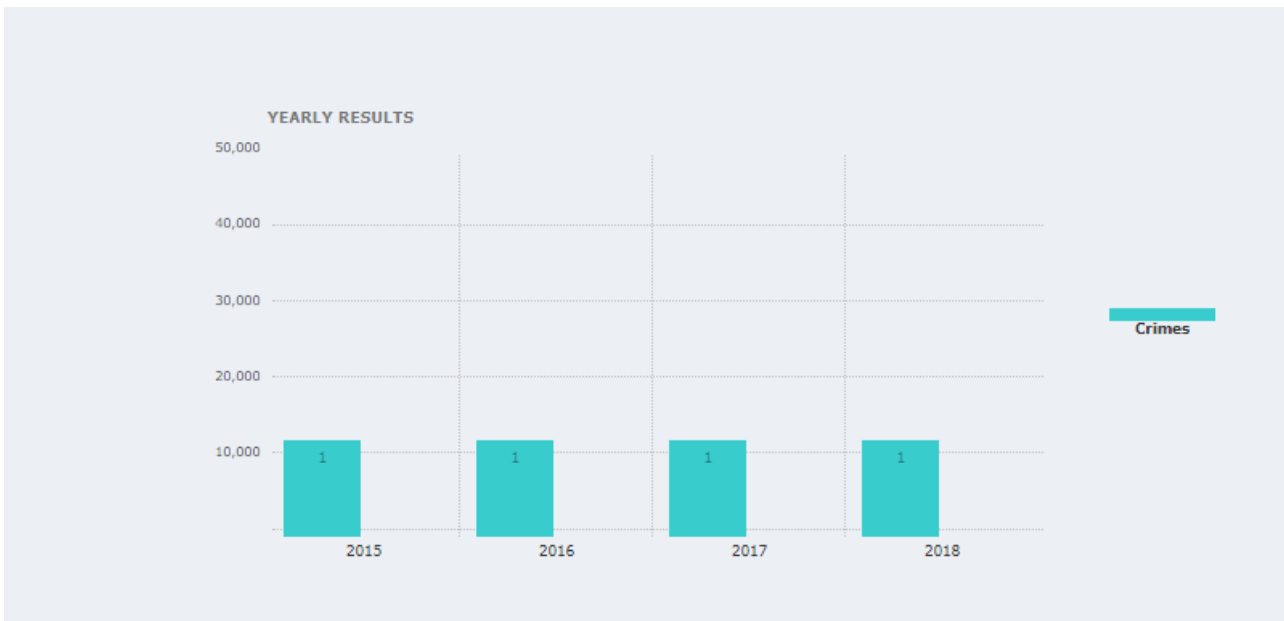


Fig.2

Criminal Information

First Name	Middle Name	Last Name
<input type="text"/>	<input type="text"/>	<input type="text"/>
E-Mail	City	Gender
<input type="text"/>	<input type="text"/>	Male <input type="button" value="v"/>
Age	skin colour	Hair colour
<input type="text"/>	<input type="text"/>	<input type="text"/>
Height :		
Foot	Inches	
4 <input type="button" value="v"/>	1 <input type="button" value="v"/>	
State	Prison	
Maharashtra <input type="button" value="v"/>	Mumbai1	
Address		
<input type="text" value="Address here..."/>		
Crime type	Select Date:	
Drug smuggler <input type="button" value="v"/>	11-03-2018 <input type="button" value="v"/>	

Fig.3



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V. CONCLUSION AND FUTURE WORK

The simulation results showed that the proposed system performs better with the crime rate Visualization helps to keep the data of criminals to be stored in the web services .The database consist of total number of crime rates occurred in the country which also keeps the data for several years and helps to check the crime rates of according to the years so the increasing amount or decreasing of criminals over the region can be judged over an year. The people can also understand the crime rate in their respective places. The database can only be updated by only admin or police official. It also helps the police official to predict the criminal according to the crime occurred.

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