

**CRIME PREDICTION USING SUSPECT'S PROFILE AND REGIONAL GRAPH ANALYSIS.**

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**Abstract**

*Crime has been a non-acceptable problem for our society since centuries. Along with passing year, its graph is own rise and various activists are trying their hard to curb this problem in association with government agencies like police, intelligence etc. But, we neglect the possibility of predicting the criminal before he/she commits crime. This research paper surely*

*works towards the prediction of the crime. Actually, by analyzing the suspects web history, online chats we can do that and similarly make a regional graph analysis. Just imagine a suspected terrorist who is going to spread some violence in upcoming days. He or She might be having some, online chats with other fellow terrorists, we just need to catch those chats and the agencies can be put on alert to arrest those suspected terrorists before they do something harmful.*

*Index Terms- Netbeans, JTable, GraphDB(Keywords).*

## **I. INTRODUCTION**

Crime data is studied to learn the criminal pattern and mindset. This helps a lot in making crime prevention the heart of criminological studies. A criminal always leave some footprints and we are targeting immature , those who don't use secret word while chatting instead they use violent word like bombs, kill etc.[5] There is an existing methodology of data mining which can highlight those words and to add feature like regional graph analysis which can be used to create a regional graph of crime prone areas for future reference.

Predict Criminal by profile: It means that the app is enabled to predict a criminal by his web search history. This is not against privacy actually its security.

Predicts and Display Crime prone areas: App will display crime prone areas and even can show which area is adversely affected by that crime. Behind the scenes include searching for violent words and highlighting those texts, in the text document (Suspect's web searches or chat history). More the words match, more is the probability of suspect to become a criminal.

## **II. PROBLEM DESCRIPTION**

In simple words, crime is something which is taboo in accordance with criminal law.

We must admit that Crime is a problem. Terrorism is considered as one of the most deadly crimes and its continuous growth is the major concern.[9] Lets take recent example of Christ Church massacre in New Zealand on 15<sup>th</sup> March, 2019 which was considered as the most deadly attack of modern New Zealand in which around 50 people were killed. The gunman did the facebook live streaming of the whole attack and reports say that he was actively showing his hate against islam in his facebook's posts for many years. If we would have followed the suggestion offered in our research paper of analysis his facebook posts, the agencies might be able to predict this brutal massacre .

Main focus of our approach is on following problems:-

1. Increase in crimes: It is bitter fact that despite of so many efforts by law agencies worldwide, crime is still on rise. Crime prediction would lead to crime prevention.
2. More time consumption is solving cases to filter some suspect from thousands of people will surely decrease the time wastage/useless consumption of law agencies. The focus will be towards those few suspects who can become a potential criminal in near future.
3. Human Interference: As the traditional method work towards studying human behavior instead of evidences like violent /adulterated web searches as this is age of social media. Prediction of criminal will be all automated far away from human interference which can be biased.

### **III. LITERATURE REVIEW**

There has been similar projects on crime prediction by IBM , Microsoft and Predpol. They used the suspect's day to day behaviour to analyse his/her probability to become a criminal in future .

Shiju Sathyadevan, Devan M.S and Surya Gangadharan. S of Amrita Vishwa Vidyapeetham, Amritapuri Kerala, suggested that data mining is an efficient way to filter out suspicious texts or messages, in which a feature of heat map was also added which indicates darker colours for low activity and brighter colours for high activity. Somayyeh Aghababaei And Masoud Makrehchy , aims on the social media content of crime prediction , in particular twitter which is popularly used worldwide. Overall, the link between social content and crime trends gives predictive indicators.

In this project we use the suspect's web searches to predict if he/she can become a potential

Criminal. At this moment we are not using facial recognition but it can be added as a future scope so that the suspect with high percentage of becoming the criminal can be detected through security cameras.

### **IV. IMPLEMENTATION**

The implementation of Crime Prediction and classification has go to through following procedure:

We will use basic Data-Mining for highlighting suspicious words like bomb, blood, kill etc. Discuss below is a flow chart:-

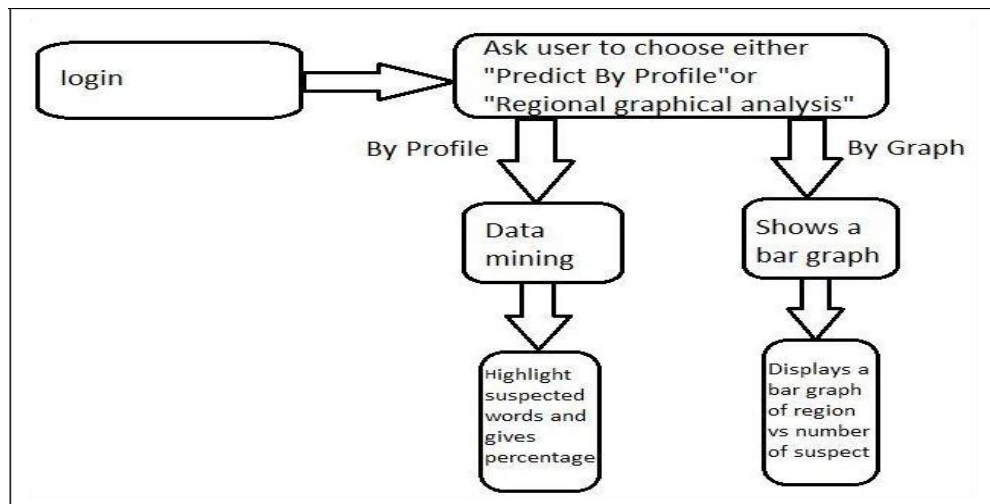


Fig 1 : Steps/flow chart of Crime Prediction

#### A. GIVE LOGIN CREDENTIALS

First of all the user needs to give login credentials to prove his/her authenticity. The users of this page would vary from different agencies like police or intelligence wings as this page is not approachable by common public



Fig 2: login page

A login page plays a crucial role in security. As we know that security is a prior feature for any database. Basic working of login page is to give successful login message on filling correct details

**B. Choose one of the options i.e predict by profile or Regional graph analysis.**

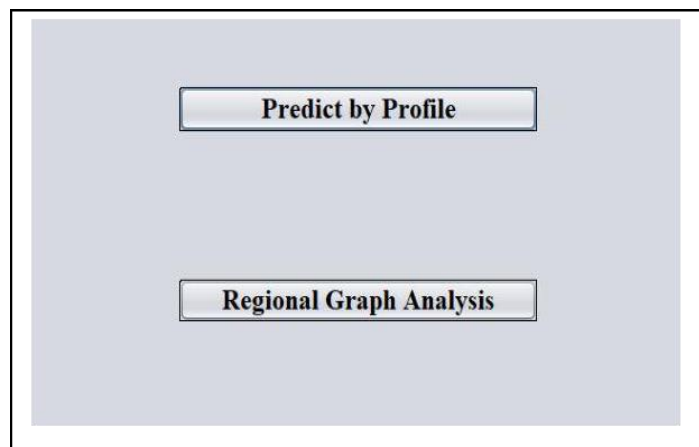


Fig 3: Choose one of the two.

The user needs to click on one of the two options to proceed further if the user chooses “predict by profile ” then he will be directed to another page where he can predict the suspect’s probability of becoming a criminal based on his web searches.

**C. Getting suspects information:**

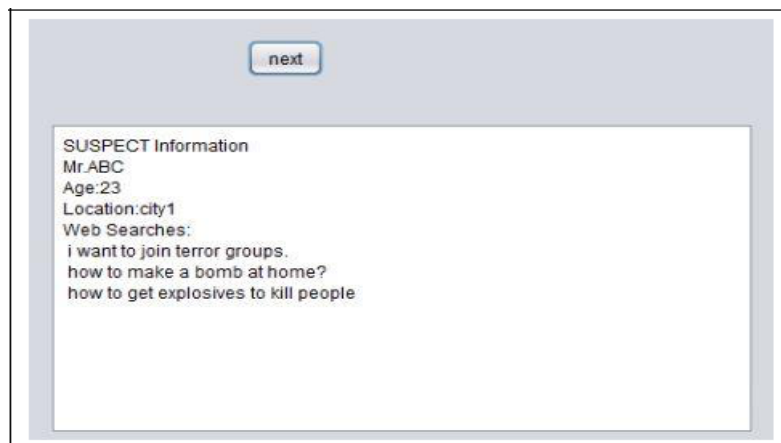


Fig 4: showing imaginary suspect’s information.

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Here we have taken the information of an imaginary person Mr.ABC (this web search is similar to a [18]criminal to be more specific, we can say a future terrorist ) this data has been provided to us by intelligence input .

Now we will copy this content as shown in Fig:5 (i.e mainly the websearches of suspect ) and paste it into next page .



Fig 5:copying the content of suspect web searches.

### **D. Searching violent words from suspect's web searches**

This page is based on identifying those words which are considered violent and highlights those words as shown in figure.

As we can see highlighted texts in red colour are matched with words like : bomb, rdx, attacks, Kill.



Fig 6: violent words are highlighted.

**E. Calculating probability percentage of the suspect for predicting the criminal**

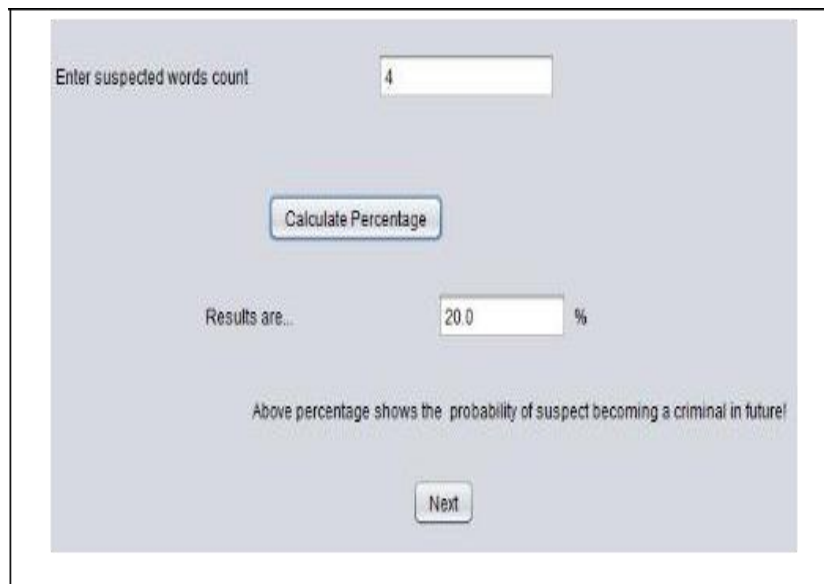


Fig 7 : Probability percentage calculation of suspect.

The user is asked to fill the word count of suspected words(in this case the count is 4 ) from previous page which is later used to calculate the percentage . As shown in the above fig. the result is 20% for this specific case .For percentage calculation it counts number of suspected words per twenty words this has been set by us and can be changed also as per the user demand.

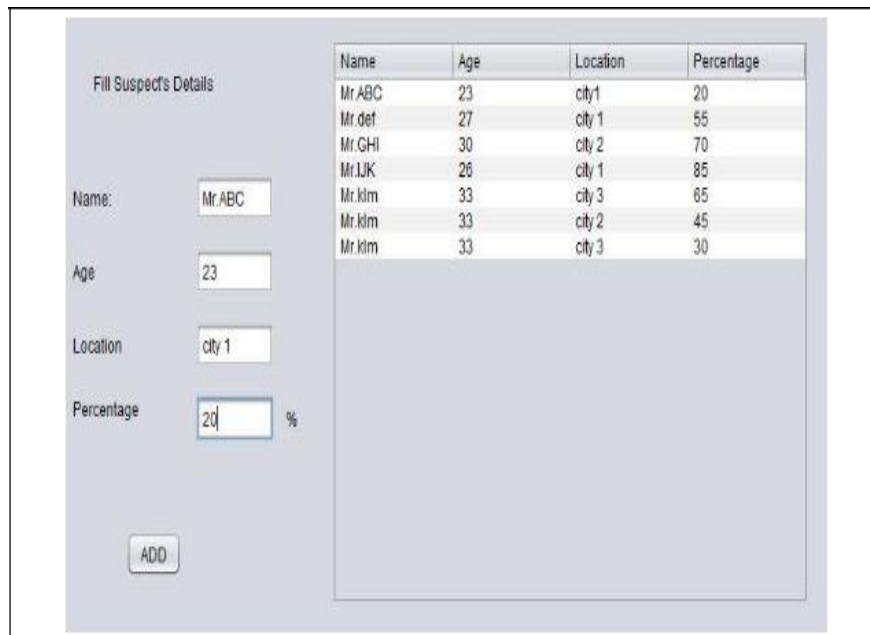
There has to be some criterion set by law agencies to consider this percentage as high or low. We have taken that criterion to be 50% which means if the probability comes out to be greater than 50% then that suspect is more likely to become a criminal in future .

As we can see in this case , the percentage comes out to be 20% only which is less than 50% which makes Mr.ABC innocent.

Now click on the next button displayed in Fig 7.

#### **F. Adding the suspect's details into the database**

Here comes the other screen , on this screen we will add the details of Mr. ABC to insert them into database ( i.e j table in java netbeans IDE )



Name	Age	Location	Percentage
Mr.ABC	23	city1	20
Mr.def	27	city 1	55
Mr.GHI	30	city 2	70
Mr.IJK	26	city 1	85
Mr.klm	33	city 3	65
Mr.klm	33	city 2	45
Mr.klm	33	city 3	30

Fig 8: Adding suspect's detail into database.



The above figure has a table of all the suspects details stored in this table earlier by the user .There are many suspects with criminal probability percentage more than 50% for example Mr.GHI whose criminal probability percentage is 70%. The table clearly depicts that there are many suspects who can become potential criminal.

**G. Go to home page and this time choose “regional graph analysis”.**

The user chooses the second option which is “regional graph analysis “ this button will help the user to analyse the region which can be affected by that crime in future , if number of suspects in that region increases

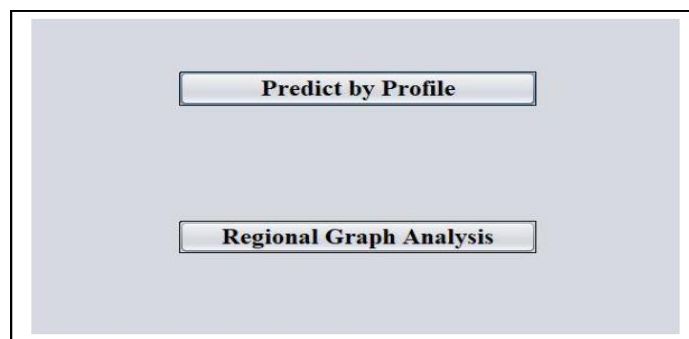


Fig 9:Visiting the homepage again to choose “Regional Graph Analysis”.

On clicking “Regional Graph Analysis” a bar graph will be shown as shown in Fig 10. this bar graph is a location (x-axis ) v/s number of suspects (y-axis).

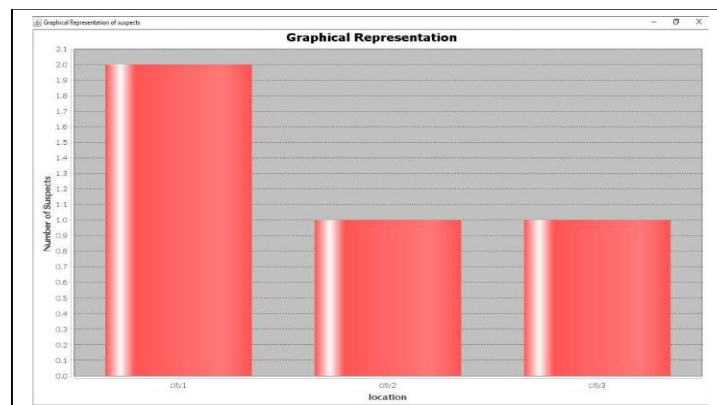


Fig 10: A bar graph

In this bar graph there are three cities named “ city 1, city 2, city 3” shown on x- axis and on y-axis there are “number of suspects “ with 2 , 1 ,1 for the three cities respectively.

As city 1 is with highest number of suspect’s i.e 2 so the intelligence department/police should patrol more on these locations and should have an eye on these suspects.

## **V CONCLUSION AND FUTURE SCOPE**

We concluded that this approach of predicting crime before it actually happens is feasible and has future scope as well.

The gravity of the situation suggests that there has to be some strict actions taken against from promoting crimes.

One of the best applications is that we are targeting the roots of the crime.

The future scope of this application is very vast. In future we can add artificial intelligence which may give it an upper hand above the other approaches.

There are few other added features for future scope such as Face recognition, live videos feeds , biometric matching, image reading, video clip reading, if reading for better and faster results.

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