

PROJECT PROGRESS REPORT

CRIME RATE PREDICTOR

SUBMITTED BY

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SUBMITTED TO

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PROJECT SYNOPSIS

TITLE: CRIME RATE PREDICTOR

Location: Department of Information Technology
Jaipur Engineering College and Research Center, Jaipur.

1. Problem Statement

Crime rate is increasing now-a-days in many countries. In today's world with such higher crime rate and 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 feed into the system. We introduced data mining algorithm to predict crime. K-means algorithm plays an important role in analyzing and predicting crimes. K-means 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. Admin will enter crime details into the system which is required for prediction. Admin can view criminal historical data. Crime incident prediction depends mainly on the historical crime record and various geospatial and demographic information.

2. Objective

This Crime Rate Predictor will be a Web app designed to predict and classify criminal activities in an area that will help in preventing and reducing the crime.

The objective of our work is to:

- Predicting crime before it takes place.
- Predicting hotspots of crime.
- Understanding crime pattern.
- Classify crime based on location.
- Analysis of crime.

3. LITERATURE SURVEY

- a) **Bogahawatte et al.,2013**: data mining techniques, clustering, classification
Developed a system named Intelligent Crime Investigation System(ICSIS) that could identify a criminal based upon the evidence collected from the crime location.
- b) **Agarwal et al.,2017**: used the rapid miner tool for analysing the crime rate and anticipation of crime rate.
- c) **Yu et. al.,2015**: used Ensemble of data mining techniques for classification and crime forecasting

We shall:

- use crime dataset available on kaggle.
- Clean, Preprocess and visualize the data and apply different algorithms for predicting and analysis of crimes. We would then be analyzing the accuracy of different algorithms.

4. Requirement Analysis :

Technologies Used:

- Anaconda Distribution
- Python (Machine Learning)
- Packages Used:
 - Django
 - Pandas
 - Numpy
 - Sklearn
 - Geopy
 - Folium
- HTML 5
- CSS 3
- Bootstrap 4
- Java Script

This Crime Rate Predictor will be a Web app designed to predict and classify criminal activities in an area that will help in preventing and reducing the crime.

5. Block Diagram

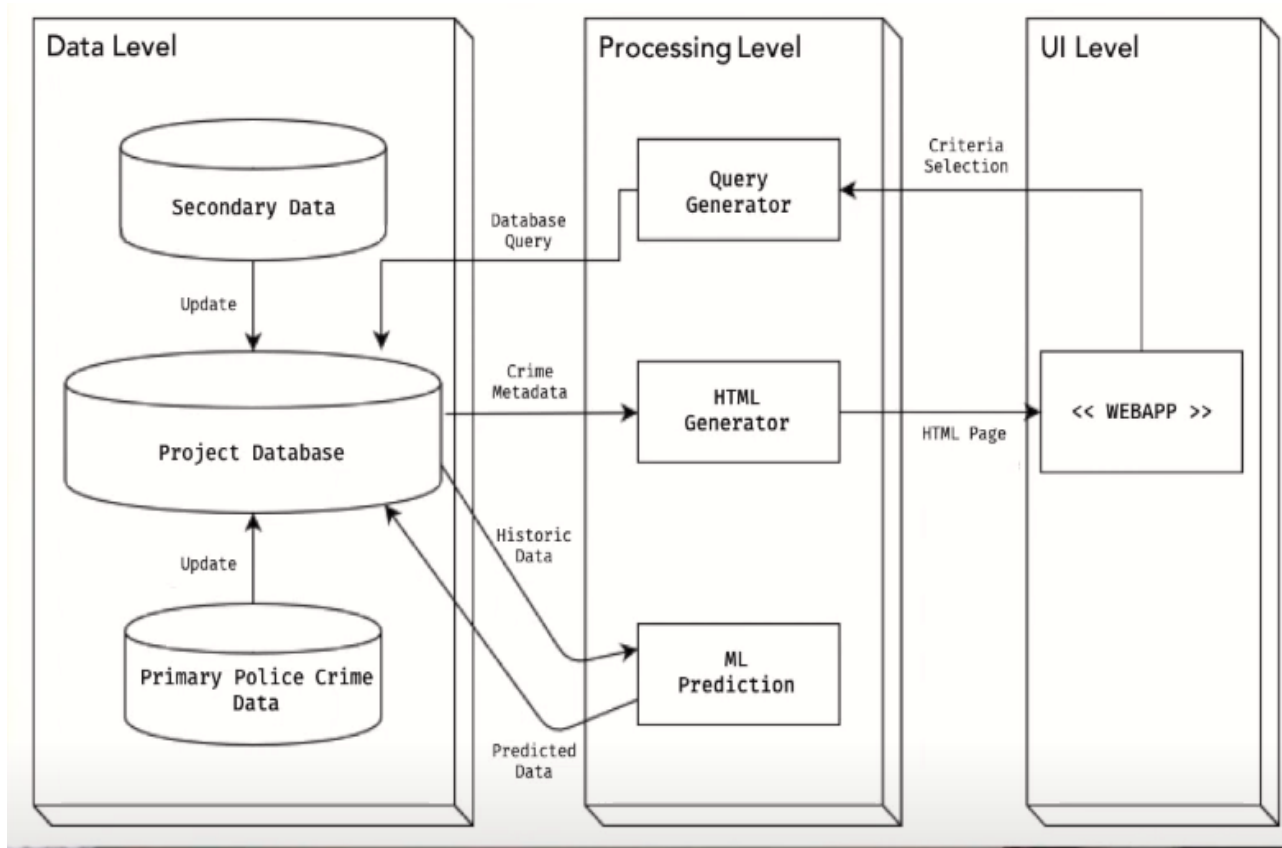


Fig. 1: System Architecture

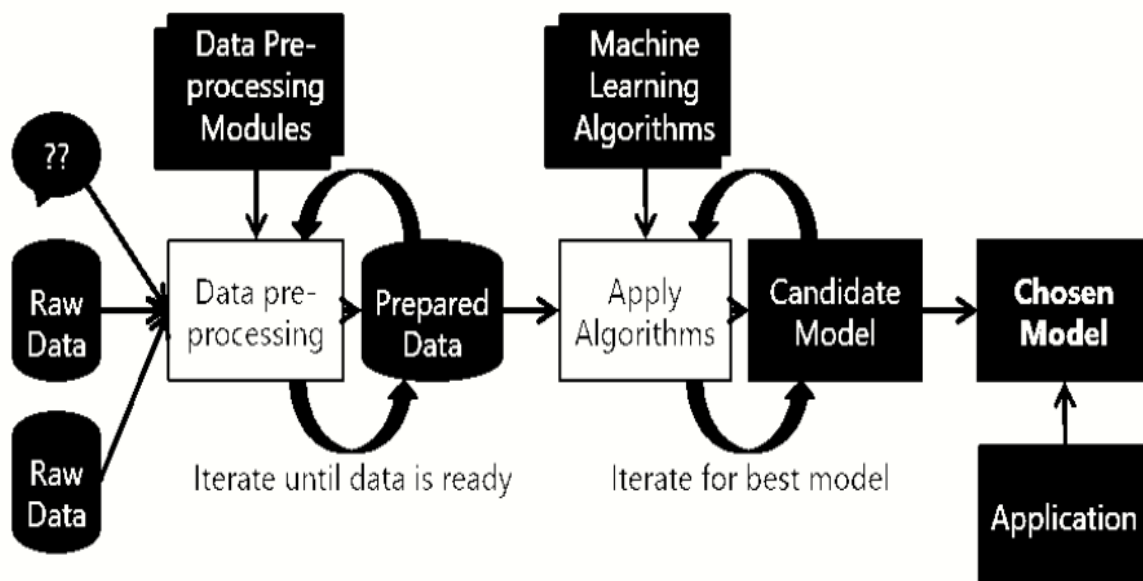



Fig. 1.1 : Machine Learning Process

SCREENSHOTS

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1 contributor

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```
In [23]: import pandas as pd
import numpy as np
import seaborn as sns
import matplotlib.pyplot as plt

In [3]: df=pd.read_csv(r"F:\crime.csv")

In [4]: df
Out[4]:
```

	INCIDENT_NUMBER	OFFENSE_CODE	OFFENSE_CODE_GROUP	OFFENSE_DESCRIPTION	DISTRICT	REPORTING_AREA	SHOOTING	OCCURRE
0	I182080058	2403	Disorderly Conduct	DISTURBING THE PEACE	E18	495	NaN	2018-10-03

Predicting Crime....docx Crime Presentation.pptx rf_model Show all

```
In [3]: df=pd.read_csv(r"F:\crime.csv")

In [4]: df
Out[4]:
```

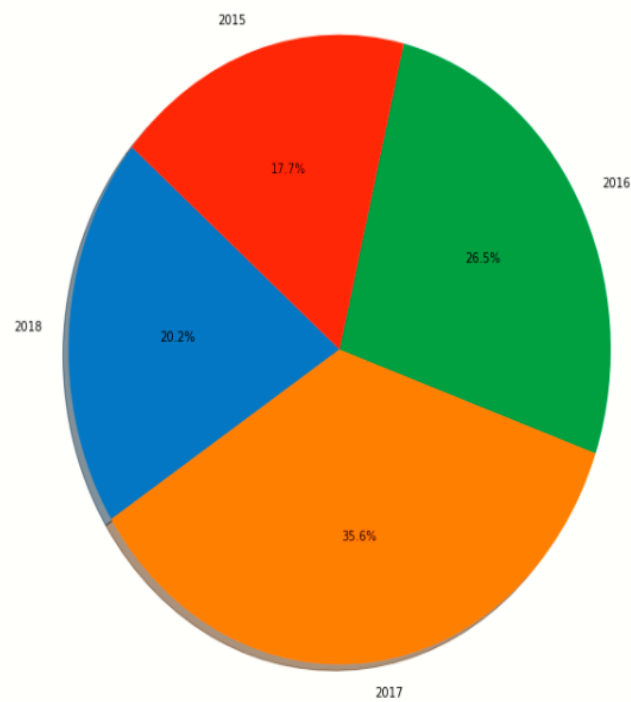
	INCIDENT_NUMBER	OFFENSE_CODE	OFFENSE_CODE_GROUP	OFFENSE_DESCRIPTION	DISTRICT	REPORTING_AREA	SHOOTING	OCCURRE
0	I182080058	2403	Disorderly Conduct	DISTURBING THE PEACE	E18	495	NaN	2018-10-03
1	I182080053	3201	Property Lost	PROPERTY - LOST	D14	795	NaN	2018-08-30
2	I182080052	2647	Other	THREATS TO DO BODILY HARM	B2	329	NaN	2018-10-03
3	I182080051	413	Aggravated Assault	ASSAULT - AGGRAVATED - BATTERY	A1	92	NaN	2018-10-03
4	I182080050	3122	Aircraft	AIRCRAFT INCIDENTS	A7	36	NaN	2018-10-03
...
327815	I050310906-00	3125	Warrant Arrests	WARRANT ARREST	D4	285	NaN	2016-06-05
327816	I030217815-08	111	Homicide	MURDER, NON-NEGLIGENT MANSLAUGHTER	E18	520	NaN	2015-07-09
327817	I030217815-08	3125	Warrant Arrests	WARRANT ARREST	E18	520	NaN	2015-07-09
327818	I010370257-00	3125	Warrant Arrests	WARRANT ARREST	E13	569	NaN	2016-05-31
327819	I42052550	3125	Warrant Arrests	WARRANT ARREST	D4	903	NaN	2015-06-22

327820 rows x 17 columns Predicting Crime....docx Crime Presentation.pptx rf_model Show all


```
U14      3
A15      1
A1       1
Name: DISTRICT, dtype: int64
```

```
In [140]: list_unique_year, list_number_year = create_list_number_crime('YEAR',df['YEAR'].unique())
```

```
In [141]: pie_plot(list_unique_year, list_number_year)
```

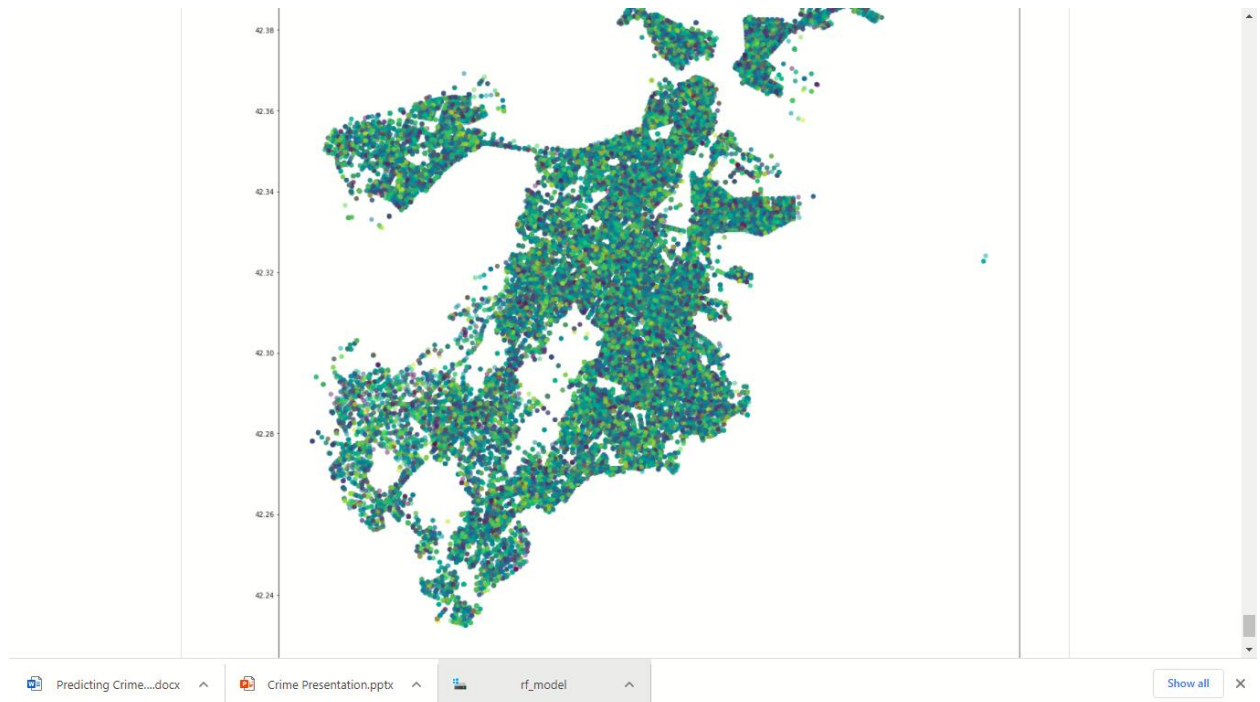
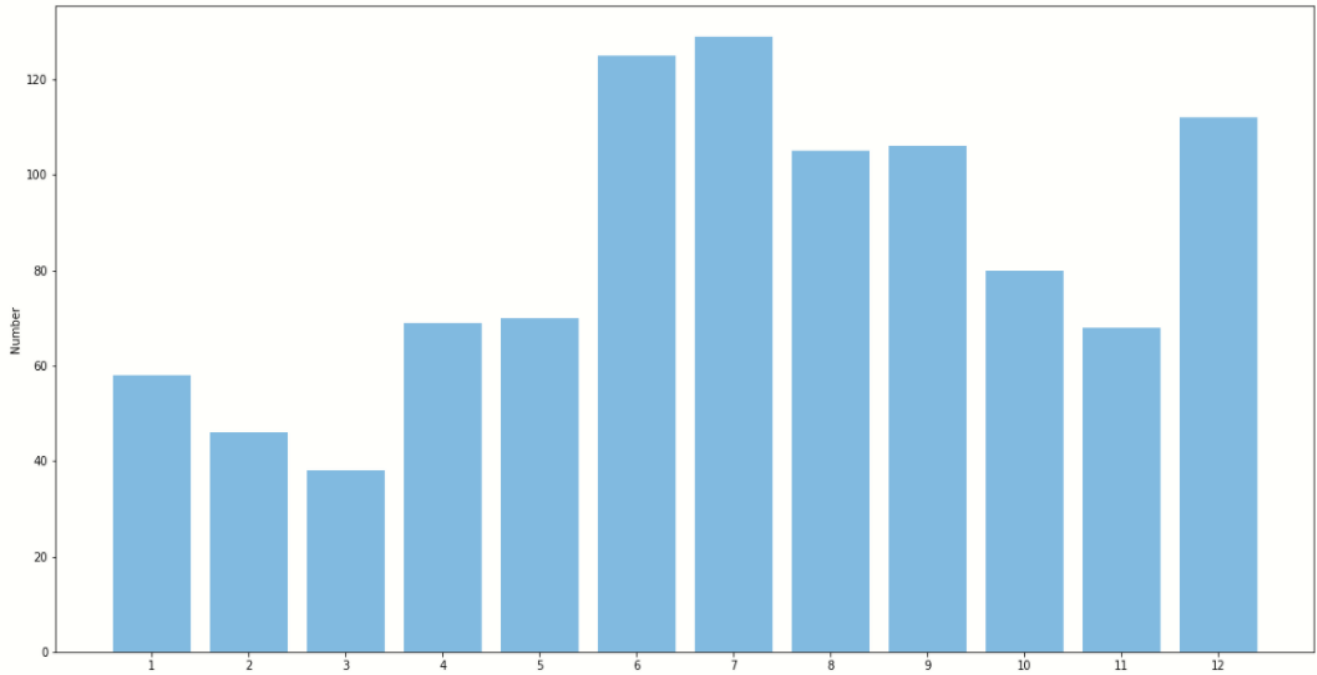


```
Out[141]: 0
```

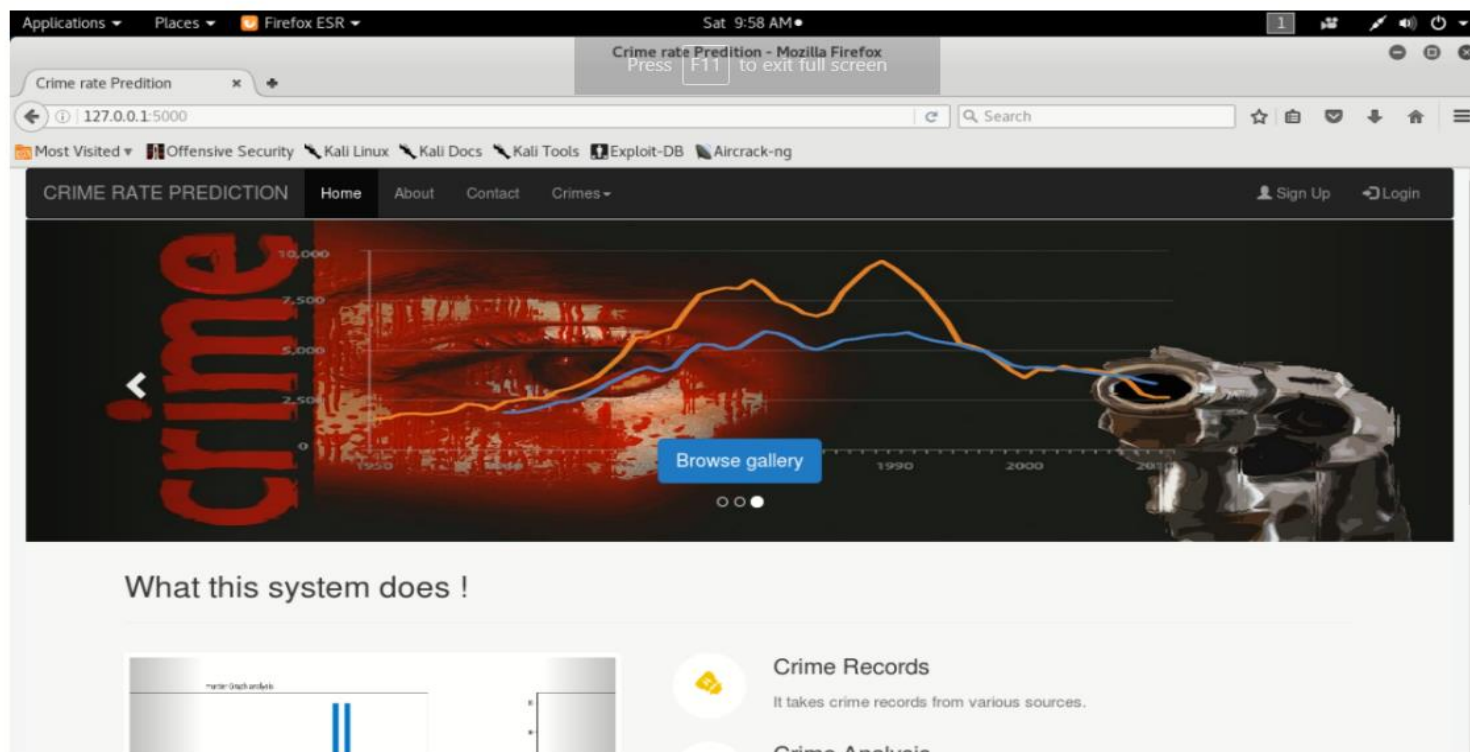


t[142]: 0

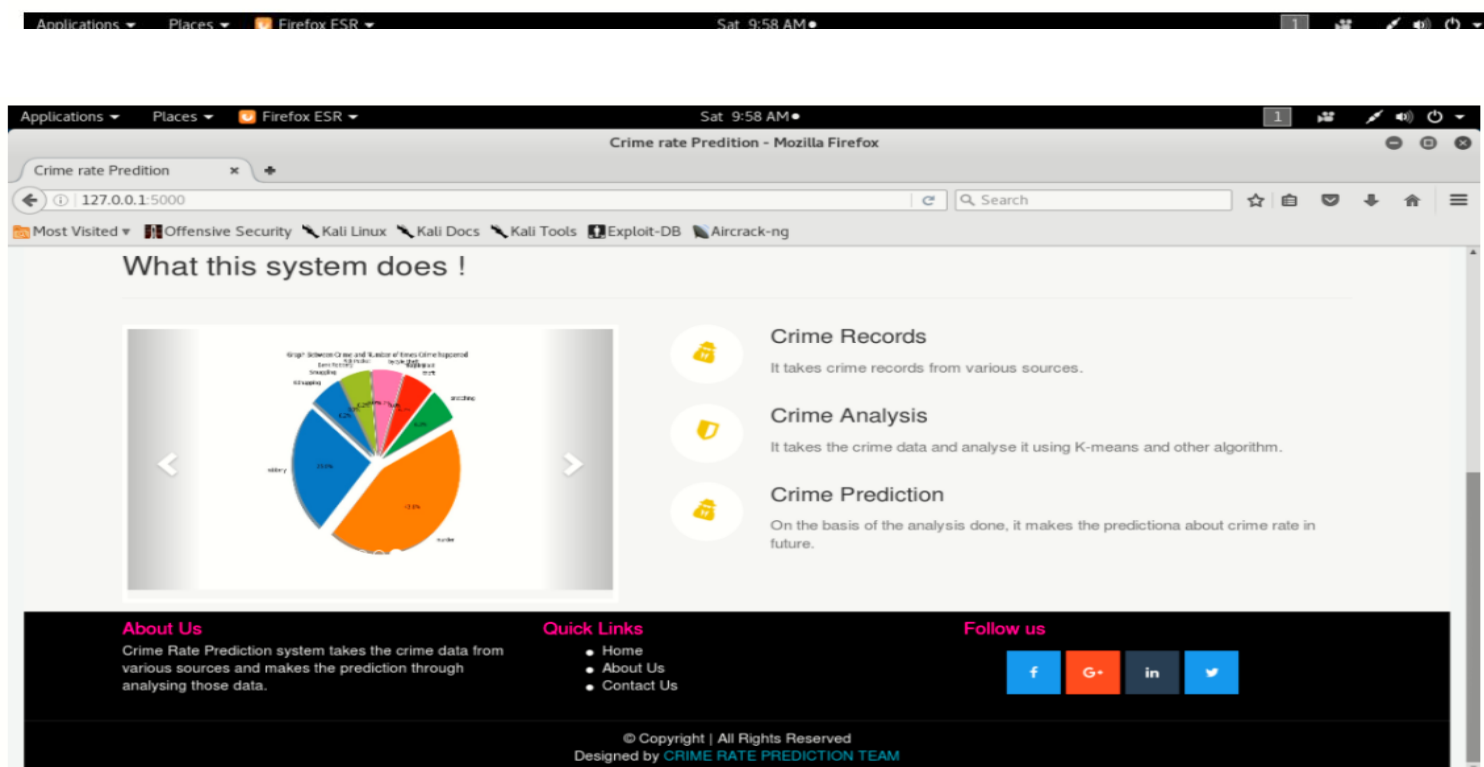
```
[143]: list_unique_month, list_number_month = create_list_number_crime('MONTH',list(range(1,13)))
# pie_plot(list_unique_month,list_number_month)
bar_chart(list_number_month,list_unique_month)
```



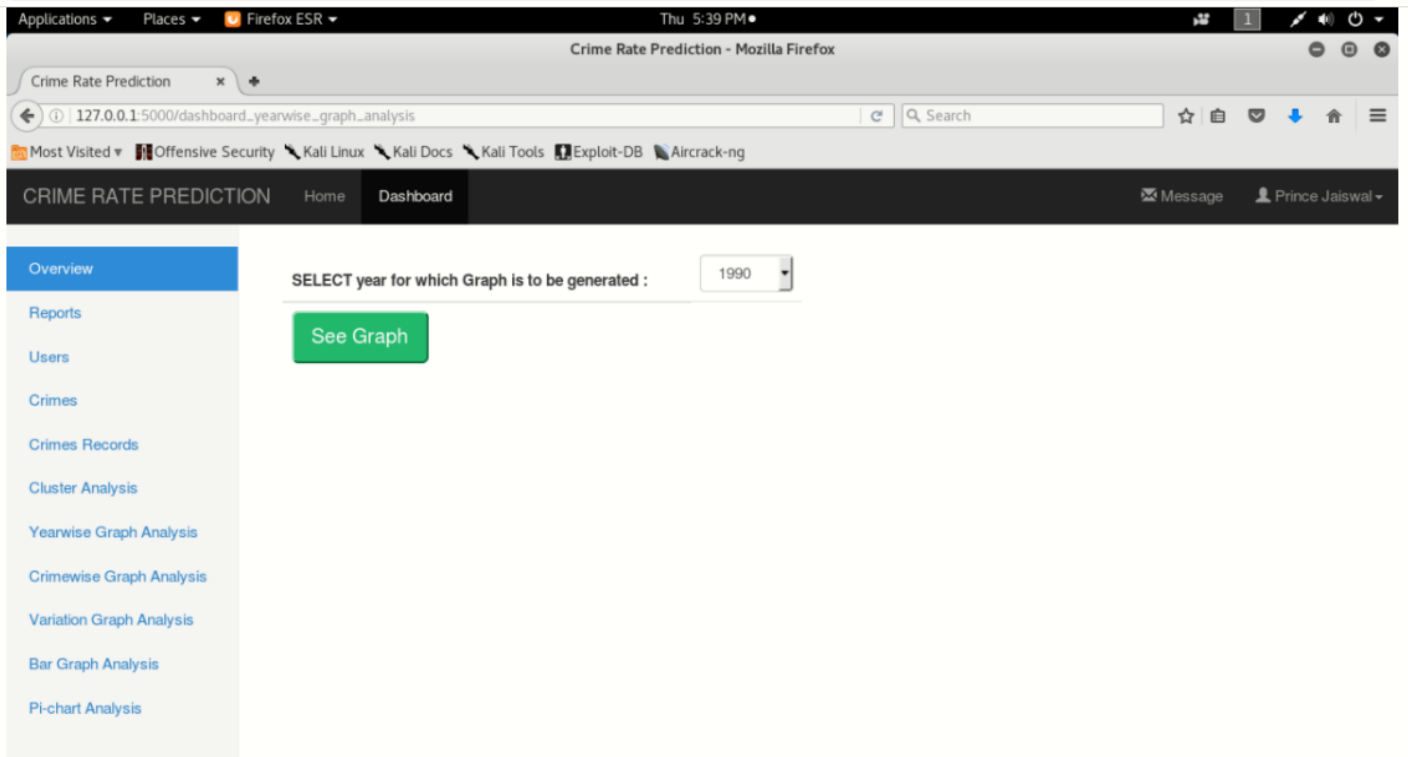
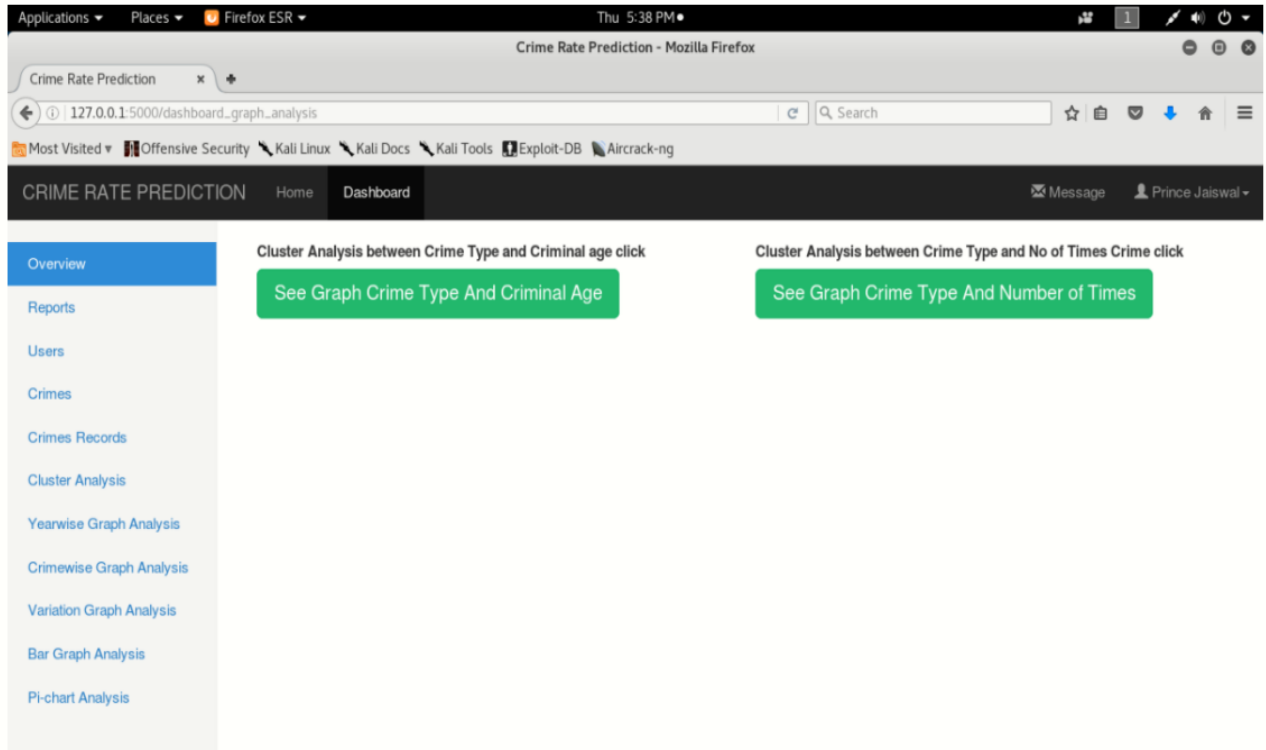
UI Interface Screenshots



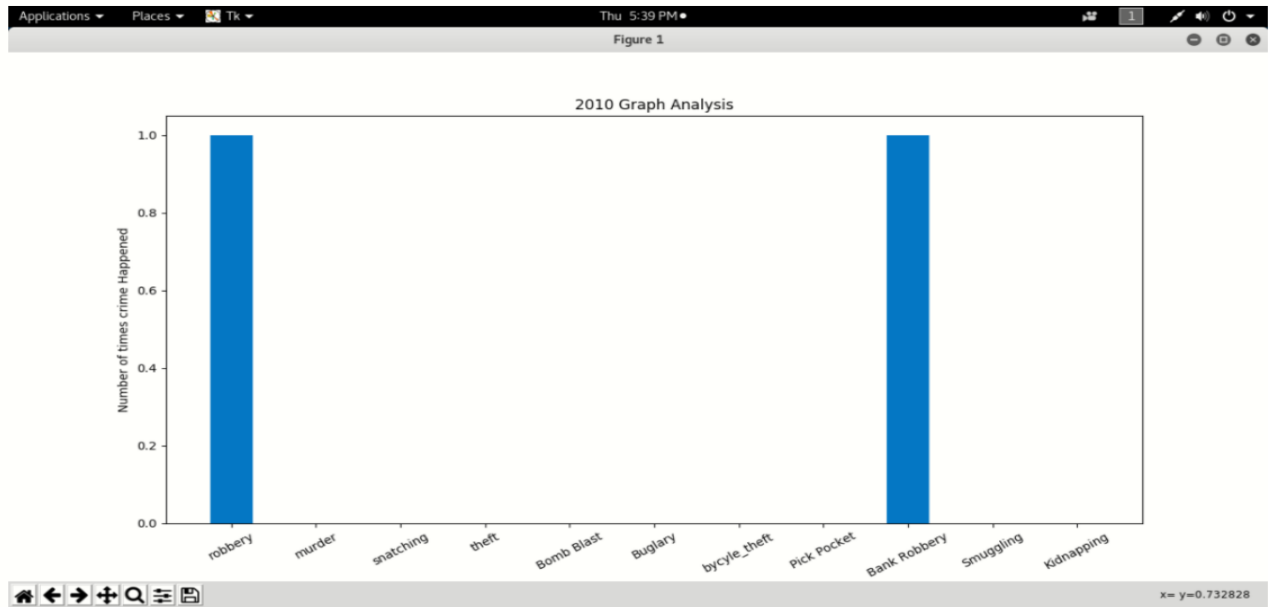
Home Page



Footer Portion



Year wise Crime Portal

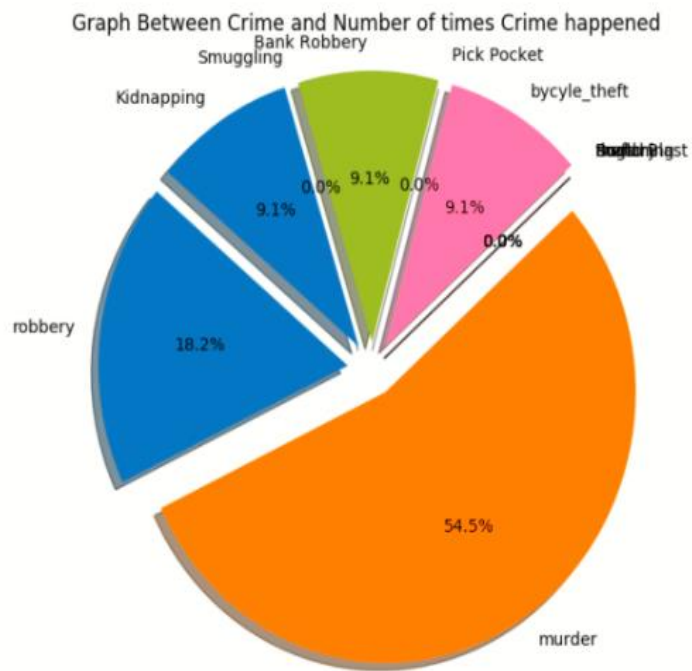


Year wise crime graph

Bar Graph Analysis

The screenshot shows the "Crime Rate Prediction" dashboard in Mozilla Firefox. The browser address bar shows the URL "127.0.0.1:5000/dashboard_pi_graph". The dashboard has a sidebar menu on the left with the following items: Overview (selected), Reports, Users, Crimes, Crimes Records, Cluster Analysis, Yearwise Graph Analysis, Crimewise Graph Analysis, Variation Graph Analysis, Bar Graph Analysis, and Pi-chart Analysis. The main content area has a header "CRIME RATE PREDICTION" and a sub-header "Dashboard". Below the header, there is a message "To See the Pi graph between Crime Type and Percentage click" and a green button labeled "See Pi Chart".

Pi Chart Portal



PROGRSS REPORT OF PROJECT

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