

CRIMINAL INVESTIGATION WITH SUSPECT PREDICTION

BY

MEHEDI HASAN

ID: 191-15-12521

AND

NUSRAT JAHAN KHEYA

ID: 191-15-12520

This Report Presented in Partial Fulfillment of the Requirements for the
Degree of Bachelor of Science in Computer Science and Engineering

Supervised By

Dr. Sheak Rashed Haider Noori

Associate professor & Associate Head

Department of CSE

Daffodil International University



DAFFODIL INTERNATIONAL UNIVERSITY

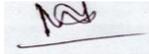
DHAKA, BANGLADESH

JANUARY 2022

APPROVAL

This Project titled “**Criminal Investigation with Suspect Prediction**”, submitted by ***Mehedi Hasan*** and ***Nusrat Jahan Kheya*** to the Department of Computer Science and Engineering, Daffodil International University, has been accepted as satisfactory for the partial fulfillment of the requirements for the degree of B.Sc. in Computer Science and Engineering and approved as to its style and contents. The presentation has been held on ***04, January, 2022***

BOARD OF EXAMINERS



Chairman

Dr. Md. Ismail Jabiullah

Professor

Department of Computer Science and Engineering
Faculty of Science & Information Technology
Daffodil International University



Internal Examiner

Nazmun Nessa Moon (NNM)

Assistant Professor

Department of Computer Science and Engineering
Faculty of Science & Information Technology
Daffodil International University



Internal Examiner

Aniruddha Rakshit (AR)

Senior Lecturer

Department of Computer Science and Engineering
Faculty of Science & Information Technology
Daffodil International University



External Examiner

Dr. Md Arshad Ali

Associate Professor

Department of Computer Science and Engineering
Hajee Mohammad Danesh Science and Technology
University

DECLARATION

We hereby declare that, this project has been done by us under the supervision of **Dr. Sheak Rashed Haider Noori, Associate Professor & Associate Head, Department of CSE** Daffodil International University. We also declare that neither this project nor any part of this project has been submitted elsewhere for award of any degree or diploma.

Supervised by:



Dr. Sheak Rashid Haider Noori
Associate Professor and Associate Head
Department of CSE
Daffodil International University

Submitted by:



(Mehedi Hasan)
ID: 191-15-12521
Department of CSE
Daffodil International University



(Nusrat Jahan Kheya)
ID: 191-15-12520
Department of CSE
Daffodil International University

ACKNOWLEDGEMENT

First, we express our heartiest thanks and gratefulness to almighty God for His divine blessing makes us possible to complete the final year project/internship successfully.

We really grateful and wish our profound our indebtedness to **Dr. Sheak Rashed Haider**

Noori, Associate Professor & Associate Head, Department of CSE Daffodil International University, Dhaka. Deep Knowledge & keen interest of our supervisor in the field of "*Field name*" to carry out this project. His endless patience, scholarly guidance, continual encouragement, constant and energetic supervision, constructive criticism, valuable advice, reading many inferior drafts and correcting them at all stage have made it possible to complete this project.

We would like to express our heartiest gratitude to Professor Dr. Touhid Bhuiyan, Professor and Head, Department of CSE, for his kind help to finish our project and also to other faculty member and the staff of CSE department of Daffodil International University.

We would like to thank our entire course mate in Daffodil International University, who took part in this discuss while completing the course work.

Finally, we must acknowledge with due respect the constant support and patients of our parents.

TABLE OF CONTENTS

| CONTENTS | | PAGE |
|--------------------------------|----------------------------|-------------|
| Board of examiners | | ii |
| Declaration | | iii |
| Acknowledgements | | iv |
| CHAPTER-1..... | | 8 |
| INTERODUCTION | | 8 |
| 1.1 | General..... | 8 |
| 1.2 | Problem Statement | 9 |
| 1.3 | Objective | 10 |
| 1.4 | Scope | 11 |
| 1.6 | Limitations of Work | 52 |
| CHAPTER-2..... | | 63 |
| LITERATURE REVIEW | | 63 |
| 2.1 | Introduction | 63 |
| 2.2 | Technique and Method | 6 |
| 2.3 | Literature Review | 14 |
| CHAPTER-3..... | | 10 |
| METHODOLOY | | 10 |
| 3.1 | Introduction | 10 |
| 3.1.1 | Requirement Phase | 11 |
| 3.1.2 | System Design Phase | 12 |

| | | |
|--------|---|----|
| 3.1.3 | Architecture Design Phase | 12 |
| 3.1.4 | Module Design Phase | 13 |
| 3.1.5 | Unit testing | 13 |
| 3.1.6 | Integration testing..... | 13 |
| 3.1.7 | System testing | 13 |
| 3.1.8 | User acceptance testing..... | 14 |
| 3.1.9 | Design & System..... | 14 |
| 3.1.10 | Admin-login | 15 |
| 3.3.9 | Graphical View of Admin Dashboard | 16 |
| 3.3.10 | Add-officers..... | 17 |
| 3.3.11 | Add-Case..... | 18 |
| 3.3.12 | Add-Case Officer | 19 |
| 3.3.13 | View suspect..... | 20 |
| 3.3.14 | View Evidence | 21 |
| 3.3.15 | View Case History | 22 |
| 3.3.16 | Predict Result..... | 23 |
| 3.3.17 | Add Result..... | 24 |
| 3.5.1 | Officer-Login..... | 25 |
| 3.5.2 | Add Suspect..... | 26 |
| 3.5.3 | Add Evidence..... | 27 |
| 3.5.4 | Add case history | 28 |

LIST OF FIGURES

| FIGURES | PAGE NO |
|---|---------|
| Figure 3.1.10.1: Admin-login | 22 |
| Figure 3.3.9.1: Graphical View of Admin Dashboard | 23 |
| Figure 3.3.10.1: Add-officers | 24 |
| Figure 3.3.11.1: Add-Case | 25 |
| Figure 3.3.12.1: Add-Case Officer | 26 |
| Figure 3.3.13.1: View suspect | 27 |
| Figure 3.3.14.1: View Evidence | 28 |
| Figure 3.3.15.1: View Case History | 29 |
| Figure 3.3.16.1: Predict Result | 30 |
| Figure 3.3.17.1: Add Result | 31 |
| Figure 3.5.1.1: Officer-Login | 32 |
| Figure 3.5.2.1: Add Suspect | 33 |
| Figure 3.5.3.1: Add Evidence | 34 |
| Figure 3.5.4.1: Add case history | 35 |
| Figure 4.1: A Screenshot of Plagiarism Checking Report. | 37 |

CHAPTER-1

INTERODUCTION

1.1 General

Crime Management System with Suspect Prediction is rhetorical system that may facilitate officer to visualize out past criminal event from the system and helps to keep over the patterns in crime situation whether or not it's increasing or decreasing. It's additionally a information system within which the police keep the record of criminals World Health Organization are in remission, to be in remission, or escaped.

The system and for the case whereas in another attribute i.e., the read case attribute here, the admin will be ready to read the case gift. Within the Police Login, we've got attribute as add new criminal wherever we've got to feature the criminal name, address, age, gender, sort of crime, location, evidence, crime month, crime year, time of day, finger print, suspect image by this the criminal info gets else to the system. At following level i.e., Add new fir, the police add the mail points of the case name i.e., what sort of crime went on, the name of the victim, sort of crime, location and evidences that ar been found on the placement of the crime. Here, during this page we tend to get the prediction regarding the suspect by mistreatment the rule referred to as call tree rule. Another attribute is regarding the case enquiry, wherever the police will access {the info the knowledge the data} regarding the case and might get the advances information regarding the probable suspect of the case. Following attribute is that the Final case, here during this we've got to pick the case name and we'll get the standing of the case i.e., whether or not the case is completed or it's unfinished. Then at the detail of the case i.e., the suspect info we've got associate choice i.e., the suspect info we've got associate choice i.e., to feature the case for investigation or not and {when we tend to once, we after we} add the case for investigation er get the prediction the crime that World Health Organization is that the major suspect within the crime. The ultimate and also the vital attribute is that the predication half, here there ar 3 main attributes i.e., we've got to enter the kind crime. Location and proof of the case and once we'll click on the search button the result is going to be generated to United States.

1.2 Problem Statement

Crime is Associate is Nursing the law of a society that threatens the welfare of the general public and, therefore, needs economical and effective observation. For this reason, this project has been created to attain this objective. However, crime management today is especially manual that's the employment of pens and paper. These records area unit thus sensitive to destruction from insects and unexpurgated manipulation by each approved and unauthorized personnel. The planned system consists of suspect predication algorithmic rules to predicate and counsel the suspects within the logical order. This imperfect approach has diode to issues with genuineness, security, retrieval. Storage, and knowledge exchange.

This project is planned as against the law management system and criminal prognosis. Criminal suspects Criminal suspects have the chance to form predications. The project provides criminal statistics in associate degree annual or monthly basis for crime bar. Therefore, this live will offer police and authorities the good thing about crime management is their space.

On the opposite aspect of the matter, the officer World Health Organization investigates the suspect to seek out the important perpetrator during a case interrogate the suspect and collect information associated with the case then the interrogation data are going to be recorded then hold on during a secret space, These days it happens sort of a file that's destroyed by a fireplace disaster or flood, Then, the system is intended to trace information to forestall information loss and to research higher during a graphical read.

1.3 Objective

This crime management system has three main objectives, at the side of dubious predication. It'll be noted that the third objective desire large information to make further correct predictions in future crime events. Since future crime for casts want larger information and extra accuracy, it's easier for police and authorities to estimate the speed of potential crime and to prevent potential crime early.

However, the second objective is that the core of this project that's to make criminal prediction among the suspects exploitation associate formula that calculates weighted criteria and generates the foremost suspicious suspects who can commit the crime. There unit three purposes:

1. The thanks to manufacture vogue for a management crime data.
2. To develop a perform which will predict the offender among suspects at the most effective probability whit high accuracy of predications.
3. To examine a graphical of crime information by annually and monthly to help to stay over the patterns in crime start of affairs either increasing or decreasing.
4. TO integrate the finger print and face recognition of a Criminal.

1.4 Scope

1.4.1 User

a) Admin

- (1) Admin can add officer
- (2) Admin can add case
- (3) Admin can add case officer
- (4) Admin can view all suspected person
- (5) Admin can add final result
- (6) Admin can view case report from Dashboard
- (7) Admin can add criminal data from csv file to web server

b) Officer

- i) Officer will add knowledge regarding the case that regarding the case that involves many suspects if connected with the case.
- ii) Officer will add the information criteria of suspect when the interrogation session with suspect and system can predict the best chance of criminal among many suspects.

1.4.2 Place

a. Police Department

1.4.3 System

This system are going to be web-based and information are going to be keep in a very distributed information as this method are going to be wide employed in the rhetorical department.

1.6 Limitations of Work

- i. This technique is provided only for officers and authorities and not for the general public as a result of criminal information is sensitive and counsel.
- ii. The system is not 100% correct. All involved suspects will still be born at court for a suspect that has high chance in doing the crime within the chose case to make additional investigation and investigate the crime chance.
- iii. The crime information desires large data to make higher predication of future criminal event and since the large data is needed for processing. {the information the data the data} itself is tiresome to induce since er tend to tend to stand live as e students is not authorized to access the knowledge of real criminal dativized from government department.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

This chapter reviews the numerous literatures that describes but this project relates to existing analysis. This review became a link between this project and existing analysis. It collectively highlights aspects that have already been established and completed, this chapter can continue with discussions and ideas from articles on previous measures, research, journal and crime management systems. The previous system is difficult to go looking out as a result of the system is confidential and not accessible to the final public. Techniques and algorithms are also compared to envision that formula is further systematic and effective. Supported this project, the analytical to envision that formula is further systematic and effective. Supported this project, the analytical classification technique formula has been hand-picked. Analysis on analytical classification technique algorithms. Additionally, analysis on another applicable formula is in addition obtaining employed in many studies and many analyses has collectively been done on analytical classification technique algorithms, additionally, analysis on another applicable formula is in addition obtaining employed in many studies and analysis on another applicable formula is in addition obtaining employed in many studies and analysis to explore new ways in which and build some comparisons.

2.2 Technique and Method

As for the Crime Management System with Suspect Prediction, the technique and methodology that may be enforced with is net Application and IOT based mostly to calculate the prediction of criminal.

By reducing complicated selections to a series of pairwise comparisons, so, synthesizing the results, the net Application and IOT helps to capture each subjective and objective aspects of a call. Additionally, the net Application and IOT incorporates

a helpful technique for checking the consistency of the choice maker's evaluations, so reducing the bias within the method} process.

The Web Application and IOT creating|desiding|higher cognitive process} approach that may facilitate for doing call|a choic|a call} making to line priorities and build the simplest call by reducing the advances decision to a series of pairwise comparison and synthesizing the result. The net Application and IOT includes a smart mathematical property of methodology and therefore the undeniable fact that the desired computer file area unit rather simple to get. It uses a multi=level hierarchical data structure objectives, criteria, sub criteria and different.

2.3 Literature Review

[1] Dongyuan Li, Xiaojun Tibeto-Urman language Criminal Investigation Image Retrieval supported Deep Learning, 2020 International Conference on network, Electronic and Automation (ICCNEA) throughout this paper CSI image retrieval technology supported low-level choices uses a content-based image retrieval (CBIR) farm work to extract low-level choices of the image or fuse entirely completely different low-level choice, that confirms the feasibility of CBIR technology in CSI image retrieval. The author proposes to combine low level choices of image dominant color descriptors as color choices, gray-level co-occurrence matrix stature choice to boost CSI image retrieval performance.

Advantage:

Final experimental results showthat the formula can effectively describe the content of CSI image and maintain a high average accuracy.

[2] Bagus Priambodo Yuwan Jumayadi, Zico Pratama putra Comparison of native Binary Pattern and Eigenfaces for Predict Suspect positive Drugs2020 ordinal international conference on broadband Communications, wireless sensors and powering (BCWSP). Throughout this paper the dataset is generated from on-line sources by assortment and pre-processing thirty photos of people before and once drug.

We've a bent to check the algorithm native binary pattern and chemist faces for predicting suspect positive drugs supported face photos. The experiment shows that the results of the predication victimization native binary pattern is best than the predication victimization Eigenfaces. However, a higher accuracy of prediction reaches only 100%.

Advantage:

Local binary pattern is best than the prediction using eigenfaces. Neil Veira, Student Member, IEEE, Zissis Poulos, Member, IEEE, and Andreas Veneris, Senior Member, IEEE looking for Bugs using Probabilistic Suspect Implications IEEE Transactions on CAD of Integrated Circuits and Systems (Volume: 91, Issue: 12, Dec. 2020). In this paper thanks to the excessive value associated with manual RTL vogue debugging, automatic tools unit of measurement generally want to spot a gaggle of suspect bug locations. Behavior of these tools permits partial results to be analyzed before the suspect search is complete. throughout this paper proposes a replacement weekday-based debugging rule that predicts where solutions unit of measurement probably to be found and prioritizes examining these locations.

Advantage:

This debugging rule is tried to be over the VLSI models reaching This debugging rule is tried to be over the VLSI models reaching academic degree accuracy rate of eighty seven nothing.g academic degree accuracy rate of eighty seven.

[3] every heat And Cold begin Users Anupriya Gogna, Angshul Majumdar A Comprehensive Recommender System Model 2019 International Conference on Innovative Trends in portable computer Engineering (ITCE2019). during this paper, we have a tendency to tend to utilize secondary information relating users demography academic degree item categories to spice up prediction accuracy. among the matrix resolution framework, we have a tendency to tend to introduce further supervised label

consistency terms that match the user and item issue matrices to the on the market secondary information (metadata). Matrix resolution model-conventionally employed in cooperative filtering techniques yields dense user and dense item issue matrices.

Advantage:

Recommender systems (RS) facilitate mitigate the matter of information overload by saving users from the discouraging job of filtering through Brobdingnagian pile of information/ things, and finding the relevant.

[4] Neil Veira, Zissis Poulos and Andreas Veneris Suspect Set Prediction in RTL Bug looking 2018 vogue, Automation & take a glance at in Europe Conference & Exhibition (DATE). In this paper, the projected methodology involves learning vogue half dependencies by pattern historical debugging data and representing these dependencies by means of a probabilistic graph.

Using this illustration, one can run a debugging tool non-exhaustively, acquire a partial set of probably inaccurate components therefore predict the remaining by applying an inexpensive belief propagation pass.

CHAPTER-3

METHODOLOY

3.1 Introduction

The system and for the case whereas in another attribute i.e., the scan case attribute here, the admin is also able to scan the cases gift. among the Police Login, we have attribute as add new criminal wherever we have to feature the criminal name, address, age, gender, quite crime, location, evidence, crime month, crime year, time of day, suspect image by this the criminal data gets additional to the system. At following level i.e., Add new fir, the police add the little print of the case name i.e., what quite crime goes on, the name of the victim, quite crime, location and evidences that ar been found on the location of the crime. Here, throughout this page we tend to tend to induce the prediction regarding the suspect by practice the rule remarked as decision Tree formula. Another attribute is regarding the case enquiry, wherever the police can access {the data the data the data} regarding the case and may get the advanced data regarding the probable suspect of the case. following attribute is that the ultimate case, here throughout this we have to choose out the case name and we'll get the standing of the case i.e., whether or not or not the case is completed or it's unfinished. Then at the detail of the case i.e., the suspect data we have associate risk i.e., to feature the case for investigation or not and {when we tend to tend to once, we tend to once we tend to} add the case for investigation we get the prediction regarding the crime that World Health Organization is that the most important suspect among the crime. the final word and thus the very important attribute is that the prediction 0.5, here there ar 3 main attributes i.e., we have to enter the sort of crime, location and proof of the case and once we'll click on the search button the result square measure reaching to be generated to u. s. of America. Describes the methodology need to develop the project throughout this chapter. V-model is of of the sort of system development life cycle. the explanation in every half that involves on this project development is express throughout this section. Also, the system requirements that's involved sensible demand and non-functional demand is listed. conjointly describes the strategy model that's connected

context diagram, dataflow diagram and entity relationship diagram. each of the diagram is explained among the outline. Then, data reference is describing in tables. Last but not least, the final framework is showed at the tip of this chapter.

3.1.1 Requirement Phase

In this requirements analysis section, the first step inside the verification methodology, the requirements of the system area unit collected by analyzing the enforcement officer's need. This section cares with establishing what the proper system has to perform. enforcement officers administrative body is that the end users area unit interviewed and store the need in user requirements document. The user requirements document describe the system's sensible, interface, performance, data, security and requirements uncalled-for to mention by the highest user of this project. The interviewed guardian fastidiously review this document as this document would perform the rule for the system vogue section. The user acceptance tests square measure designed throughout this section. This section put together collect sensible and non-functional requirements. Beside interviews with the guardian to assemble user requirements, there square measure another ways used for this project for gathering requirements that's questionnaires, document analysis, observation, throw-away prototypes and use case. The articles regarding crime management is to boot collected that's expressed in chapter a combine of and study the requirements of this project is completed to make sure this project goes to be developed at the right path.

3.1.2 System Design Phase

In this section, the business of the planned system is analyzed by learning the user needs document of this Crime Management System with Suspect Prediction system. prospects and techniques is got wind by that the user wants square measure typically enforced . If any of the wants are not potential to this project, the interviewed police officer is acquainted of the problem. once resolution is found and additionally the user demand document is altered consequently. The code specification document that's a blueprint for the event section is generated. This document contains the ultimate system organization, menu structures, information structures and knowledge flow structures. it's progressing to together hold example system, sample articles and reports for the higher understanding. various technical documentation like entity diagrams, data reference book may also be created throughout this section. The documents for crime management system testing unit of measurement prepared.

3.1.3 Architecture Design Phase

In this section, it's extra regarding High-Level vogue. style|the look} of portable computer style and computer code design of this Crime Management System is analyzed. The baseline in selecting the design is that it have to be compelled to perceive all that consists of the list of modules, transient practicality of every module, their interface relationships, dependencies, data tables, style diagrams and technology detail. the blending testing vogue is run at intervals the specific section. Sting is delineated in integration testing section at section.

3.1.4 Module Design Phase

In this section, it is a heap of concerning low-level vogue throughout this Crime Management System. The designed system is jerky into smaller units or modules and each of them is explained so as that the implementing of committal to writing begin directly. The low level vogue document or program specifications will contain Associate in Nursing thorough purposeful logic of the module. Below is that the list module vogue for this project:-

- data tables, with all elements, in addition as their kind and size
- all interface details with complete API references
- all dependency issues
- error message listings

Complete input and outputs for a module. The unit check vogue is developed throughout this stage that's explained in section 3.4.1.

3.1.5 Unit testing

In this half, Unit Testing square measure developed throughout module vogue half that explained at these half is dead to eliminate bugs at code level or unit level whereas developing this project of Crime Management System. A unit is that the littlest entity which could severally exist sort of a program module. Unit testing verifies that the tiniest entity can perform properly once isolated from the rest of the codes/units.

3.1.6 Integration testing

In this half, integration testing square measure developed throughout the fine arts vogue half that explained at section 3.3.3. These tests verify that every units module in Crime Management System square measure created and tested severally then can communicate among themselves. check results square measure shared with the interviewed protector which will be the tip user for this project.

3.1.7 System testing

In this half, system testing square measure developed throughout system vogue half that explained in section 3.3.2. System check ensures that expectations from Crime

Management System with Suspect Prediction developed square measure meet the user demand. the full application is tested for its utility, mutuality and communication. System Testing verifies that purposeful and non-functional desires square measure met. Load and performance testing, stress testing, regression testing then on, square measure subsets of system testing..

3.1.8 User acceptance testing

In this half, User Acceptance take a glance at area unit developed throughout the wants Analysis half that explained in section 3.3.1. There are a unit two stage for this half. First, the system is explained sometimes to the interviewed officer. Second stage is once the implementing project and interfaces where the system is tested by the highest user that's that the officer to analyses any needs or demand that necessary to feature and conjointly data} used is exploitation realistic information. This half verifies that delivered system meets user's demand and system is ready to be utilized in real time.

3.1.9 Design & System

In this system, we've got 2 login choices. One for Administrator and another for peace officer of the case. Administrator and officer desires credentials like use free and parole to login in to the system. There are a unit 2 login dashboards, those are

- Admin Login
- Officer Login

3.1.10 Admin-login

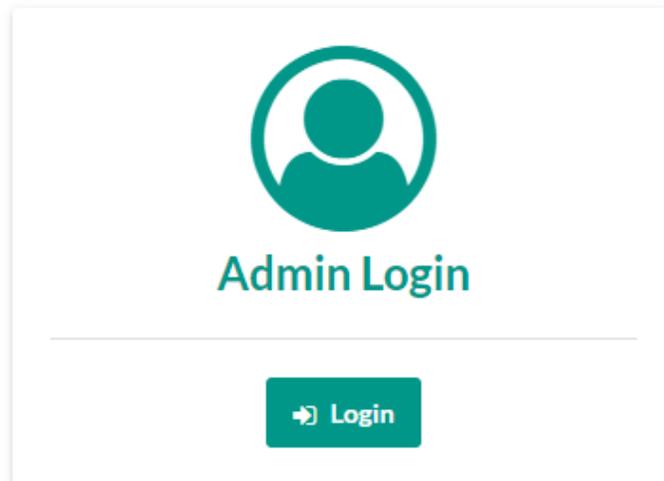


Figure 3.1.10.1: Admin-login

Admin click the admin panel and input the username and password and click the login button. Then the admin can browse the dashboard and control all cases, officer, suspected person system.

3.3.9 Graphical View of Admin Dashboard

On Dashboard view, Admin can see Total Officers, Total Cases, Total Suspect and Total Criminal. When admin add new officer, total officer automatic increases the officer's number in dashboard. Total case also increases like as officers. When officer's added suspected person and criminal it's also increase total suspect & Criminal. On over view the admin understands the cases situation.

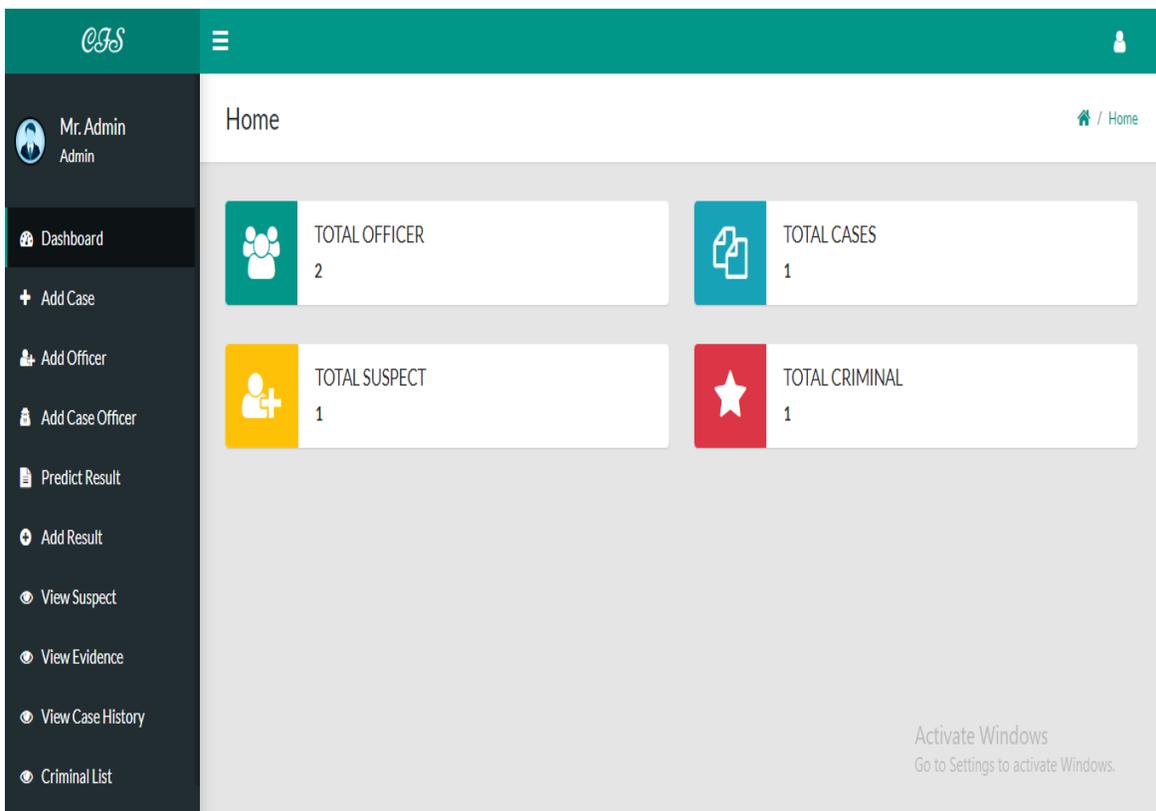


Figure 3.3.9.1: Graphical View of Admin Dashboard

3.3.10 Add-officers

Admin can add officers. If admin add new officer, input the officer's name, officer id generate automatic, the officer gets a unique user id. And input his (officer) information (mobile no, address, email address, police station name, photo) and input a unique password for the officer. When officer add successfully, the officer list show under the form.

Graphical view of add officer

The screenshot shows a web application interface for adding officers. On the left is a dark sidebar with a navigation menu. The main content area is titled 'Officer' and contains a form titled 'Add Officer'. The form has the following fields:

- Officer ID: 10004
- Officer Name: mr xyz
- Mobile NO: +88017010-111110
- Email ID: yourname@gmail.com
- Area: Police station Name
- Image: Choose File | No file chosen
- Password: password

Below the form is a table with the following data:

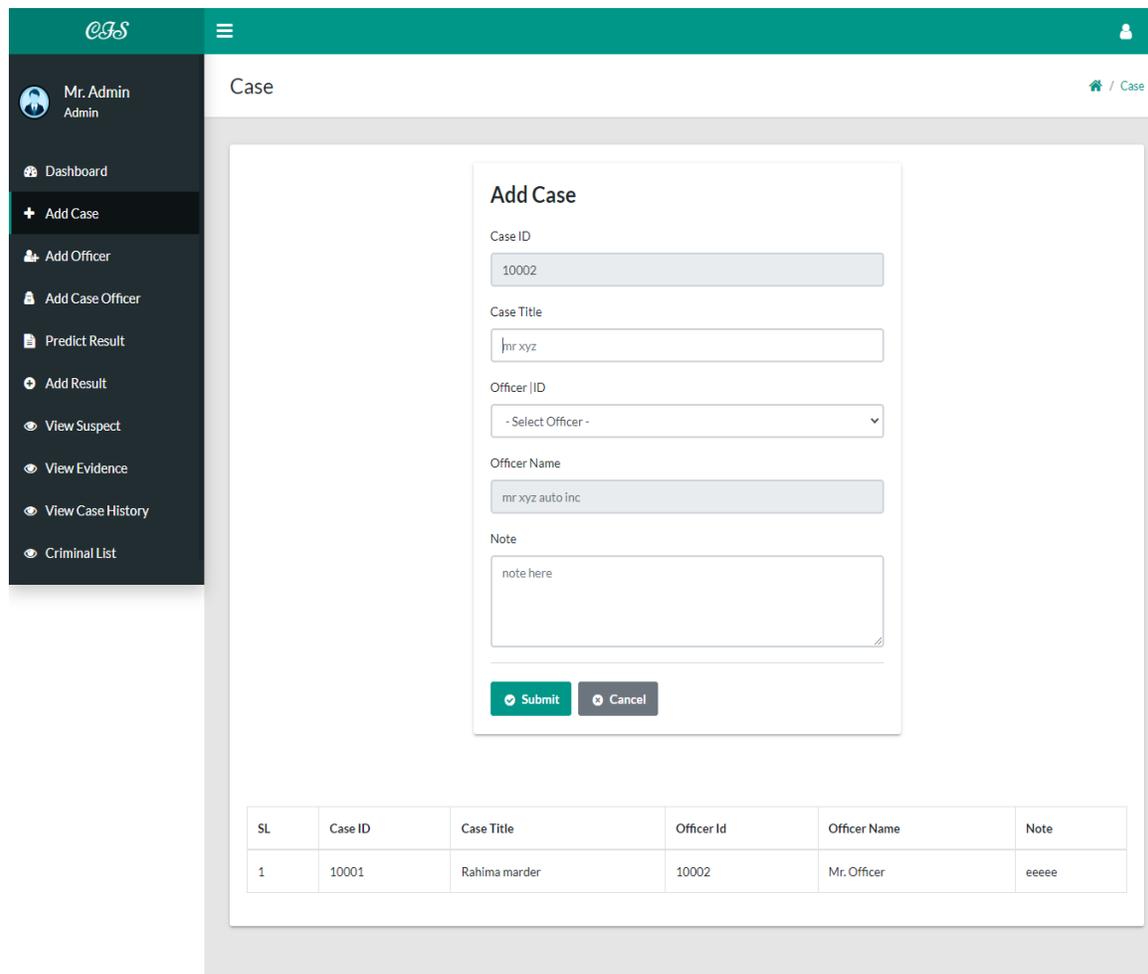
| SL | Officer ID | Officer Name | Officer Mobile | Officer Email | Area | Image |
|----|------------|--------------|----------------|-----------------------|-------------|---|
| 1 | 10002 | Mr. Officer | | officer@gmail.com | | |
| 2 | 10003 | Sakline | 01911510518 | spprince007@gmail.com | Dhaka metro |  |

Figure 3.3.10.1: Add-officers

3.3.11 Add-Case

Admin can add unlimited case in the system. His/her can add case one by one. When admin add case, at the same time admin can add case officer, just input the officer ID, it automatic find his/her (officer) name and put his name. Given case title and case id will be generate automatically. We can add note and details in note box. When case add successfully, the case list show under the form.

Graphical view of add Case



The screenshot shows a web application interface for adding a case. The top navigation bar is green with the logo 'eGS' and a user profile icon. The left sidebar is dark grey with a menu containing: Mr. Admin Admin, Dashboard, Add Case (highlighted), Add Officer, Add Case Officer, Predict Result, Add Result, View Suspect, View Evidence, View Case History, and Criminal List. The main content area is titled 'Case' and contains the 'Add Case' form. The form has the following fields: Case ID (text input with value 10002), Case Title (text input with value mr xyz), Officer IID (dropdown menu with value - Select Officer -), Officer Name (text input with value mr xyz auto inc), and Note (text area with value note here). At the bottom of the form are 'Submit' and 'Cancel' buttons. Below the form is a table with the following data:

| SL | Case ID | Case Title | Officer Id | Officer Name | Note |
|----|---------|---------------|------------|--------------|-------|
| 1 | 10001 | Rahima marder | 10002 | Mr. Officer | eeeee |

Figure 3.3.11: Add-Case

3.3.12 Add-Case Officer

If admin want to add multipole officer for a selected case.(Example: Rahima marder case investigation by three officer). Admin can add the select the offices, just select the case it, and put the officer id, and submit.

Graphical view of add Case officer

| SL | Officer ID | Officer Name | Case Id | Case Title |
|----|------------|--------------|---------|---------------|
| 1 | 10002 | Mr. Officer | 10001 | Rahima marder |
| 2 | 10003 | Sakline | 10001 | Rahima marder |
| 3 | 10003 | Sakline | 10001 | Rahima marder |

Figure 3.3.12.1: Add-Case Officer

3.3.13 View suspect

When officers add suspect person, admin can view details of selected case. The admin can select a case to view the case status and details of the suspect. If the suspected person is found guilty, tap the action button, add to the criminal list.

Graphical view of View Suspect

The screenshot displays a web application interface for viewing suspect details. On the left is a dark sidebar with navigation items: Dashboard, Add Case, Add Officer, Add Case Officer, Predict Result, Add Result, View Suspect (highlighted), View Evidence, View Case History, and Criminal List. The top header is green and shows the user 'Mr. Admin' and a home icon. The main content area is titled 'Suspect List' and contains a 'View Suspects Person' form. The form has a 'Case ID' dropdown menu with '10001' selected and a 'Case title' text input with 'Rahima marder'. A green 'Search' button is below the form. Below the form is a table with the following data:

| SL | Case ID | Suspected Name | Mobile No | NID | Relation | Date | Rank | Address | Action |
|----|---------|----------------|-------------|----------|----------|------------|------|-------------------------|-------------------------------------|
| 1 | 10001 | Ariful Islam | 01722334433 | 12345677 | husband | 2021-08-30 | 8 | murad nagar, dhaka-1212 | <input checked="" type="checkbox"/> |

Figure 3.3.13.1: View suspect

3.3.14 View Evidence

When officers add evidence of suspect person, admin can view details of selected case or multiple case from here. Admin to supervise all cases from here.

Graphical view of View Evidence

The screenshot shows a web application interface for viewing evidence. On the left is a dark sidebar with a user profile for 'Mr. Admin Admin' and a list of navigation items: Dashboard, Add Case, Add Officer, Add Case Officer, Predict Result, Add Result, View Suspect, View Evidence (highlighted), View Case History, and Criminal List. The main content area is titled 'Evidence List' and contains a 'View Evidence List' section. This section has a 'Case ID' dropdown menu set to '- Select Case Id -' and a 'Case title' text input field containing 'child morder auto add'. Below these is a green 'Search' button. Underneath the search form is a table with the following data:

| SL | Case ID | Evidence | Type | Suspect | note | Score | Date | Officer ID |
|----|---------|----------|----------|--------------|---|-------|------------|------------|
| 1 | 10001 | Knif | Physical | Ariful islam | We are found a knife with blood in his office | 8 | 2021-08-30 | 10002 |

Figure 3.3.14.1: View Evidence

3.3.15 View Case History

The officers will record the incident of each cases, the incident of each cases are recorded here, and admin supervise the cases from here.

Graphical view of Case History

The screenshot shows a web application interface for viewing case history. On the left is a dark sidebar with navigation items: Dashboard, Add Case, Add Officer, Add Case Officer, Predict Result, Add Result, View Suspect, View Evidence, View Case History (highlighted), and Criminal List. The top header is teal with the 'EJS' logo and a user profile for 'Mr. Admin'. The main content area is titled 'View Case History' and contains search filters for 'Case ID' (a dropdown menu showing '- Select Case Id -') and 'Case title' (a text input field containing 'child morder auto add'). A green 'Search' button is located below the filters. Below the filters is a table with the following data:

| SL | Case ID | History | Date | Officer ID |
|----|---------|--|------------|-------------|
| 1 | 10001 | We are found a knife on her husband's office | 2021-08-30 | Mr. Officer |

Figure 3.3.15.1: View Case History

3.3.16 Predict Result

If the admin selects the case ID, it will show the title of the case, and the list of suspects with score will be displayed.

Graphical view of Predict Result

The screenshot shows a web application interface for 'Case Prediction'. On the left is a dark sidebar with the user 'Mr. Admin' and various navigation options. The main content area has a header 'Case Prediction' and a form with the following fields:

- Case ID: 10001
- Case Title: Rahima marder
- Suspect: Ariful Islam
- Photo: 
- Score: 8

A green 'Submit' button is located at the bottom of the form. Below the form is a table with the following data:

| SL | Case Id | Case Title | Suspect Name | Suspect Photo | Score |
|----|---------|---------------|--------------|---|-------|
| 1 | 10001 | Rahima marder | Ariful Islam |  | 8 |

Figure 3.3.16.1: Predict Result

3.3.17 Add Result

The admin can identify the real criminal from here and published his result

Graphical view of Add Result

The screenshot shows a web application interface for adding a result. On the left is a dark sidebar with a user profile for 'Mr. Admin Admin' and a list of navigation items: Dashboard, Add Case, Add Officer, Add Case Officer, Predict Result, Add Result (highlighted), View Suspect, View Evidence, View Case History, and Criminal List. The main content area is titled 'Add Result' and contains a form with the following fields: Case ID (dropdown menu with '10001'), Case Title (text input with 'Rahima marder'), Suspect (dropdown menu with '- Suspect Case Id -'), and Note (text input with 'note'). A green 'Submit' button is located at the bottom of the form. Below the form is a table with the following columns: SL, Case Id, Case Title, Suspect, Note.

| SL | Case Id | Case Title | Suspect | Note |
|----|---------|------------|---------|------|
|----|---------|------------|---------|------|

Figure 3.3.17.1: Add Result

3.5.1 Officer-Login

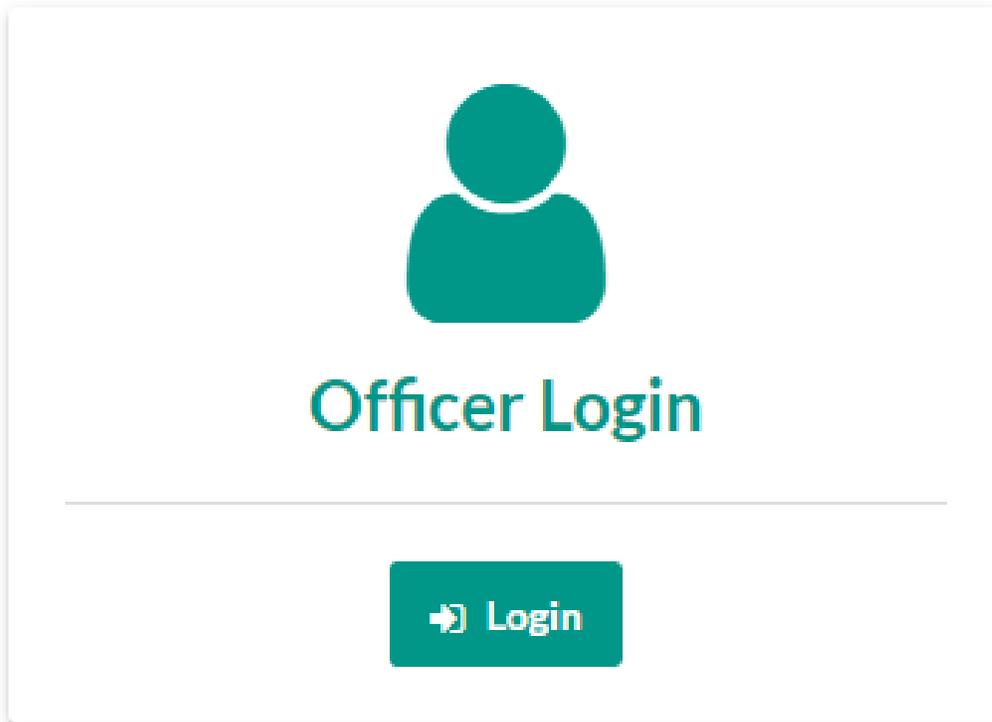


Figure 3.5.1.1: Officer-Login

Officer input his/her user name and pass word and submit the login button then the officer can login his dashboard and control his selected area in this system. He/she can add featured and view selected function like as below officer dashboard

3.5.2 Add Suspect

The officer investigation the case and select suspected person as a logical and physical.

And input information (Example: Name, Photo, NID, Phone no, Address) to the web application as a suspected person

Graphical view of Add suspect

The screenshot displays the 'Add Suspect' web application interface. On the left, a dark sidebar contains navigation options: Dashboard, Add Suspect (highlighted), Add Evidence, Add Case History, View Suspect, View Evidence, and View Case History. The main content area is titled 'Add Suspect' and contains a form with the following fields: Case ID (dropdown menu with '10001'), Name (text input with 'mr xyz'), Mobile NO (text input with '+88017010-111110'), NID (text input with 'yourname@gmail.com'), Relation (text input with 'son'), Address (text input with 'your address'), Note (text input with 'note'), and Image (file upload area with 'Choose File' button, 'No file chosen' text, and a placeholder note). A green 'Submit' button is located at the bottom of the form.

Figure 3.5.2.1: Add Suspect

3.5.3 Add Evidence

The officer can add evidence of his/her selected case. He/she collected the evidence and input his dashboard. And its store in dashboard

Graphical view of Add Evidence

The screenshot shows a web application interface for adding evidence. On the left is a dark sidebar with a user profile for 'Sakline Officer' and a menu with options: Dashboard, Add Suspect, Add Evidence (highlighted), Add Case History, View Suspect, View Evidence, and View Case History. The main content area is titled 'Add Evidence' and contains a form with the following fields:

- Case ID:** A dropdown menu with '10001' selected.
- Evidence Type:** A dropdown menu with 'Physical' selected.
- Evidence:** A text input field containing 'knif'.
- Suspect:** A dropdown menu with '- Suspect Case Id -' selected.
- Point:** A text input field containing '7 max 10'.
- Note:** A text input field containing 'note'.
- Image:** A file upload area with a 'Choose File' button, 'No file chosen' text, and placeholder help text: 'This is some placeholder block-level help text for the above input. It's a bit lighter and easily wraps to a new line.'

At the bottom of the form is a green 'Submit' button with a checkmark icon.

Figure 3.5.3.1: Add Evidence

3.5.4 Add case history

Section 1.01 Officer investigation his cases and collected the information and write the information on add case history function. Select the case id and put the information in note box.

Graphical view of Add Case history

The screenshot shows a web application interface for adding case history. On the left is a dark sidebar with the user's name 'Sakine Officer' and a list of menu items: Dashboard, Add Suspect, Add Evidence, Add Case History (highlighted), View Suspect, View Evidence, and View Case History. The main content area has a header 'Add Case History' and a breadcrumb 'Add Case History'. The central form is titled 'Add Case History' and contains a 'Case ID' dropdown menu with the text '- Select Case Id -', a 'Note' text area, and a green 'Submit' button.

Figure 3.5.4.1: Add case history

Conclusion

The need for a processed platform for crime record management cannot be overemphasized. The criminal investigation skilled worker enhances correct and economical management of criminal records, thereby serving to in making well-read choices and rising trustworthiness so rising social control operation. This ends up in lower rate among the country thereby increasing national security

REFERENCES

- [1] Bogomolov, Andrey and Lepri, Bruno and Staiano, Jacopo and Oliver, Nuria and Pianesi, Fabio and Pentland, Alex.2014. Once upon a crime: Towards crime prediction from demographics and mobile data, Proceedings of the 16th International Conference on Multimodal Interaction.
- [2] Yu, Chung-Hsien and Ward, Max W and Morabito, Melissa and Ding, Wei.2011. Crime forecasting using data mining techniques, pages 779-786, IEEE 11th International Conference on Data Mining Workshops (ICDMW)
- [3] Kianmehr, Keivan and Alhajj, Reda. 2008. Effectiveness of support vector machine for crime hot-spots prediction, pages 433-458, Applied Artificial Intelligence, volume 22, number 5.

Criminal Investigation with Suspect Prediction

ORIGINALITY REPORT

| | | | |
|------------------|------------------|--------------|----------------|
| 6% | % | % | 6% |
| SIMILARITY INDEX | INTERNET SOURCES | PUBLICATIONS | STUDENT PAPERS |

PRIMARY SOURCES

| | | |
|----------|--|---------------|
| 1 | Submitted to Ghana Technology University College Student Paper | 3% |
| 2 | Submitted to University of South Florida Student Paper | 2% |
| 3 | Submitted to University of Hull Student Paper | 1% |
| 4 | Submitted to University of Leeds Student Paper | <1% |
| 5 | Submitted to Universitas Pendidikan Ganesha Student Paper | <1% |
| 6 | Submitted to Arab Open University Student Paper | <1% |

Exclude quotes Off

Exclude matches Off

Exclude bibliography Off

Figure 4.1: A Screenshot of Plagiarism Checking Report.