UNIVERSITY OF DAR ES SALAAM

COLLEGE OF INFORMATION AND COMMUNICATION TECHNOLOGIES (CoICT)

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

FINAL YEAR PROJECT REPORT 2020/2021

PROJECT TITLE: POLICE CRIME DIARY (PCD)

NAME OF CANDIDATE:

1. Mohamed I. Hamadi
2. Salum N. Nuhu
3. Ezena E. Edward
4. Ashir S. Ally
5. Nolasco F. Kapinga

Academic supervisor's Name: Mr. Michael Kishiwa

Programme Name: Diploma in Computer Science

DECLARATION

We, **ALLY ASHIR, HAMADI MOHAMED, EDWARD EZENA, KAPINGA NOLASCO, NUHU SALUM** with registration numbers **2019-02-00498, 2019-02-00586, 2019-02-00528, 2019-02-00593, 2019-02-00011**, We declare that this report entitled "POLICE CRIME DIARY" is our work and has not been copied from other institution or someone else works.

REGISTRATION NO.	SIGNATURE	DATE
1. 2019-02-00586		
2. 2019-02-00498		
3. 2019-02-00593		
4. 2019-02-00528		
5. 2019-02-00011		

Supervisor name: Mr. Michael Kishiwa

Supervisor's Signature Date

……. …….

ABSTRACT

In Tanzania many Police stations still use the manual system for managing the records. That system, while still functional, has become very dated. Keeping track of that record being recorded for criminals has especially proved to be troublesome. Many cases are lost without police noticing since they don't have a proper system for record keeping and overall management. Our solution is to improve the manual system by creating a Police crime diary system making it more modern and more effective and efficient.

Hence this report is aiming on providing a general overview of the scope of the problem on which the first chapter is aiming on defining the problem together with outlining the main objective and specific objectives which will show the direction to the solution.

In addition to that, chapter two covers the literature review which outlines the current systems and how they operate together with their deficiencies and how the new system will advance on filling the missing parts.

Also, the methodologies were discussed in chapter three which discusses the way on which information will be gathered and the main aim here is to get the requirements for the system to be made.

ACKNOWLEDGEMENTS

We would like to give thanks to the Almighty God for gracing us with health, since we started doing this project up until now as we have reached half way through. We also appreciate our supervisor Mr. Michael Kishiwa for the guidance throughout the project. With his knowledge and support, this project is progressing well. We would like to offer our sincere heartfelt gratitude to the **Ministry of Home Affairs Tanzania Police Force** by his officers for their kind cooperation and assistance towards the success of this project. Finally, we would also like to thank our families for their continuing support that they keep showing us during this period.

TABLE OF CONTENTS

DECLARATION i

ABSTRACT ii

ACKNOWLEDGEMENTS iii

TABLE OF CONTENTS iv

LIST OF ABBREVIATIONS vi

LIST OF FIGURES vii

LIST OF TABLES viii

CHAPTER 1: INTRODUCTION 1

1.1 General Introduction (Motivation and Background) 1

1.2 Statement of the Problem 1

1.3 Project Objectives 2

1.3.1 Main Objective 2

1.3.2 Specific Objectives (Use Roman numbers for enumerating) 2

1.4 Significance of the Project 2

1.5 Stakeholder Descriptions 2

1.6 Organization of the Project Report 2

CHAPTER 2: LITERATURE REVIEW 3

Online Criminal Record Management System 3

Crime Investigation System Using Biometric Approach 4

CHAPTER 3: METHODOLOGY 5

3.1 System analysis 5

3.2 Design 5

3.3 Implementation and Testing 5

CHAPTER 4: REQUIREMENT ANALYSIS 6

4.1 Functional Requirements 6

F. 1. Management 6

F.2. Basic 6

4.2 Non-Functional Requirements 6

NFN.1 Security: 6

NFN.2 Responsiveness: 6

CHAPTER 5: SYSTEM DESIGN 7

CHAPTER 6: SYSTEM IMPLEMENTATION 9

CONCLUSION 15

Challenges 15

REFERENCES 16

APPENDICES 17

Project Plan (Activity/Duration, Distribution of Work) 17

Work breakdown structure for Police crime Diary 18

Interview Questionnaires 19

Information to Include in Your Witness Statement 19

How to Report a Crime 19

Details about the person who arrested by the police office 19

LIST OF ABBREVIATIONS

IT	Information Technology
UDSM	University of Dar es Salaam
CoICT	College of Information and Communication Technology
PCD	Police Crime Diary
HTML	Hypertext Markup Language
CSS	Cascading Style Sheet
PHP	Hypertext Preprocessor
CRMS	Crime Record Management System
FIR	First Information Report
ERD	Entity Relationship Diagram

LIST OF FIGURES

Fig 1. Show the working flow of the project (waterfall)……..……5

Fig 2. Shows use case…….……....7

Fig 3. Show Entity Relation Diagram…….……8

Fig 4. Log in Page for Users…….9

Fig 5. The Dashboard for The System……10

Fig 6. Shows Record Crime Page……10

Fig 7. Shows Record Complaints page……11

Fig 8. Shows List of Defendants Page…….11

Fig 9. Shows List of Complainers Page……...12

Fig 10. Shows List of Police Officers page…….12

Fig 11. Shows User's Details……13

Fig 12. Shows Edit Section for User's Details……13

Fig 13. Shows Add New User Section ……...14

Fig 14. shows assigning of case to police officer……...….14

Fig 15. work break down for police crime diary……..18

LIST OF TABLES

Table 1. Gantt chart shows the activity of the project…….17

CHAPTER 1: INTRODUCTION

1.1. General Introduction (Motivation and Background)

Police stations and police officers have been major contributors to the safety of Tanzanian citizens and their properties. When a crime is committed, a victim or witness can only report the crime at the nearest police station. At the station, a police officer will record the account of events and demographic data of the person reporting. The report becomes an article of evidence in the case that is investigated by the authorities. Upon conclusion of the investigation, the report is archived in a traditional file system. In this system the report is stored alongside other reports that were made in the same month, sorted alphabetically. Since then there has been a backlog of documents at the police station.

Technology and computer systems have allowed us to track and report (analyze) every detail of our lives and environment, also technology has numerously helped in combating crime via diverting measures.

According to Cambridge Dictionary "a book in which you record your thoughts or feelings or what has happened each day" is a diary.

A diary is originally in handwritten formal format but it can be in sound record and also video formal. Diaries are for diverse types ranging from a personal diary, crime diary, economic diary, and church diary as the case may be. Below are examples of diaries.

Personal diary – this includes a person's experience and thoughts or feelings. Comments on outside events outside the person's direct experience are inductive most times.

War diary – A regularly updated official record of a military unit's administration and activities diary during wartime.

Economic diary: a periodic record of economic activities

Crime diary: a periodic report of a crime in a particular geographical area or organization.

1.2. Statement of the Problem

The current system is manual system that was unable to handle the volume of reports that were recorded. The system was very slow and can take nearly an hour to process one report. There is also a substantial amount of data loss from physical damage, also there's no easy criminal tracking and duplication of data as well.

1.3. Project Objectives

1.3.1. Main Objective

The main objective of the project was to develop a web-based Police Crime Diary (PCD) system that was to enable police officers to manage criminal records.

1.3.2. Specific Objectives (*Use Roman numbers for enumerating)*

i. System requirements were gathered by interviewing police officers and observing how they store criminal records
ii. The system was designed according to the system requirements.
iii. The system implementation was done to get a web-based police crime diary system**.**

1.4. Significance of the Project

i. The system allows all police stations and their officers to keep criminal records and keep tracking their resources.
ii. Police officers can easily find the report for criminal cases through the system without passing or checking for all materials.
iii. The system improved the monitoring capabilities of those who maintain the police stations.
iv. It is easier for them to determine whether the particular report is on record or not.

1.5. Stakeholder Descriptions

End-user (Police Officer)

This is the person who uses the system directly by recording the reported crime and defendant/criminal information.

Admin

This person is the one who ‘s adding, editing and removing users (Police officers) to the system.

Head of the police station

The Head of the police station has fewer functions on the system compared to a police officer, that is to review daily/weekly criminal records and assign cases to police officers.

1.6. Organization of the Project Report

This dissertation is organized in six chapters; chapter one covers the General Introduction of the problem; statement of the problem; objectives; Significance of the Project; Stakeholder description, chapter two is presenting the literature review, chapter three cover the methodology and Chapter four requirement analysis, Chapter five System design, Chapter six system implementation, conclusion and recommendation.

CHAPTER 2: LITERATURE REVIEW

Traditionally, the information resided on a sheet of paper stored in a file cabinet. This traditional system was doing paper before lending to the modern system. The paperwork includes filling different reports like the loss report, case statements and crime reports.
Also, those reports that have been filled by officers for the criminal records are being stored in physical file folders. It's a process that is very dated, the traditional system is also vulnerable to data loss without being manual and layer, and everything is stored on a physical file system.

The crime management system

The crime management system can help in storing the records related to the criminals, cases, complaint records, case history, and so on. This can allow a person to enter or delete the records if necessary. All these records can be maintained in a single database. Security is maintained to ensure that only the authorized users will have access to the system. This application is one of the useful projects that the police are relying on. This website helps in getting the information of the criminals of many years back. It can also help in minimizing most of the work of the police.
Aamir Khan, Amit Singh, Ankit Chauhan, Aishwarya Gupta (2019)

A real crime record management system for national security agencies.

The present world is technology-driven as it is employed by many fields in the performance of their operation. In the case of law enforcement agencies, this is evident in the use of automated crime record management systems (CRMS) worldwide to keep records of crime and criminals involved. Crime being an act against the law of a society is a threat to the well-being of the populace and so, requires efficient and effective monitoring. For this reason, CRMS have been developed to achieve this purpose.
Oludele Awodele, Onuiri Ernest E., Olaore Olufunmike A., Sowunmi Oluwawunmi O. Ugo-Ezeaba Anita A (May 2015)

Online Criminal Record Management System

The purpose of the Online Criminal Record Management System is to automate the existing manual system with the help of computerized equipment and full-fledged computer software, fulfilling the requirements of all policemen, so that their valuable data/information can be stored for a longer period with easy access to the same. The required software and hardware are easily available and easy to work with. This system also maintains computerized records of all the FIR filed against crime. This project aims to notify each policeman about the release of any criminal, including his/her details, such as the criminal's id, name, type of release, and so on.
Pratibha Mishra, Ghousiya Bee. N, Mohsina S, Mubashshira Sultana, Surbhi Singh (May 2019)

Crime Investigation System Using Biometric Approach

The system implements a biometric-based crime investigation system for the Nigeria Police Force. The software was designed using the Visual BASIC programming language. A criminal's data is entered into a database where it is used for referential purposes and can be updated or modified regularly. Also, the ability to compare fingerprints whose unique patterns assist in redundancy control is an added attribute of the system. Advantages of the system include reduction of redundancies and inconsistencies in the criminal information, ensures user-defined rules to promote data integrity, enables sharing of data across all applications, and ensures proper access authorization for users. Its weaknesses are that the system was unable to generate reports and focuses more on criminal information than crime. (Falaye, Adama, & Agemerien, 2013)

Considering the above reviews that show how people have been using computer technology to fight crime, in various countries but Tanzania, this will be one of the main methods that will be used to control this issue.

CHAPTER 3: METHODOLOGY

The project adopts the waterfall methodology as the software development initiative. Waterfall maps out a project into distinct sequential phases where each phase must be completed for the other to begin. The model can be broken down into a series of six steps, which include gathering and documenting requirements, design, implementation, testing, delivery, and maintenance. But in our system, we prefer to use three steps; system analysis, system designing, and system implementation. This approach focuses on a final product that can fulfill the needs of customers

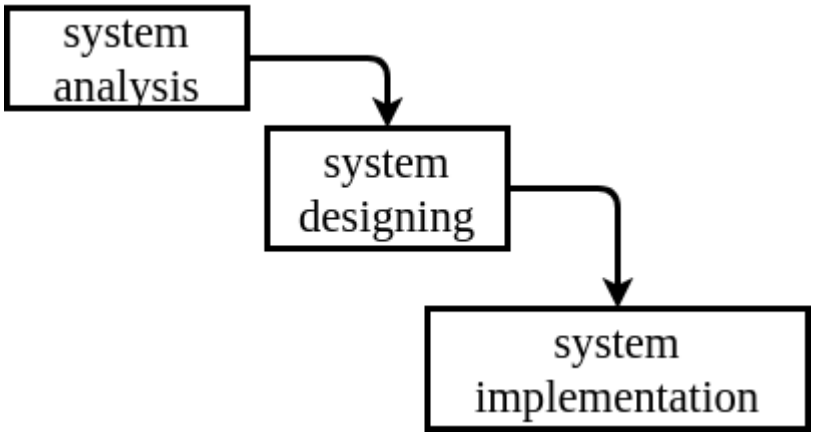


Fig1. Show the working flow of the project (waterfall)

3.1 System analysis

System analysis was done by interviewing police officers as well as through user observation and analysis of existing documents. The requirements gathered then shaped the development process of the final product.

3.2 Design

The system design was focusing from the result of the requirement. The Entity-Relationship Diagram (ERD) was used to show the relationship between users and criminals and used to show their attributes to each user. Use case diagram also used to show the front functionality of the system from the users

3.3 Implementation and Testing

This system is developed using the following programming languages, HTML, CSS, JavaScript and Bootstrap to develop user interfaces and hosted on a web-server to be accessible from any police station. CodeIgniter technology was used for the back-end as a PHP framework.

The testing of the system was done by creating sample users and allowing them to perform the specific functions for each user then remove all the data before Submitting to the project manager.

CHAPTER 4: REQUIREMENT ANALYSIS

Requirement gathering was done by interviewing police officers as well as through user observation and analysis of existing documents. The requirements gathered then shaped the development process of the final product.

4.1 Functional Requirements

F. 1. Management

F.1.1 The system allows access for each user to log in and logout to the system.
F.1.2 The system allows the admin to view users' details (police officer).
F.1.3 The system allows access for the admin to remove user's authority.

F.2. Basic

F.2.1 The system allows police officers to create case statement forms for each criminal and their witness.
F.2.2 The system allows access for the Head of the police station and his/her officers to review final cases default tables.
F.2.3 The system allows a search bar for users to search reports kept for each criminal.
F.2.4 The system allows users to view the Dashboard of the system.
F.2.5 The system allows access for police officers and head of station to view list of defendants.
F.2.6 The system allows access for police officers and head of station to view list of complaints.
F.2.7 The system allows printing criminal reports.

F.2.8 The system allows head of station to assign case to the police officer.

F.2.8 The system allows police officers to close case which do not have evidence.

F2.9 The system allows access for police officers and head of station to view list of complaints.

4.2 Non-Functional Requirements

NFN.1 Security:

This ensured that only the admin can add, delete, and edit different user's categories in the system. The system also provided auto log-off for users who won't interact with the system for a few minutes.

NFN.2 Responsiveness:

The system is responsive so that it can be accessed from any device such as computer desktop, laptop, and tablet without content distortion.

CHAPTER 5: SYSTEM DESIGN

The figures below (Entity Relation Diagram and Use Case) are used to show how the system and users are interact to each other and the system itself.

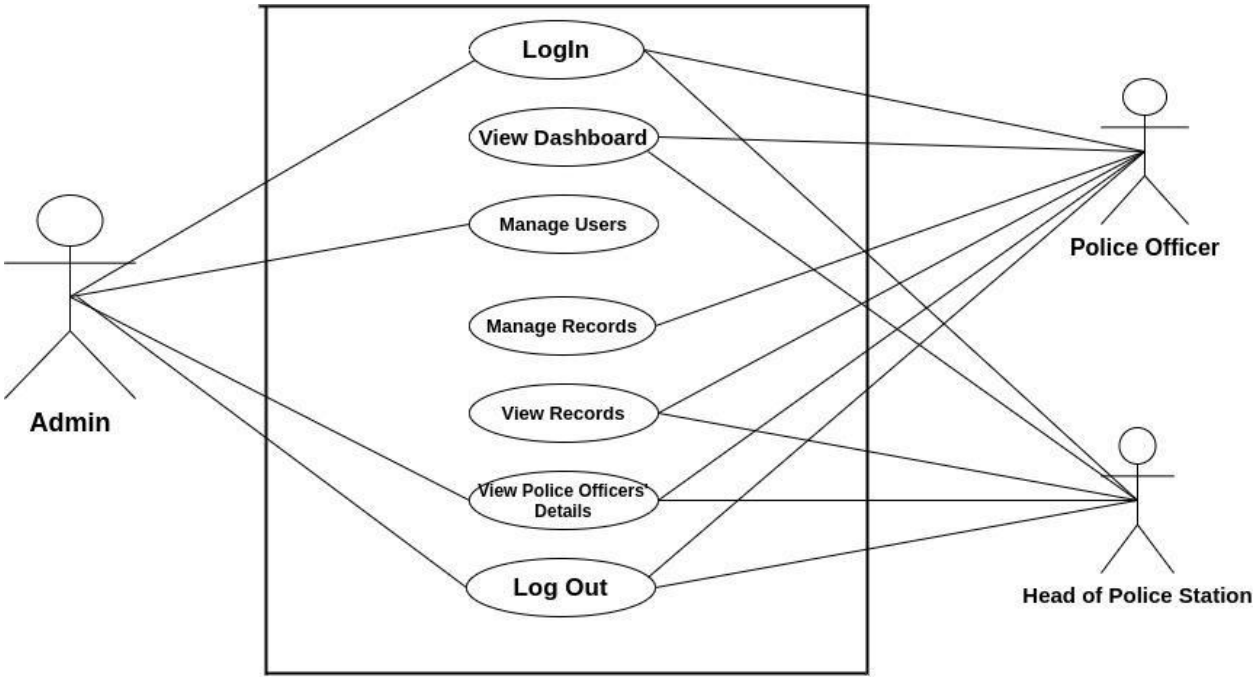


Fig 2 use case diagram shows interaction between users.

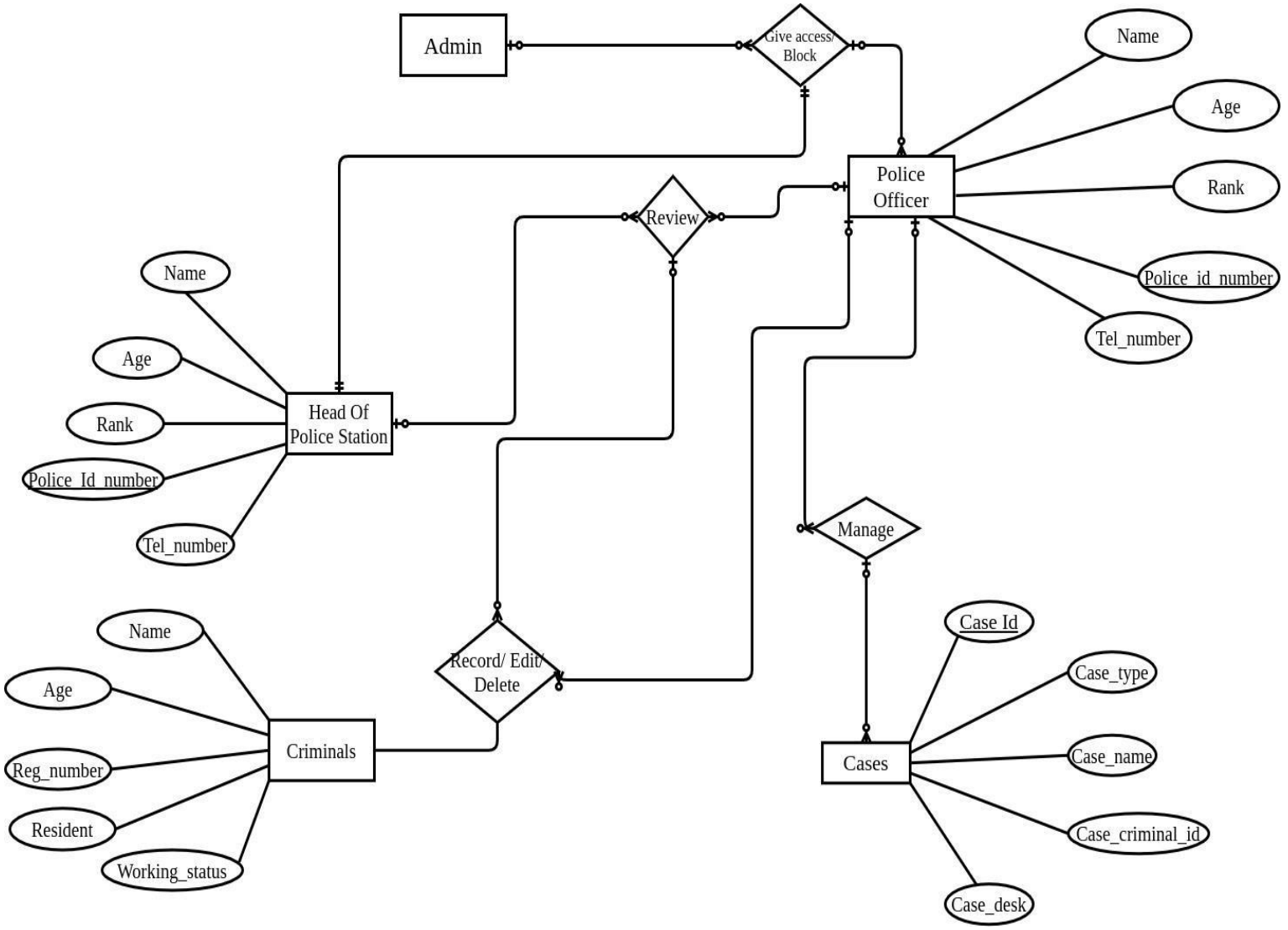


Fig 3. Show Entity Relation Diagram

CHAPTER 6: SYSTEM IMPLEMENTATION

The systems were developed by using various programming language such as HTML, CSS and JavaScript For Front-end, and PHP was used for back-end. Google Chrome and Visual Studio Code was used for testing, bugging and Codding. The whole Design of the system was done by using Figma and Adobe XD, Also the system functionalities was tested by creating sample data and adding to the system before submitting to the project manager.

The following are screenshots for the system interface

The login module which allows users to Login to the system.

Fig 4. Log in Page for Users

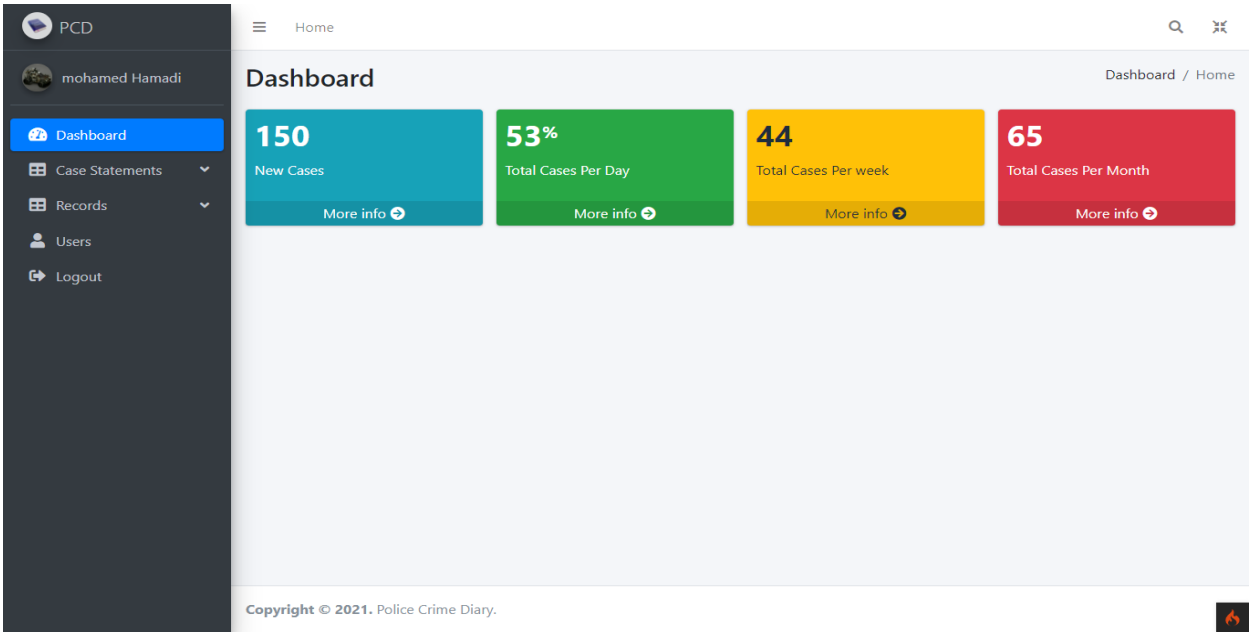


Fig 5. The Dashboard for The System

The Police crime diary contains dashboard module that will shows the total number of cases per day, week and month.

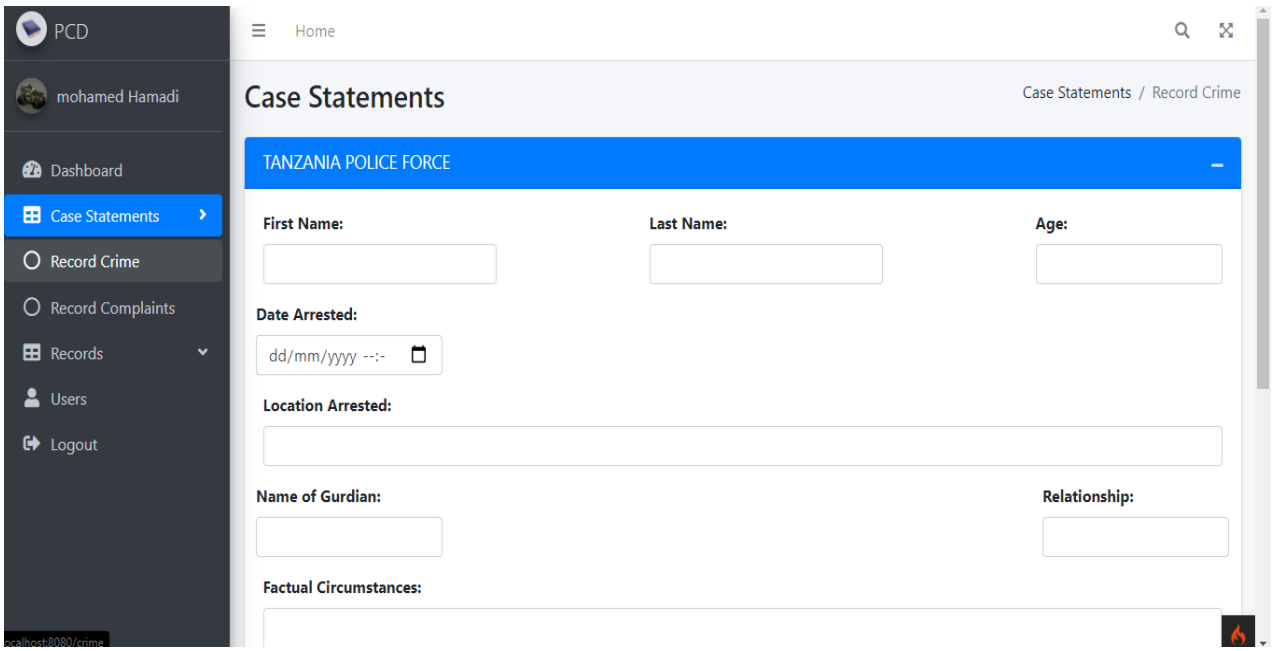


Fig 6. Shows Record Crime Page

This feature contains case statement form which allows police officers to record criminal information by fulfilling the field required in the form

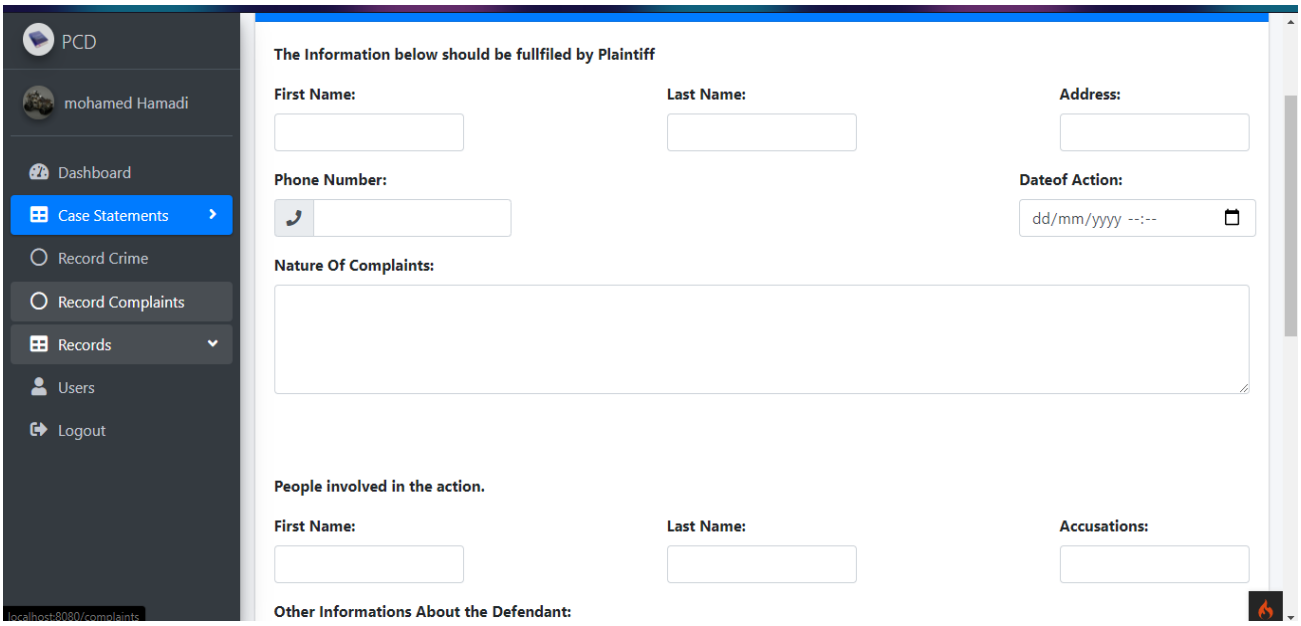


Fig 7. Shows Record Complaints page

The police crime diary contains case statements form for complaints which is used by the polices to record details of the complainers and purpose of that complaints and short description of that defendant who complained for.

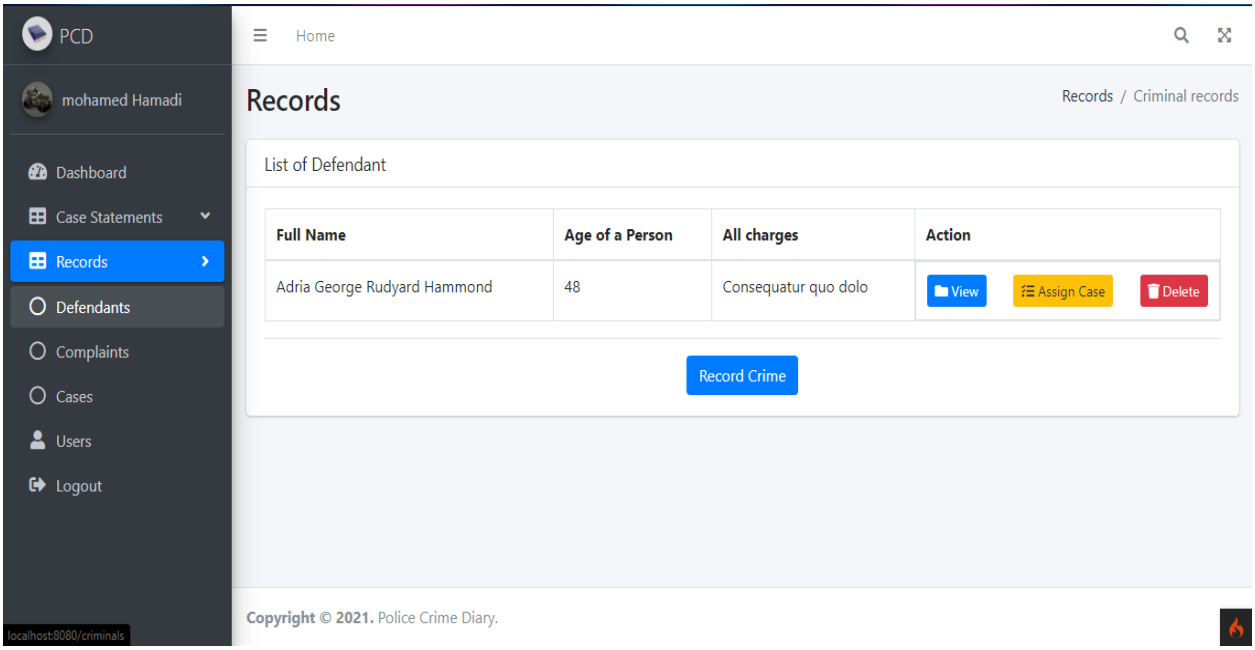


Fig 8. Shows List of Defendants Page

The police crime diary contains features which is used to show list of defendants and how they can be assigned to the case after the evidence accepted. The head of station will assign by pressing assign button to from the system so that to assign case to the police so as to deal with that case.

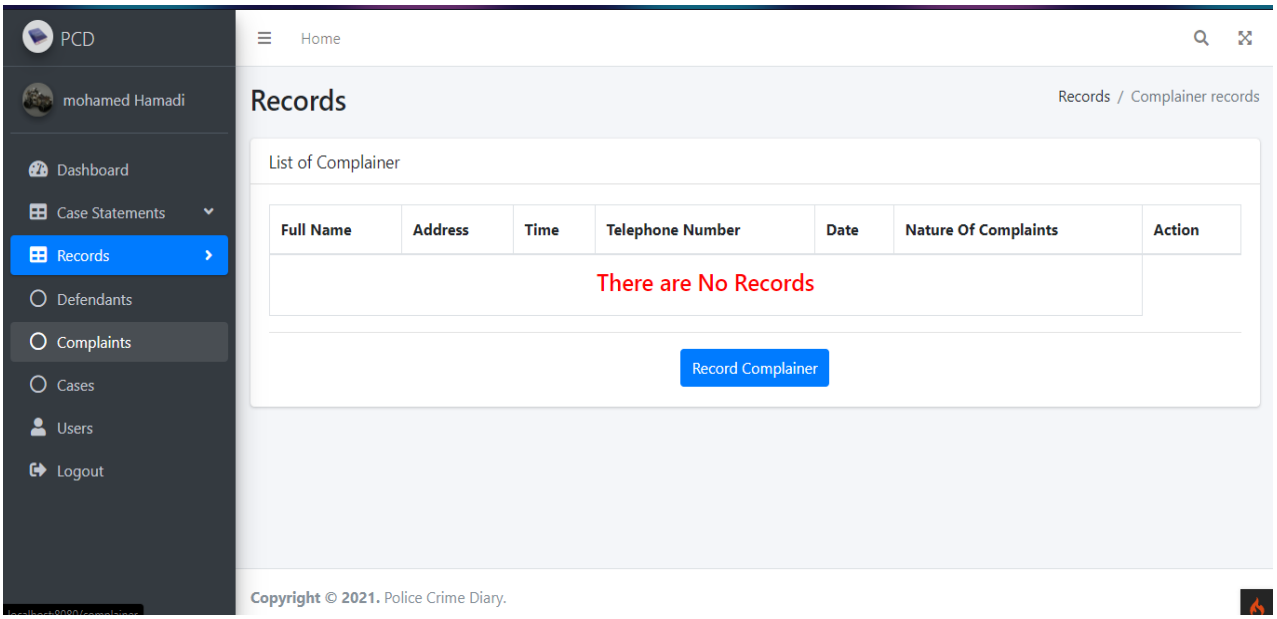


Fig 9. Shows List of Complainers Page

The features contain the table which is used to show the list of complainers after being added by police officers. The features contain the close button which is used to close the case by pressing the close button from the system.

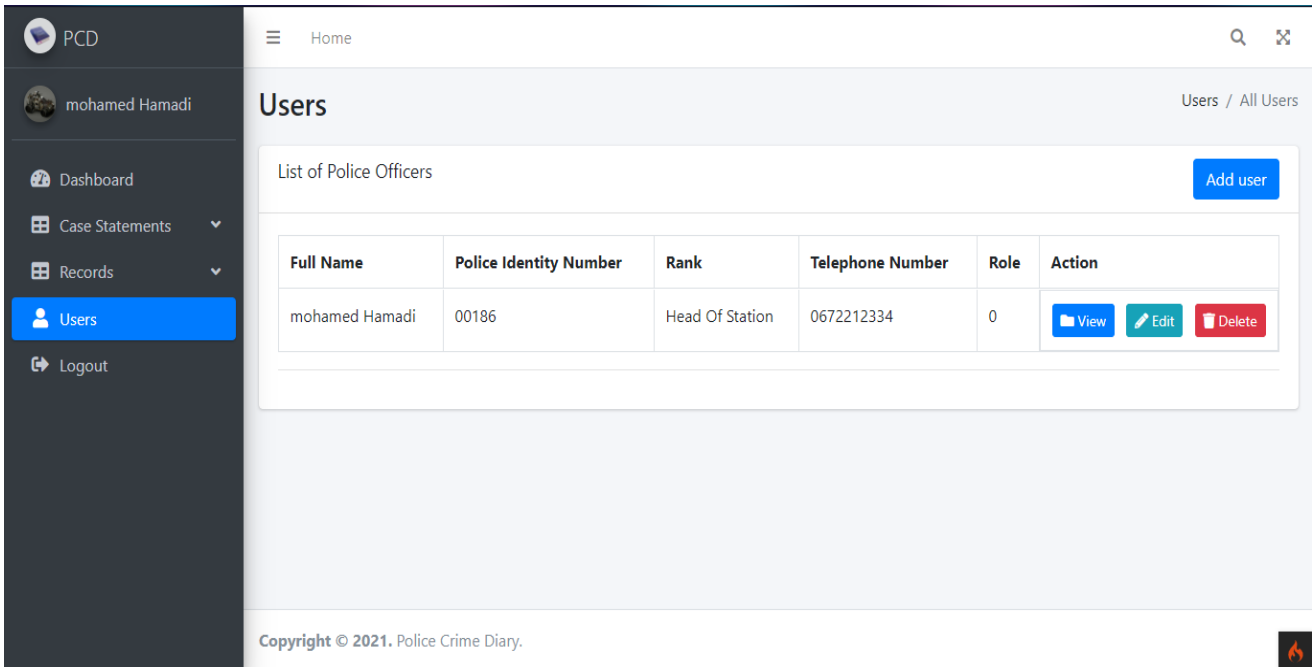


Fig 10. Shows List of Police Officers page

The police crime diary contains the module which is used by the admin to list the total users that are in the system. Admin will only able to access users features in the sidebar left location bar

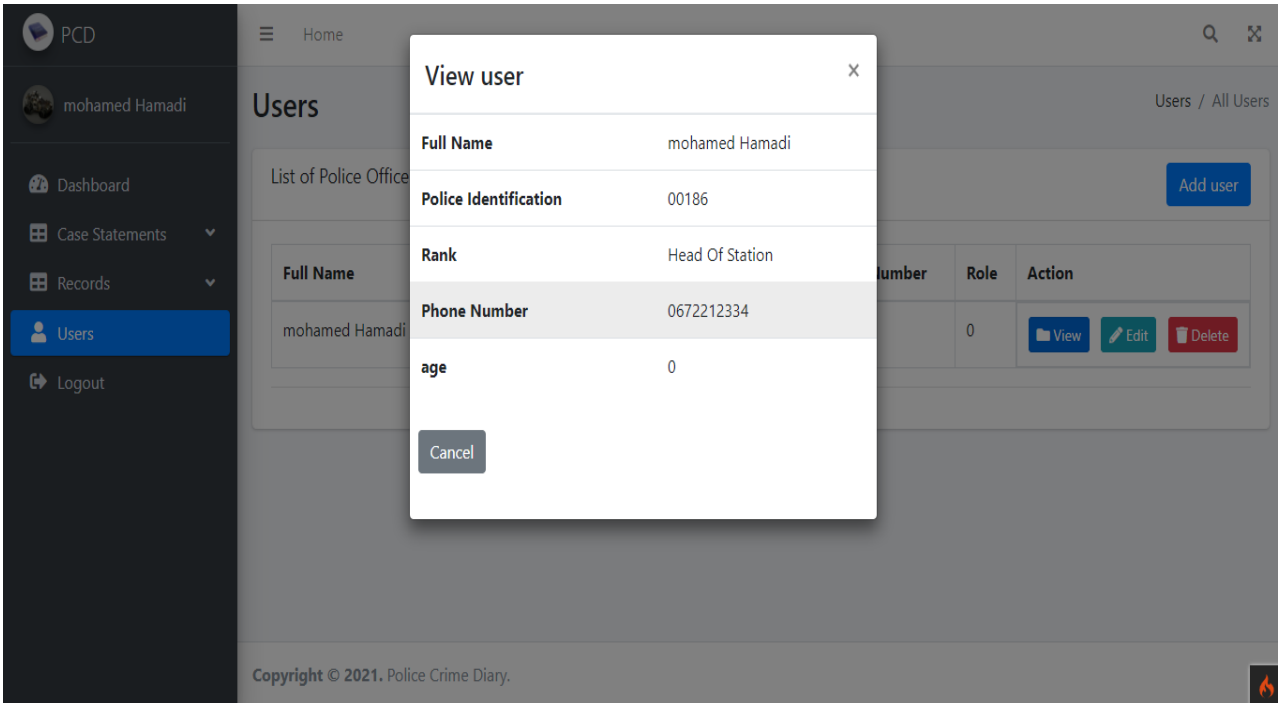


Fig 11. Shows User's Details

The police crime diary contains module which is used by admin to view he details of each user in personnel and that is done by pressing view button. as shown in figure 11.

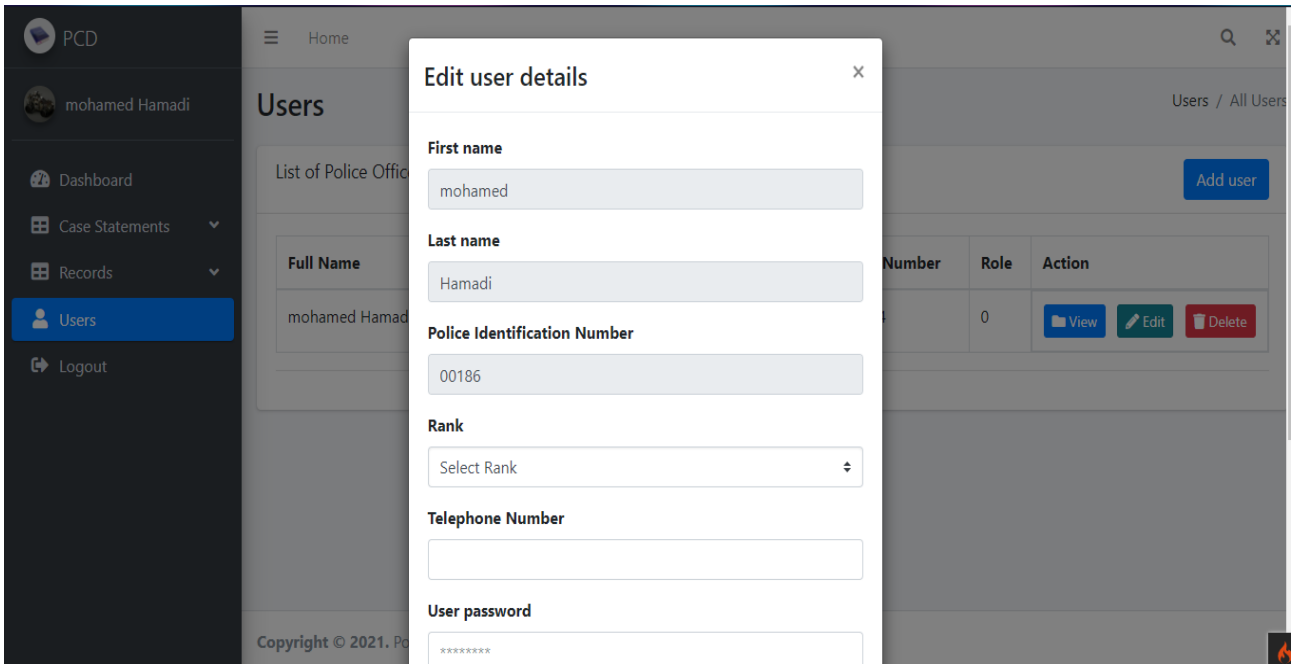


Fig 12. Shows Edit Section for User's Details

The features contain the Admin functionality which is to edit police details and can also delete police details from giving out authority in the system

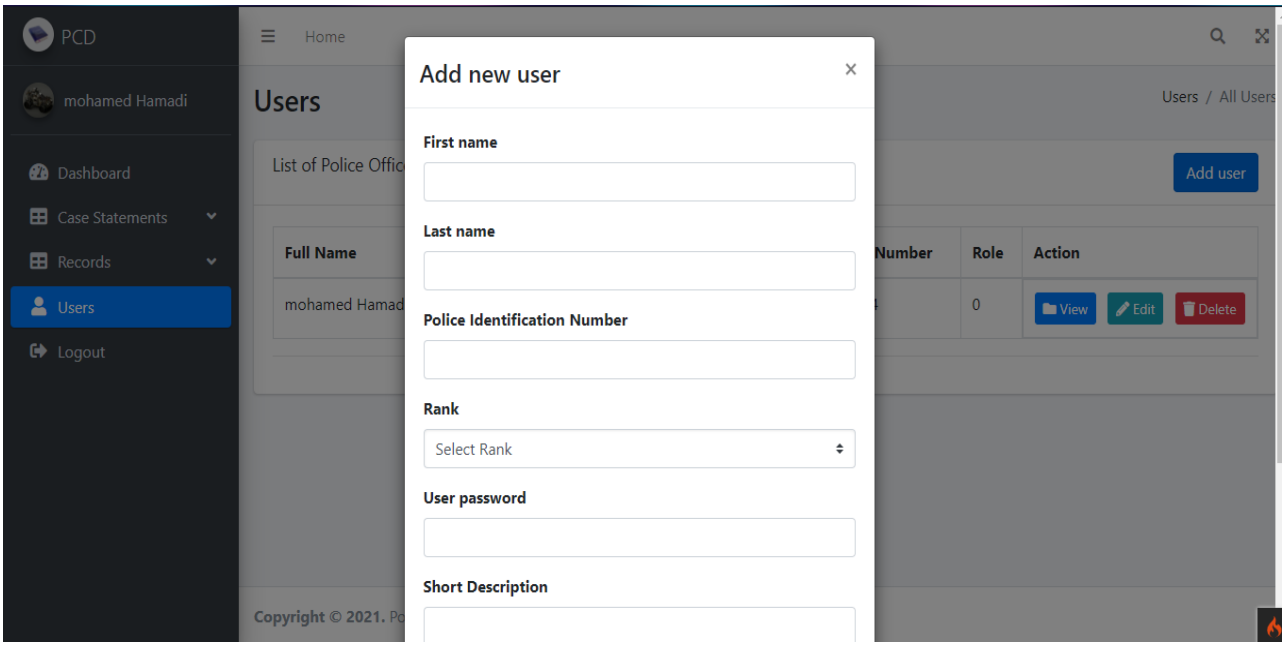


Fig 13. Shows Add New User Section

The police crime diary contains adding of users to the system which is used by the admin to add new police officers and giving them access to interact with the system.

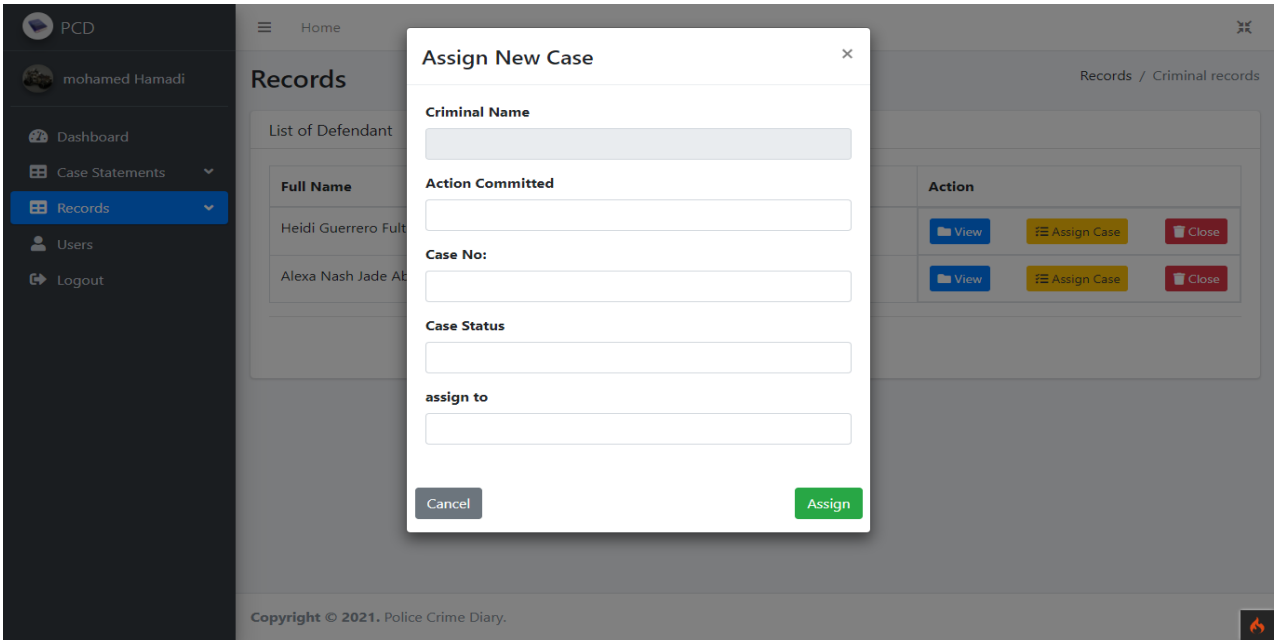


Fig 14. shows assigning of case to police officer

The Police crime diary also contains assign case module which is used to assign new case to a police officer by describing criminal details and officer who is going to lead that case. And only head of station had access for assigning case to the police officer.

CONCLUSION

In the completion of project police officers, citizens and the government as well, will be satisfied by reducing crimes and easy management of the records as described in the previous chapters.

Challenges

The challenges are categorized in to two parts, during the implementation and after the system to be in the market.

During the implementation the big challenge was an internet connection for project member to deal with the system

During implementation we were unable to get the source form which were to help us implementing the form field required for case statement.

The challenge after deploying the system, police stations will need to have computers and server for recording and storing data.

The police officer will need to have a computer skill and how to interact with the system

REFERENCES

Aamir Khan, Amit Singh, Ankit Chauhan, Aishwarya Gupta (2019). The crime management system was retrieved from https://www.irjet.net/archives/V6/i4/IRJET-V6I4455.pdf

Falaye, Adama, & Agemerien, 2013. Crime Investigation System Using Biometric Approach was retrieved from https://www.semanticscholar.org/paper/

Meaning of Diary was retrieved from https://dictionary.cambridge.org/dictionary/english/diary

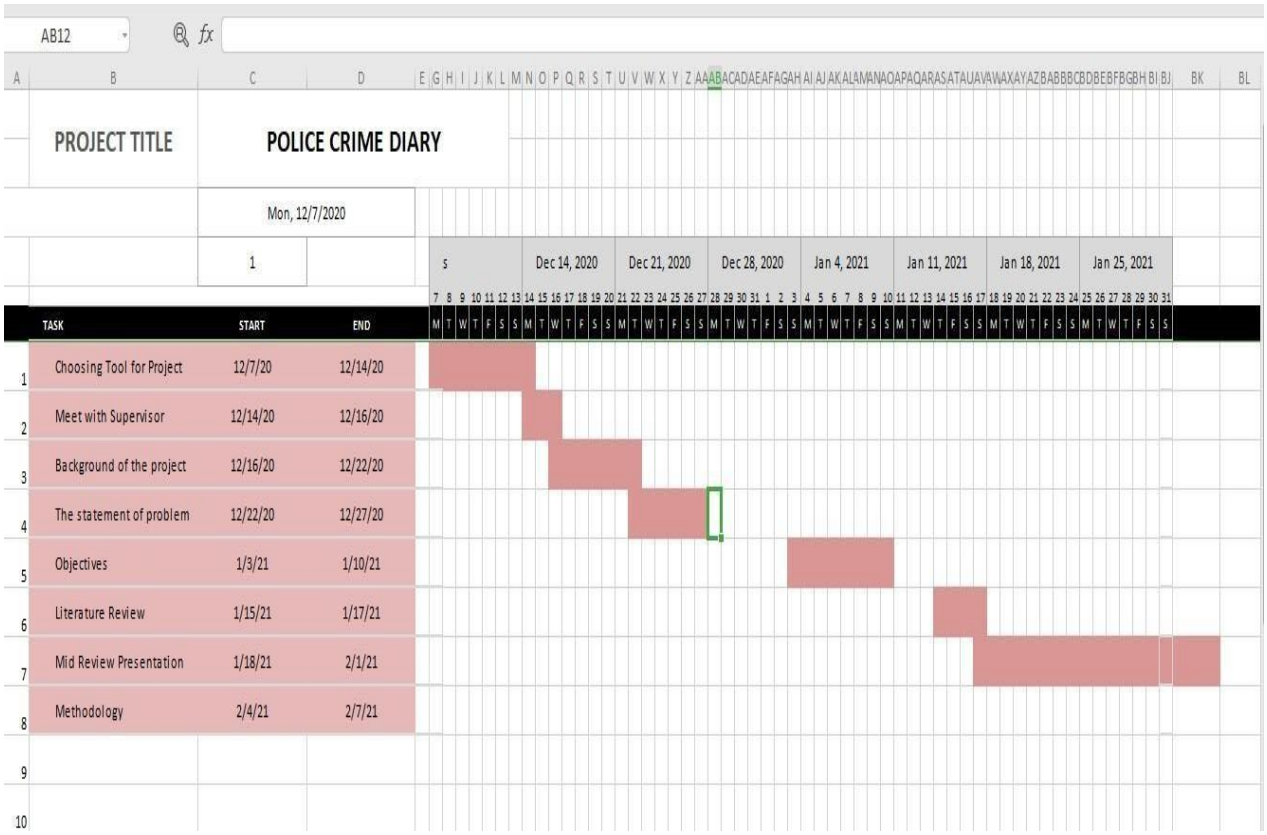
Oludele Awodele, Onuiri Ernest E., Olaore Olufunmike A., Sowunmi Oluwawunmi O. Ugo-Ezeaba Anita A (May 2015). A real crime record management system for national security agencies retrieved from https://www.semanticscholar.org/paper/

Pratibha Mishra, Ghousiya Bee. N, Mohsina S, Mubashshira Sultana, Surbhi Singh (May 2019). Online Criminal Record Management System was retrieved from https://www.ijesc.org/Online%20Criminal%20Record%20Management%20System%20.pdf

APPENDICES

Project Plan (*Activity/Duration, Distribution of Work*)

Gantt chart Table how's the activity from when we started our project up to the end of our project.



PROJECT TITLE: POLICE CRIME DIARY

Mon, 12/7/2020

1

Dec 14, 2020 | Dec 21, 2020 | Dec 28, 2020 | Jan 4, 2021 | Jan 11, 2021 | Jan 18, 2021 | Jan 25, 2021

	TASK	START	END
1	Choosing Tool for Project	12/7/20	12/14/20
2	Meet with Supervisor	12/14/20	12/16/20
3	Background of the project	12/16/20	12/22/20
4	The statement of problem	12/22/20	12/27/20
5	Objectives	1/3/21	1/10/21
6	Literature Review	1/15/21	1/17/21
7	Mid Review Presentation	1/18/21	2/1/21
8	Methodology	2/4/21	2/7/21
9			
10			

Table 1. Gantt chart shows the activity of the project

Work break down structure for Police crime Diary

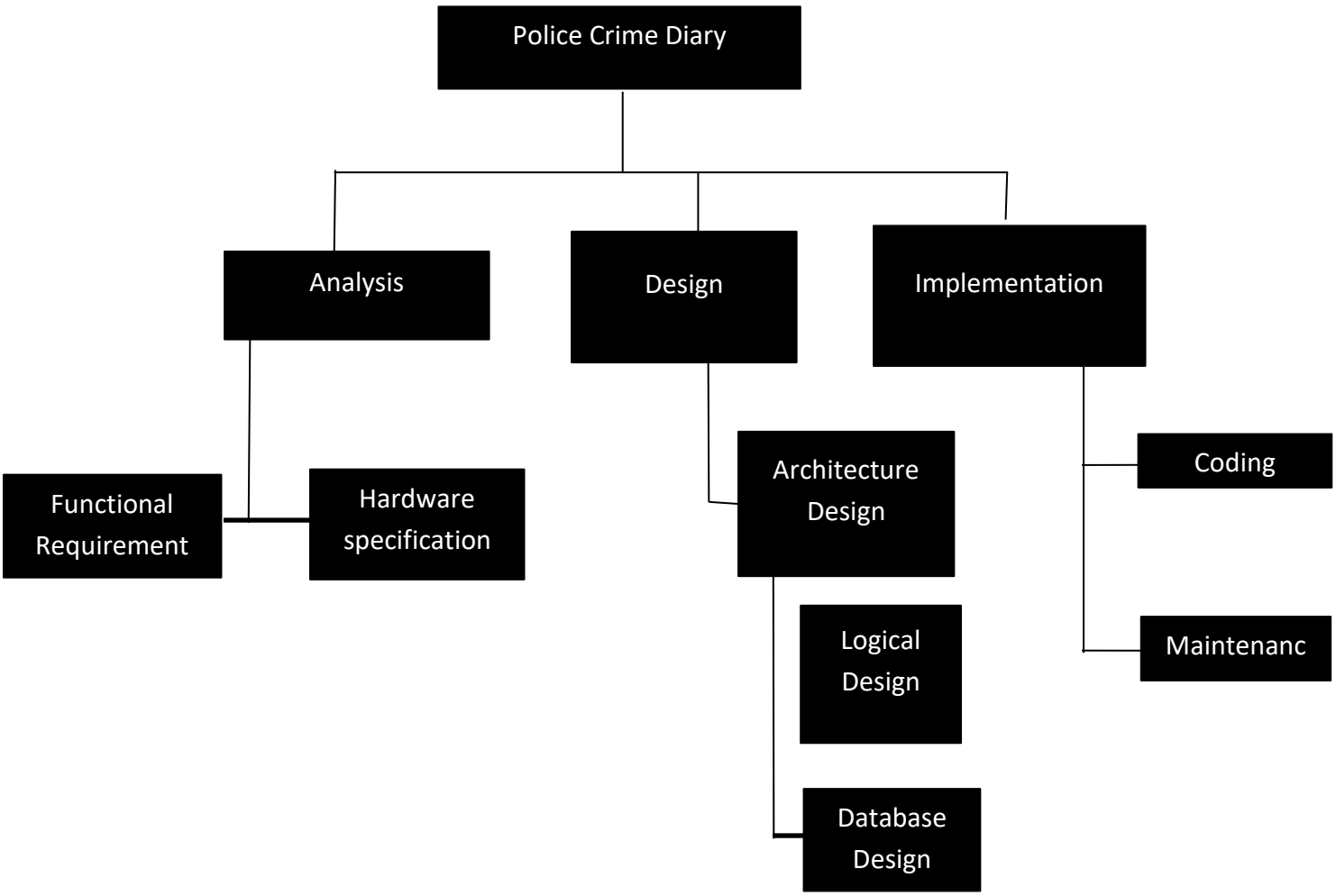


Fig 15. work break down for police crime diary

Interview Questionnaires

Information to Include in Your Witness Statement

i. Your name, address and contact number

ii. The exact time and location where the crime took place

iii. Names and addresses of the people involved, if you know them

iv. A description of each of the people who were involved in the crime - hair color and length, build/weight, height, female or male and race

v. A description of what you saw

vi. If a vehicle was involved, the license plate number, color and type of vehicle and any injuries

vii. Making a Witness Statement and Who Gets a Copy

viii. Police may audio or video tape you when you are giving your statement.

How to Report a Crime

i. A person's life is in danger

ii. A person or their property is being threatened

iii. A crime is taking place (for example, break and enter, assault, robbery, domestic dispute)

iv. A crime has just taken place

Details about the person who arrested by the police office

i. Full name of the person arrested

ii. Occupation

iii. Date of birth

iv. Sex

v. Physical description including color of eyes and hair, height and weight

vi. Time and date of arrest

vii. Time and date of booking

viii. Location of the arrest

ix. The factual circumstances surrounding the arrest

x. Amount of bail set

xi. Time and manner of release or the location where the individual is currently being held

xii. All charges the individual is being held upon, including any outstanding warrants from other jurisdictions and parole or probation holds