PROJECT II

MULTI-AGENCY COLLABORATION SYSTEM ON CRIME INDICTMENT

JULY 11, 2023

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PROJECT TITLE

DEVELOPMENT OF MULTI-AGENCY COLLABORATION SYSTEM ON CRIME INDICTMENT

PROJECT PROPOSAL SEMISTER I (2022/2023)

COMPUTER SCIENCE – THIRD YEAR

SOFTWARE APPLICATION BASED PROJECT

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CERTIFICATION

The undersigned to certify that has read and hereby recommends for acceptance by Mbeya University of Science and Technology (MUST) a project titled MULTI-AGENCY COLLABORATION SYSTEM FOR CRIME INDICTMENT.

Is submitted by MARY D MAJOGO and JOSEPHAT M NDUNGURU in fulfillment of diploma in computer science at Mbeya University of Science and Technology (MUST).

SUPERVISOR'S NAME: MR. EDWIN NCHIA.

Signature…… …

Date……

DECLARATION

We declare to the senate of Mbeya University of Science and Technology that the project is our original work done within the period of registration and that it has been neither submitted nor concurrently submitted to any other institutions.

Name: MARY D MAJOGO REG No: 20100523140058

Signature ……. Date ……

Name: JOSEPHAT M NDUNGURU REG No: 201811047

Signature ……. Date……

DEDICATION

We dedicate this project work to Almighty God, our creator who gave us strength good health and ability, and skills while doing this project, our parents who never failed to care and support everything. Also, to our entire family who supported us in one way or another until the completion of this project, to our treasured lecturers who guided us in each phase of this project.

ACKNOWLEDGEMENT

We are very much grateful to almighty God for giving us strength and health. We would thank the computer science and engineering panel for accepting our project. Also want to bid our heartiest thanks to our supervisor Mr. Edwin Nchia, for guiding and allowing us to initiate and complete this project and also for helping us in presentation preparation.

ABSTRACT

It is expected that the government of Tanzania with its assistance or related power and decision departments to stand on the side of its citizens to give them better life, peace and supportive environment to make sure they engage in social and economic development. The fact is, there is some areas that citizens especially women and children still have no voice to be considered and listens that's why women and children crime issues still fall out. They have fear and shame sometimes fells that they do not deserve being upon. "We noted earlier the functions of the police force. In practical terms, it may be said to be the duty of the police within the context of maintaining law and order to prevent the commission of offences, to apprehend those believed to be committing, about to commit, or to have committed offences with the object of bringing them to justice *(Laurean Mutahunwa Tibasana)".*

By referring the context of how Tanzania police force works on dealing and preventing crimes in the administration of the Police Force the Inspector General is assisted by four commissioners; heading the department of administration and finance, Operations and Training, Criminal Investigation and commanding police force deployed in Zanzibar.

For the reason above, we come up with the objective to integrate the roles of Local Authorities and the NGO's on protecting the rights of victims on the relation of Police forces on investigation of the crimes by **development of the multi-agency collaboration system on crime indictment.**

On the implementation of this project there are several methodologies used including those of data collection such as questionnaire and focus groups and moreover the development life cycle that is Agile methodology to complete the project.

The driven and expected outcome we ensure there should be a great relationship with partner agencies with the police in solving the issues described.

LIST OF ABBREVIATIONS

MUST - Mbeya University of science and technology.

MACSCI – Multi-Agency Collaboration System on Crime Indictment

NGO – Non-Governmental Organization

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CHAPTER ONE
GENERAL INTRODUCTION

1.1 Introduction

The multi-agency collaboration refers to the role of police forces in investigation and partner agencies in protecting the rights of victims of crimes particularly women and children because of fear and shame to report the crime to the police stations. This leads to abuse of their rights and stay with life time problems that may lead to diseases, death and sometimes disabilities. Those partner agencies particularly NGO's and Local authorities participate by indictment of the victim's crimes, since; those issues after being reported to the police are shared to partner agencies named, so that they can protect them with their rights and after, they legally have their right to participate in all proceeding steps until they meet victims' rights. The process of indictment done by Local Authorities and NGOs is done manually leads to spend more days for the victims to get deputies who might stands for their rights, sometimes the delay of information on time may results to victims being abused for their rights. Here is the project that will solve the described challenge.

1.2 Background of the problem

By referring the context of how Tanzania police force works on dealing and preventing crimes in the administration of the Police Force the Inspector General is assisted by four commissioners; heading the department of administration and finance, Operations and Training, Criminal Investigation and commanding police force deployed in Zanzibar *(Laurean Mutahunwa Tibasana).* Hence, in the united republic of Tanzania the Criminal investigation department is the main organ on dealing with serious crime and incidents with the following mandate;

The purpose of having this project is to illustrate the magnitude and the responsibilities of the police force in Tanzania and its partner agencies that are local authorities and NGOs in dealing with the crime particularly on women and children.

1.3 Problem statement

Fear and shame that women and children have as the common victims in reporting faced sexual assault crime issues, leads them to not report the issues on time to the respective arms. We are going to develop a crime indictment system so as to integrate the roles of non-police forces and police forces in solving the problem whereas non-police forces will indict so as to assist victims in solving their issue.

1.4 Objectives

1.4.1 Main objective

The main objective of this project is to develop a multi-agency collaboration system on crime indictment.

1.4.2 Specific objectives

1. To design user interface.
2. To create database system
3. To integrate database system and user interface
4. To test system

1.5 Scope and Limitations of proposed system

1.5.1 Scope

The project will be done to the level of **prototyping.**

1.5.2 Limitations

1. The system requires internet access to use
2. It's an expert based system

1.6 The significant of proposed system

The proposed system has the following importance:

1. The efficient investigation and detection of serious crime and incidents based on women and children.
2. The collection and collation of efficient information regarding crime
3. The maintenance of criminal records and statistics.

CHAPTER TWO
LITERATURE REVIEW

2.1 Introduction

Currently the indictment process is done locally, other victims prefer to have their own Law agencies and other used to ask from police forces to find them agencies who will stand to protect their rights. The fact that local method is working it challenges how to legally sue the role played with those partner agencies in engaging with criminal issues and interact with victims of crimes.

Here are some of systems relates to litigations of criminal proceedings.

2.2 E-service (Huduma mtandao)

This system is used by the criminal investigation of Tanzania, United republic of. The system is developed enhance awareness of citizens in reporting the criminal issues everywhere, every citizen can access the system and report. It has bringing positive impacts to the investigation and solutions though its drawbacks.

Figure 3. Shows the first page of decision to report crime.

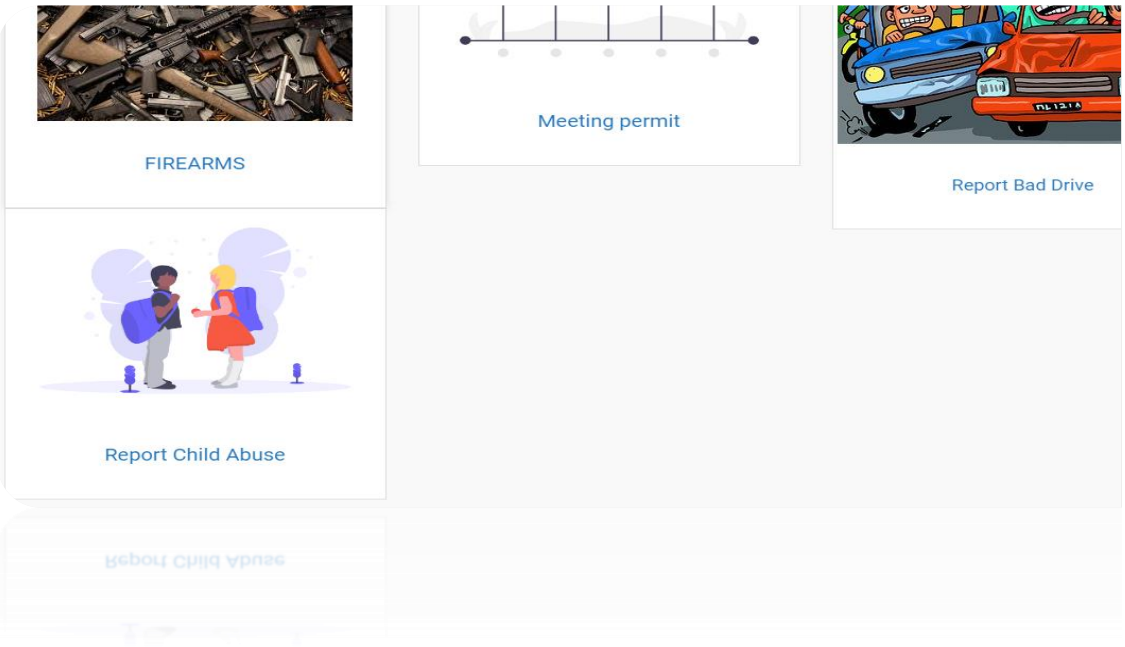


Figure 4. The figure above shows the interface of report child abuse.

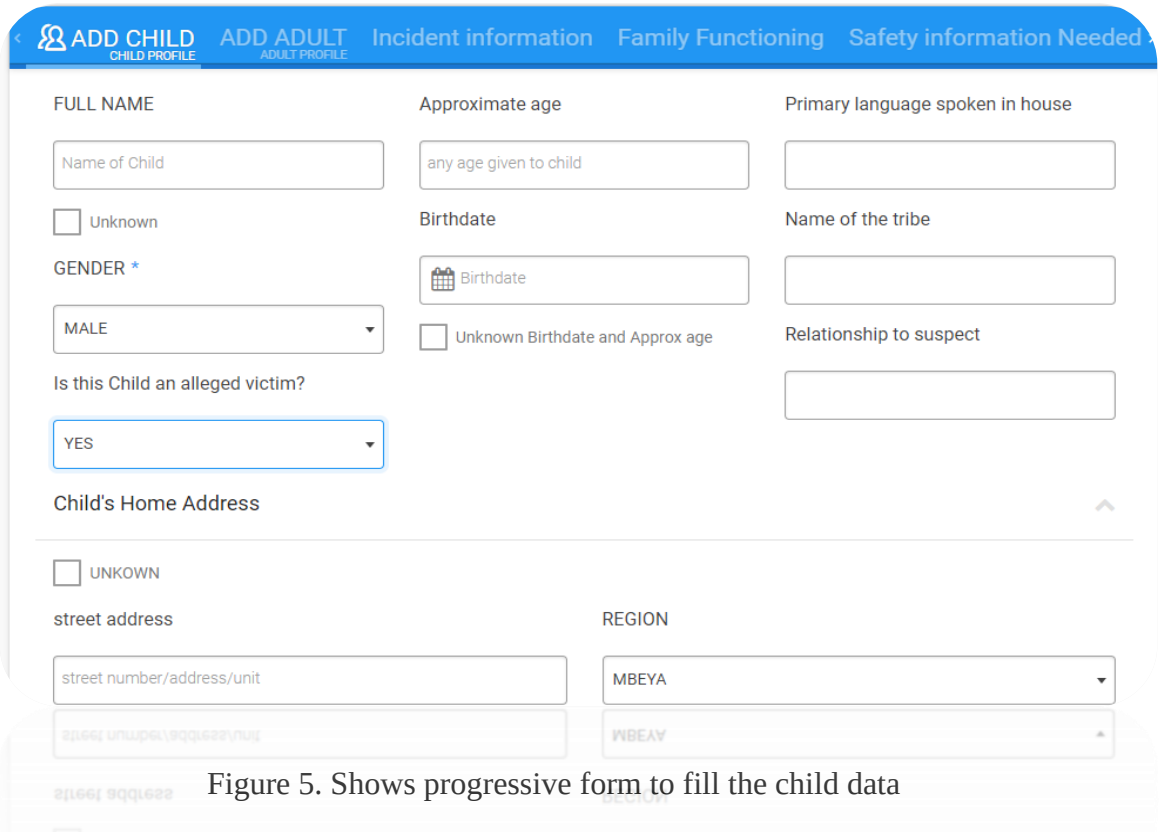


Figure 5. Shows progressive form to fill the child data

The system is also works with sub systems that is controlled regional wise that are:

Crime records management system

This management system is established to manage criminal data countrywide or regional wide whereas police system is computerized and most of the work is done through online.

Also, this is online application for improving complaint through online for a police department.

2.3.1 Features of the system

1. Update, delete, and modify records of cases and complaints
2. Update criminal bio data to centralized database which is visible to different departments
3. Managing department salary, attendance and other details under payroll and attendance management system.
4. Handling complaints
5. Prevention of crime by interconnection police information system to different police stations in the country.

2.3.2 Modules of system

1. *Station module*

   Each of the station must first register with the Software. For the registration part each station enters their details like station name, address, and phone no, station in charge etc. and get a User Id from the Software. Once the prospective station registers with the software they can avail the existing records.

2. *Citizen module*

   Each of the citizens, who has a complaint to register, must first register with the Software. For the registration part each person enters their details like name, address, phone no., E-Mail ID etc. and get a User Id & password from the Software. Once the registration is complete, the citizen can sign-in to the website & register their complaint.

3. *Crime module*

   This module is used for entering all details about the crime. It contains the date and time, police station where it is recorded, place, Nature of Crime, Location of the Crime etc.

4. *Search module*

   In this module we can search the crime in station wise, nature of crime.

5. *Administrators Module*

   The module will be protected by user ID and password. Ordinary users of the software will not be permitted to enter into this area of the software. The module will be focusing on the maintenance like Master Data Maintenance, Removal of old and outdated data from the software etc.

6. *Avocation Module*

   This Module deals with the Law part of every Crime

2.3.3 Strength of existing system

1. The system is much User friendly and easy to use
2. It provides more details of a child who is the victim.

2.3.4 Drawbacks of existing system

1. The system reports only the crime child abuse
2. Everyone can report the crime that leads to collect some of unrelated facts that may lead to difficult of investigations.
3. The system doesn't have an interaction with police and partner agencies that the proposed system recommends to have.

2.4 Proposed system

The system proposed targets to create easy interaction between non police forces and victims of crime after complaints report sent to the court. The system will help them to apply for deputies of victims to protect their rights since it's their role.

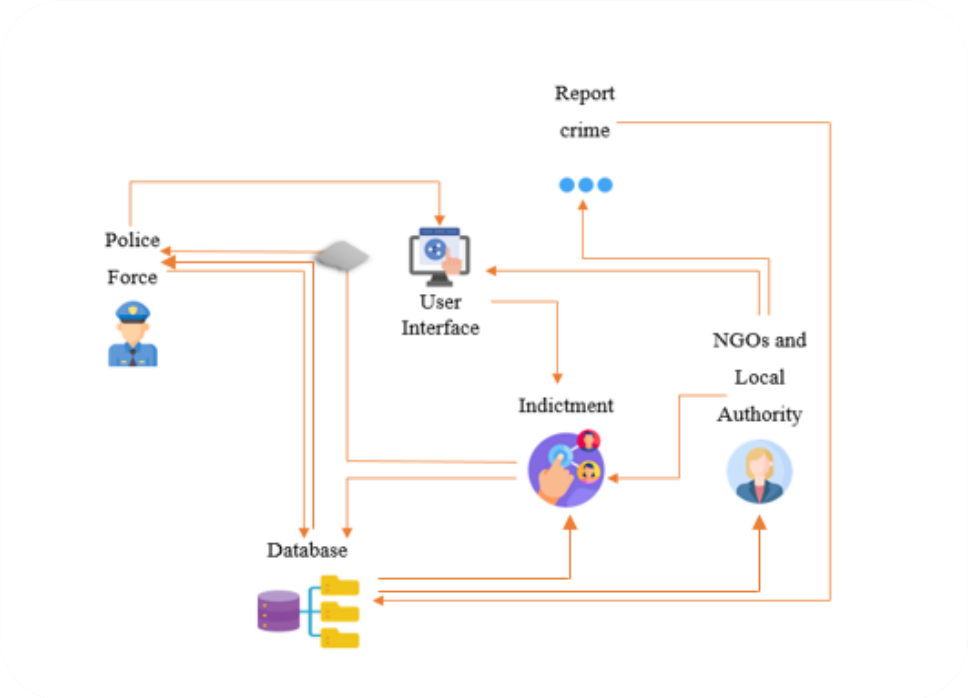


Figure 6. Diagram showing the proposed system.

2.4.1 Feature Modules of proposed system

1. User interface

   This module provides the friendly approach to the system that Police and non-police forces both access it.

2. Database

   This module provides the storage of every confirmed data.

3. NGOs and Local Authority Module

   The module provides non-police forces the interface to report crime and apply for the indictment

4. Police force Module

   The module for the confirmation of every data and confirm indictment process of non-police forces

CHAPTER THREE
METHODOLOGY

3.1 Introduction

We have developed a web based application system that required some methods so as to complete the objectives we intend to deploy during and after a recommended time of implementation.

3.2 Study area

According to the time limitation we had decided to choose Mbeya town council as a case study area to do research and data collection.

3.3 Data collection methods

3.3.1 Questionnaire

We used a questionnaire methods so as collect views from the people of far locations using online Google forms.

This method helped us to cover a large area to collect data.

3.3.2 Interview method

By using interview method, we collected data from people face to face. Though it cover a small area due to time, but in addition to questionnaire the method was very valuable.

3.3.3 Brainstorming and Focus Groups

In this method data has collected by using discussions by fellow students and supervision discussion from supervisors. The method was best for friendly challenges on the design, development and what we supposed to do.

3.4 Design approach

On the design we divided the project development in some modules so as to make it easier on implantation. By Oriented Design approach we got easier development of our system.

3.5 System development

On the system development we preferred to use the agile development process. This method was helpful since it simplify the better change because the development was open to the required users and supervisors.

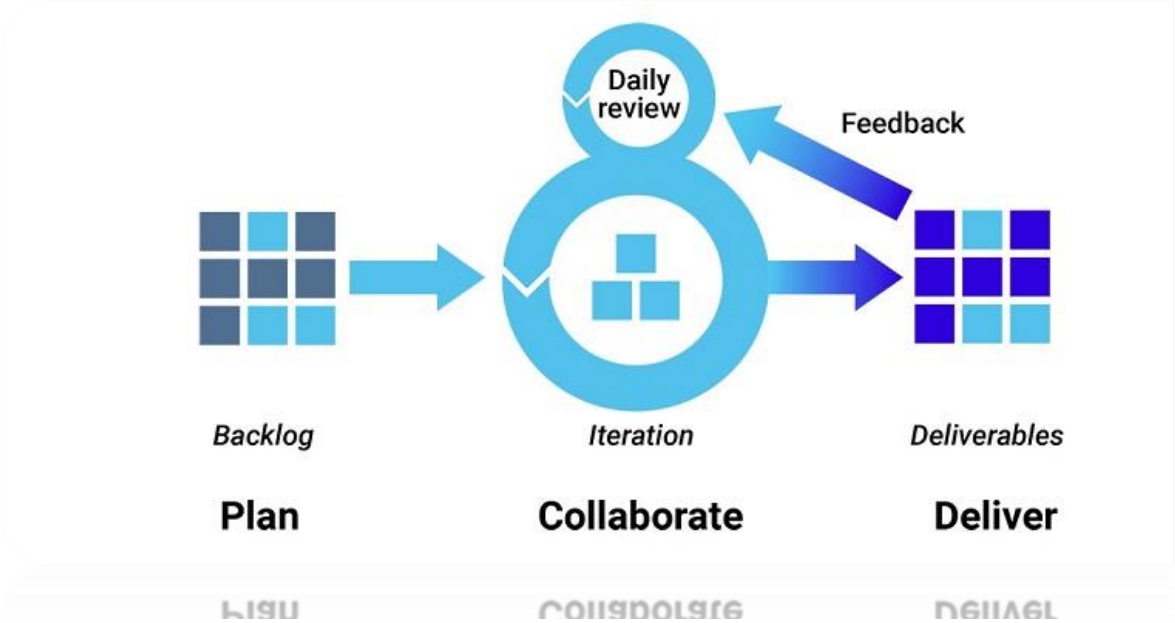


Figure 7. Agile development lifecycle

Reasons to use agile development methodology

1. It is Open to Improvements to our system: Through agile development, we will get suggestions from the system users which are effective for the right product development.
2. Great Collaboration between the supervisors and development process. In Agile Development Cycle, supervisors and student work closely to achieve the success of the system.
3. Ensuring Transparency using Face-to-Face Discussions: Face-to-face discussion is encouraged for constructive feedback and continuous improvements to meet the target expectations and quality system.

3.6 Process Modelling

This was achieved by the use of the Data Flow Diagrams (DFDs) to show system processes and external entities in the system.

3.7 System Testing and Validation

The system has been tested for usability, unit testing, effectiveness and security to identify and find system flaws and errors.

CHAPTER FOUR
DATA COLLECTION, DATA ANALYSIS AND SYSTEM REQUIREMENTS

4.1 Data collection

We have doing data collection by collecting both primary and secondary data. Based on the significant of our project the intentions to collect data was based on the deal to secrete of victims of sexual assaults crimes. Hence, we have considered the collection of data primary data using observations, brainstorming with project panels and online forms.

4.1.1 *Questionnaire method*

We used the method of online questionnaire forms to collect the data from the people of far locations in different regions of Tanzania. This method helped us to cover a large sample area with unlimited sample size.

The questions asked to respondents was quite critical due to little claims from them that they might not get the reasonable answers. But to our project the collected responses was satisfied based on the project requirements.

The respondents were neither victims nor witnesses and vise-versa because we didn't recognize them.

4.1.2 *Brainstorming and Focus Groups*

This method helped us most because it collects a lot of data from reviews from books and earlier articles on issues of investigations, criminals, indictments and development of urban cities.

4.1.3 *Interview method*

This method was used to get us into system development requirements. The most limits us to collect direct data involving sexual assaults issues and it was real quite hard. But based on the need of project, the method helped us most find what our system needs on its development.

The respondents was openly replied to interviewed questions giving us the satisfied answers that what currently the system doing and what we need to develop so as to create a friendly user interactions to the system.

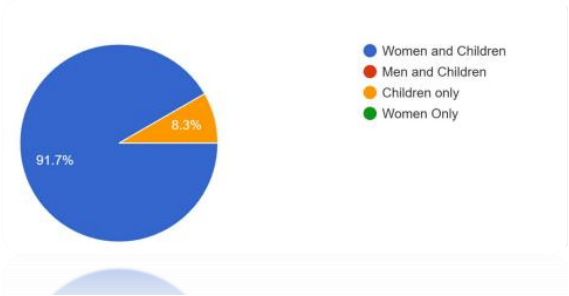
Moreover, the method provided us with deep understanding on the development of our system and awareness of what we do and intend to provide to the society around us and all it worked.

4.1.4 Some questionnaire questions asked during data collection.

Qn 2. Based on what you have heard, watch or witnessed, what do you think are the most victims?

(Select more than one choice)

- ☐ Women and children
- ☐ Women and Men
- ☐ Children only
- ☐ Women only
- ☐ Men only
- ☐ Children and Men

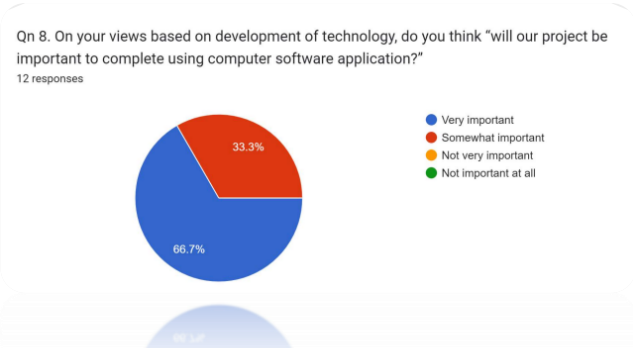


Qn.4. Generally, what do you think are the reason for the victims of crime to not report the issues on time?

……

Qn 7. On your views based on development of technology, do you think "will our project be important to complete using computer software application?"

☐ Very important	☐ Somewhat important	☐ Not very important	☐ Not important at all



Qn 9. What is the best way that a victim of sexual assault crime can report an issue without being exposed by criminals to escape from threat impacts?

4.2 Data analysis

After collecting our data, we perform analysis that brought us to successful develop our system. The following are histogram presenting responses to one targeted question that stated "***What's the best way that victims of sexual assaults crimes can report the issues without being exposed by the criminals to defend them from threat consequences?***"

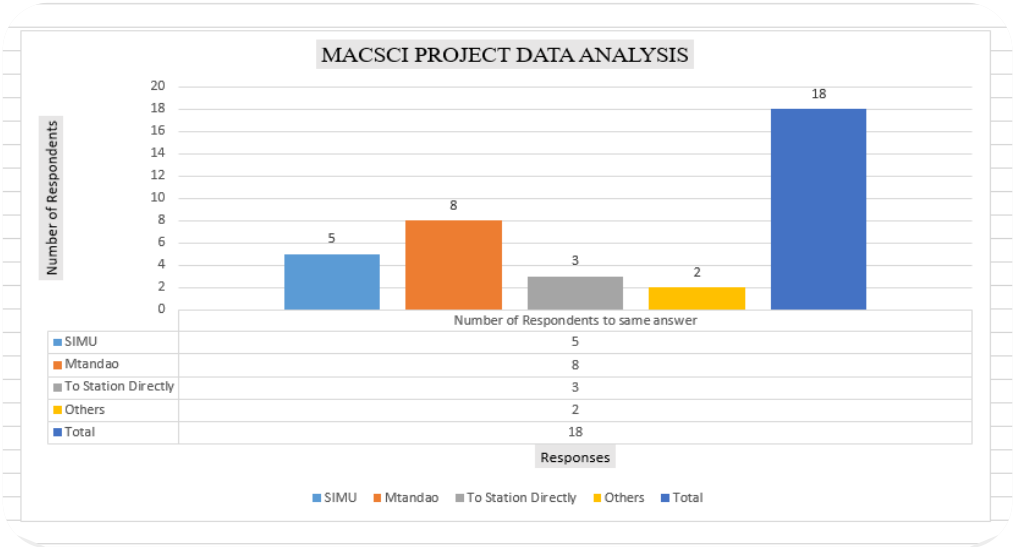


Figure 8. Graphs to show data analysis

From the figure above:

i. These analysis is done using unlimited sample size. The reason to do so is due to the nature of problem itself that is to say the problem of sexual assaults crime it's absolutely be criminated to any man of any race, any social position, any age and any gender.

ii. Hence, the results showed us that; the great number of people says that it's important to have an online based systems to help save those victims.

iii. The number of people who answered that the report should sent via mobile phones is nearly the number of those who answered it should be done through Web based system. But the issue here is development online based system no matter what a system. And so, the number of people who needs online system is now extends to 13 *(5-SIMU + 8Mtandao).*

Generally, the aim of the project is to develop a system to help partner agencies doing indictment to protect the right of victims. The system developed is not included a victim as a user but to some important scenarios, how do they get the information of those victims! Is by doing analysis of question we asked.

4.3 System requirements

Here, we have described the system requirements that our system needs to satisfy it usage that are categorized into functional requirements and non-functional requirements.

4.3.1 Functional requirements

Based on the nature of the system that we have developed, we have analyzed the following functional requirements:

1. The user roles has been classified into three categories of users in the system that are ADMIN (from central police post), POLICE (from regional-wise posts) and standard USERS (described as NGOs and Local authorities).
2. The functionality of the admin is to register a postman, while a postman will give credentials to standard users and confirm indictments and so the standard user has to do indictment.
3. The system is restricted to be used by only targeted users mentioned! Hence, the reason to have a flow of these credentials.
4. In order to perform indictment a user is to first report a crime issue and so the indictment sent.
5. Also the system has restricted the expertise of users, that is to say; a user who shall the crime issue is to be the one who shall indict the victim of crime.

4.3.2 Non-functional requirements

Here are non-functional requirements that has described the behavior of our system to help figures its quality and performance:

1. The system developed is easy to use and readable.
2. The system supports security and data integrity
3. The system has simple interface and interactive one to help users navigate easily to intended functionalities.

CHAPTER FIVE
CONCEPTIAL MODELS, SYSTEM DESIGN AND PROTOTYPE TESTING

5.1 Conceptual models

The system has been described in detail using essential illustrations that depict the arrangement and relationship of its key attributes with appropriated symbols that are easily understood.

5.1.1 *Use case Diagram*

The system has described using graphical depiction of user's possible interactions with it. This diagram has shown various use cases and their types that are dependent to other diagrams to be discussed. It also shows the characteristics of each user and some characteristics that are common to all in our system.

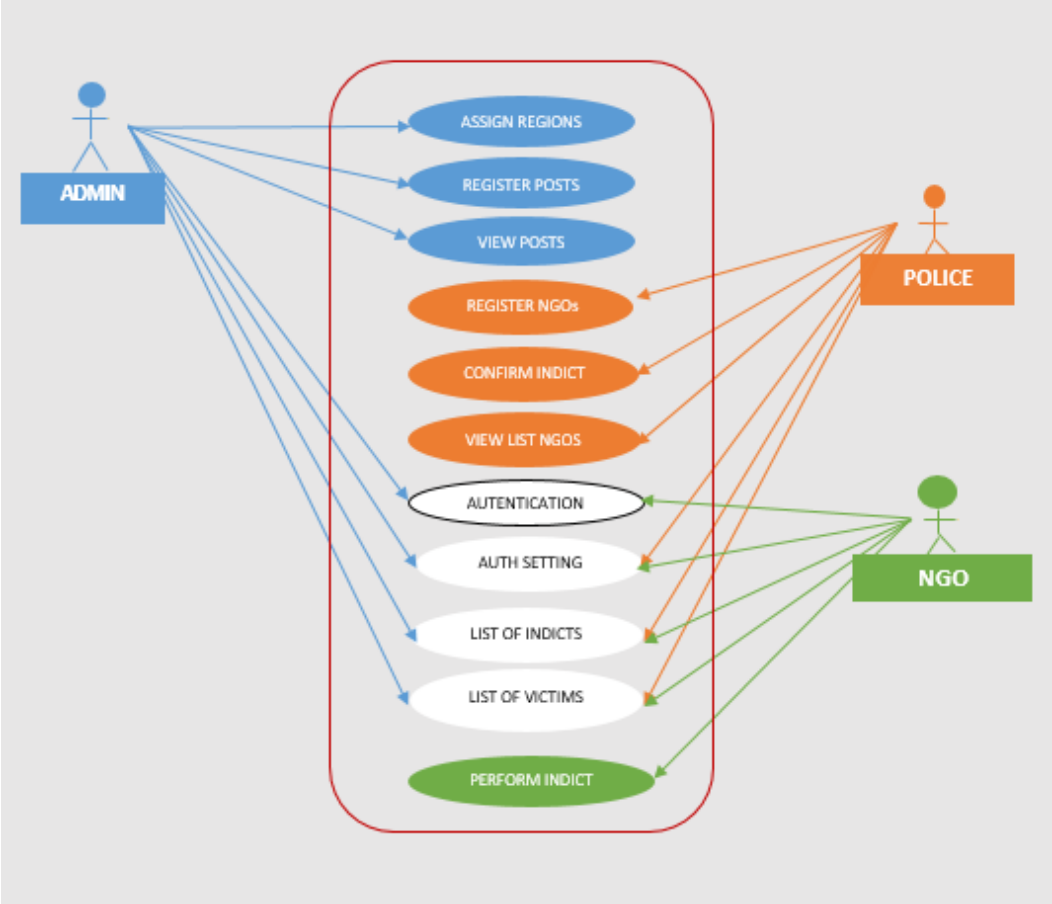


Figure 9. A diagram showing use case diagram

5.1.2 *Data flow diagram*

This diagram is a graphical representation of our system that depicts the information flow and the transformation of data from input to output.

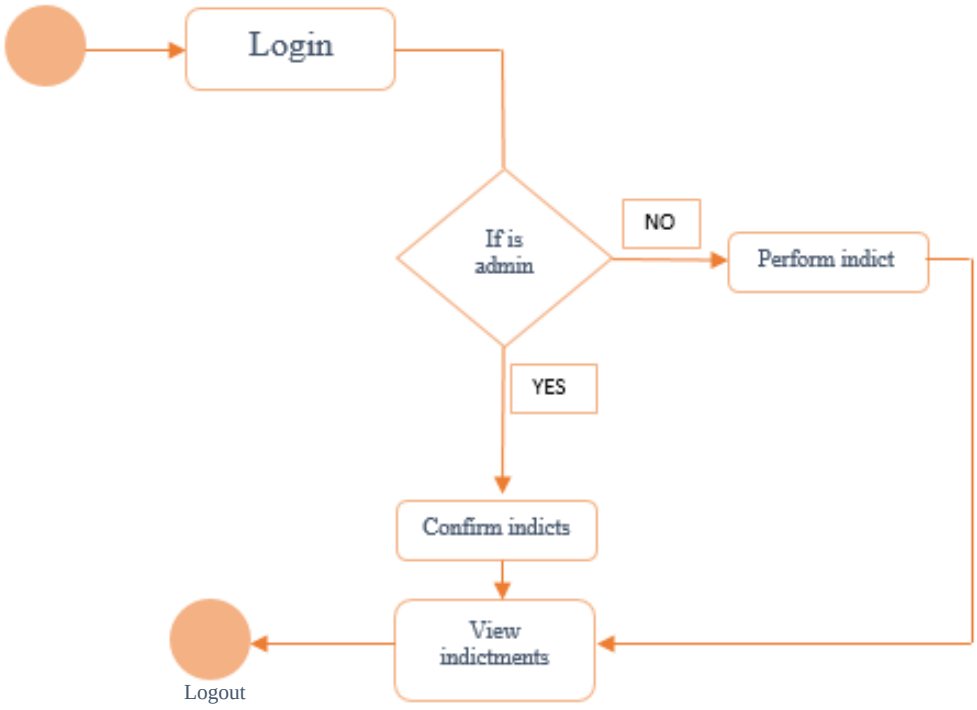


Figure 10. A diagram showing dataflow diagram

5.1.3 *ER diagram*

A designed system has sets of entities that are stored to he database. Hence, we have designed the entity relation diagram to display the described relationship. In addition, ER diagram is helped to explain the logical structure of the database.

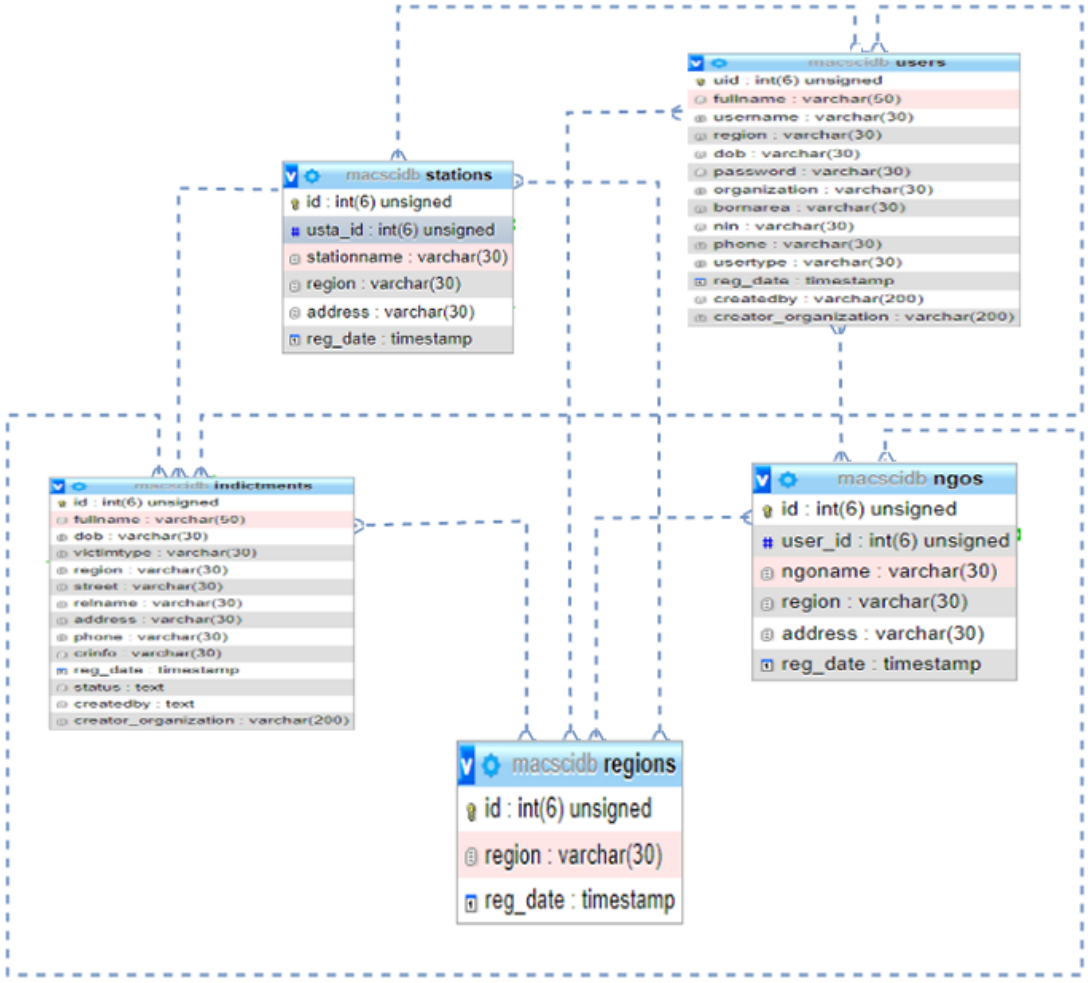


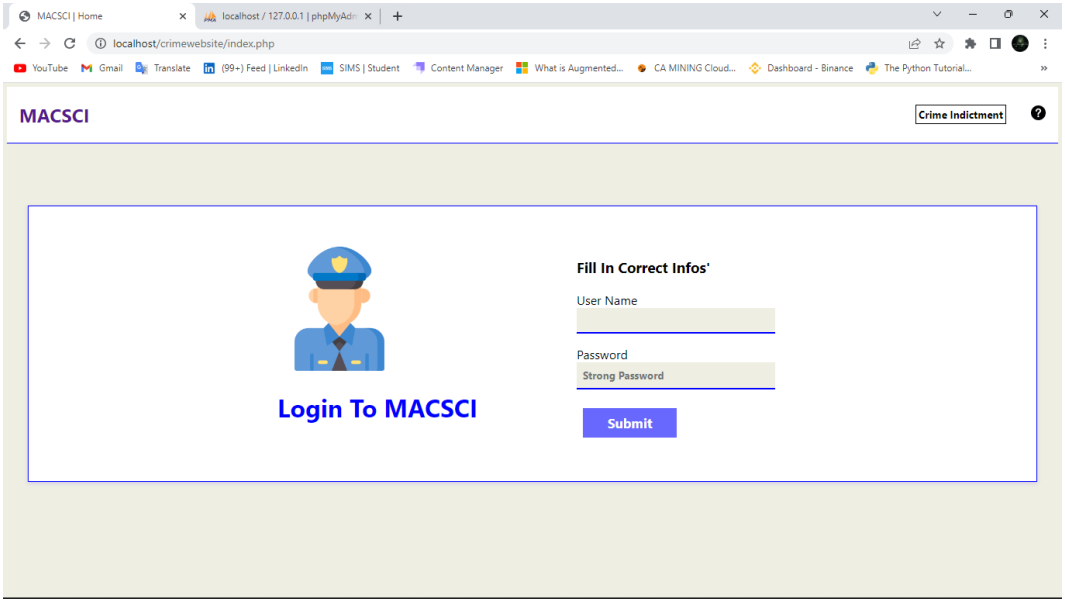
Figure 11. A diagram showing ER Diagram

5.2 System design

Through system design we have defined the elements of our system including both modules, architecture, components and their interfaces that displays data based on the specified user requirements.

The following are some of main pages that our system work with to complete the main objective.

5.2.1 *Login page (figure 12)*



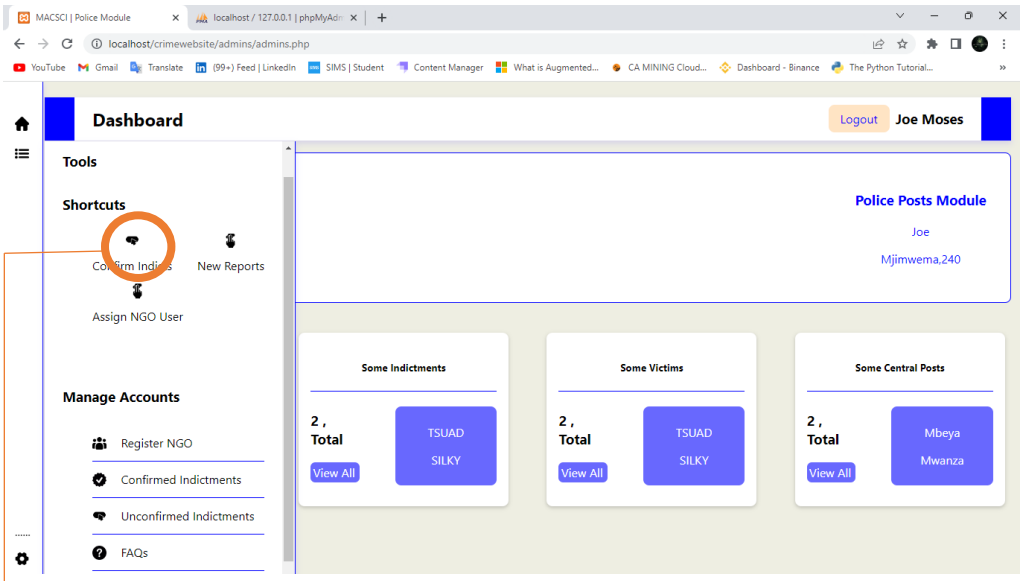
Important notes:

The authentication pages are designed to ensure there is data integrity to the system. That is to say the users are given authorization by system administrator who are only people in the system who allowed to do registration of other users who are particularly Local authorities and polices. This is done to avoid anonymously user registration who are not directly allowed to interact with the system including victims of crimes.

So this is how registration done:

- **Admin** is registered by automatic system (*System developer – based on demonstration && not implementation*)
- *Police* is given authentication credentials from **admin** and
- *Local authorities* are given authentication made by a **police**.

5.2.2 *Admin dashboard (figure 13)*



Admin *is responsible for confirmation of all indictments asked by a local authorities.* With other functionality described from a figure including assigning NGO users, and register their institutions.

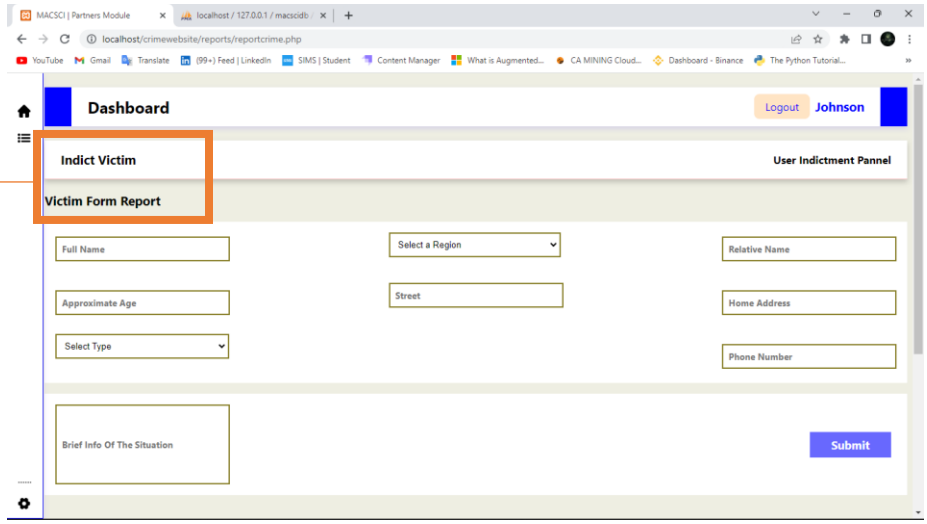
macscidbmain > overrite.php

```php
<?php
include 'connection.php';
$id = $_GET['id'];
$name = $_GET['name'];
var_dump($name);
print $id;
    $sql = "UPDATE indictments SET status='confirmed' WHERE id='$id'";
    $query = mysqli_query($db,$sql);
    if($query)
    {
       header("location:../admins/adminconfirmaction.php");
    }
    else
    {
       print "fail";
    }

?>
```

The above source codes are for the confirmation of indictment, a button used by admin

5.2.3 Local authority indictment panel. (Figure 14)



NGO or Local authorities' indictment panel. The indictments are sent to the police force module for confirmation before standing for victims' protection. This is done only by them to ensure that, the one who reports should be able to indict. An expert side.

5.3 Prototyping test

Prototype testing consisted of wireframes with participants to view on their desktop or mobile device to assess the viability of a design during the development cycle. The basic purpose of testing phase was to detect the errors that may be present in the program. Testing is the process of executing a program with the intent of finding errors.

Tests are grouped together based on where they are added in SDLC or by the level of detailing they contain. In general, there were four **levels** of testing: ***unit*** *testing,* ***integration*** *testing,* ***system*** *testing, and* ***acceptance*** *testing*. Each of those testing levels were having a specific purpose as:

TESTING LEVEL	DESCRIPTION
Unit testing	Checked if the system components were fulfilled functionalities or not
Integration testing	Checked if the system components were fulfilled functionalities or not
System testing	Evaluated both functional and non-functional needs for testing
Acceptance testing	Checked the requirements of a specification are met as per its delivery

Table 1. Testing levels

CHAPTER SIX
CONCLUSION AND RECOMMENDATION

4.1 Summary

The project concern was to develop a multi-agency collaboration system for crime indictment. The concept of multi-agency comes to define the role of police forces in investigation of crime to the relation of non-police forces in protecting the right of victims.

This project has been implemented based on the need of victims of crimes particularly women and children who has fear and shame in addition to threats from criminals that leads to delayed information to the police stations or other right makers that may results into severe disability, and abuse of human rights.

Hence, the system collaborates with victims named, police agencies and non-police chosen as NGOs and Local authorities. Based on the meaning and project objectivity; the crime indictment described as application made by non-police forces to be deputies for standing before victims the time that they fail and get all proceeding solutions of cases until rights are made.

4.2 Recommendations

The significant of this system developed may be useful to the government of Tanzania, United Republic of. Based on the need of its citizens seen during demo data collection made. It's important to make sure rights of victims are made on time and its implementation at large to avoid abuse. Because the information made to the stations by law experts from those agencies.

4.3 Conclusion

To acknowledge the whole process and activities under the need and requirements of semester one, the process of defending Title, literature review and methodologies to undergo during the system development and implementation to the coming semester. The preparations was the best and these discussions will highly help us to implement the development of the system in best way in relation to what supervisors directs us on going ahead.

APPENDICES

Table 2. Project Budget

S/No	Item Name	Cost
1	Data collection	30, 000/-
2	Stationary	30, 000/-
3	Transport	10, 000/-
3	Internet	20, 000/-
	Total	**90, 000/-**

Table 3. Activity Timeline

S/N	Activity	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL
1	**Data collection**								
2	**Literature review**								
3	**System design**								
4	**System development**								
5	**System testing**								
6	**Completion**								

Table 4. Methodology

S/N	TASK	DATA & DESIGN	METHODOLOGY
1	Data collection	Primary data and secondary data	Interview, questionnaire, observation
2	Data Analysis	Qualitative data	Microsoft Excel, Google Forms
3	System Design	ER diagrams (use case, dataflow)	Adobe Xd (UI Design), Form Boards
4	System Development	MySQL, JavaScript, HTML, CSS, PHP, SQL	Agile development model
5	System Testing	Unit testing, integration testing, Acceptance testing	Google Chrome, Firefox, internet explorer

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