**ONLINE POLICE STATION CRIMINAL MANAGEMENT SYSTEM**

**A PROJECT REPORT**

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**ABSTRACT**

Crime is a human experience and it has to be controlled. Debre Marko’s city police station plays a great role to control crime and criminal activities But the way of managing those criminal and crime activities done manually and this is due to lack of automated system that supports the station workers to communicate with citizen to share information and store, retrieve and managing criminal activities. In order to control crime efficiently we need to develop web based systems.

This project entitled with “online criminal management system” is designed to develop a web application in which any citizen can report crimes; if anybody wants to complaint against crimes he must enjoys with online communication to police station. This project provides to store records of crimes and criminals which have made disciplinary case and used to make simply retrieve information from the database. The system implemented is a typical automated crime management system, based on client-server architecture allowing data storage and criminal record interchange between the police.

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Contents

[List Of Tables 5](#_Toc503944882)

[CHAPTER ONE 7](#_Toc503944883)

[1.1. Introduction 7](#_Toc503944884)

[1.2. Background of the project 8](#_Toc503944885)

[1.3. Statement of the Problems 8](#_Toc503944886)

[1.4. Objectives of the project 9](#_Toc503944887)

[1.4.1. General objective 9](#_Toc503944888)

[1.4.2. Specific objective 9](#_Toc503944889)

[1.5. Scope of the Project 9](#_Toc503944890)

[1.6. Limitation of the project 10](#_Toc503944891)

[1.7. Significance of the Project 10](#_Toc503944892)

[1.8. System requirement 10](#_Toc503944893)

[1.8.1. Hardware requirement tool 11](#_Toc503944894)

[1.8.2. Software requirement tool 11](#_Toc503944895)

[1.8.3. Programming language 12](#_Toc503944896)

[1.9. Data collection Methodology 12](#_Toc503944897)

[1.9.1. Data collection 12](#_Toc503944898)

[1.9.2. System development methodology 13](#_Toc503944899)

[1.10. Feasibility study 13](#_Toc503944900)

[1.10.1. Operational Feasibility 14](#_Toc503944901)

[1.10.2. Economic Feasibility 14](#_Toc503944902)

[1.10.3. Technical Feasibility 14](#_Toc503944903)

[1.10.4. Legal Feasibility 15](#_Toc503944904)

[Chapter Two 15](#_Toc503944905)

[2. System analysis 15](#_Toc503944906)

[2.1. Over View of Existing System 15](#_Toc503944907)

[2.1.1. Users of the existing system 16](#_Toc503944908)

[2.2. System requirement Specification 16](#_Toc503944909)

[2.2.1. Functional requirement 16](#_Toc503944910)

[2.2.2. Non-functional requirements: 18](#_Toc503944911)

[2.2.3. Business rule 19](#_Toc503944912)

[2.3. System requirement analysis 20](#_Toc503944913)

[2.3.1. Actor and Use case Identification 20](#_Toc503944914)

[Table 2.1 Use Case Identification 23](#_Toc503944915)

[Table 2.2: Register Employee Use Case Description 26](#_Toc503944916)

[Table 2.3: Create Account Use Case Description 27](#_Toc503944917)

[Table 2.4: Login Use Case Description 28](#_Toc503944918)

[Table 2.5: View Accused Criminal Use Case Description 29](#_Toc503944919)

[Table 2.6: Assign Traffic Police Use Case Description 30](#_Toc503944920)

[Table 2.7: Post Missing Criminals Use Case Description 31](#_Toc503944921)

[2.3.2. UML Sequence Diagrams 32](#_Toc503944922)

[2.3.3. UML Activity diagram 40](#_Toc503944923)

[2.3.4. Analysis Class Diagram 44](#_Toc503944924)

[CHAPTER THREE 46](#_Toc503944925)

[3. System Design 46](#_Toc503944926)

[3.1. Design Class Diagram 46](#_Toc503944927)

# List Of Tables

# CHAPTER ONE

## 1.1. Introduction

In this modern world, information technology plays a big role. With the introduction of computers, the business world was changed forever. Using computers and software, businesses use information technology to ensure that their departments run successfully. (1.1)

Now a days Technology is being used in almost every company to accomplish specific tasks. Many businesses are using various business communication technologies to change the way their employees interact and communicate while at work. Employees can use various communication tools to interact or exchange information at work such us developing website for online communication.

Web application is one parts of information technology in which applications and information’s are stored on servers and users can access that information or application remotely using web browsers. “Online criminal management system” is a web application that provides users interact with the system without any physical existence. This system helps the police department to manage and investigate crimes, to generate fast reports, and to retrieve criminal cases in efficient and effective manner. It also establishing an active and equal partnership between the Police and the public through which crime and community safety issues can jointly be discussed and solutions determined and implemented.

## 1.2. Background of the project

In 1913, during the reign of Emperor Minilik II, the Ethiopian police was founded for the first time in our history. A modern police establishment was newly founded in 1934. Debre Markos police station was also established newly as a police force at the same time in 1934. It is the basic unit that looks after the law and order of that area. Debre Markos police station is headed by a Station House Officer (S.H.O.) who is generally an inspector from the police department. Under him works a team consisting of a Sub-Inspector, Head Constable and Constables. The station was organized in to five big departments that were detection department, prevention department, traffic department, human resource management department and council community. Still now, the system is working manual.

## 1.3. Statement of the Problems

The existing system of police station is time consuming and not very user friendly. All criminal information’s are paper based which is cumbersome to maintain. Sometimes the complaints may be ignored by the police. Even an efficient officer may not be able to handle more than one case at a time. As we all know, a covered truth; bribery plays an important role in the existing system, many cases were pulled up in the corners, due to lack of commitment in the job. The existing system is criticized for being inefficient, time consuming, and poorly managed. Because of the large number of serious crimes, minor complaints may be ignored, requires lots of manual work, the existing system doesn’t have system security. Retrieval of data in a desired way is so difficult, Data redundancy and inconsistency, There is a Work load over police departments since investigation reports and investigation files are manually operated.

## 1.4. Objectives of the project

### 1.4.1. General objective

The general objective of this project is to develop online system for Debre Markos police station criminal management system.

### 1.4.2. Specific objective

The specific objectives of the proposed project are:

* To enable searching for any relevant information about crime quickly that is registered from anywhere in the city.
* It enables searching the required information by using keys and also the main function of the system is sharing of information to the appropriate of different station.
* Develop a system thatenabling the user to communicate easily across the station and complaints to report crimes online.
* Understand functional and non-functional requirements of the system
* Design attractive user interface that the police station worker and customers can easily interact.
* Confirm secure data flow in the station
* Develop a system that make retrieval of required data efficient
* Develop a system that facilitates fast report generation
* To develop database system for Debre Markos city police station.

## 1.5. Scope of the Project

The scope of a project shows the boundary of the project it will cover. It may be geographical boundary or functional boundary.

* Geographical boundary: -Geographically the system is limited to Debre Marko’s city.
* Functional boundary: - the proposed project had functionally limited to, Register employee by human resource management department, Investigate Criminal, Gather information, Give information, Give and take the nomination, generating reports, and take backup. Record newly arrived criminal cases.

## 1.6. Limitation of the project

The Proposed System may have some Limitations some of them are:

* Lack of social security number: due to the system does not support with social security number criminals cannot easily investigate.
* The system does not support different language.

## 1.7. Significance of the Project

This system has the following significance:

* Create customer or complaint satisfaction by save time and resource needed to waste to a completion their task.
* It enables citizens to give nomination easily without arriving in the station.
* Make Publiccan get criminal’s information.
* Make police head easily manage and control the system.
* Communication between different stations will be easy and fast.
* Easy to manage citizens’ complaints, criminals data.
* Create satisfaction for police officer and staff members by minimizing workload because they know what ever any crime without arriving in the place where the crime was committed.
* Implementation of this project will lead the organization to a better performance that can highly reduce the workload of employee and can achieve its goal.

## 1.8. System requirement

Hardware and software tools required for the successful completion of the projects are listed below with their respective significance.

### 1.8.1. Hardware requirement tool

**Computer: -** with 4.00 GB RAM, 500 GB hard disk and processor speed above 2.4 GHz.

**Flash: -**16 and more GB flash is required for data storage and data movement.

**Disks (CD):-**720 MBnecessary for the movement of relevant data and for backup and recovery mechanism.

**Internet Connection: -**the main information source to develop our system. To extract relevant information about our project from internet.

**Printer: -** helps to print documentations

**Writing material (pen, paper):-** for writing all necessary information associated with the project during interview or time of data collection

**Note book: -** to take notes during data collection and for other documentations

### 1.8.2. Software requirement tool

Software requirements to develop system are as follows

**WAMP server: -** 32-bit version of wampserver, used to run application.

**Microsoft word 2010:-** to write on any necessary documents about the project

**Microsoft Visio2010: -** used to draw diagrams

**Adobe Photoshop CS4: -**to edit images.

**Notepad++:-** editor’s thathelps to write a php implementation code

**Microsoft Power Point 2010:-** helps to prepare presentation of the project.

**Browser (Mozilla Firefox):-** It is used for system testing.

### 1.8.3. Programming language

* PHP: -to design user interface we use php for the following reason.
* It is aback end.
* It is a powerful tool for making dynamic and interactive Web pages.
* It supports a wide range of databases
* It is free. Download it from the official PHP resource:
* It is easy to learn and runs efficiently on the server side.
* MySQL: **-**usefor the following reason
* To creating and manipulating databases.
* Easy to use, open Source, it is fast and secure.
* It runs on many operating systems.
* HTML: - to display content.
* Java script language: - to create interactive webpages.
* UML: - helps to develop use case diagram

## 1.9. Data collection Methodology

Different fact finding techniques were used to gather information about the current system. It is the fundamental activity for the development of the system.

### 1.9.1. Data collection

Data collection is the most important part of our project to find the main required information to system and to understand how the system works. We used the following methods to collect relevant data required to our project.

We use two data collection methods to collect the data need for the team project those are:-

* Primary data collection methods
* Interview: - the project team gathered necessary information about how the organization works and current flow of work by interviewing debremarkos city police head, staff member and society. During Interviewing the team got various necessary information from the station and the team asking different question about the organization how to work and the overall structure.
* Observation: - This is also another way of collecting data and information. This is performing by looking what will happen in the organization by existing the working place. It may be difficult to explain that they do or to even describe accurately how they achieve a task, so observation very crucial to gathering information.
* Secondary data collection methods
* Document analysis: - it is tried to discover all written documents about the organizational areas relevant to the project. Not only that but also we tried to review other relevant documents that helps to develop our project.

### 1.9.2. System development methodology

This project is developed by the object oriented programming (OOP), it is clear and modified in class models and object oriented, it uses methods and functions easily. The program must inherit in different functions and methods.

## 1.10. Feasibility study

A feasibility study is a test of system proposal according to its workability, impact on the organization, ability to meet user needs and effective use of resources.

A feasibility study looks at the viability of an idea with an emphasis on identifying potential problems. Project managers use feasibility studies to determine potential positive and negative outcomes of a project before investing a considerable amount of time and money into it.

### 1.10.1. Operational Feasibility

Operational feasibility is a measure of how well a proposed system solves the problems, and takes advantage of the opportunities identified during scope definition and how it satisfies the requirements identified in the requirements analysis phase of system development. It is important to understand how the new systems will fit into the current day-to-day operations of the organization.

### 1.10.2. Economic Feasibility

The proposed system is economically feasible since it had many benefits that it gives than the existed manual system.

* Tangible benefits

Tangible benefits are something that has a physical existence. Cost reduction and avoidance, increase the income of the organization, improving response time, producing error free out put such as report generating, and no redundancy, increased management planning and control

* Intangible benefits

Increase information processing efficiency, faster decision making, increase accuracy, right information at the right time, Customer satisfaction, increase employee commitment. Intangible costs are not always foreseen.

### 1.10.3. Technical Feasibility

The team proposed system is technically feasible since, it can be easily maintained and repaired; accomplished with the available technology, technically, the system will be powerful to be applied by low skilled users as much as possible and easily accessible by the people who can easily understand natural languages

### 1.10.4. Legal Feasibility

The system to be developing is not contrary with any government directives, and with any cultural aspects or norms, because it gives services for Debre Markos police station workers, all the Debre Markos police workers also agreed before the system developed. So the government and peoples are profitable and the system will be legally feasible.

# Chapter Two

# 2. System analysis

System analysis is a process of gathering and interpreting facts, diagnosing problems and the information to recommend improvements on the system. It is a problem solving activity that requires intensive communication between the system users and system developers. System analysis or study is an important phase of any system development process. (2.1)

## 2.1. Over View of Existing System

Currently in Ethiopia there is no any automated system for sharing of information between the police and the citizens. Almost all activities in the current system take much time cost and need labor works.The existing system needs spadework when police wants to retrieve criminal information that can be search from large document files. Police want to detect or search detail information about the some criminal action the police went long distances from place to place with transport or with their foot (areas that does not have transport access). In the existing system complaint went to police station to report their aggrivance, and   anonymous events like thefts, murder, missing citizens, dead bodies and other miscellaneous events, at this time the complaint spend their time, lose money for transport, faced an accident and sacrifice energy.

Generally the system works manually in the above process of these takes long period of time to respond user’s service request and also it consumes high human power difficult to manage.

### 2.1.1. Users of the existing system

Users are entities that interact with the system. User those involved in the existing system are: -

* Police Head
* Criminal preventive police
* Traffic Officer
* Traffic police
* Detective Officer
* Human resource manager
* Customer

## 2.2. System requirement Specification

A project requirement is an objective that must be met. Project requirements provide an obvious tool for evaluating the quality of a project, because a final review should examine whether each requirement has been met. This project is concerned in the functional requirements and non-functional requirements

### 2.2.1. Functional requirement

The functional requirements describe the core tasks of the system or it is the intended behaviors of the system. The new proposed system of criminal management system focus mainly those tasks, services or functions that the system is required to perform. The team project supposed to have the following three main process functional requirements.

Input data: - this is the functionality that the system will allow the user to enter input data using forms for processing.

* The system should allow system administrator create account.
* The system should allow preventive police to Register new criminal
* The system should allow detective police register accused criminals
* The system should allow Human resource manager register new employee
* The system should allow Human resource manager Post notice
* The system should allow system administrator post lows of the government.
* The system should allow preventive police post missing criminals
* The system should allow citizen give nomination to missing criminals

Process data: - This is the other functionality that the system provides to process the data or inputs that the user submits using forms. The system provides those data processing functionality listed below.

* The system should allow validating the input data.
* The system should allow system administrator update user states
* The system should allow preventive police update missing criminal
* The system should allow detective police update status of accused criminals
* The system should allow preventive police update register complaint
* The system should allow Human resource manager update employee status
* The system should allow system administrator update user comment

Data output: This is the functionality that the system provides several data’s as an output. Those functionalities are

* The system should allow detective police view registered criminal
* The system should allow detective police generate report
* The system should allow traffics view accident
* The system should allow system administrator view report
* The system should allow system administrator View feedback
* The system should allow citizens View missing criminal
* The system should allow citizens View notices
* The system should allow citizens View missing criminal

### 2.2.2. Non-functional requirements:

Nonfunctional Requirements (also known as system qualities) define system attributes such as security, reliability, performance, maintainability, scalability, and usability. They serve as constraints or restrictions on the design of the system across the different backlogs. In general this system ensures the usability, efficiency and effectiveness of the entire system. (2.2)

* Availability: The system can function 24 hours a day and seven days a week
* Efficiency: This system must ensure allocation and use of services being requested for the users by using minimum memory storage, cost, and time.
* Security: The user accesses the system using valid user name and password. The system use encryption security mechanism to secure password.
* Error handling: When a user interacts with the system errors may occur. To control this kind of in accuracies our system will generate different user friendly messages.
* Scalability: the system adding new features and new user without any problem
* User Interface: The interface will be user friendly and can properly guide the user how to use the system and perform operations easily since every link name in the system similar to the task performed.

### 2.2.3. Business rule

The system has different business rules that the organization to follow. These business rules are obligations that the police must fulfill in order to the system will function properly and effectively.

These rules considered as in the system because any member of the department not beyond these state. The most common business rules with the police station are:

BR 1: the police station department head should manage other members in the station.

BR 2: Members of the station shall obey all laws and ordinances.

BR 3: polices cannot use force and other illegal methods to do their investigation.

BR 4: Members of the Department shall not express any prejudice concerning race, sex, religion, national origin, life-style, or similar personal characteristics.

BR 5: Be honest in all matters.

BR 6: All employees of the Department shall report their places of residence and their telephone number to the Commanding Officer or supervisor of the Bureau, Division, District, Unit or Office to which they are assigned.

**Business rules of the new team proposed system:**

BR1: To access the system the users must be registered in the system and must have account.

BR2: User of the system must be login to the system to access the service provided by the system

BR3: All user access the system based on their privilege given by police head.

## 2.3. System requirement analysis

Systems Requirement Analysis gives the professional systems understanding the tools to set up a proper and effective analysis of the resources, schedules and parts that will be needed in order to successfully undertake and complete any large, complex project. The text offers the reader the methodology for rationally breaking a large project down into a series of stepwise questions so that a schedule can be determined and a plan can be established for what needs to be procured, how it should be obtained, and what the likely costs in dollars, manpower and equipment will be in order to complete the project at hand. (2.3)

### 2.3.1. Actor and Use case Identification

* Actors: - use in the system to represent user that interact with the system
* Use case: - A use case describes a sequence of actions that provide a measurable value to an actor.

Actor Identification

1. Police Head
2. Criminal preventive police
3. **Detective Officer**
4. Traffic Officer
5. Traffic police
6. Human resource manager
7. Customer

Police Head: - have the following activities

* Create Account
* View User profile
* Assign Police
* Update User profile
* View Employee
* View Comment
* View Nomination
* Post Missing Criminals
* Take Recovery
* View Traffic accident Report
* View Criminal Report

Criminal preventive police: - have the following activities

* Register Criminal
* View Nomination
* Send nomination
* Generate Crime Report

Detective **Officer**: - have the following activities

* View Criminal
* Progress case
* Register witness
* Register Accused
* Register Accuser
* Update criminal status

Traffic Officer: - have the following activities

* Assign Traffic Police
* View Report
* Generate Accident Report

Traffic police: - have the following activities

* View Accident
* Register Accident
* Update Accident
* Generate Report

Human resource manager: - have the following activities

* Register Employee
* Update employee

Customer: - have the following activities

* View Missing Criminal
* Give Nomination
* Give Comment
* Upload files
* Use case identification:

Use case is an activities that accomplished by actors. Use case describes a sequence of actions that provide a measurable value to an actor. In the following table we try to list use case id, use case name and its description

# Table 2.1 Use Case Identification

|  |  |  |
| --- | --- | --- |
| **Use case ID** | **Use case Name** | Include |
| Uc1 | Create Account | Login |
| Uc2 | View User Profile | Login |
| Uc3 | Update User Profile | Login |
| Uc4 | Assign Police | Login |
| Uc5 | View Employee | Login |
| Uc6 | View Comment | Login |
| Uc7 | View Nomination | Login |
| Uc8 | Post Missing Criminals | Login |
| Uc9 | Take Recovery | Login |
| Uc10 | View Traffic Accident Report | Login |
| Uc11 | View Criminal Report | Login |
| Uc12 | Register Criminal | Login |
| Uc13 | View Nomination | Login |
| Uc14 | Send nomination | Login |
| Uc15 | Generate Crime Report | Login |
| Uc16 | View Criminal | Login |
| Uc17 | Register Accused | Login |
| Uc18 | Register Accuser | Login |
| Uc19 | Register witness | Login |
| Uc20 | Progress case | Login |
| Uc21 | Update criminal status | Login |
| Uc22 | Assign Traffic Police | Login |
| Uc23 | View Report | Login |
| Uc24 | Generate Accident Report | Login |
| Uc25 | View Accident | Login |
| Uc26 | Register Accident | Login |
| Uc27 | Update Accident | Login |
| Uc28 | Generate Report | Login |
| Uc29 | Register Employee | Login |
| Uc30 | Update Employee | Login |
| Uc31 | View Missing Criminal | --------- |
| Uc32 | Give Nomination | -------- |
| Uc33 | Give Comment | -------- |
| Uc34 | Upload files | --------- |
| Uc35 | Login | --------- |
| Uc36 | Logout | Login |

UML Use Case Diagrams

A UML use case diagram shows the relationships among actors and use cases within a system. A use case diagram is a graphic representation of the interactions among the elements of a system. (2.4)

A use case diagram contains the following sub-components:-

* System boundary: - which defines the system of interest in relation to the world around it.
* The actors: - usually individuals involved with the system defined according to their roles.
* The use cases: - which the specific roles are played by the actors within and around the system.
* The relationships between and among the actors and the use cases



Figure 2.1 Online criminal management systems Use Case Diagram

* Use Case description

A use case description is a business analysis presentation of the steps defining the interactions between a user (called an actor) and a system (usually a computer system). It details the interactions and sets the expectations of how the user will work within the system. (2.5).

# Table 2.2: Register Employee Use Case Description

|  |  |  |
| --- | --- | --- |
| Use Case Name | Register Employee | |
| Use Case ID | Uc29 | |
| Include | Login | |
| Actor | Human resource manager | |
| Description | Human resource manager register employee to the database in the system. | |
| precondition | The users should be works of police station | |
| Basic course of  action | Actor action  1. User open the system  3. User click on Register user Link  5. The user fill each individual fields and press register button  7. Use case end. | System response  2. The System open to user page  4. System displays user registration form  6. If the user correctly fill each required field the system display “you are Successfully registered” message |
| Alternative course of action | If the user enters wrong username or password, the system display  “Incorrect input” and the process turn again from step 4. | |
| Post condition | Employee are legal users of the station | |

# Table 2.3: Create Account Use Case Description

|  |  |  |
| --- | --- | --- |
| Use Case Name | Create Account | |
| Use Case ID | Uc1 | |
| Include | Login | |
| Actor | Police Head | |
| Description | Police Head create account for already registered users | |
| precondition | Police Head must login and should get list of users’ information From Registered Employee. | |
| Basic course of  action | Actor action  1. police head Login to the system  3. click on Create Account Link  5. The police head fill the field including user name and password then Click on Create Account button  7. Use case end. | System response  2. The System open to police head page  4. System displays Create Account form  6. If the entered data is valid the system display “you are Successfully create account” message. |
| Alternative course of action | If the user enters wrong username or password, the system display invalid input message and process turn again from step 4. | |
| Post condition | Users can login to the system with their account | |

# Table 2.4: Login Use Case Description

|  |  |  |
| --- | --- | --- |
| Use Case Name | Login | |
| Use Case ID | Uc29 | |
| Include | Login | |
| Actor | Police Head, Preventive Police, Detective Officer, Human Resource manager, Traffic Officer, Traffic Police. | |
| Description | This use case is used to ensure security for system usage. Only legal users can access the system. | |
| precondition | The user must have a valid user name and password from police head. | |
| Basic course of  action | Actor action  1. the user open the system  3. User Click Login Menu  5. User fills form and clicks login button  7. Use case end. | System response  2. The System display Home Page  4. The System display login form  6. System displays user page |
| Alternative course of action | User may input wrong user name and password the system display wrong message.  The process turn back to step 5 | |
| Post condition | Users perform its own task on the system | |

# Table 2.5: View Accused Criminal Use Case Description

|  |  |  |
| --- | --- | --- |
| Use Case Name | View Accused Criminal | |
| Use Case ID | Uc8 | |
| Include | Login | |
| Actor | Detective Officer | |
| Description | Detective Officer can view the accused criminal | |
| precondition | The Detective Officer must have a valid user name and password to view the accused criminal. | |
| Basic course of  action | Actor action  1. the user login to system  3. Detective Officer click view accused Criminal link  5. Use case end. | System response  2. The user input correct value system display Detective Officer Page  4. System displays accused Criminal list |
| Alternative course of action | User may input wrong user name and password the system show incorrect message.  The process turn back to step 1 | |
| Post condition | Logout from the system. | |

# Table 2.6: Assign Traffic Police Use Case Description

|  |  |  |
| --- | --- | --- |
| Use Case Name | Assign Traffic Police | |
| Use Case ID | Uc4 | |
| Include | Login | |
| Actor | Traffic Officer | |
| Description | Traffic Officer Assign traffic police to their working Place | |
| precondition | The user must have a valid user name and password to Assign traffic police to their task. | |
| Basic course of  action | Actor action  1. the user login to system  3. the user click Assign Traffic button  5. the user Fill the Form and click Assign Traffic button | System response  2. System directs to user page  4. The system opens the form.  6. system display successfully message  7. Use case end. |
| Alternative course of action | User may input wrong user name and password the system show incorrect message.  The process turn back to step 1 | |
| Post condition | User’s logout from the system. | |

Table : Post Missing Criminals Use Case Description

|  |  |  |
| --- | --- | --- |
| Use Case Name | Post Missing Criminals | |
| Use Case ID | Uc12 | |
| Include | Login | |
| Actor | Police Head | |
| Description | Police Head can post missing criminal. | |
| precondition | The user must have a valid user name and password to view the accused criminal. | |
| Basic course of  action | Actor action  1. The user login to system.  3. The user click on Post missing criminal link  5. The user fills all the necessary information about the missing criminal and press Post Button.  7. Use case end. | System response  2. System directs to user page.  4. The system displays post missing criminal form.  6. The system displays “the missing criminal successfully posted” message. |
| Alternative course of action | A1. If the user enters the wrong username or password, the system notifies “the wrong input” and process continues from step 1.  A2. If the user misses the required fields or entered wrong data, the system notifies “the missed field or wrong data” and the process continue from step 5. | |
| Post condition | User’s logout from the system. | |

### 2.3.2. UML Sequence Diagrams

UML sequence diagrams model the flow of logic within your system in a visual manner, enabling you both to document and validate your logic, and are commonly used for both analysis and design purposes. Sequence diagrams are the most popular UML artifact for dynamic modeling, which focuses on identifying the behavior within your system. (2.6)

UML Sequence Diagrams Description

* capture the interaction between objects in the context of a collaboration
* show object instances that play the roles defined in a collaboration
* show the order of the interaction visually by using the vertical axis of the diagram to represent time what messages are sent and when
* show elements as they interact over time, showing interactions or interaction instances



Figure 2.1 User Login Sequence Diagram



Figure 2.2 Assign police Sequence Diagram



Figure 2.2 Employee Register Sequence Diagram



Figure 2.3 Posts Missing Criminal Sequence Diagram



Figure 2.4 Update User Profile Sequence Diagram



Figure 2.5 View Accused Criminal Sequence Diagram



Figure 2.6 Give Nomination Sequence Diagram

### 2.3.3. UML Activity diagram

Activity diagram is basically a flowchart to represent the flow from one activity to another activity. The activity can be described as an operation of the system.

The control flow is drawn from one operation to another. This flow can be sequential, branched, or concurrent. Activity diagrams deal with all type of flow control by using different elements such as fork, join, etc. (2.7)



Figure 2.7 View post criminal Activity Diagram



Figure 2.8 Update Criminal Status Activity Diagram



Figure 2.9 Register Employee Activity Diagram



Figure 2.9 Register Accident Activity Diagram

### 2.3.4. Analysis Class Diagram

Class diagrams are one of the most useful types of diagrams in UML in order to clearly map out the structure of a particular system by modeling its classes, attributes, operations, and relationships between objects. (2.8)

Class Diagram Consists the following component

.



Figure 2.10 Criminal Management systems Class Diagram

# CHAPTER THREE

# 3. System Design

Introduction

The term design describes a final system and the process by which it is developed it refers to the technical specification that will be applied in implementing the proposed system. It also include the construction of program and design of output, input, code, database and process of the system

System design is the transformation of the analysis model into a system design model. Up to now we were in the problem domain. System design is the first part to get into the solution domain in a software development.

The main purpose of system design is to determine how the system is going to build and to obtain the information needed to direct the actual implementation of the system. It focuses on understanding the model how the software will be built.

## 3.1. Design Class Diagram

Class diagram in the Unified Modeling Language (UML) is a type of static structure diagram that describes the structure of a system by showing the system's classes,

* Their attributes,
* Operations (methods)
* And the relationships among the classes.

A class diagram is an illustration of the relationships and source code dependencies among classes in the Unified Modeling Language (UML). It provides an overview of the target system by describing the objects and classes inside the system and the relationships between them.



Figure 3.1 Criminal Management Design Class Diagram

3.2. Database design /Physical data model

Physical data model represents how the model built in the database. A physical database model shows all table structures, including column name, column data type, column constraints, primary key, foreign key, and relationships between tables. In our system sample database structure is the following.

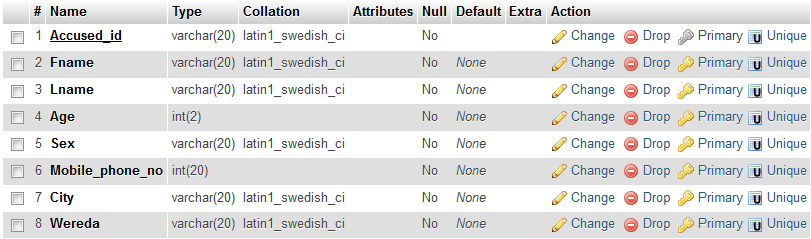


Table 3.1 accused criminal Database Table

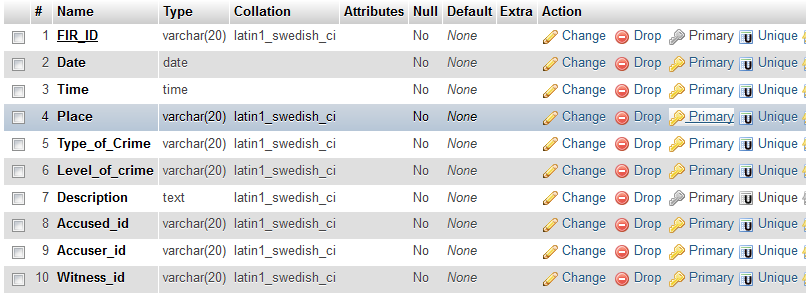


Table 3.2 First Information Report Database Table

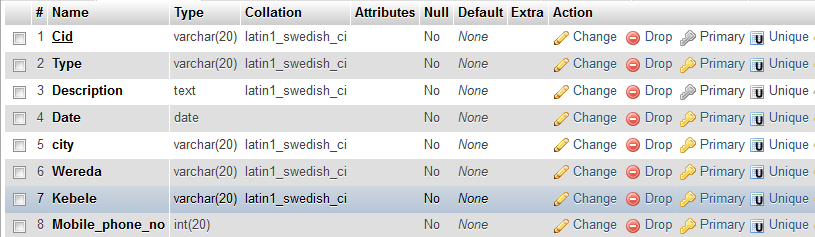


Table 3.3 Nomination Database Table

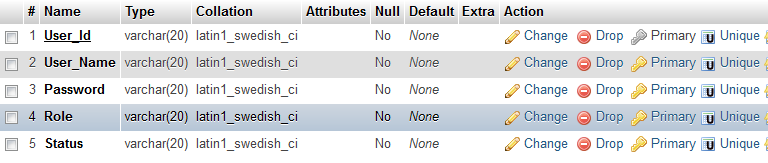


Table 3.4 User profile Database Table

3.3. User Interface Design

User interface design is the design of System with the focus on the user's experience and interaction. The main target of user interface design is to make the user's interaction as simple and efficient as possible.

In this system users will communicate with the system through the following user interface links, button, forms and pictures that described under the system. The following some interface design describe the logical characteristics of some interfaces between the system and the users.

3.4. System Architecture

3.4.1 Deployment Diagram

Deployment diagram shows execution architecture of systems that represent the assignment (deployment) of software artifacts to deployment targets (usually nodes). Nodes represent either hardware devices or software execution environments.

Deployment diagrams are used to model the hardware that will be used to implement the system the link between different item of hardware and the deployment of software on to that hardware.

Through deployment diagram we are able to model

* Where hardware is located
* Where software is located
* What is the communication path between various hardware parts



Figure 3.2 Deployment Diagram

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