

**BAHIRDAR INSTITUTE OF TECHNOLOGY**

**SCHOOL OF COMPUTING**

**Project on**

**Web Based Prisoner information Management system for Bahir Dar city prison Administration**

**by**

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January 2015

BAHIR DAR, ETHIOPIA

# Web based Prisoner Information Management System for Bahir Dar City Prison Administration

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A project submitted to Bahir Dar University: Bahir Dar institute of Technology School of Computing In partial fulfillment of the requirements for the degree Of Bachelor of Science in Computer Science

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January 2015

Bahir Dar, Ethiopia

# 

# Declaration

We acknowledged all the resources used in this project. The project is our own project we are going to present.

Name Signature

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**School:** SCHOOL OF COMPUTING  
**Program:** COMPUTER SCIENCE  
**Project subject:** Web basedPrisoner information management system for Bahir Dar city prison administration I certify that this project satisfies all the requirements as a project for the degree of Bachelor of Science.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Name of program coordinator Signature

This is to certify that I have read this project and that in my opinion it is fully adequate, in scope and quality, as a project for the degree of Bachelor of Science.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Name of Advisor Signature

Examining committee members signature Date

1. Chairman \_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_

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It is approved that this project has been written in compliance with the formatting rules laid down by the school of the university.

# Acknowledgement

We would like to express our deepest thanks to our advisor Mr. Sertse Abebe for his constant guidance, help and support in giving us brief information throughout the project that helps us to analyze the existing system. And thanks to the prison registrar staff for their helps us by giving information. In addition, we would like to thanks to those who have directly or indirectly helped us to accomplish our project.

# 

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# Acronyms

PRIMS- Prisoner information management system

REQ ID- Requirement identification

UC**-** use case

NFR**-**non-functional requirement

ER**-**entity relation

PHP**-**PHP hypertext pre processor

HTML**-**hypertext markup language

MS VISIO**-**Microsoft office Visio

FK**-**foreign key

PK**-** primary key

AD**-**activity diagram

SD**-**sequence diagram

CD**-** class diagram

# Abstract

PRIMS is a system in which collection information about prisoner can be performed with an organized manner in desktop application method. In this project we intended to change the desktop application to web based that is interactive, easily accessible remotely and easy to use for the organization. During the analysis and design process of the project, the team used Iterative software model for development methodology. We have used observation, interview requirement and document reviews requirement collection method. After the project has accomplished, we expect there will be efficient and effective management of PRIMS for Bahir prison.

# CHAPTER ONE: INTRODUCTION

## 1.0 Background of the organization

Bahir Dar prisoner is the most known prison in Amhara region western part of Gojam in Bahir Dar city in kebele 10. It gives services for both civil and military prisoners of the region. The organization uses desktop application system way of file management. We prefer to change the desktop application system to web based system in order to make easy file manipulation.

Bahir Dar prisoner management system is the title on which we are working on. Our benefit from developing this system we acquire enough knowledge. Our system protects the file from vulnerability of fire danger and from stolen.

Bahir Dar prisoner was established in 1968 E.C with the objective of preventing crime and providing other security issue to the people of the town. The institution has well trained guards and they protect the environment day and night. Most of the crime was prevent with the help of the people of the town by their own contribution to the institution**.**

### Mission

Barhir Dar prison is with participation of the people and developing highly secured information system center in order to prevent crime. Shape the prisoner to have good social interaction with people and to make the prisoner creative and fighting against crime as other good citizen do.

### Vision

Barhir Dar prisoner has the vision of creating citizen who are patriotic, fight against crime and reduce crime.

## 1.2 **Existing System Study**

The system is desktop application for only record purpose. It is not support remote organization to send and receive prisoner information from prison we are working on to the court and vice versa. This means the prisoner file is transferred manually from prison to court and vice versa as well as to and from another prison. The existed system does not support to record visitor information.

## 1.3 Proposed System

The proposed system of PRIMS is change the desktop application system to web based system. This is enabling the court add court decision passed to the prisoner on the system’s database remotely. In another way, send remotely the prisoner information to the court. It also enables the visitor to see the visiting schedule online. Our work on this system enables the organization to have visitor information by record the visitor information. Purpose of having visitor information to the organization is if prisoner escape prisoner from prison, some investigator may need to investigate on the visitor record in connection with the prisoner escaped.

## 1.4 Objectives of the Project

### 1.4.1 General objective

The general objective we are going to develop is changing desktop application system to web based system for PRIMS.

### 1.4.2 Specific objective

Our specific objective that we need to achieve the general objective as follows:

* We have collected appropriate data from the PRIMS staffs.
* Try to review documentations, manuals and forms about the PRIMS.
* Identify the basic functionalities and non-functionalities of the PRIMS.
* Design the database and user interface based upon the analyzed data.
* We will implement the system based on our design to achieve the desired goal.

## 1.5 Scope of the project

Scope is the boundary of the system that possibly being implements for the future. The scope of our project is to design user-friendly quick and effective web based PRIMS for Bahir Dar city prison administration. The boundary that we try to cover is the following.

* To register prisoner information
* To register visitor information
* To formulate schedule for visitor
* To record prisoner transfer request
* To record prisoner conditional release request
* To generate report
* To update prisoner information
* To add available room and block information
* To assign room for prisoner
* To View prisoner information
* To transfer files from one prison to another prison.
* To add court decision for prisoner to the system
* To add evaluation information for case of release
* To update the schedule
* To check court appointment for prisoner

## 1.6 Scope out

The following points are scope out that is not cover due to different limitations. These are time limitation, machine limitation, access limitation.

* Take Attendance (machine limitation )
* Assign job (time limitation)
* To put signature (machine limitation)
* To enable prisoner view personal information (access limitation)
* prisoner’s legal private property (time limitation)

## 1.7 Methodology and Tools

* Data collection methods

We collect requirements through interview the registrar officer staff, brain storming and observing the existing system.

* System development method

We use the iterative object-oriented approach to develop our system.

* Developmental tools
* PHP programming language
* Dream weaver tool to design database
* HTML design web program
* Ms Visio2003
* MySql

## 1.8 Significance of the Project

Our project has the following contributions to the organization:

* Ease of grant access of prisoner detail through internet
* Ease of registering prisoner information to database
* Enabling the judge to add decision information passed to prisoner on the system’s database
* Enabling file transfer from one prison to another prison in similar system
* Easy to manages the prisoners’ information.
* Enabling the visitor to see the visiting schedule online (using internet)
* Easy to search prisoner information

## 1.9 Organization of the project

In our document we have included the system details through all the chapters. In chapter one we have include introduction, background, general objective, specific objective, scope of the project, the methodology we have used. In chapter two we deals about system features such as; existed system description, proposed system description, functional requirement, non-functional requirement, and analysis models. Chapter three also deals about system design such as; deployment diagram, class diagram, ER diagram, class diagram description, ER diagram, logical mapping, algorithm design, and interface diagram.

# CHAPTER TWO: SYSTEM FEATURES

## 2.1 Existing System Description

The existing system of prisoners’ information management system provides the following services:

* Register prisoner information
* Search prisoner information
* Record prisoner request
* Update prisoner information

## 2.2 Proposed system description

The proposed system of PRMIS is change the desktop application system to web based system. This is enabling the court add court decision passed to the prisoner on the system’s database remotely. In another way, send remotely the prisoner information to the court. It also enables the visitor to see the visiting time schedule online. Our work on this system enables the organization to have visitor information by record the visitor information. Purpose of having visitor information to the organization is if prisoner escape prisoner from prison, some investigator may need to investigate on the visitor record in connection with the prisoner escaped.

* Register prisoner information
* Register visitor information
* Record prisoner transfer request
* Record prisoner conditional release request
* Record evaluation points of conditional release to be evaluated by the system
* Record release case evaluation points to know how the prisoner is released
* Search prisoner information
* Record the available room
* Assign room
* Record court decision information

## 2.3 Functional requirements

It is a description of the facility or feature required. Functional requirements deal with what the system should do or provide for users. They include description of the required functions, outlines of associated reports or online queries, and details of data to be held in the system. These include user requirement and system requirement (Ofni, System, 2014).

### 2.3.1 User Requirements

The User Requirements Specification describes the business needs for what users require from the system. User Requirements Specifications are written early in the validation process, typically before the system is created. The system owner and end-users, with input from Quality Assurance, write them. Requirements outlined in the user requirement specification are usually tested in the Performance Qualification or User Acceptance Testing. User Requirements Specifications are not intended to be a technical document; readers with only a general knowledge of the system should be able to understand the requirements outlined in the user requirement specification (Ofni, user-requirement-specifications, 2014). In general, they are written from a user’s perspective and the focus of user requirement describe tasks the user must be able to accomplish in order to fulfill the business requirements and they are captured in the requirement definition document.

The discipline Officer can do the following things on the system

* View prisoners’ information.
* View prisoner conditional release request
* Record conditional release evaluation points
* Generate report
* Change password
* View prisoners’ transfer request.

The Registrar Officer can do the following things on the system

* Register prisoners’ information.
* Record the prisoners’ transfer request.
* Record prisoners’ conditional release request
* Update prisoners’ information
* Assign room for prisoner
* Register available room
* Check court appointment for the prisoner
* View prisoner information
* Change password

The System administrator can do the following things on the system

* Create user account and password
* Grant privilege to the user on the system
* Revoke privilege
* Generate report
* Change password

The judge can do the following things on the system

* Adds court decision passed to prisoner (update the record)
* View prisoners’ information.
* Generate report
* Change password

The police officer can do the following things on the system

* + Register visitor information.
  + View prisoner information
  + Change password

The police officer can do the following things on the system

* Add release evaluation to the system
* Generate report
* View prisoner information
* Change password

Our system has the following actors

* Registrar officer
* Discipline officer
* Release officer
* System administrator
* Judge
* Police officer
* Visitor

### Table 1: 2.1.2 Requirement description

Req.ID 001 Login

|  |  |
| --- | --- |
| **Requirement ID** | **001** |
| Requirement Name | **Login** |
| Actor | All staffs and judge |
| Requirement | The system shall allow the staff login to the system |
| Description | All The staffs and judge enters user name, password and login to the system. |
| Priority | High |

Table 2: Req.ID 002 create user account

|  |  |
| --- | --- |
| **Requirement ID** | **002** |
| Requirement Name | **Create user account** |
| Actor | System administrator |
| Requirement | The system shall allow administrator staff crate user account and password |
| Description | System administrator enters user name, password to login and create user account. |
| Priority | High |

Table 3: Req.ID 003 Register prisoner

|  |  |
| --- | --- |
| **Requirement ID** | **003** |
| Requirement Name | **Register Prisoner Information** |
| Actor | Registrar officer |
| Requirement | The system shall allow Registrar staff register prisoner information |
| Description | To register prisoner information, registrar officer needs to enter user name and password to login to the system and perform his/ her task on the system. |
| Priority | High |

Table 4: Req.ID 004 Register Visitor Information

|  |  |
| --- | --- |
| **Requirement ID** | **004** |
| Requirement Name | **Register Visitor Information** |
| Actor | Police officer |
| Requirement | The system shall allow police Officer staff register visitor information |
| Description | To perform task on the system, police officer must enter user name and password to login to the system. |
| Priority | Medium |

Table 5: Req.ID 005 Record room

|  |  |
| --- | --- |
| **Requirement ID** | **005** |
| Requirement Name | **Record Room** |
| Actor | Registrar officer |
| Requirement | The system shall allow Registrar Officer staff record room |
| Description | Registrar officer must enter user name and password to login and perform the task |
| Priority | Medium |

Table 6: Req.ID 006 Assign room

|  |  |
| --- | --- |
| **Requirement ID** | **006** |
| Requirement Name | **Assign room** |
| Actor | Registrar officer |
| Requirement | The system shall allow registrar officer staff to assign room for the prisoner |
| Description | Registrar officer login to the system and perform his/her task by inserting user name and password |
| Priority | High |

Table 7: Req.ID 007 add court decision

|  |  |
| --- | --- |
| **Requirement ID** | **007** |
| Requirement Name | **Add court decision** |
| Actor | Judge |
| Requirement | The system shall allow judge add court decision of the prisoner to the system |
| Description | Judge enters user name and password to login and to add court decision for the prisoner |
| Priority | High |

Table 8: Req.ID 008 view prisoner information

|  |  |
| --- | --- |
| **Requirement ID** | **008** |
| Requirement Name | **View prisoner information** |
| Actor | All staffs and judge |
| Requirement | The system shall allow all staff and judge view prisoner information |
| Description | All staffs and judge must login to the system providing user name and password to perform tasks of viewing prisoner information |
| Priority | High |

Table 9: Req.ID 009 Record prisoner transfer request

|  |  |
| --- | --- |
| **Requirement ID** | **009** |
| Requirement Name | **Record prisoner transfer request** |
| Actor | Registrar officer |
| Requirement | The system shall allow registrar officer staff to record prisoner transfer request |
| Description | To record prisoner transfer request, registrar officer must provide user name and password to the system to login. |
| Priority | High |

Table 10: Req.ID 010 Record prisoner conditional release request

|  |  |
| --- | --- |
| **Requirement ID** | **010** |
| Requirement Name | **Record prisoners’ conditional release request** |
| Actor | Registrar officer |
| Requirement | The system shall allow registrar officer staff to record prisoner conditional release request |
| Description | Registrar officer enters user name and password to login and record conditional release request. |
| Priority | High |

Table 11: Req.ID 011 Check court appointment

|  |  |
| --- | --- |
| **Requirement ID** | **011** |
| Name | **Check court appointment** |
| Actor | Registrar officer |
| Requirement | The system shall allow registrar officer staff to check court appointment for the prisoner |
| Description | Registrar officer inserts user name and password to login and check court appointment for the prisoner. |
| Priority | High |

Table 12: Req.ID 012 View transfer request

|  |  |
| --- | --- |
| **Requirement ID** | **012** |
| Requirement Name | **View prisoner transfer request** |
| Actor | Discipline officer |
| Requirement | The system shall allow discipline officer staff to view prisoner transfer request |
| Description | Discipline officer must provide user name and password to the system to login and view prisoners transfer request. |
| Priority | High |

Table 13: Req.ID 013 View conditional release request

|  |  |
| --- | --- |
| **Requirement ID** | **013** |
| Requirement Name | **View conditional release request** |
| Actor | Discipline officer |
| Requirement | The system shall allow discipline officer staff to view prisoner conditional release request |
| Description | To view prisoner conditional release request, discipline officer must enter user name and password to login to the system. |
| Priority | High |

Table 14: Req.ID 014 Update prisoner information

|  |  |
| --- | --- |
| **Requirement ID** | **014** |
| Requirement Name | **Update prisoner information** |
| Actor | Registrar officer |
| Requirement | The system shall allow registrar officer staff to update prisoner information |
| Description | Registrar officer must insert user name and password to login to the system and perform update prisoner information. |
| Priority | High |

Table 15: Req.ID 015 Search prisoner information

|  |  |
| --- | --- |
| **Requirement ID** | **015** |
| Requirement Name | **Search prisoner information** |
| Actor | Registrar officer |
| Requirement | The system shall allow registrar officer staff to schedule visiting date and time |
| Description | Registrar officer must enter user name, and password and login to the system and perform search prisoner information. |
| Priority | High |

Table 16: Req.ID 016 Update Schedule

|  |  |
| --- | --- |
| **Requirement ID** | **016** |
| Requirement Name | **Update schedule** |
| Actor | Registrar officer |
| Requirement | The system shall allow registrar officer staff to update the schedule of visiting date and time |
| Description | To update prisoner information, registrar officer must provide user name, and password to the system and login. |
| Priority | Medium |

Table 17: Req.ID 017 Generate report

|  |  |
| --- | --- |
| **Requirement ID** | **017** |
| Requirement Name | **Generate Report** |
| Actor | Release officer, discipline officer, system administrator, and judge |
| Requirement | The system shall allow release officer staff, discipline officer staff, and system administrator staff to generate report |
| Description | All the above staff must enter user name and password to login to the system and generate report. |
| Priority | High |

Table 18: Req.ID 018 Add release evaluation information

|  |  |
| --- | --- |
| **Requirement ID** | **018** |
| Requirement Name | **Add release case evaluate information** |
| Actor | Release officer |
| Requirement | The system shall allow release officer staff to add release evaluation information to the system |
| Description | Release officer must provide user name and password to login and add release case evaluation points. |
| Priority | High |

Table 19: Req.ID 019 Grant privilege to user

|  |  |
| --- | --- |
| **Requirement ID** | **019** |
| Requirement Name | **Grant privilege** |
| Actor | System administrator |
| Requirement | The system shall allow system administrator staff to grant privilege to the user on the system |
| Description | System administrator enters user name and password to login and grant privilege to users of the system. |
| Priority | High |

Table 20: Req.ID 020 Revoke privilege from user

|  |  |
| --- | --- |
| **Requirement ID** | **020** |
| Requirement Name | **revoke privilege** |
| Actor | System administrator |
| Requirement | The system shall allow system administrator staff to grant privilege to the user on the system |
| Description | System administrator must enter user name and password to login and revoke privilege from users of the system. |
| Priority | Medium |

Table 21: Req.ID 021 Change password

|  |  |
| --- | --- |
| **Requirement ID** | **021** |
| Requirement Name | **Change password** |
| Actor | System administrator, registrar officer, discipline officer, release officer, police officer and judge |
| Requirement | The system shall allow system administrator staff, judge and all staff to change password |
| Description | All staffs, system administrator, and judge must insert user name and password to login and change password. |
| Priority | High |

Table 22: Req.ID 022 Evaluate conditional release

|  |  |
| --- | --- |
| **Requirement ID** | **022** |
| Requirement Name | **Evaluate conditional release** |
| Actor | Discipline officer |
| Requirement | The system shall allow the system to evaluate conditional release |
| Description | The discipline officer enters user name and password to login and view evaluated conditional release. |
| Priority | High |

Table 23: Req.ID 023 Record conditional release evaluation point

|  |  |
| --- | --- |
| **Requirement ID** | **023** |
| Requirement Name | **Record conditional release evaluation point** |
| Actor | Discipline officer |
| Requirement | The system shall allow discipline officer to record conditional release evaluation points |
| Description | Discipline officer access the system through inserting user name and password and record conditional release evaluation points. |
| Priority | High |

Table 24: Req.ID 024 View schedule

|  |  |
| --- | --- |
| **Requirement ID** | **024** |
| Requirement Name | **View schedule** |
| Actor | Visitor |
| Requirement | The system shall allow visitor to view schedule |
| Description | The visitor does not have user name and password but they simply browse the system and view the schedule. |
| Priority | High |

### 2.3.2 System Requirements

Requirements constitute a specification for the new system. They serve as a “contract” between customers and developers. "...Requirements definition is a careful assessment of the needs that a system is to fulfill...must say *why* a system is needed, based on current and foreseen conditions, which may be internal operations or an external market...must say *what* system features will serve and satisfy this context...must also say *how* the system is to be constructed...”. (Mylopoulos, 2004)

**The system enables the registrar officer staff to:**

* To register prisoner information
* To record room
* To record prisoner transfer request
* To record prisoner conditional release request
* To view prisoner information
* To check court appointment for the prisoner
* To schedule visiting date and time
* To update prisoner information
* To Assign room
* To change password

**The system enables the System administrator staff:**

* To create user account
* To view prisoner information
* To grant privilege to the user on the system
* To revoke privilege from prisoner
* To Generate report
* To change password

**The system enables the discipline officer staff:**

* To view prisoner transfer request
* To view prisoner conditional release request
* To view prisoner information
* To generate report
* To record conditional release evaluation points/ information
* To change password

**The system enables the release officer staff:**

* + To Record release evaluation information
  + To generate report
  + To view prisoner information
  + To change password

**The system enables the judge:**

* To add court decision for the prisoner
* To view prisoner information
* To generate report
* To change password

**The police officer staff:**

* Register visitor information
* View prisoner information
* Change password

The system shall allow itself to evaluate conditional release for the prisoner.

The system shall allow visitor view schedule.



Fig 1: Use case diagram

### 2.3.3 Use case diagram description

A use case diagram is a summary of who use your application and what they can do with it.

It describes the relationship among the requirements, users and the major components of the system. Use case diagram shows the relationships between users (actors) and use cases with in a system or application. They provide an overall view of how the systems is used and the various roles and actions that take place within the system.

|  |  |
| --- | --- |
| Use case number | **UC 1** |
| Use case Name | **Login** |
| Description | Authorized access to the system’s appropriate access level |
| Pre-condition | The user must sign up and be authenticated |
| Basic course of action | 1. User enters user name and password 2. User clicks on login button 3. The system checks the input user name and password 4. The system opens main home page |
| Alternative course of action | 1. The system display error message and points the user back to step1 if inputs are invalid |
| Post-condition | 1. User has logged in and access the system |

Table 25: UC description login

|  |  |
| --- | --- |
| Use case number | **UC 2** |
| Use case Name | **Create account** |
| Description | System administrator staff create account |
| Pre-condition | System administrator staff must login |
| Basic course of action | 1. System administrator staff enters user name and password 2. clicks on login button 3. The system checks if the input user name and password is correct 4. Clicks on create account link 5. The system display create account form 6. System administrator staff fill the form 7. Clicks on create button |
| Alternative course of action | 1. The system points back to step 1 if user name and password are incorrect and points back to step 5 if the account form is not filled correctly and display error message |
| Post-condition | 1. users are created successfully |

Table 26: UC description create account

|  |  |
| --- | --- |
| Use case number | **UC 3** |
| Use case Name | **Register prisoner** |
| Description | Registrar officer staff register prisoner information |
| Pre-condition | The registrar officer staff must login to the system |
| Basic course of action | 1. Registrar officer staff enters user name and password 2. clicks on login button 3. The system checks the input user name and password 4. Clicks on register prisoner menu 5. The system display registration form 6. Fills the form 7. Clicks on register button |
| Alternative course of action | 1. The system display error message and points the user back to step5 if user make an error input or if fields are not filled |
| Post-condition | 1. System store the information and display successful message |

Table 27: UC description Register prisoner

|  |  |
| --- | --- |
| Use case number | **UC 4** |
| Use case Name | **Register visitor** |
| Description | Registrar officer staff register prisoner information |
| Pre-condition | The registrar officer staff must login to the system |
| Basic course of action | 1. Registrar officer staff enters user name and password 2. clicks on login button 3. The system checks the input user name and password 4. Clicks on register prisoner menu 5. The system display registration form 6. Fills the form 7. Clicks on register button |
| Alternative course of action | 1. The system display error message and points the user back to step5 if user make an error input or if fields are not filled |
| Post-condition | 1. System store the information and display successful message |

Table 28: UC description Register visitor

|  |  |
| --- | --- |
| Use case number | **UC 5** |
| Use case Name | **Add court decision** |
| Description | Judge adds court decision passed to prisoner on the system |
| Pre-condition | The judge must login to the system |
| Basic course of action | 1. judge enters user name and password 2. clicks on login button 3. The system checks the input user name and password 4. Clicks on registration menu 5. The system display registration form 6. Judge fills the decision on the form 7. Clicks on add button |
| Alternative course of action | 1. The system display error message and points the user back to step5 if user make an error input or if fields are not filled and to step 1 if user name and password is not correct |
| Post-condition | 1. System store the information and display successful message |

Table 29: UC Add court decision

|  |  |
| --- | --- |
| Use case number | **UC 6** |
| Use case Name | **Record room** |
| Description | The registrar officer staff record the available room |
| Pre-condition | Registrar officer must login to the system |
| Basic course of action | 1. Registrar officer staff enters user name and password 2. clicks on login button 3. The system checks the input user name and password 4. Main home page is opened 5. Clicks on room record menu 6. The system display room record form 7. Registrar officer staff fills the form 8. Clicks on add button |
| Alternative course of action | 1. The system display error message and points the user back to step 6 if user make an error input or if fields are not filled and to step 1 if user name and password is not correct |
| Post-condition | 1. System store room record information and display successful message |

Table 30: UC Room record

|  |  |
| --- | --- |
| Use case number | **UC 7** |
| Use case Name | **Record prisoner transfer request** |
| Description | Registrar officer staff records prisoner transfer request |
| Pre-condition | Registrar officer staff must login to the system |
| Basic course of action | 1. Registrar officer staff enters user name and password 2. clicks on login button 3. The system checks the input user name and password 4. Clicks on registration menu 5. The system display transfer request form 6. Registrar officer staff fills the request form 7. Clicks on submit button |
| Alternative course of action | 1. The system display error message and points the user back to step5 if user make an error input or if fields are not filled and to step 1 if user name and password is not correct |
| Post-condition | 1. System store the request information and display successful message |

Table 31: UC Record prisoner transfer request

|  |  |
| --- | --- |
| Use case number | **UC 9** |
| Use case Name | **Record prisoner conditional release request** |
| Description | Registrar officer staff records prisoner conditional releaserequest |
| Pre-condition | Registrar officer staff must login to the system |
| Basic course of action | 1. Registrar officer staff enters user name and password 2. clicks on login button 3. The system checks the input user name and password 4. Clicks on registration menu 5. The system display conditional releaserequest form 6. Registrar officer staff fills the conditional releaserequest form 7. Clicks on submit button |
| Alternative course of action | 1. The system display error message and points the user back to step5 if user make an error input or if fields are not filled and to step 1 if user name and password is not correct |
| Post-condition | 1. System store the request information and display successful message |

Table 32: UC Record prisoner conditional release request

|  |  |
| --- | --- |
| Use case number | **UC 10** |
| Use case Name | **Update prisoner information** |
| Description | Registrar officer staff updates prisoner information |
| Pre-condition | Registrar officer staff must login to the system |
| Basic course of action | 1. Registrar officer staff enters user name and password 2. clicks on login button 3. The system checks the input user name and password 4. Clicks on update menu 5. The system display prisoner information 6. Registrar officer staff fills the changes on the given information 7. Clicks on update button |
| Alternative course of action | 1. The system display error message and points the user back to step5 if user make an error input or if fields are not filled and to step 1 if user name and password is not correct |
| Post-condition | 1. The system stores the updated information |

Table 33: UC description Update prisoner information

|  |  |
| --- | --- |
| Use case number | **UC 11** |
| Use case Name | **Schedule visiting** |
| Description | Registrar officer staff schedule visiting date and time |
| Pre-condition | Registrar officer staff must login to the system |
| Basic course of action | 1. Registrar officer staff enters user name and password 2. clicks on login button 3. The system checks the input user name and password 4. Clicks on schedule visiting menu 5. The system display schedule form 6. Registrar officer staff fills the schedule 7. Clicks on schedule button |
| Alternative course of action | 1. The system display error message and points the user back to step5 if user make an error input or if fields are not filled and to step 1 if user name and password is not correct |
| Post-condition | 1. The system store the schedule |

Table 34: UC description Schedule visiting date and time

|  |  |
| --- | --- |
| Use case number | **UC 12** |
| Use case Name | **Update schedule** |
| Description | Registrar officer staff update the schedule |
| Pre-condition | Registrar officer staff must login to the system |
| Basic course of action | 1. Registrar officer staff enters user name and password 2. clicks on login button 3. The system checks the input user name and password 4. Clicks on update schedule menu 5. The system display schedule form 6. Registrar officer staff make changes on the schedule 7. Clicks on update button |
| Alternative course of action | 1. The system display error message and points the user back to step5 if user make an error input or if fields are not filled and to step 1 if user name and password is not correct |
| Post-condition | 1. The updated schedule will be stored on the database |

Table 35: UC description Update the schedule

|  |  |
| --- | --- |
| Use case number | **UC 13** |
| Use case Name | **View prisoner information** |
| Description | all staff and judge view prisoner information |
| Pre-condition | Registrar officer staff must login to the system |
| Basic course of action | 1. staffs enter user name and password 2. clicks on login button 3. The system checks the input user name and password 4. Clicks on prisoner information 5. Staffs click on view button 6. The system display prisoner information |
| Post-condition | 1. The system store the schedule |

Table 36: UC description View prisoner information

|  |  |
| --- | --- |
| Use case number | **UC 14** |
| Use case Name | **View transfer request** |
| Description | Discipline officer staff view prisoner transfer request |
| Pre-condition | Registrar officer staff must login to the system |
| Basic course of action | 1. Discipline officer staff enter user name and password 2. clicks on login button 3. The system checks the input user name and password 4. Clicks on view transfer request menu 5. Discipline officer staff click on view button 6. The system displays prisoner transfer request information |
| Post-condition | 1. The staff view the information |

Table 37: UC description View prisoner transfer request

|  |  |
| --- | --- |
| Use case number | **UC 15** |
| Use case Name | **View conditional release request** |
| Description | Discipline officer staff view prisoner conditional releaserequest |
| Pre-condition | Registrar officer staff must login to the system |
| Basic course of action | 1. Discipline officer staff enter user name and password 2. clicks on login button 3. The system checks the input user name and password 4. Clicks on view conditional releaserequest menu 5. Discipline officer staff click on view button 6. The system displays prisoner conditional releaserequest information |
| Post-condition | 1. The staff view the conditional releaserequest information |

Table 38: UC Description View prisoner conditional release request

|  |  |
| --- | --- |
| Use case number | **UC 16** |
| Use case Name | **Check court appointment** |
| Description | Registrar officer staff update the schedule |
| Pre-condition | Registrar officer staff must login to the system |
| Basic course of action | 1. Registrar officer staff enters user name and password 2. clicks on login button 3. The system checks the input user name and password 4. Clicks on appointment menu 5. Clicks on check button 6. The system display the appointment information |
| Post-condition | 1. User view the appointment |

Table 39: UC Description Check court appointment

|  |  |
| --- | --- |
| Use case number | **UC 17** |
| Use case Name | **Assign room** |
| Description | Registrar officer staff assign room for the prisoner |
| Pre-condition | Registrar officer staff must login to the system |
| Basic course of action | 1. Registrar officer staff enters user name and password 2. clicks on login button 3. The system checks the input user name and password 4. Clicks on assign room menu 5. The system display the record of the room 6. Registrar officer staff selects the unreserved room 7. Clicks on assign button |
| Alternative course of action | 1. The system display error message and points the user back to step5 if user make an error input or if fields are not filled and to step 1 if user name and password is not correct |
| Post-condition | 1. The room will be assigned |

Table 40: UC Description assign room

|  |  |
| --- | --- |
| Use case number | UC 18 |
| Use case name | Record release case evaluation |
| Description | Release officer staff records release case evaluation information |
| Pre- condition | Discipline officer staff must login to the system |
| Basic course of action | 1. Release officer staff enters user name and password. 2. Clicks on login button 3. The system checks validity of user name and password. 4. Clicks on release case menu 5. The system display release case form 6. Release officer fills the form 7. Clicks on add button 8. End use case |
| Alternative course of action | 1. The system display error message and points the release officer staff back to step1 and step6. |
| Post condition | 1. The system stores the information |

Table 41: UC Description Record Release case evaluation information

|  |  |
| --- | --- |
| Use case number | UC 19 |
| Use case name | Record notran evaluation information |
| Description | Discipline officer staff record prisoners’ notran evaluation information/points to the system. |
| Pre- condition | Discipline officer staff must login to the system |
| Basic course of action | 1. Discipline officer staff enters user name and password. 2. Clicks on login button 3. The system checks validity of user name and password. 4. Clicks on notran case menu 5. The system display notran case form 6. Discipline officer staff fills the form 7. Clicks on add button 8. End use case |
| Alternative course of action | 1. The system display error message and points the release officer staff back to step1 and step6. |
| Post condition | 1. The system stores the information |

Table 42: UC Description Record notran evaluation information

|  |  |
| --- | --- |
| Use case number | UC 20 |
| Use case name | **View schedule** |
| Description | Visitor can view the schedule to see when the visiting date and time is. |
| Pre- condition | No precondition |
| Basic course of action | 1. Visitor opens the link. 2. Select on view menu 3. Visitor clicks on view schedule 4. Visitor clicks on view buton 5. The system displays the schedule and visitor will see it. |
| Post condition | 1. End use case |

Table 43: UC Description View schedule

|  |  |
| --- | --- |
| Use case number | **UC 21** |
| Use case name | **Grant privilege** |
| Description | The system administrator staff grant privilege for the user on the system |
| Pre- condition | System administrator must login to the system |
| Basic course of action | 1. System administrator staff enters user name and password 2. Clicks on login button 3. The system checks validity of user name and password. 4. Clicks on notran case menu 5. The system display the appropriate page 6. System administrator Fill the form 7. Clicks on grant privilege button 8. Click on logout button 9. End use case |
| Alternative course of action | 1. The system display error message and points the user back to step5 if user make an error input or if fields are not filled and to step 1 if user name and password is not correct. |
| Post condition | 1. System admin grant privilege for eligible user |

Table 44: UC Description Grant privilege

|  |  |
| --- | --- |
| Use case number | **UC 22** |
| Use case name | **Revoke privilege** |
| Description | The system administrator staff grant privilege for the user on the system |
| Pre- condition | System administrator must login to the system |
| Basic course of action | 1. System administrator staff enters user name and password 2. Clicks on login button 3. The system checks the input user name and password is correctly spelled. 4. Clicks on revoke privilege link 5. The appropriate page will be displayed 6. The system admin gives search parameter to remove account 7. If appropriate account to be remove found 8. Clicks on revoke privilege button 9. End use case |
| Alternative course of action | 1. The system display error message and points the user back to step5 if user make an error input or if fields are not filled and to step 1 if user name and password is not correct. |
| Post condition | 1. System admin revoke privilege from eligible user |

Table 45: UC Description Revoke privilege

|  |  |
| --- | --- |
| Use case number | **UC 23** |
| Use case name | **Search prisoner information** |
| Description | The system administrator, registrar officer, discipline officer, release officer, police officer and judge can search prisoner information from the system. |
| Pre- condition | All the staff and judge must login to the system |
| Basic course of action | 1. staffs enters user name and password 2. clicks on login button 3. The system checks the input user name and password is correct. 4. Select search criteria 5. Click on search button 6. The system display search result 7. End use case |
| Alternative course of action | 1. The system generate message ”incorrect username or password” |
| Post condition | 1. Access search functionality if they are eligible. |

Table 46: UC Description Search prisoner information

|  |  |
| --- | --- |
| Use case number | **UC 24** |
| Use case name | **Generate report** |
| Description | The system administrator, discipline officer, release officer and judge can generate report. |
| Pre- condition | System admin, discipline officer, release officer and judge must login to the system |
| Basic course of action | 1. System admin, discipline officer, release officer and judge enters user name and password 2. clicks on login button 3. The system checks the input user name and password is correct. 4. Clicks on generate report link 5. The appropriate page will be displayed 6. System admin, discipline officer, release officer and judge fill the criteria to generate report. 7. Clicks on generate report button 8. View report 9. End use case |
| Alternative course of action | 1. The system generate message ”incorrect username or password” |
| Post condition | 1. View report if they are eligible. |

Table 47: UC Description Generate report

## 2.4 Non-functional requirements

|  |  |
| --- | --- |
| Requirement id | NFr1 |
| Requirement | The system must recoverable if system failure is occurs. |
| Description | If system failure is occurs the system must be easy for maintenance. |
| Category | Maintainability |
| Priority | high |

Table 48: maintainability

|  |  |
| --- | --- |
| Requirement id | NFr2 |
| Requirement | The system should have a help tabular menu to support the user. |
| Description | When the users need a support or help, the system should have a help tabular menu to support the user. And the system must have a manual. |
| Category | Usability |
| Priority | high |

Table 49: Usability

|  |  |
| --- | --- |
| Requirement id | NFr3 |
| Requirement | All system interfaces shall have a link to communicate the user and the system. |
| Description | The system interface must integrate and compatible to each other. |
| Category | integrity |
| Priority | high |

Table 50: Integrity

|  |  |
| --- | --- |
| Requirement id | NFr4 |
| Requirement | The system should be available for 24 hours without failure. |
| Description | The system should be available to give a reliable service to its user by well perform its task every day. |
| Category | Availability |
| Priority | high |

Table 51: Availability

|  |  |
| --- | --- |
| Requirement id | NFr5 |
| Requirement | The system must respond to 95% of the user request within 3 seconds. |
| Description | When the user requests some operation, the system must operate or compute more than 95% of its task and the system must give a respond for the user within 3 seconds. |
| Category | Performance |
| Priority | high |

Table 52: performance

|  |  |
| --- | --- |
| Requirement id | NFr6 |
| Requirement | The system must control unknown access. |
| Description | If there is unauthorized access, the system must control and prevent the user from unauthorized access to the system. |
| Category | Security |
| Priority | high |

Table 53: Security

|  |  |
| --- | --- |
| Requirement id | NFr7 |
| Requirement | The system shall Only Administered by the administrator. Administrator will able to enter the system to make maintenance. |
| Description | When the system crash or doesn’t work only the Administrator can fix it. |
| Category | Security |
| Priority | high |

Table 54: Security

|  |  |
| --- | --- |
| Requirement id | NFr8 |
| Requirement | The system shall display the correct answer for similar inputs. |
| Description | When the user enters the same input the system must give the same output for each input. |
| Category | Correctness |
| Priority | high |

Table 55: Correctness

## 2.5 Analysis model

### **Activity Diagram Description**

An activity diagram describes the behavior of a system in terms of activities. Activities are  
modeling elements that represent the execution of a set of operations. The execution of an  
activity can be triggered by the completion of other activities, by the availability of objects, or by  
external events. Activity diagrams are similar to flowchart diagrams in that they can be used to  
represent control flow (i.e., the order in which operations occur) and data flow (i.e., the objects  
that are exchanged among operations). 

Fig 2: view prisoner information



Fig 3: schedule visiting date and time



Fig 4: add court decision



Fig 5: view conditional release request



Fig 6: transfer request



Fig 7: search prisoner information



Fig 8: record conditional release request



Fig 9: record prisoner information



Fig 10: updates prisoner information



Fig 11: view transfer request



Fig 12: generate report



Fig 13: login for system admin, registrar, discipline, release officer



Fig 14: create user account



Fig 15: change password for system admin, registrar, discipline, release officer



Fig 16: record block and room



Fig 17: update schedule



Fig 18: visitor registration



Fig 19: check appointment

### 2.6 Sequence Diagram Description

A **sequence diagram** is an interaction diagram that shows how processes operate with one another and in what order. It is a construct of a Message Sequence Chart. A sequence diagram shows object interactions arranged in time sequence. It depicts the objects and classes involved in the scenario and the sequence of messages exchanged between the objects needed to carry out the functionality of the scenario. Sequence diagrams are typically associated with use case realizations in the Logical View of the system under development. Sequence diagrams are sometimes called **event diagrams**, **event scenarios** (wikipeda, 2014)**.**.



Fig 20: prisoners’ transfer request



Fig 21: prisoners’ notran request



Fig 22: prisoners’ registration



Fig 23: search prisoners’ information for discipline, release officer, sys admin



Fig 24: create user account



Fig 25: view transfer request



Fig 26: generates report for discipline officer and release officer



Fig 27: change account for (sys admin, discipline, registrar, release officer and judge)



Fig 28: View prisoners’ information for sys admin, registrar, discipline, release officer and judge



Fig 29: view conditional release request



Fig 30: add prisoners information



Fig 31: record visitor information



Fig 32: schedule



Fig 33: check court appointment



Fig 34: update the schedule



Fig 35: update prisoner information



Fig 36: add room

# CHAPTER THREE: SYSTEM DESIGN PHASE

System design is the process of defining the architecture, component, modules, interfaces, and data for a system to satisfy the system requirements. System design also shows the system theory to product development.

## 3.1 Deployment diagram

The following diagram shows the three tier of the system. The system has components like, web browser on user computer, web server on application server, and sql files on database. In general it shows how the system works on hardware, software and application software. The user interacts with the system through application software.



Fig 37: deployment diagram

## 3.2 Architectural Design

It is a blueprint of software system that encompasses a set of functionalities that are represented in the form of communicating entities that collaborate to perform a task. The Architectural Design is a top level design which shows these entities, their relationships and the relationships. According to object oriented approach the best fit to express these features in the form of interacting objects that encapsulates behaviors and state of the object. Therefore the team has agreed upon to show this feature using class diagram. Class diagrams are widely used to describe the types of objects in a system and their relationships. Class diagrams model class structure and contents using design elements such as classes, packages and objects. The purpose of a class diagram is to depi ct the classes within a model. In our object oriented application, around thirty one classes have attributes (member variables), operations (member functions) and relation-ships with other classes. The UML class diagram can depict all these things quite easily (Ramez & Shamkant, 2004).

The following diagram shows the blue print representation of the real world. This means each class has its own attributes that describe the characteristics of the class. It also shows the relationships like, composition, inheritance, association, and generalization of each class on the entire system.

Prisoner, police officer, system administrator, discipline officer, release officer, judge, visitor, and registrar officer are inheriting all method and attributes from the person class.

* Prisoner and court Decision has many –to-many association
* Many Prisoner associate with one prison
* One block can have size of many prisoner and room
* One judge can report one or many reports
* One release officer can report one or many reports
* One discipline officer can report one or many reports
* One room contains maximum of 7 beds
* One prison camp can be located in on location
* One judge can pass one or many decisions
* One registrar officer register more than one prisoner information
* One police officer can register more than one visitor information

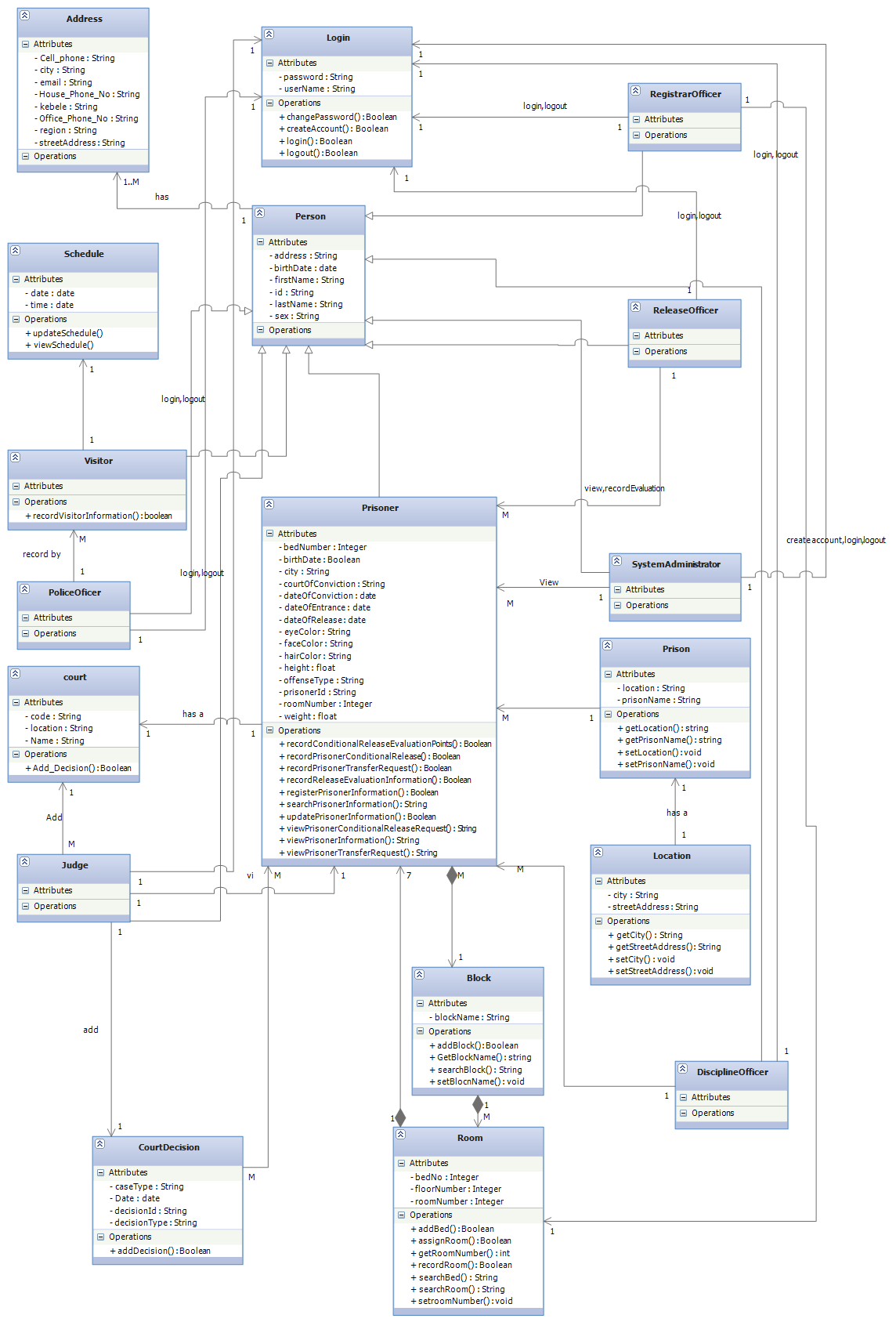


Fig 38: Class diagram

|  |  |  |
| --- | --- | --- |
| Class |  | |
| Prisoner | Public: yes | |
| Relationships | Associations: registrar officer, court decision, prison,block, bed |
| Composition: None |
| Generalization: Person |
| Variables:- height: float, weight: float, faceColor: string, hairColor: string, prisoner\_id: string, birth date: date, dateOfEntrance: string, dateOfRelease: string, timeofJudgement: string, dateOfConviction: string, courtOfConviction: string, crimeCode: string, offenseType: string, city: string, roomNo: int, bedNo: int | |
| Functions: NULL | |
| Function parameters: **NULL** | |

Table 56: CD Description prisoner

|  |  |  |
| --- | --- | --- |
| Class |  | |
| Visitor | Public: yes | |
| Relationships | Associations: police officer, prisoner |
| Composition: None |
| Generalization: Person |
| Variables:- date: date, time: date | |
| Functions: viewSchedule() | |
| Function parameters: **date and time** | |

Table 57: CD Description visitor

|  |  |  |
| --- | --- | --- |
| Class |  | |
| Court\_decision | Public: yes | |
| Relationships | Associations: prisoner, judge |
| Composition: NULL |
| Generalization: NULL |
| Variables:- date: date, caseType: string, decisionType: string | |
| Functions: addCourtDecision() | |
| Function parameters: date, caseType, decisionType | |

Table 58: CD Description court decision

|  |  |  |
| --- | --- | --- |
| Class |  | |
| Address | Public: yes | |
| Relationships | Associations: person |
| Composition: NULL |
| Generalization: NULL |
| Variables:- email: string, phoneNo: string, region: string, city: string, kebele: string | |
| Functions: NULL | |
| Function parameters: NULL | |

Table 59: CD Description address

|  |  |  |
| --- | --- | --- |
| Class |  | |
| Police officer | Public: yes | |
| Relationships | Associations: visitor |
| Composition: NULL |
| Generalization: person |
| Variables:- username: string, password: string, officerId: string | |
| Functions: login(), changePassword(), viewPrisonerInformation(), registerVisitorInformation() | |
| Function parameters: **userName, password, prisonerInformation** | |

Table 60: CD Description police officer

|  |  |  |
| --- | --- | --- |
| Class |  | |
| Release Officer | Public: yes | |
| Relationships | Associations: prisoner |
| Composition: NULL |
| Generalization: person |
| Variables:- username: string, password: string, officerId: string | |
| Functions: login(),viewPrisonerInformation(), changePassword(),login() recordReleaseEvaluationInformation() | |
| Function parameters: **userName, password,** **releaseCaseEvaluation** | |

Table 61: CD Description release officer

|  |  |  |
| --- | --- | --- |
| Class |  | |
| Registrar Officer | Public: yes | |
| Relationships | Associations: prisoner, room |
| Composition: NULL |
| Generalization: person |
| Variables:- username: string, password: string, officerId: string | |
| Functions: assignRoom(), schedule(), updatePrisonerInformation(), updateScgedule(), registerPrisonerInformation(), recordPrisonerTransferRequest(), recordPrisonerNotranRequest(), searchPrisonerInformation(), checkCourtAppointment(), recordRoom(), viewPrisonerInformation() | |
| Function parameters**userName, password, prisoner Information, room** **information, date** | |

Table 62: CD Description registrar officer

|  |  |  |
| --- | --- | --- |
| Class |  | |
| Discipline Officer | Public: yes | |
| Relationships | Associations: prisoner |
| Composition: NULL |
| Generalization: person |
| Variables:- username: string, password: string, firstNAme: string, lastNAme: string officerId: string | |
| Functions: viewTransferrequest(), viewNotranRequest(), viewPrisonerInformation(), login(), changePassword(), recordNotranEvaluationInformation() | |
| Function parameters:- userName, password, notran Evaluation points | |

Table 63: CD Description discipline officer

|  |  |  |
| --- | --- | --- |
| Class |  | |
| Person | Public: yes | |
| Relationships | Associations: address |
| Composition: NULL |
| Generalization: NULL |
| Variables:- firstName: string, lastName: string, address: string, birthDate: date | |
| Functions: NULL | |
| Function parameters:- NULL | |

Table 64: CD Description description for person

|  |  |  |
| --- | --- | --- |
| Class |  | |
| System Administrator | Public: yes | |
| Relationships | Associations: registrar officer, discipline office, release officer, police officer, judge |
| Composition: NULL |
| Generalization: person |
| Variables:- username: string, password: string, id: string | |
| Functions: viewPrisonerInformation(), createAccount(), login(), changePassword() | |
| Function parameters:- userName, password | |

Table 65: CD description system administrator

|  |  |  |
| --- | --- | --- |
| Class |  | |
| Location | Public: yes | |
| Relationships | Associations: prison |
| Composition: NULL |
| Generalization: NULL |
| Variables:- city: string, streetAddress: string | |
| Functions: NULL | |
| Function parameters:- NULL | |

Table 66: CD description for location

|  |  |  |
| --- | --- | --- |
| Class |  | |
| Prison | Public: yes | |
| relationships | Associations: prison |
| Composition: NULL |
| Generalization: NULL |
| Variables:- prisoner, location | |
| Functions:- NULL | |
| Function parameters:- NULL | |

Table 67: CD description for prison

|  |  |  |
| --- | --- | --- |
| Class |  | |
| Room | Public: yes | |
| relationships | Associations: NULL |
| Composition: prisoner |
| Generalization: NULL |
| Variables:- roomNo: int | |
| Functions:- Null | |
| Function parameters:- Null | |

Table 68: CD description for room

|  |  |  |
| --- | --- | --- |
| Class |  | |
| Block | Public: yes | |
| relationships | Associations: NULL |
| Composition: prisoner, room |
| Generalization: NULL |
| Variables:- blockNo: int | |
| Functions:- NULL | |
| Function parameters:- Null | |

Table 69: CD description for block

|  |  |  |
| --- | --- | --- |
| Class |  | |
| Judge | Public: yes | |
| relationships | Associations: report, prisoner |
| Composition: NULL |
| Generalization: prisoner |
| Variables:- username: string, password: string | |
| Functions:- viewPrisonerInformation(), addCourtDecisionInformation(), login(), changePassword() | |
| Function parameters:- **userName, password, court decision information** | |

Table 70: CD description for judge



Fig 39: ER diagram

### 3.2.1 ER Diagram Description

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Entity | Attribute | Data type | PK | definition |
| Court | courtName | string | Yes | Name of the court |
| Location | string | No | The location of the court |
| courtCode | string | No | The code of the court either highcourt, first instance court,  Supreme court |

Table 71: ER diagram description for court

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Entity | Attribute | Data type | PK | definition |
| Room | roomNo | Int | Yes | Room number |
| floorNo | Int | No | Floor number |

Table 72: ER diagram description for room

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Entity | Attribute | Data type | PK | definition |
| Prison | prisonName | string | Yes | Name of the prison |
| Location | string | No | The location of the prison |

Table 73: ER diagram description for prison

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Entity | Attribute | Data type | PK | definition |
| **Court decision** | Date | Date | No | The date in which the decision passed |
| Decision\_Id | string | Yes | Decision unification number |
| Time | Date | No | The time in which the decision passed |
| Case\_Type | string | No | The case type that has been review |
| Decision\_Type | string | No | The decision type which is passed to the prisoner as punishment |

Table 74: ER diagram description for court\_decision

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Entity | Attribute | Data type | PK | definition |
| **System Administrator** | firstName | string | No | First name |
| lastName | string | No | Last name |
| Id | string | Yes | Identification number |
| User name | string | No | User name |
| Password | string | No | password |

Table 75: ER diagram description System administrator

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Entity | Attribute | Data type | PK | definition |
| **Registrar officer** | firstName | string | No | First name |
| lastName | string | No | Last name |
| Id | string | Yes | Identification number |
| User name | string | No | User name |
| Password | string | No | password |

Table 76: Registrar officer

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Entity | Attribute | Data type | PK | definition |
| **Discipline officer** | firstName | string | No | First name |
| lastName | string | No | Last name |
| Id | string | Yes | Identification number |
| User name | string | No | User name |
| Password | string | No | password |

Table 77: Discipline officer Table

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Entity | Attribute | Data type | PK | definition |
| **release officer** | firstName | string | No | First name |
| lastName | string | No | Last name |
| Id | string | Yes | Identification number |
| User name | string | No | User name |
| Password | string | No | password |

Table 78: Release officer Table

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Entity | Attribute | Data type | PK | definition |
| **police officer** | firstName | string | No | First name |
| lastName | string | No | Last name |
| Id | string | Yes | Identification number |
| User name | string | No | User name |
| Password | string | No | password |

Table 79: Police officer Table

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Entity | Attribute | Data type | PK | definition |
| **Judge** | firstName | string | No | First name |
| lastName | string | No | Last name |
| Id | string | Yes | Identification number |
| User name | string | No | User name |
| Password | string | No | password |

Table 80: Judge Table

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Entity | Attribute | Data type | PK | definition |
| **Visitor** | firstName | string | No | First name |
| lastName | string | No | Last name |
| Id | string | Yes | Identification number |
| phoneNo | string | No | Phone number or officer phone number |
| Region | string | No | The region address of the visitor |
| City | string | no | City address of the visitor |
| Kebele | string | no | Kebele address of the visitor |
| cellPhoneNo | string | no | The cell phone of the visitor |

Table 81: Visitor Table

### 3.2.2 Logical Mapping



Fig 40: Logical mapping

## 

3.4.3 Physical Database Design

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Attribute | Data type | Length | Allow NULL | Default |
| **Sex** | **nvarchar** | **(10)** | **No** |  |
| **Birth\_date** | **Nvarchar** | **(20)** | **No** |  |
| **First\_Name** | **nvarchar** | **(20)** | **No** |  |
| **Last\_Name** | **nvarchar** | **(20)** | **No** |  |
| **Religion** | **nvarchar** | **(20)** | **No** |  |
| **Id** | **Nvarchar** | **(20)** | **No** |  |
| **Prisoner\_Id** | **nvarchar** | **(20)** | **No** |  |
| **Region** | **nvarchar** | **(20)** | **No** |  |
| **City** | **nvarchar** | **(20)** | **No** |  |
| **Kebele** | **nvarchar** | **(20)** | **No** |  |

Table 82: **Prisoner Table**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Attribute | Data type | Length | Allow NULL | Default |
| **Sex** | **Nvarchar** | **(10)** | **Not** |  |
| **Cell\_phone** | **Nvarchar** | **(20)** | **Null** |  |
| **First\_ Name** | **Nvarchar** | **(20)** | **Not** |  |
| **Last\_Name** | **Nvarchar** | **(20)** | **Not** |  |
| **Id** | **nvarchar** | **(20)** | **Not** |  |
| **Phone\_number** | **Nvarchar** | **(20)** | **Null** |  |
| **Region** | **Nvarchar** | **(20)** | **Not** |  |
| **City** | **Nvarchar** | **(20)** | **Not** |  |
| **Kebele** | **Nvarchar** | **(20)** | **Not** |  |

Table 83: **Visitor table**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Attribute | Data type | Length | Allow NULL | Default |
| **Court Name** | **Nvarchar** | **(20)** | **Not** |  |
| **Court Code** | **Nvarchar** | **(30)** | **Not** |  |
| **Location** | **Nvarchar** | **(50)** | **Not** |  |

Table 84: Court table

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Attribute | Data type | Length | Allow NULL | Default |
| Room No | **Int** |  | **Not** |  |
| Floor No | **Int** |  | **Not** |  |

**Table 85: Block table**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Attribute | Data type | Length | Allow NULL | Default |
| Prison Name | **Nvarchar** | **(50)** | **Not** |  |
| Location | **Nvarchar** | **(30)** | **Not** |  |

**Table 86: Prison**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Attribute** | **Data type** | **Length** | **Allow NULL** | **Default** |
| Date | **Date** | **(20)** | **Not** |  |
| Decision Id | **Nvarchar** | **(20)** | **Not** |  |
| Time | **Date** | **(20)** | **Not** |  |
| Case Type | **Nvarchar** | **(20)** | **Not** |  |
| Decision type | **Nvarchar** | **(20)** | **Not** |  |

**Table 87: Court decision table**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Attribute** | **Data type** | **Length** | **Allow NULL** | **Default** |
| First Name | **Nvarchar** | **(20)** | **Not** |  |
| Last Name | **Nvarchar** | **(20)** | **Not** |  |
| ID | **Nvarchar** | **(20)** | **Not** |  |
| User Name | **Nvarchar** | **(20)** | **Not** |  |
| Password | **Nvarchar** | **(20)** | **Not** |  |

**Table 88**: **Release officer table**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Attribute** | **Data type** | **Length** | **Allow NULL** | **Default** |
| First Name | **Nvarchar** | **(20)** | **Not** |  |
| Last Name | **Nvarchar** | **(20)** | **Not** |  |
| ID | **Nvarchar** | **(20)** | **Not** |  |
| User Name | **Nvarchar** | **(20)** | **Not** |  |
| Password | **Nvarchar** | **(20)** | **Not** |  |

**Table 89:** **Administration Table**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Attribute** | **Data type** | **Length** | **Allow NULL** | **Default** |
| First Name | **Nvarchar** | **(20)** | **Not** |  |
| Last Name | **Nvarchar** | **(20)** | **Not** |  |
| ID | **Nvarchar** | **(20)** | **Not** |  |
| User Name | **Nvarchar** | **(20)** | **Not** |  |
| Password | **Nvarchar** | **(20)** | **Not** |  |

Table 90: **Registrar Table**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Attribute** | **Data type** | **Length** | **Allow NULL** | **Default** |
| First Name | **Nvarchar** | **(20)** | **Not** |  |
| Last Name | **Nvarchar** | **(20)** | **Not** |  |
| ID | **Nvarchar** | **(20)** | **Not** |  |
| User Name | **Nvarchar** | **(20)** | **Not** |  |
| Password | **Nvarchar** | **(20)** | **Not** |  |

**Table 91:** **Discipline Table**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Attribute** | **Data type** | **Length** | **Allow NULL** | **Default** |
| First Name | **Nvarchar** | **(20)** | **Not** |  |
| Last Name | **Nvarchar** | **(20)** | **Not** |  |
| ID | **Nvarchar** | **(20)** | **Not** |  |
| User Name | **Nvarchar** | **(20)** | **Not** |  |
| Password | **Nvarchar** | **(20)** | **Not** |  |

**Table 92: Police officer Table**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Attribute** | **Data type** | **Length** | **Allow NULL** | **Default** |
| First Name | **Nvarchar** | **(20)** | **Not** |  |
| Last Name | **Nvarchar** | **(20)** | **Not** |  |
| ID | **Nvarchar** | **(20)** | **Not** |  |
| User Name | **Nvarchar** | **(20)** | **Not** |  |
| Password | **Nvarchar** | **(20)** | **Not** |  |

**Table 93: Judge**

# 3.4 User Interface

**4.1 home page**



Fig 41: Home page

* 1. **prisoner Registration Form**



Fig 42: prisoner registration form

**4.3 Transfer Request Form**



Fig 43: Transfer request form

**4.3 conditional release form**



Fig 44: conditional release Request Form

**4.4 Search Form**



Fig 45: Search prisoner form

* 1. **Update Prisoner Information**



Fig 46: Update prisoner information

* 1. **Schedule Visiting Form**



Fig 47: Schedule form

**4.7 Login Form**



Fig 48: Login form

* 1. **Visitor Registration Form**



Fig 49: Visitor registration

**5.0 Report form**



Fig 50: Report form

## 3.5 Algorithm Analysis

3.5.1 Register Prisoner Information

Method Name: register Prisoner Information ();

Begin

Variable Names: first Name, last Name, prisoner Id, region, wereda, city, kebele, offense Type, height, weight, date Of Release, time Of Judgment, crime Code, year Of Punishment, date Of Conviction, date Of Entrance, hair Color, face Color;

User fills all the variables on the form and clicks on submit button;

If (user fills correctly)

{

Successful message will be displayed;

}

If (user makes incorrect input)

{

Error message will be displayed and back to the form;

}

End

**3.5.2 Register Visitor Information**

Method Name: Register Visitor Information ();

Begin

Variable Names: First Name, last Name, visitor Id, age, sex, phone No, region, city, kebele;

First of officer made a search either by name or id No;

If (the search result successful)

{

Officer fills the visitor information on the available form and clicks on submit button;

If (correctly filled the input)

{

Successful message will be displayed from the system;

}

Else {

Error message is will be displayed and points back to the form to search again;

}

}

Else if (incorrect input has been made) {

Incorrect message will be displayed and it points back to the form;

}

End

**3.5.3 View prisoner Information**

Method Name: view Prisoner Information ();

Begin

This will be made by using search.

Inputs: name, id, and year of punishment;

User enters Prisoner Id;

If (input is correct) {

The system will display prisoner information with successful message.}

Else {

Error message will be displayed and points the user to the search box.}

End

**3.5.4 Register Transfer Request**

Method Name: Transfer Request ();

Begin

Variable Names: first Name, Last Name, prisoner Id, age, sex, reason For Transfer, transfer from, transfer to;

Based on the hard copy information prisoner filled, the registrar officer adds to the system.

If (input data filled correctly) {

The system will display successful message ;}

Else {

Error message will be displayed and points the user back to the transfer request form;

}

End

**3.5.5 Record conditional release Request**

Method Name= record conditional release Request ();

Begin

Variable Name: first Name, Last Name, prisoner Id, age, sex, conditional release Application;

Prisoner fills the hard copy form, then as transfer request done the officer will add the information to database.

If (input data is correct) {

The system will display successful message ;}

Else {

Error message will be displayed and points the user back to the form ;} End

**3.5.6 Login**

**Method name =login**

**Begin**

**Variables: -Username, password**

**System user will enter username and password.**

**Read username & password, check will be on database.**

**If (user enters username and password correctly) {**

**The system checks the input on database and logged on.**

**The username and password saved on database and cookies.}**

**Else {**

**The system display error message and points the user back to login page ;}**

**End**

**3.5.7 Create account**

**Method name: Create account ();**

**Input: user name, password;**

**Output: successful message and user is granted;**

**Description: system administrator checks whether the user name and password is registered on database or not.**

**Begin**

**Connect to database**

**Call search user method**

**If there is invalid input**

**Try to enter another input**

**End If**

**Else if user id is not in the database**

**Account is not created**

**End Else if**

**Else**

**Account is successfully created**

**End Else**

**END**

**3.5.8 Search prisoner information**

**Method name=search prisoner information ();**

**Input: prisoner id, prisoner name;**

**Output: searched prisoner information;**

**Begin**

**Connect to database**

**If the input is correct**

**Prisoner information is displayed**

**End if**

**Else**

**Error message is displayed and points the user back to search box**

**End else**

**End**

**3.5.9 Change password**

**Method name=change password ();**

**Input: old password, new password;**

**Output: user has new password with successful message;**

**Description: the method is found in all the staffs (registrar officer staff, discipline officer staff, system administrator staff, release officer staff, police officer staff) and judge class and check the existence of old password and validity of new password.**

**Begin**

**Connect to database**

**If old password is incorrect**

**Try to enter the correct password**

**End if**

**Else if the new password is invalid**

**Try to enter correct password with the message password is not changed**

**End Else if**

**Else**

**Password is successfully changed**

**End Else End**

**3.5.10 View prisoner transfer request**

**Method name= view transfer request ();**

**Input:**

**Output: prisoner transfer request list**

**Begin**

**Connect to internet**

**Select view transfer request**

**The system display the transfer request list**

**End**

**3.5.11 View prisoner conditional release request**

**Method name=view conditional release request ();**

**Input:**

**Output: view conditional release request list**

**Begin**

**Connect to internet**

**Select view conditional release request**

**The system display conditional release request list**

**End**

**3.5.12 Generate report**

**Method name=generate report ();**

**Input: list of criteria**

**Output: report**

**Begin**

**Connect to internet**

**login**

**Link report method**

**System display report form**

**Fill the report form**

**If the input is filled correctly**

**The report is stored on the database**

**Else**

**Error message will display and points the user to fill the form again**

**End Else**

**End**

**3.5.13 Schedule**

**Method name= schedule visiting date and time ();**

**Input: date and time**

**Output: scheduled date and time**

**Begin**

**Connect internet**

**Click on schedule menu**

**The system display schedule form**

**If User fills the form correctly**

**The schedule is stored in database**

**End if**

**Else**

**Error message will occur and points the user to fill the form again**

**End else End**

**3.5.14 Update the schedule**

**Method name=update schedule ();**

**Input: date and time that needs to be changed**

**Output: the updated schedule**

**Begin**

**Connect to internet**

**Login**

**Click on update menu**

**The system display the schedule**

**User fills the data need to be modify**

**User click on update button**

**The modified data will store on database**

**End**

**3.5.15** Update prisoner information

Method name= update prisoner information ();

Input: the data need to be modify

Output**:** the modified

Begin

Connect to internet

Login

Click on update

The system display prisoner information

User changes the required data

If the validity of data is true

The updated data is stored in database with successful message

End if

Else

Invalid input message is displayed and points the user to fill the data again

End else

End

**3.5.17 Check appointment**

Method name= check appointment **();**

Input:

Output:the appointment list

Begin

Connect to internet

Login

Click on appointment menu

If there is stored appointment in database table

Display the appointment list

End if

Else

No appointment list message

End else

End

**3.5.18 Add court decision**

Method name=Add court decision **();**

Input: decision information passed to the prisoner

Output:prisoner information with the court decision passed

Begin

Connect to internet

Login

Click on register menu

Click on Add court decision information

System display the form

User fills the form

If input is valid

The information is stored in database with successful registered message

End if

Else

Error message will display and points the user to fill the form again

End Else

End

**3.5.19 Record room**

Method name=Record room ();

Input**: room no and block no;**

Output:stored room information

Begin

Connect to internet

Login

Click on register menu

Click on record room menu item

Room form is displayed

Registrar officer staff fills the room information

If input is valid

System store the data in database

End if

Else

Invalid input message will display and points the registrar officer staff to enter the data again

End else

End

**3.5.20 Assign room**

Method name=assign room ();

Input: room no and block no

Output:prisoner with room information

Begin

Connect to internet

Search room

System display unreserved room

Registrar officer staff assigns room

If prisoner assigned room information

System display successfully assigned message

End if

Else

Error message is occur

End else

End

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## **Appendix**

Appendix I: interview question

Appendix II: observation of existed system

Appendix III: Prisoner Registration Form