Bahir Dar University

Bahir Dar Institute of Technology(BiT)
Faculty of Computing

Requirement Analysis Document (RAD)
For
Industrial Project On Web Based Court Management System for Bahir Dar Around First Instance Court

Submitted to the faculty of computing in partial fulfillment of the requirements for the degree of Bachelor of Science in Computer Science

Group members

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2014 E.C

Bahir Dar University, Bahir Dar Institute of Technology

Declaration

The Project has not been presented for a degree in any other university and all the sources of material used for the project/thesis have been duly acknowledged. (Name and Signature up to the number of the project group members).

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      Name   **signature**

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      Name   **signature**

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      Name   **signature**

Faculty: Computing

Program: _____

Project Title:

_____

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

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 Name of Advisor   **Signature**

Examining committee members   **signature**   **Date**

1. Examiner1 -----------------------   --------------   ------------

2. Examiner2   -----------------------   --------------   ------------

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

Roles and Responsibilities of the Group Members

Tasks	Group members		
	Abrham Debalkie	**Alemu Derebe**	**Kefale Getahun**
Requirement gathering	✓		✓
Feasibility analysis		✓	✓
Requirement analysis	✓	✓	✓
Non functional requirement	✓	✓	
System Requirement	✓	✓	✓
System Design	✓	✓	✓

Table 1 Roles and Responsibilities of the Group Members

Acknowledgment

List of Acronyms

BR ----------------------Business Rule

 BD----------------------Bahir Dar

BDU-------------------- Bahir Dar University

MS----------------------Microsoft

OOA---------------------Object oriented analysis

 OOD--------------------Object oriented design

PHP---------------------Hypertext Preprocessor

PHP--------------------Hypertext Preprocessor

PC----------------------Personal computer

RAM--------------------Random accesses memory

SQL--------------------Structural Query language

UML------------------Unified model language

UC-------------------- Use case

CMS------------------Court Management System

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Abstract

This document deals about Bahir Dar around first instance court management system. That can easily assign case to judge, can handle full information about advocators so as to reduce wastage of time to find them .The manual work will result in clients wastage of time and resource to open file and do other activities. To overcome this problem, we are proposing the new web based court management system for them. The proposed system will give services; such as clients can find advocate online, give comment online, give appoint date, view decision, clients see their appointment, and they can register new cases. And also the organization employees are going to communicate them selves.

SYMBOLS
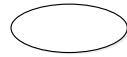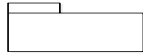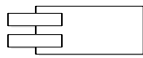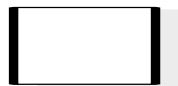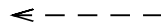
(actor figure)	Actor
(ellipse)	Use case
(folder shape)	Package
(component shape)	Component
(3D box)	Node
(system boundary box)	System boundary
<- - - - -	Message return
- - - - - ->	Dependency
――――――――	Line connector
―――――――→	Message
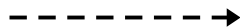
Chapter One

Introduction

The project is about Court management system, that is focus on simplifying and add additional future for the existing system. Because currently they use manually, even if the system exist. This is due to system's difficultness to understand and lack of completeness.

The project does not have a plan to totally replace the existed paper based voting methods. But rather, for supplementing the existed paper based judgment process with ICT. Why, because in Ethiopia there is no internet access for all citizens and not enough knowledge about ICT.

1.1. Background of the organization

The court office was established during the "Derg" regime. Before this time disagreement and criminal cases were solved in traditional way. Starting from that time it passes many obstacles to reach today's position. The organization is located around Jacaranda Hotel in kebele 15. court office of Bahir dar around established in 1980 E.C started to serve the customer in modern ways.

The purpose of the court is to provide legal decision for those plaintiffs and defendants based on their evidences as well as for those who commit crimes. The lawyers make decision based on the constitution of the country. The court information management system addresses two major cases those are civil case and criminal cases. It has the responsibility to support, manage, giving response to the case, taking case from the kebele (mahiberawifirdeshengo) to woreda level court office. Which contain 38 females and 64 males totally 102 employees. We have seen some problems in data processing and handling. During the process there are many difficulties of manual processing of files/data. Not only this but also giving comments for one court is difficult because of distance. Now we are going to develop software that can solve problems of data processing, data handling and etc.

1.2. Statement of the problem

Court management system of Bahir dar around handles both criminal and civil case type. All processes and documentation system are takes place manually. By this system the following problems have been appeared, those are difficulty of storing the documents neatly, files may be stolen by thieves, robbers or internal attackers, files may be fade because of long life, files may be destroyed by natural disasters like fire flood, giving comment may be difficult for customers on distance place, difficulty of data store in secure way, difficulty of retrieving needed document timely. Like detail of accuser, witnesses, defendant and advocate may be lost. Decoding of examination, cross examination and reexamination may difficult while collecting evidence from witness. Difficult to giving appointments for customers, difficult to evaluate every judge decisions, difficult to assign cases to judges.

1.3. Objective

1.3.1. General objective

The general objective of the project is to develop web based court management system for Bahir dar around First instance court .

1. 3.2 Specific Objective

To achieve aforementioned general objective, the will address the following objective:

- ➢ Analyze the existing system.
- ➢ Collect information related to the system.
- ➢ Preparing needed materials which used for developing the project.
- ➢ Select appropriate language.
- ➢ Design and developed a user friendly system to handle data insertion, updating, deletion, retrieving on the database.
- ➢ Develop a secured Data base system.
- ➢ Develop suitable system to give appointment and assign cases.

➢ Develop suitable and fast intercommunication between offices.

1.4 Methodology

In order to achieve the aim of the project, there are different methods to bring the system from imagination to realization. These methods include different models, techniques and tools for our work.

1.4.1 Requirement gathering methods

➢ *Interview Techniques***:** is one of the primary ways to gather required data for the project by asking the questions orally to different employers of the court.

➢ *Observation*: Observing current system users is a more direct way of seeing how an existing system works. By watching what people do or by obtaining relatively objective measures of how people behave in work situation, the team can have firsthand and accurate appreciation of what they really do or how they do it. Observing work flow at the work place.

➢ *Document analysis*: - Document analysis is a method of data collection which involves analysis of content from written documents in order to make certain deductions based on the study parameter.

1.4.2 Analysis and design Methodology

The team plan to use the Object Oriented Software Development Methodology (OOSD) for the development of the system among the different methodologies. Because it is better way to construct, manage and assemble objects that are implemented in our system. We used OOSD because of the following important features:

- *Increase reusability:* - the object oriented provides opportunities for reuse through the concepts of inheritance, polymorphism, encapsulation and modularity.

- *Increased extensibility*: **-**when need to add new feature to the system, only need to make changes in one part of the applicable class.
- *Improved quality*: - quality of the system must be on time, on budget and meet exceeded expectation of the users system. Improved quality comes from increased participation of users in the system development.
- *Financial benefits*: - reusability, extensibility and improved quality are all the financial benefits, because they led to the business benefits of the object- oriented from the point of view of the users. The real benefits are we can built, system faster and cheaper.
- *Reduced maintenance cost*: - Software organizations currently spend significant resources maintain operating system so the object oriented development methods helps us to overcome this problem.

Object oriented design methodology has two phases:-

Object Oriented Analysis (OOA): During this phase the team will look at the problem domain and with the aim of producing a conceptual model of the information that exists in the area which will be analyzed. And this model the functions of the system (use case modeling), identifying the business objects, organize the objects and also the relationship between them and finally model the behavior of the objects.

Object Oriented Design (OOD): During this phase the model interactions and behaviors that support the use case scenario, and finally update object model to reflect the implementation environment. And also transforms the conceptual model produced in object-oriented analysis to take account of the constraints imposed to our system format, so that we will use this phase to refine the use case model to reflect the implementation environment State chart diagram, component diagram and deployment diagram to model our system.

1.4.3 Implementation Methodology

We used the software and hardware tools for developing our project.

Hardware tools

- ➢ Computer with internet connection
- ➢ Paper, pen for gathering information
- ➢ flash disk(16 GB)
- ➢ printer: for printing document
- ➢ Memory :2GB RAM
- ➢ Hard disk:300GB

Software tools

The different kind of software we used for developing the project is:

- ➢ SQL server 2008 – to develop database application

- ➢ Microsoft office word 2010 for writing documentation.
- ➢ MS power point for presentation

- ➢ Edraw-max—to design UML diagrams

- ➢ Programming Language: PHP, HTML and JavaScript.
- ➢ Wamp server: for creating database and tables

1.5 Feasibility

   Feasibility study is used to investigate the proposed system in multiple dimensions. It used to indicate whether the system feasible or not. Feasibility study is an important phase in both research and software development process. It enables the developer to have an assessment of the product being developed. It refers to the feasibility study of the product in terms of outcomes of the product, operational use and technical support required for implementing it. Feasibility analysis is undertaken to prove if the proposed system is valuable to implement. Our system feasibility can be seen according to the following literals:

Economic feasibility

The project that we are going to develop is economically feasible than the manual system. Manual system use large amount of document for Registration and record decision this implies economically infeasible. The system developed by considering our budget, which is economically feasible. This refers to the benefits or outcomes we are deriving from the product as compared to the total cost we are spending for developing the product.

Software cost

Item	Price
Microsoft window 10	Free
Microsoft word 2010	Free
SQLI Server 2008	Free
Microsoft power point 2007	Free
Total	0

Table 2 software cost

Hardware costs

Item	Quantity	Unit price	Total
PC	1	30,000	30,000
Flash disk	2	700	700
Other material	---	----	300
Total			31,000

Table 3 hardware cost

Total cost=hardware cost +software cost =31,000 +0=31,000

Technical feasibility

The court management system would deliver service by using digital system of file handling and transferring files digitally, which will simplify task. It has a graphical user interface to assist employers and customers of the organization. The system can be easily maintained, portable, available and reliable. It is also support multi user, data handling system and easy to install. Generally the system is technical feasible.

Time feasibility

Time feasibility refers to the time that particular work takes to implement or performed. To develop the whole system we need around total of months and three months' time duration. 36 days for requirement analysis, 30 days for system design, 20 days for object design

Table 4 Time feasibility

Key steps	March 30,2014- April 15,2014	April 17,2014- May 05,2014	May 06,2014- May 26,2014
Requirement analysis			
Object design document			

System design document			

1.6 Beneficiaries or significant of the project

After the implementation of this project, it provides various benefits for courts, societies and team members.

Benefits for court

> ➢ Save time.
> ➢ It reduces the work load for workers.
> ➢ Decrease Error in filing the client document.
> ➢ Employers will have confidence on handling data.
> ➢ Searching documents when it is needed is easy.
> ➢ They can secure active files and dead file as they want.
> ➢ Information about court can be accessed any time from any place based on given privilege.
> ➢ Data communication is possible
> ➢ To know the appointment date is very easy.

Benefits for society

> ➢ Customer can access the information they need from the web.
> ➢ Save their time and will give their comment online without going there.
> ➢ Reduce cost of transport.
> ➢ Can save their financial budget.

Benefit for team members

> ➢ To solve real life problems for the future.
> ➢ To get job opportunity.
> ➢ To graduate with great result.

1.7 Limitations of the project

> ➢ The system does not include such as human resource and finance information.
> ➢ The system not including other sector offices like police and jail.
> ➢ The systems don't supports decisions and mitigating by it.

1.8 Scope of the project

Scope of the system identifies the problem to be studied, analyzed, designed, constructed and ultimately improved. It is specifically concerned with what problem the proposed system addresses.

The project can cover the following activities:-

> ➢ Register new, completed cases and decisions.
> ➢ View assigned cases that law officers are assign to Judges
> ➢ Register any customer that wants to open new case and assigned cases to judges.
> ➢ Register any Advocator with full address that wants to give service for customer
> ➢ Register appointment dates that judges give for customer.
> ➢ Update employee's information.
> ➢ Accept comment that customers are writing for court offices
> ➢ Generate reports

1.9 Organization of the project

The project has three main chapters . The first chapter states about introduction, background, statement of the problem, objective of the project, metrology, feasibility, beneficiaries of the project, limitation of the project and scope the project.

The second chapter is about the existing system, the proposed system, requirement analysis, non functional requirement, system requirement and key abstraction with CRC analysis.

The last chapter is about architecture design, detail design, user interface design and access control and security.

Chapter Two

System features

2.1 The Existing System

The existing system works manually from the beginning to the end of process. That means information records on paper and documented way. And also contain ccims system developed by cybersoft software company before eight years. This system have passive to access, not fully operational, gives only registration cases and very depreciate .

Activities of the system as mentioned the earlier the court consists of different fields which consists of actors within. Each actor has its own responsibilities.

Administrator

Have full control to the system. The activities performed by Administrator are manage the organization (assign new employees, accept users' comment and deactivate employees).

Judge

Have a partial control to the system. Activities performed by judge are record decision, can collect documents, can view different type of Cases, Can give appointment for the registered cases, can collect information from a witness, and finally can give a decision for the case and the Case is closed.

Civil and Criminal Law Officer

- ➢ It allows civil and criminal law officer to view appointments.
- ➢ He/she must get permission from administration to perform their work.

➢ Civil and criminal law officers and judge successfully view selected information.

Customer

➢ It allows customer to view information about advocator and courts. But they must be in place of court.
➢ Hear their decision result in the court.
➢ Request an appeal when the result is unacceptable.

Problem of Existing System

Performance: The performance of the existing system does not provide fast response time because it is difficult to access data from the stored documents. And also, it is slow /time and energy consuming.

Security and Controls: Every record of document in the existing in Bahir dar around Court Management System is stored in the manual way, so, it is difficult to control and secure these manual records, since it doesn't have any authentication and authorization system.

Economic: Due to the operation that is done by the hand most of the activities are causes to high consumption of resources like papers, man power, time, pen and transport. This makes the existing system costs are too high.

Data storage problem

➢ Data are not easily accessible due to place in different location.
➢ Difficult to change and edit.
➢ Data redundancy that leads to inconsistency

Strength, weakness, opportunity, threat (SWOT) analysis

Strength: Even if the existing system of Bahir dar around court management system is running manually it has its own strength, its strengths must be preserved to enhance the new system.

- For a single Employee it has a unique Employee number (Employee ID).
- Generating report periodically on employees' information such as new employees and need of new employees by the organization.
- Using Employee information document (files), which makes managing Employee simple and easy.
- Information that is too sensitive has to be kept in hard copy.

Weakness: The weaknesses of the current system are:

- Their data where manipulated manually.
- Unable to hold large amount of data because of the system is not automated.
- Disorders of the employee's files that may cause lose the employees files.
- Difficulty of finding employees and customers files when needed.

Opportunities

The existing system can create the job opportunity for the employee of the organization.

Threat: There may be loss of data in the court by many external factors.

2.2 Proposed System

The new system will include solution of existing system problems by giving services better than the older one as much as possible. After observing the current manual court management system and evaluating all the problems occurred during every activity on the existing system, the project team has desired to design a web based court management system for Bahir dar around first instance court.

The new proposed system used to:

> ➢ Save time and money for customers and for the organization.
> ➢ Suitable for employees find customers' information in a short time.
> ➢ Suitable for register for customer information and record the final decision of customer's case.
> ➢ Store more data in a small space.
> ➢ Customers easily find the advocators by searching in the web based court management.

2.3 Requirement Analysis

2.3.1 Functional requirement

A functional requirement specifies what the system should do to perform some task. The following are some functionalities of the system. The system would able to handle the data properly.

Table 5 Functional Requirement

Number	Functional requirement	Description	Priority
1	Assign the cases to the judges.	This means the law officers can easily assigned the judge to the new open cases by	

		looking the previous appointment whose judges have more active cases by using user ids and date.	
2	Record final decision and evidences.	This means the judges can easily record the final decision of customer's case with evidence in secured ways in the database.	***high***
3	Register the details of accuser, accused, and advocator properly.	The proposed system is suitable for register the customers full name , sex, age, case type and description of cases ,court fees and etc.	
4	Giving appointments for the customers.	This means the judges can easily look the previous appointment and give appointment for customers	
5	The system would able to search the file within short time.	In the proposed system if the workers want to find document can easily find the document by using case id and other criteria.	
6	Handle the data properly	This means data is stored on database, so the documents do not	

		fade and loss.	
7	Generate reports	If the law officer or the administrator wants to see the activities of employee, weekly, monthly dead files and active files can see by generate the information in different ways. This means can see any information by using any primary key id.	*Medium*
8	Adding new user account; modifying recent users account and delete user account.	This can delete or modify the customers or other user by using user id.	
9	View information for customers	Anyone can access the information by using the website of Bale Zone court information management system	
10	Giving privileges to each user	The proposed system can give privilege only the authorized users can access.	
11	Giving comment online to administrators.	This helps to know the activities of employees by receive the feedback	

		from the customers	
			Low
12	Changing their password.	*The system users can be change their password and they access the system.*	

2.3.2 System Use case

2.3.2.1 Use case Diagram

Use Case represents interaction between the user and the system.

The following use cases have been identified from the system specification

- ➢ Login
- ➢ Manage account
- ➢ Generate report
- ➢ New case registration
- ➢ Advocator registration
- ➢ View appointment
- ➢ Give appointment
- ➢ Record decision
- ➢ Search Customer Information
- ➢ View assigned case
- ➢ View decision
- ➢ Give comment
- ➢ View information

The identified actors that will be participating in the system are:

Actors

 ➢ Administrator
 ➢ Criminal Law Officer
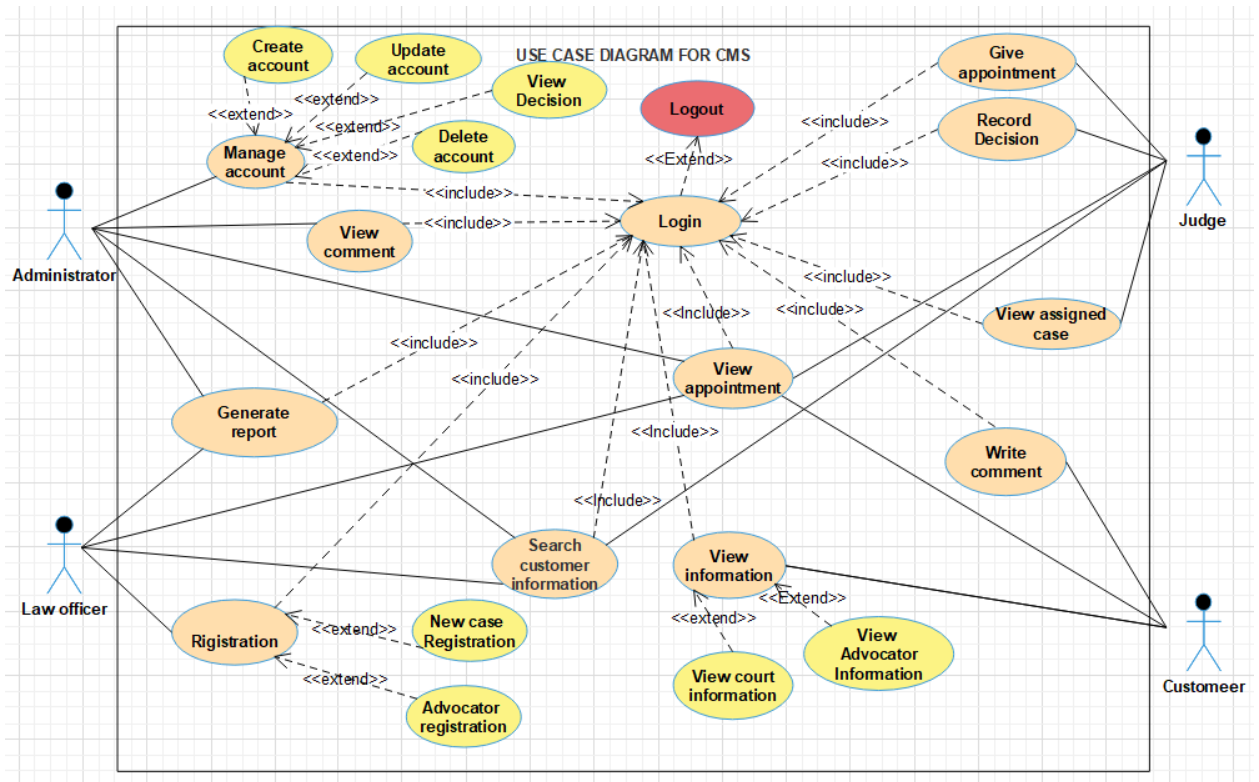 ➢ Civil Law Officer
 ➢ Judge
 ➢ Customer

Figure 1 Use case diagrams.

2.3.2.2 Use Case documentation

Use case documentation explains in detail in general flow of use case diagram.

Each table contains the use case name, use case id and the actor that initiates and interact with the use case and flow of the event that show the interaction between the actor and the use case which enable the user to easily understand.

Table 6 Use Case Description for Login

Use case No.	UC-1	
Use case Name	Login	
Actor/s	Administrator, Civil and Criminal Law Officer, Judge and Customer	
Description	It allows user to login into enter the system	
Precondition	The users must have user name and password.	
Post condition	The user will get system home page and able to access as his/her privileges.	
Basic course of action:	**Actor action**	**System response**
	Step 1. The users open web page and click login link.	**Step2.** The system Displays the Login Page.
	Step3. The user fills his/her user name and password and click login button.	**Step4.** The system verifies the username and password.

		Step5. The system displays the appropriate home page. Step6. The use case ends
Alternate course of action:	A3. The username/password is invalid. 3.1. The system displays error message. 3.2. The system continues at step 3 to fill user name and password again.	

Table 7 Use Case Description for generate report

Use case no.	UC-2
Use case Name	Generate Report
Actor/s	Administrator, Civil and Criminal Law Officers and Judges
Description	It allows generating report in the database.
Precondition	He/she must login in to the home page login form
Post condition	Successfully generate report as him/her wanted.

Basic course of action:	Actor action	System response
	Step 1. Open the generate report link form menu.	**Step2.** The system Displays the page.
	Step3. Select link he/she want to generate a report.	**Step4.** The system displays the selected report.
		Step5. The use case ends

Table 8 Use case Description for Create account

Use case no.	UC-3
Use case Name	Create Account
Actor/s	Administrator
Description	It allows administrator to create for new user accounts.
Precondition	He/she must login in to the home page.
Post condition	The system successfully created account.

Basic course of action:	Actor action	System response
	<u>**Step 1.**</u> Open the manage account page.	<u>**Step2.**</u> The system Displays the Manage account page.
	<u>**Step3.**</u> Open create account link.	<u>**Step4.**</u> The system display create account page.
	<u>**Step5.**</u> Administrator fill create account form and click create button.	<u>**Step6.**</u> The system display successfully created message.
		<u>**Step 7.**</u> The use case end.
Alternate course of action:	A5.Invalid information entry 5.1. If enter incorrect ID error message display for the user 5.2. Go to step3 and fill again	

Table 9 Use case Description for Update account

Use case no.	UC-4
Use case Name	Update Account

Actor/s	Administrator	
Description	It allows administrator to update user accounts.	
Precondition	He/she must login in to the home page.	
Post condition	The system display successfully updated account.	
Basic course of action:	**Actor action** **Step 1.** Open the manage account page. **Step3.** Open update account link. **Step5.** Administrator fill update account form and click create button.	**System response** **Step2.** The system Displays the Manage account page. **Step4.** The system display update account page. **Step6.** The system display successfully updated message. **Step 7.** The use case end.
Alternate course of action:	A5.Invalid information entry 5.1. If enter incorrect ID error message display for the user 5.2. Go to step3 and fill again	

Use case: delete account

Table 10 delete account

Use case Name	UC#5	
Actor/s	Administrator	
Description	It allows administrator to delete user accounts.	
Precondition	He/she must login in to the home page.	
Post condition	The system display successfully deleted account.	
Basic course of action:	**Actor action**	**System response**
	Step 1. Open the manage account page.	**Step2.** The system Displays the Manage account page.
	Step3. Open delete account link.	**Step4.** The system display delete account page.
		Step6. The system display successfully deleted message.
	Step5. Administrator fill delete account form and click delete button.	**Step 7.** The use case end.
Alternate course of action:	A5. Invalid information entry 5.1. If enter incorrect ID error message display for the user 5.2. Go to step3 and fill again	

Table 11 Use case Description for View Appointment

Use case no.	UC-6	
Use case name	View Appointment	
Actor/s	Administrator, Civil and Criminal Law Officer, judge, customer	
Description	It allows civil and criminal law officer to view appointments.	
Precondition	He/she must login in to the home page.	
Post condition	Civil and criminal law officers and judge successfully view selected information.	
Basic course of action:	**Actor action**	**System response**
	Step 1. Open the view appointment form from menu.	**Step2.** The system Displays the view appointment page.
	Step 3. Law officers and judge enter appointment date and judge id and click search button.	**Step4.** The system Displays selected information. **Step5.** The use case ends
Alternate course of action:	1.Invalid information entry 2.1If enter incorrect date error message display for the user 3. Go to step3 and fill again	

Table 12 Use case Description for view information

Use case no.	UC-7	
Use case Name	View Information	
Actor/s	Customer	
Description	It allows customer to view information that is the information of advocator and courts.	
Precondition	Open view information page from website.	
Post condition	He/she see information.	
Basic course of action:	**Actor action**	**System response**
	Step 1. Open the view information page.	**Step2.** The system Displays the View information page.
	Step3. Select one from lists link.	**Step4.** The system display information.
		Step6. The use case ends
Alternate course of action:	1. Unknown the website.	

Table 13 use case description for search customer information

Use case no.	UC-8
Use case name	Search Customer Information
Actor/s	Administrator , Civil and Criminal law Officer and Judge
Description	It allows Administrator, Civil and Criminal law Officer and Judge to search the required information in the data base.
Precondition	They must login in to the home page.
Post condition	Successfully display the required information.

Basic course of action:	**Actor action**	**System response**
	Step 1. Open the search Customer Information page.	**Step2.** The system Displays the search customer information page.
	Step3. Enter input and Click Search Button.	**Step4.** The system displays the selected user information.
		Step5. The use case ends
Alternate course of action:	A3.Invalid information entry 3.1If enter incorrect ID error message display for the user 3.2 Go to step3 and fill again	

Table 14 Use case Description for Give appointment

Use case no.	UC-9	
Use case name	Give Appointment	
Actor/s	Judge	
Description	It allows judge to give appointments for customers.	
Precondition	He/she must login in to the home page.	
Post condition	Judge successfully gives appointment.	
Basic course of action:	**Actor action**	**System response**
	Step 1. Open the give appointment page from menu.	**Step2.** The system Displays the give appointment page.
	Step 3. Judge fills the form.	**Step4.**The system Displays success or fail.
		Step5. The use case ends

Alternate course of action:	A3.Invalid information entry
	3.1If enter incorrect date error message display for the user
	3.2 Go to step3 and fill again

Table 15 Use case Description for new case registration

Use case no.	UC-10
Use case name	New case Registration
Actor/s	Civil Law and criminal Law Officer
Description	It allows the law officer to register new case.
Precondition	He or she must login in to the home page.
Post condition	Successfully registered. .

Basic course of action:	Actor action	System response
	Step 1. Open the new case registration link from menu. **Step3.** Fill the new case registration form and click Register button.	**Step2.** The system Displays the Registration form. **Step4.** The system displays registration successfully or failed. **Step5.** The use case ends
Alternate course of action:	A3. Invalid information entry. 3.1 The system displays error message. 3.2 Go to **step 3** to fill again.	
Use case no.	UC-11	
Use case Name	Register Advocator	
Actor/s	Law Officer	
Description	It allows the law officer to register Advocator. Those are for accuser or accused person.	
Precondition	He or she must login in to the home page login form .	
Post condition	Successfully registered. .	

Basic course of action:	**Actor action** **Step 1.** Open the advocator page from menu. **Step3.** Fill the advocator registration page and click save button.	**System response** **Step2.** The system Displays the Registration form. **Step4.** The system displays registered successfully or failed. **Step5.** The use case ends
Alternate course of action:	A3 Invalid information entry. 3.1 The system displays error message. 3.2.Go to **step 3** to fill again	

Table 16 Use case Description for advocator registration

Table 17 Use case Description for view assigned case

Use case no.	UC-12
Use case name	View Assigned Case
Actor/s	Judge
Description	It allows the judge to view the assigned case.
Precondition	He/she must login in to the home page.

Post condition	See the assigned case. .	
Basic course of action:	**Actor action**	**System response**
	Step 1. Open view assign case page from menu	**Step2.** The system Displays the View assigned case page.
	Step3. Enter the date and Judge ID in the view assigned case page form and click view button.	**Step4.** The system displays assign case or no assigned case. **Step5.** The use case ends
Alternate course of action:	A3 Invalid information entry. 3.1 The system displays error message. 3.2.Go to **step 3** to fill again	

Table 18 Use case Description for record decision

Use case no.	UC-13
Use case name	Record decision
Actor/s	Judge

Description	It allows the Judge record the decision.	
Precondition	He/she must login in to the home page.	
Post condition	Successfully record the decision. .	
Basic course of action:	**Actor action** **Step 1.** Open the record page from menu **Step3.** Record the decision in the record page and click Save button.	**System response** **Step2.** The system Displays the Record Decision page. **Step4.** The system display record successfully or failed. **Step5.** The use case ends
Alternate course of action:	A3 Invalid information entry. 3.1 The system displays error message. 3.2.Go to **step 3** to fill again	

Table 19 Use case Description for View Decision

Use case No.	UC -14	
Use case name	View Decision	
Actor/s	Administration	
Description	It allows administrator to view decisions of every case passes by judges.	
Precondition	He/she must login in to the home page.	
Post condition	Successfully view decisions.	
Basic course of action:	**Actor action**	**System response**
	Step 1. Open the view decision page from menu	**Step2.** The system Displays the View decision page.
	Step3. Enter input to view decision and click search button.	**Step4:** the system display list of cases.
	Step5: Select cases and click view button.	**Step6:** The system displays selected case information in details.
		Step7. The use case ends

Alternate course of action:	A3 Invalid information entry. 3.1 The system displays error message. 3.2.Go to **step 3** to fill again	

Use case no.	UC-15	
Use case name	Give Comment	
Actor/s	Customers	
Description	It allows customer to give comment about court office.	
Precondition	He/she must know court office website.	
Post condition	give comments	
Basic course of action:	**Actor action** **Step 1.** Open the give comment page **Step 3.** Customer write comment and click send button.	**System response** **Step2.** The system Displays the give comment page. **Step4.**The system Displays success or fail. **Step5.** The use case ends

Table 20 Use case Description for Give Comment

2.3.3 Business Rule Documentation

There are some business rules and constraint to prevent any violation during process. Like:

BR1: The client must be come to the office on the appointment day.

BR2: The judge assigned for one case does not changed from that case.

BR3: any appointed case can see within 10 up to 15 days.

BR4: Civil cases must see by civil law Judge.

BR5: Criminal cases must see by criminal law Judge.

BR6: If accuser, accused, advocator or public prosecutor does not
        satisfied to the decision judges, he/she can ask appeal to the
        upper court.

BR7: Seeing active case except the judge assigned is impossible for
        others.

BR8: any accused or accuser can't defend by himself can
        represent advocator.

BR9: All employees have their own responsibility such as to come on
        time at the work place, do their work as rule and regulation of
        the court.

BR10: In court management system administrator has responsibility
        to manage all the system in court. He/she has authority to
        managing information, financial order, and ordering workflow,
        manages employee and etc.

2.3.4 User Interface prototype

User interface prototype is to indicate the surface that can be used by user and the system to communicate to each other, but, not actual work area.
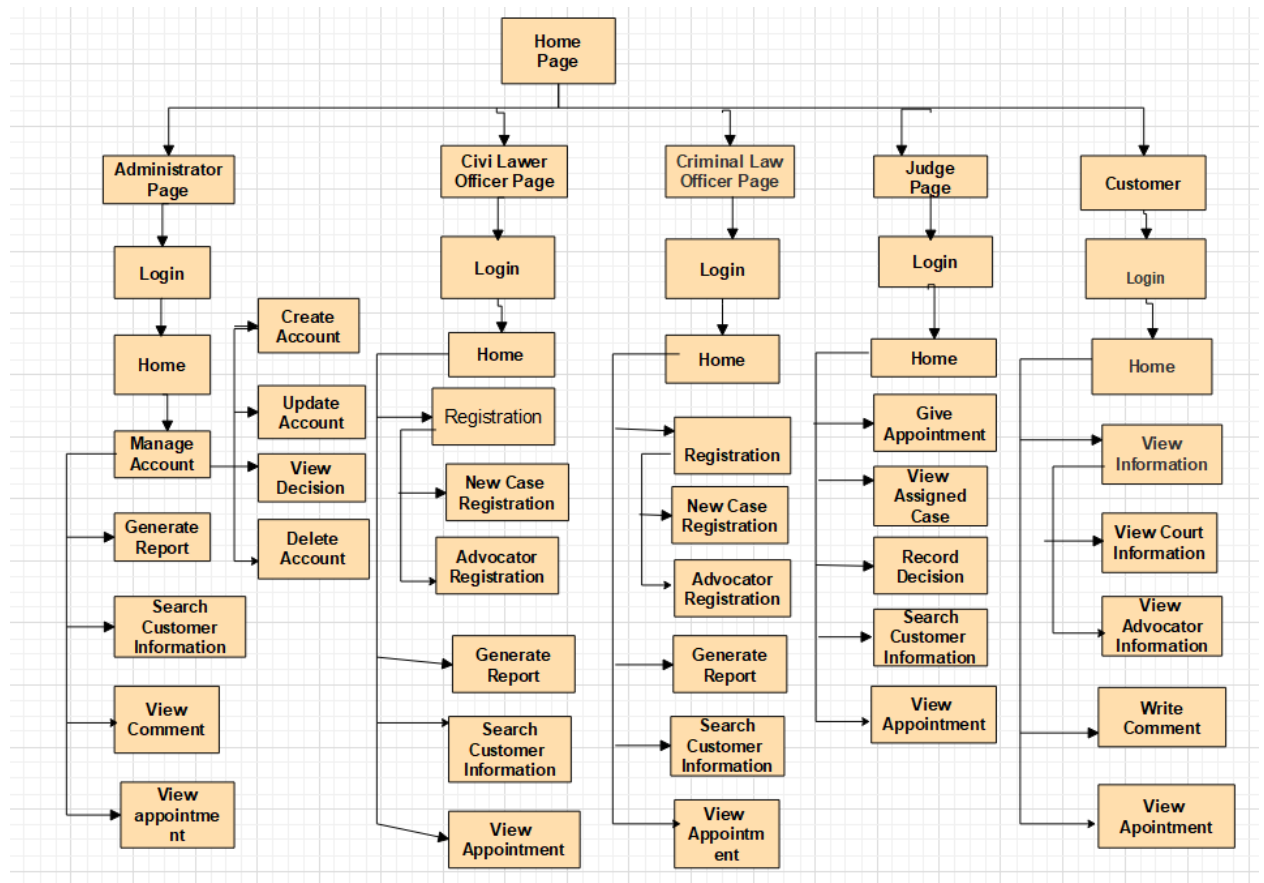
Figure 2 User Interface prototype

2.3.5 State chart diagram

State chart diagram shows the machine that depicts the control flows of the objects from one state to another state. State chart modeling is used to show the sequence of states that an object goes through, the events that cause the transition from one state to the other and the actions that result from a state change. The following figure shows the state of the objects of the diagram.
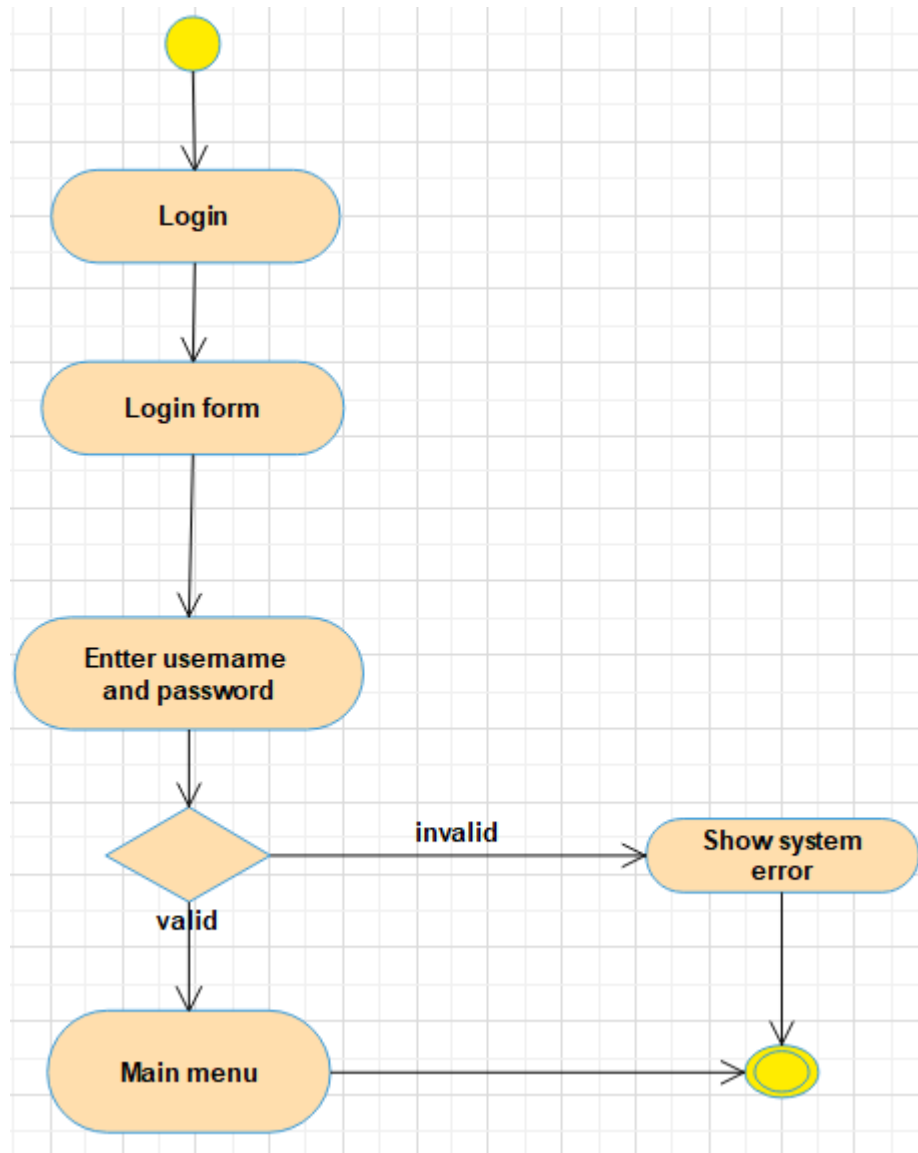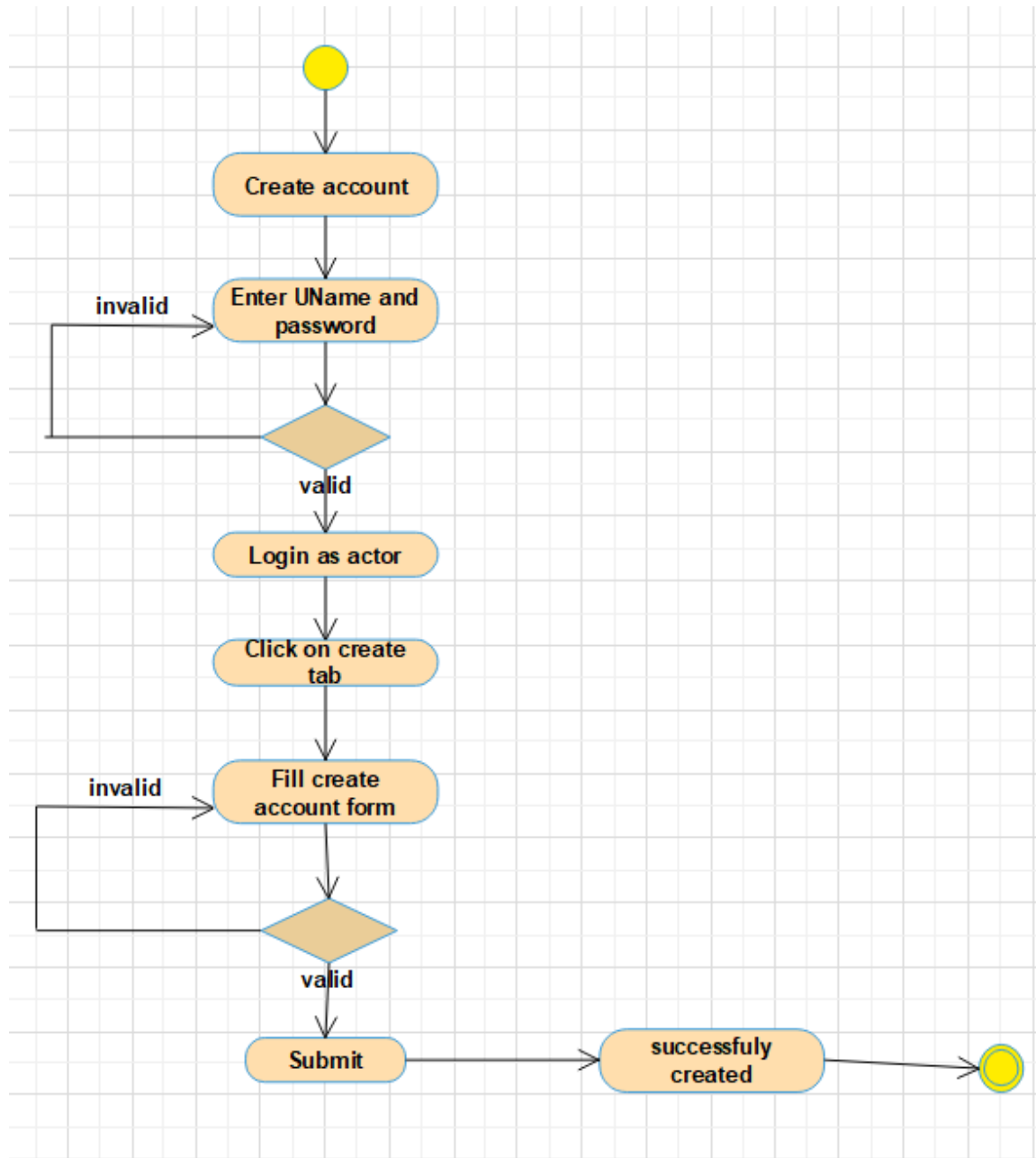
Figure 3 State diagram for Login

Figure 4 State diagram for create account
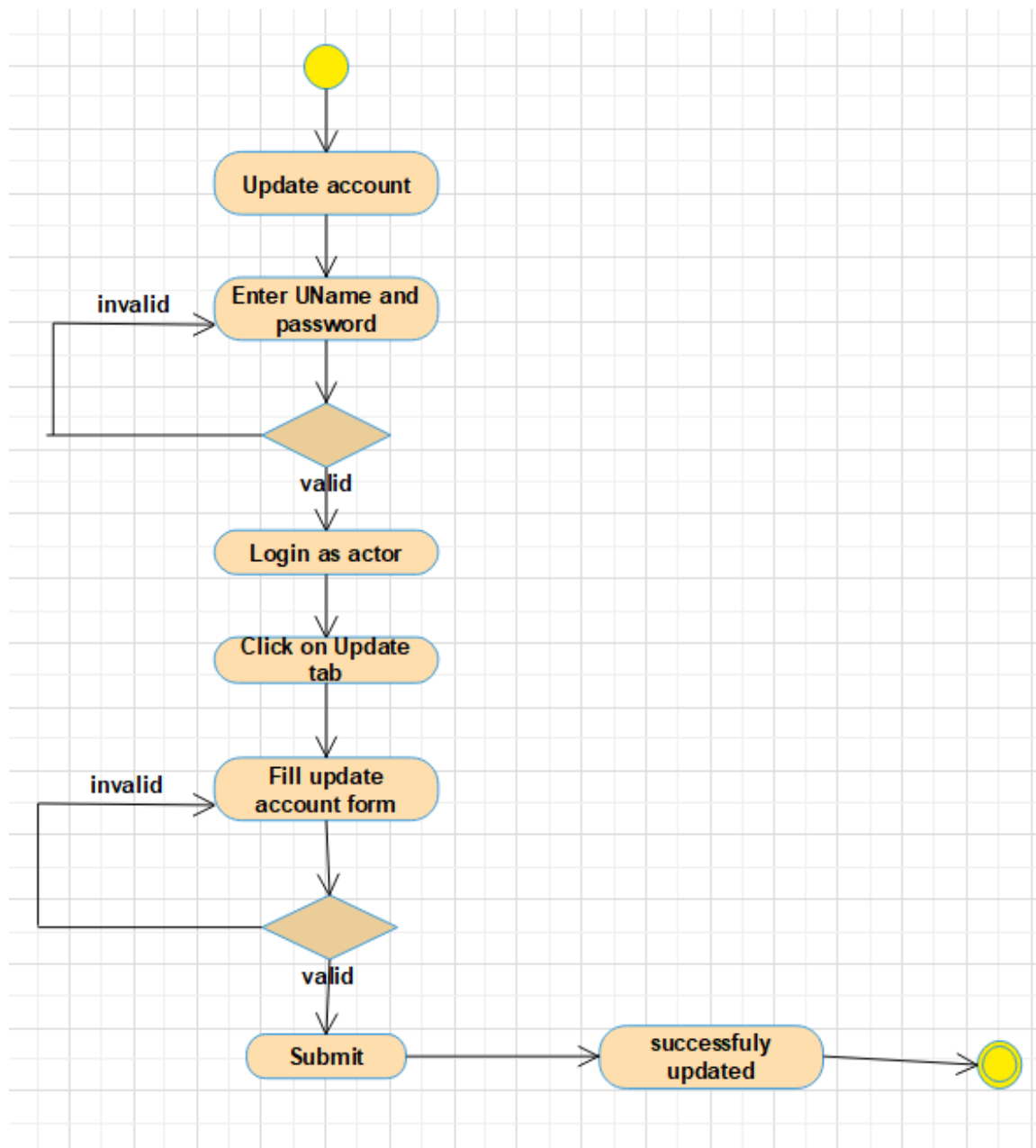
Figure 5 State diagram for update account
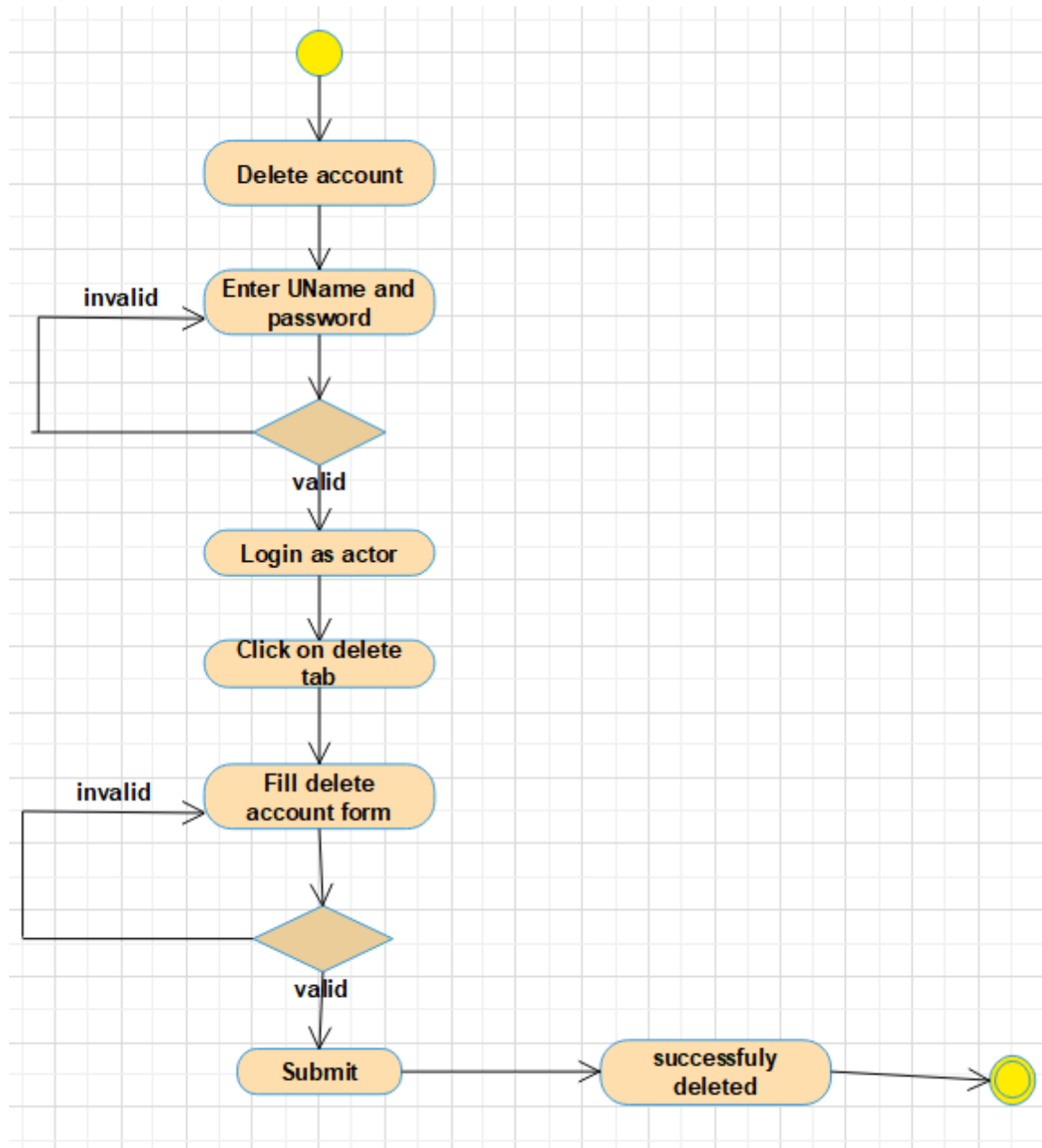
Figure 6 State diagram for delete account
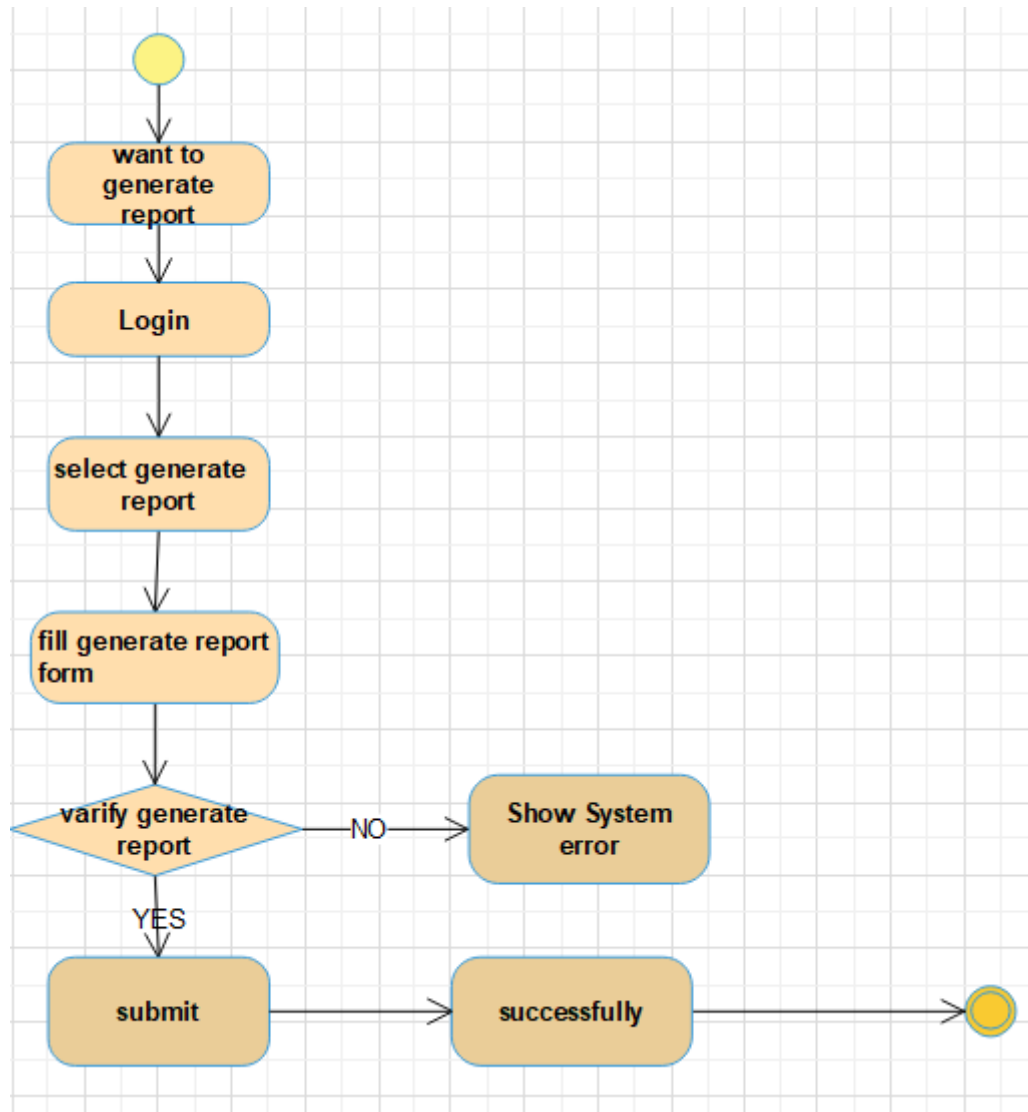
Figure 7 State diagram for generate report
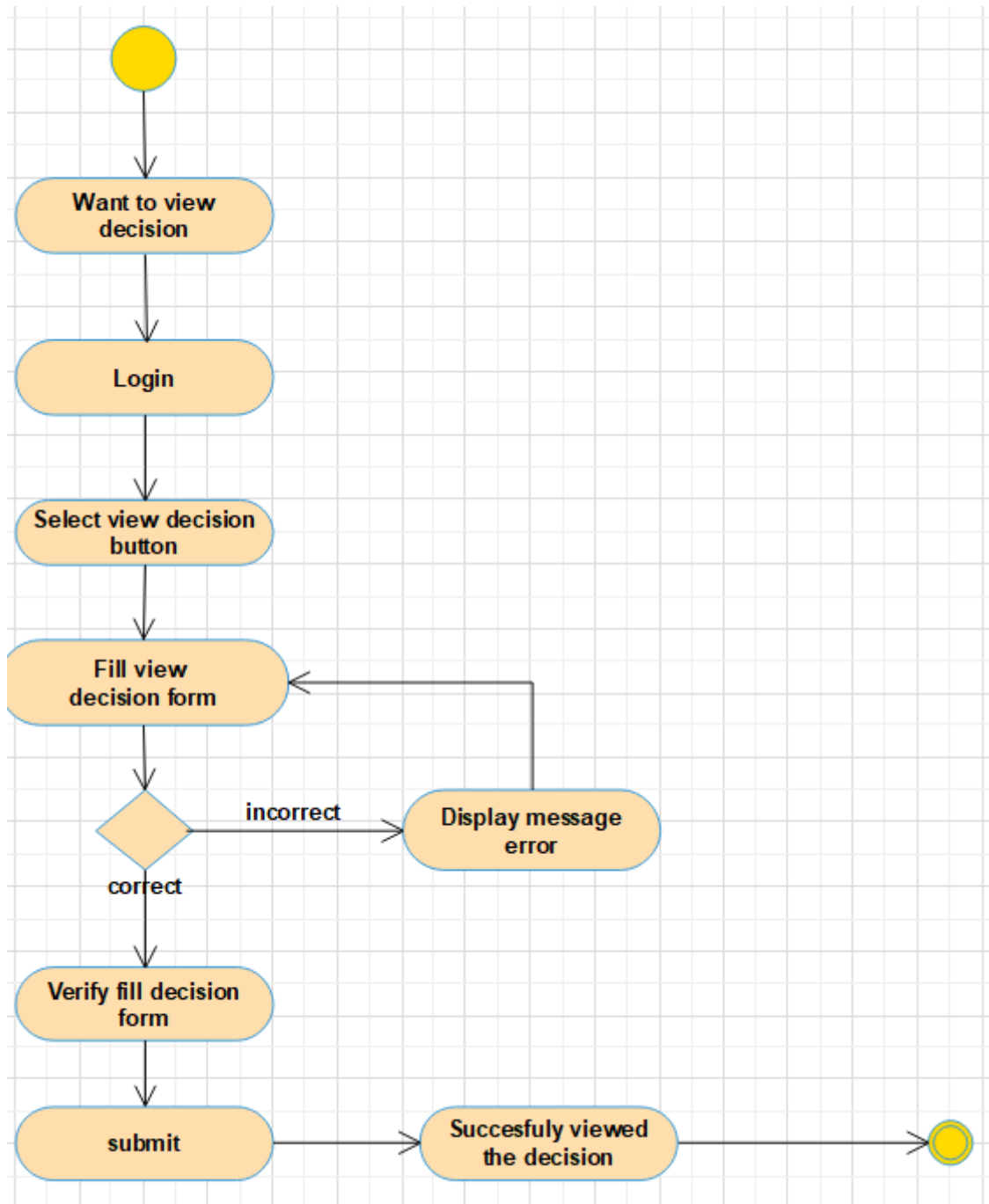
Figure 8 State diagram for view decision
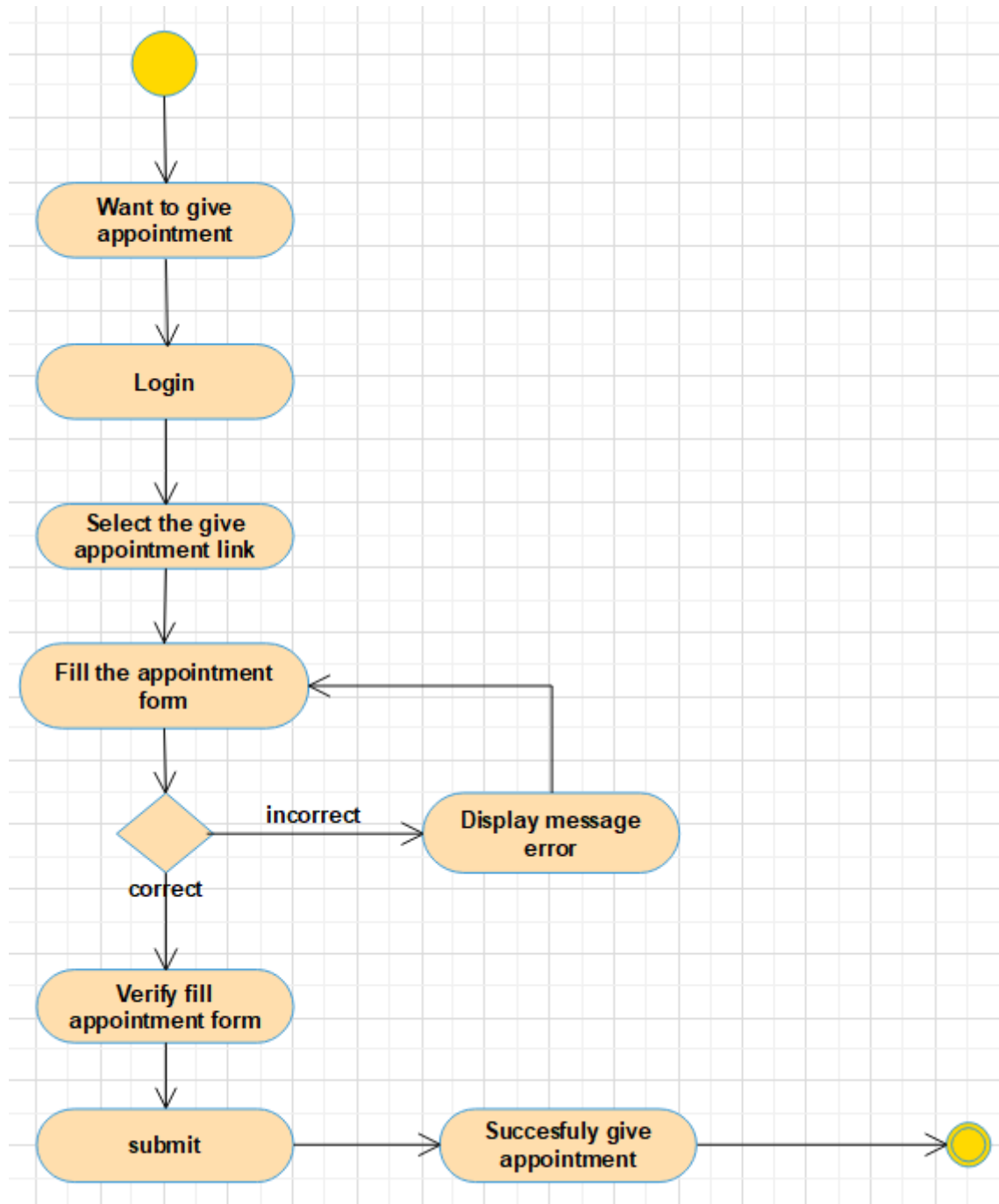
Figure 9 State diagram for give appointment

2.3.6 Activity Diagram

An Activity diagram is similar to a flowchart to represent the flow from one activity to another activity. Activity diagrams and State chart diagrams are related. While a State chart diagram focuses attention on an object undergoing a process (or on a process as an object), an Activity

diagram focuses on the flow of activities involved in a single process. The Activity diagram shows how these single-process activities depend on one another.
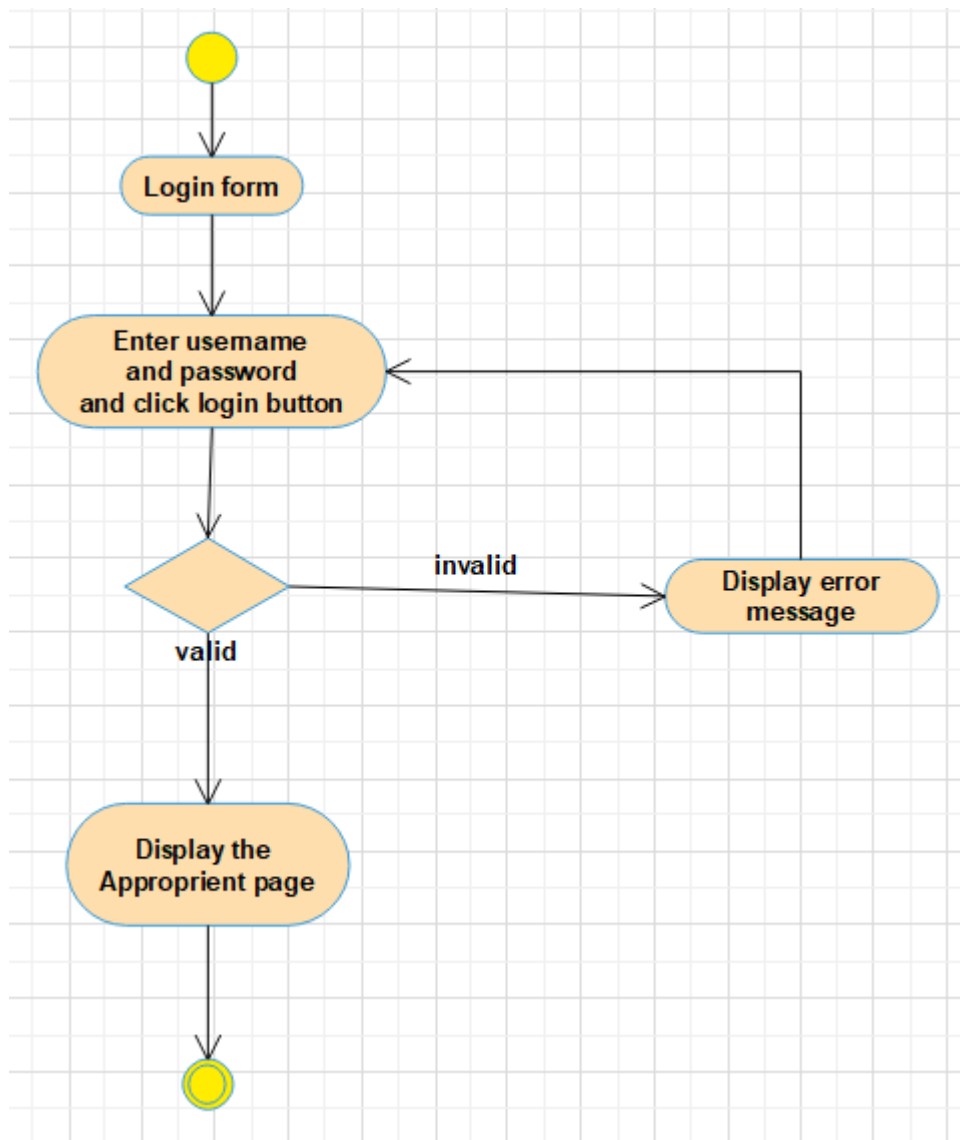
Figure 10 Activity diagram for login
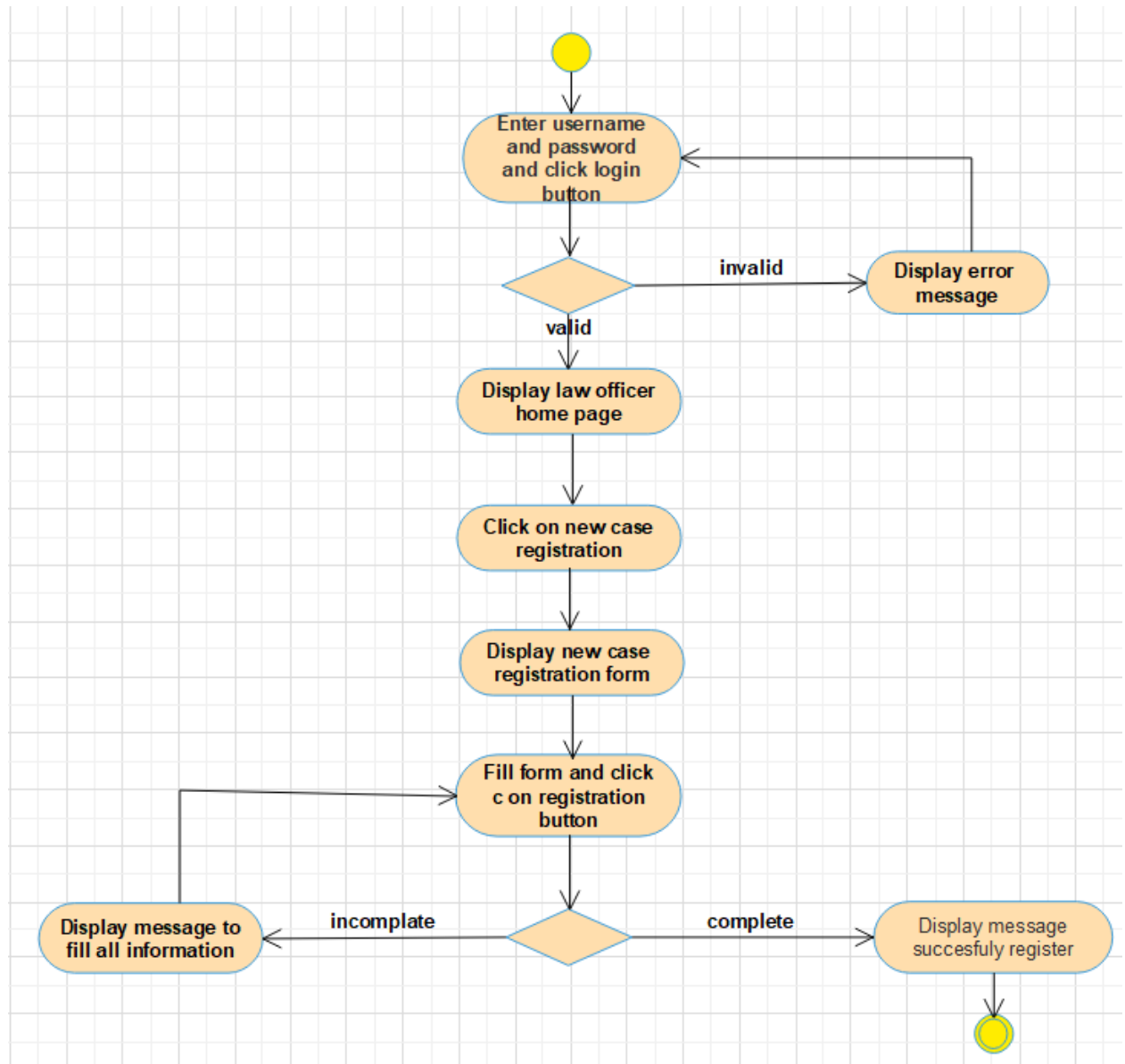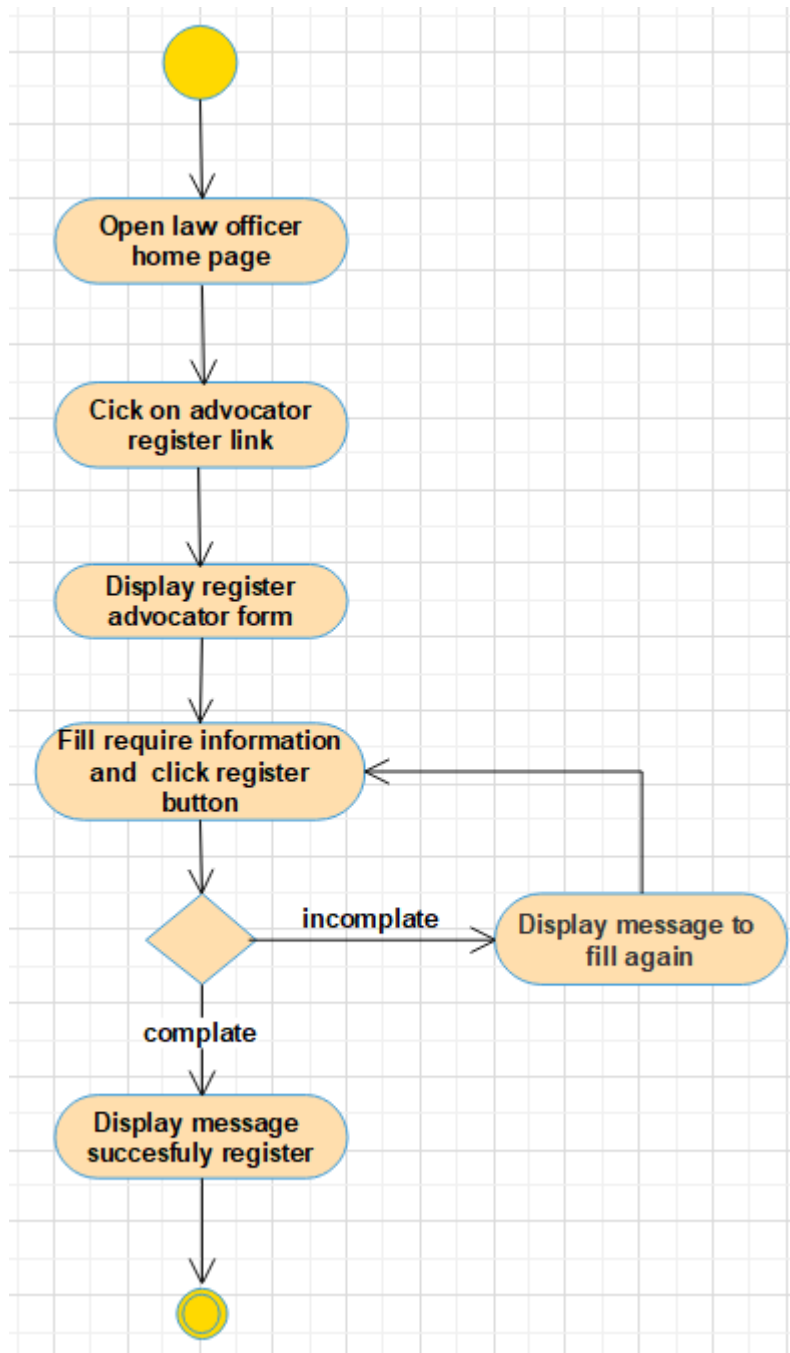
Figure 11 Activity Diagram for New Case Registration
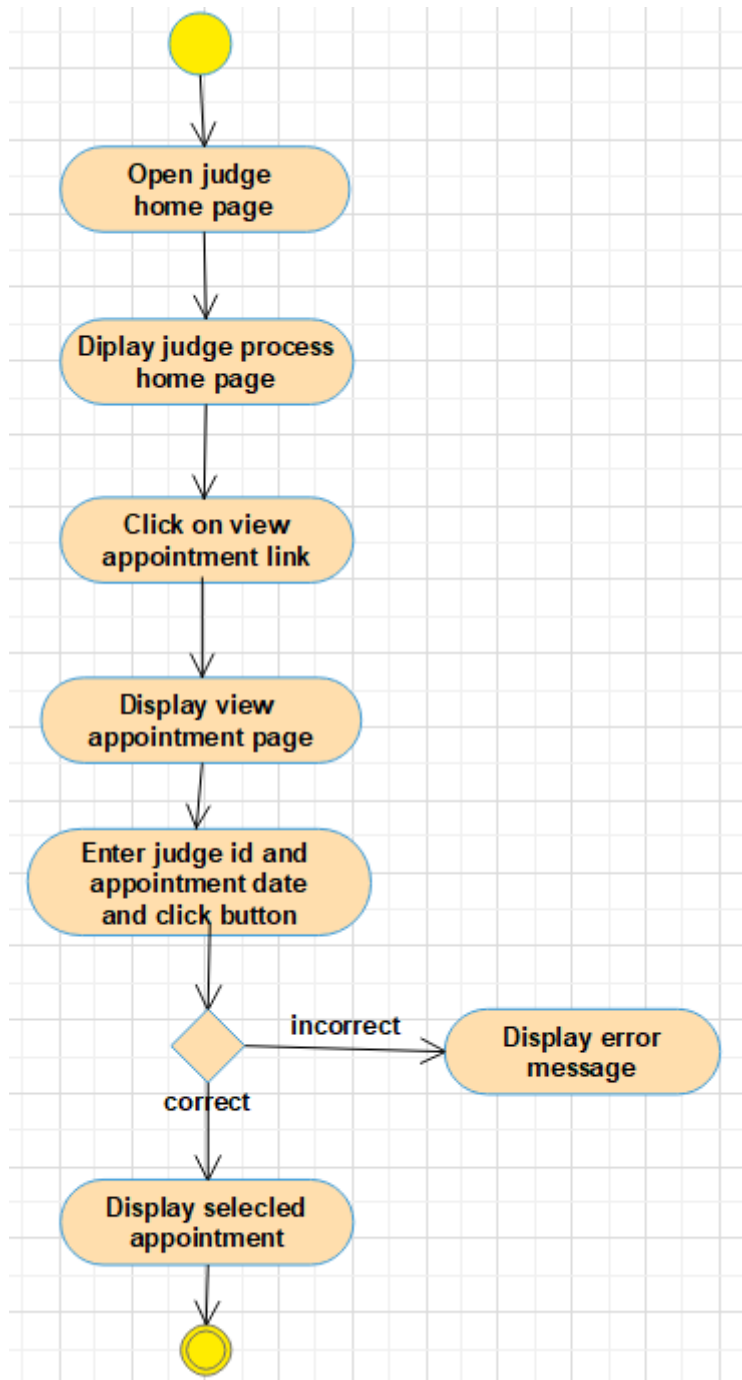
Figure 12 Activity Diagram for Advocator Registration

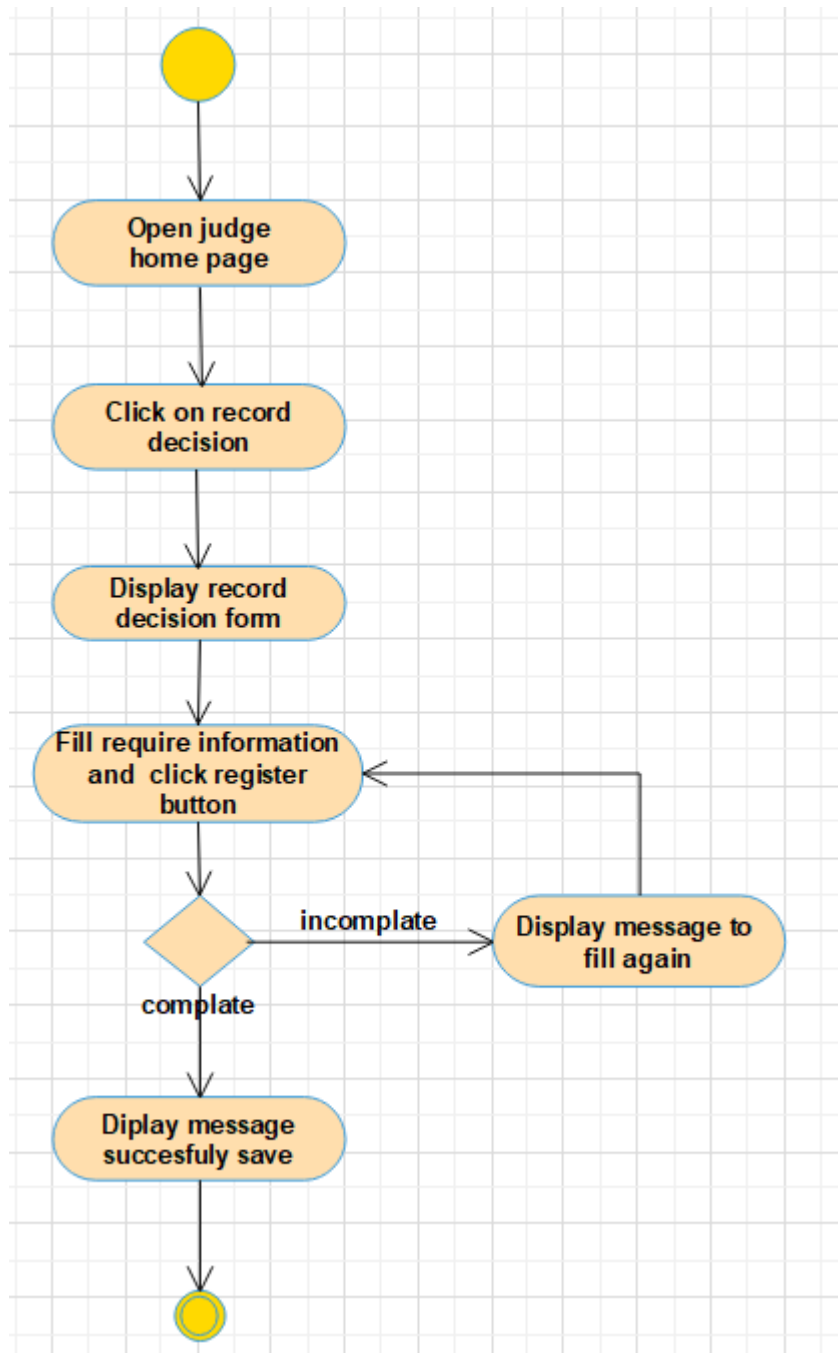**Figure 13 Activity Diagram give appointment**

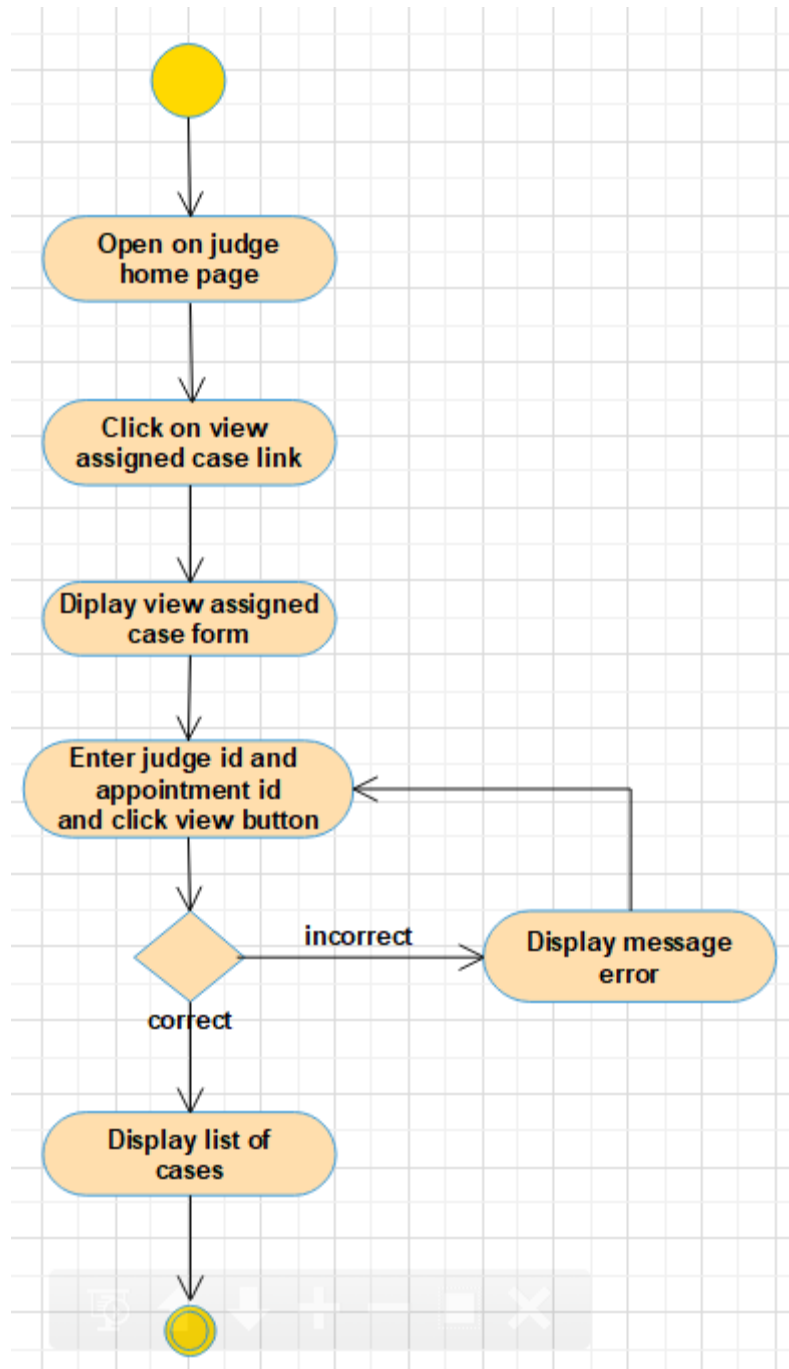**Figure 14 Activity Diagram for Record Decision**

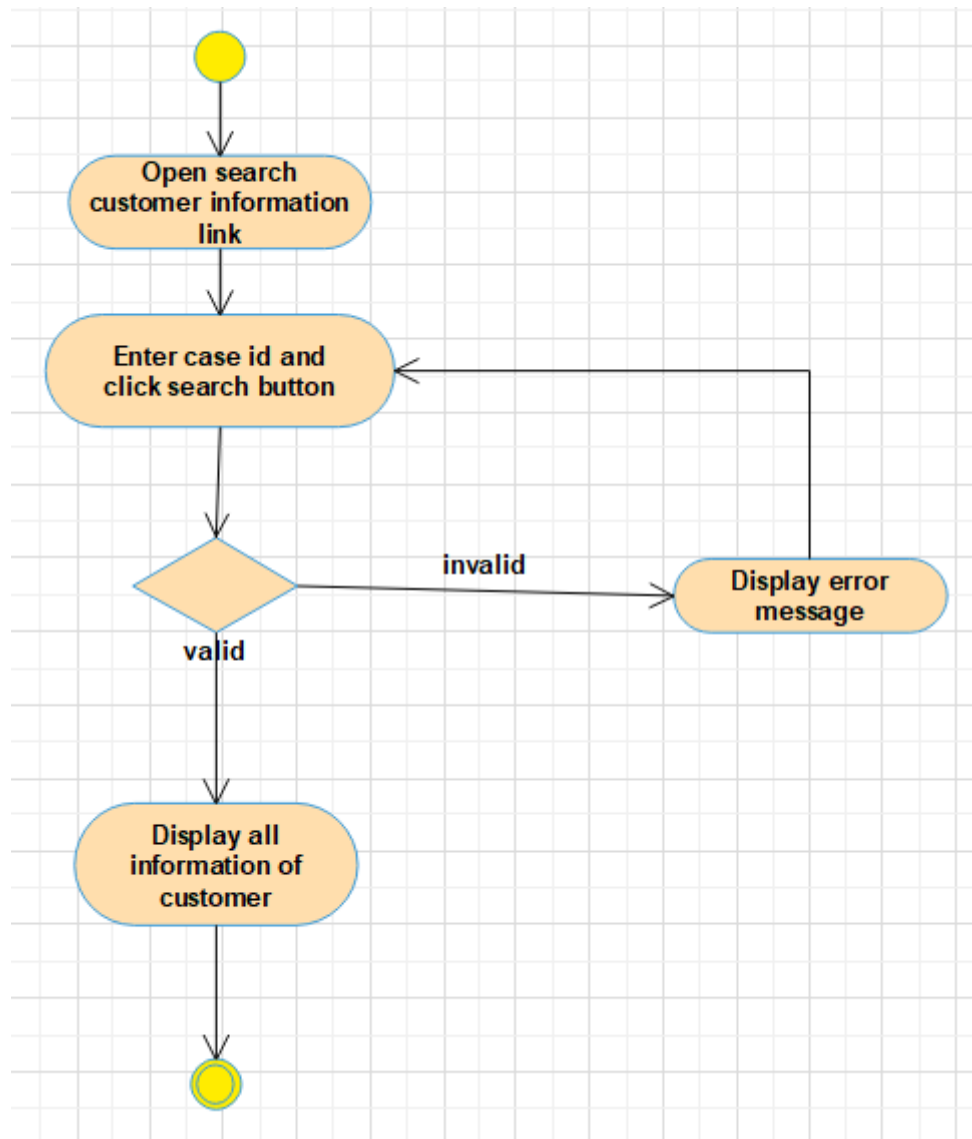**Figure 15 Activity Diagram for View Assigned Case**

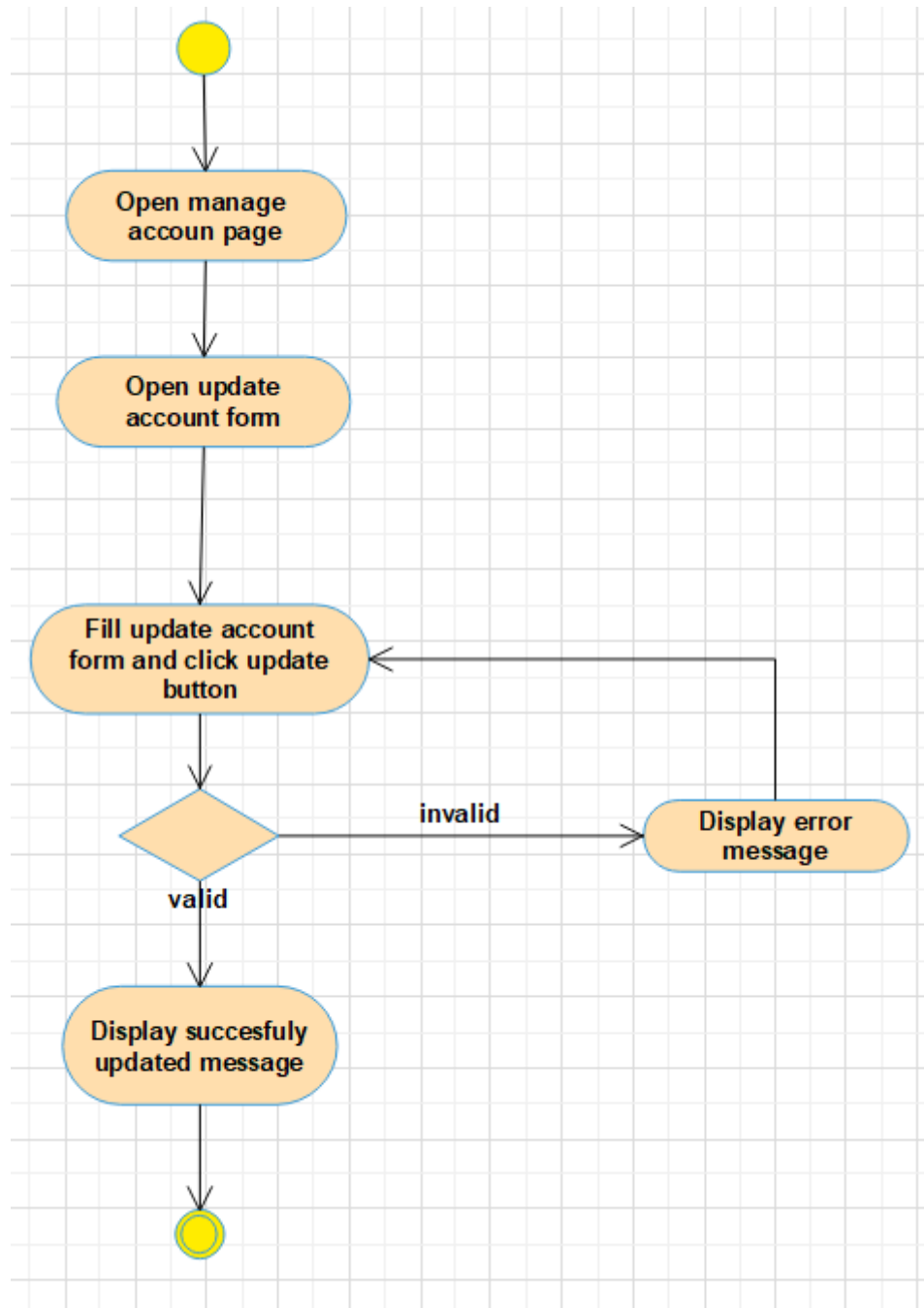Figure 16 Activity Diagram for Search Customer Information

Figure 17 Activity Diagram for Update Account

2.3.7 Sequence diagram

A sequence diagram in a unified modeling language (UML) is a kind of 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.
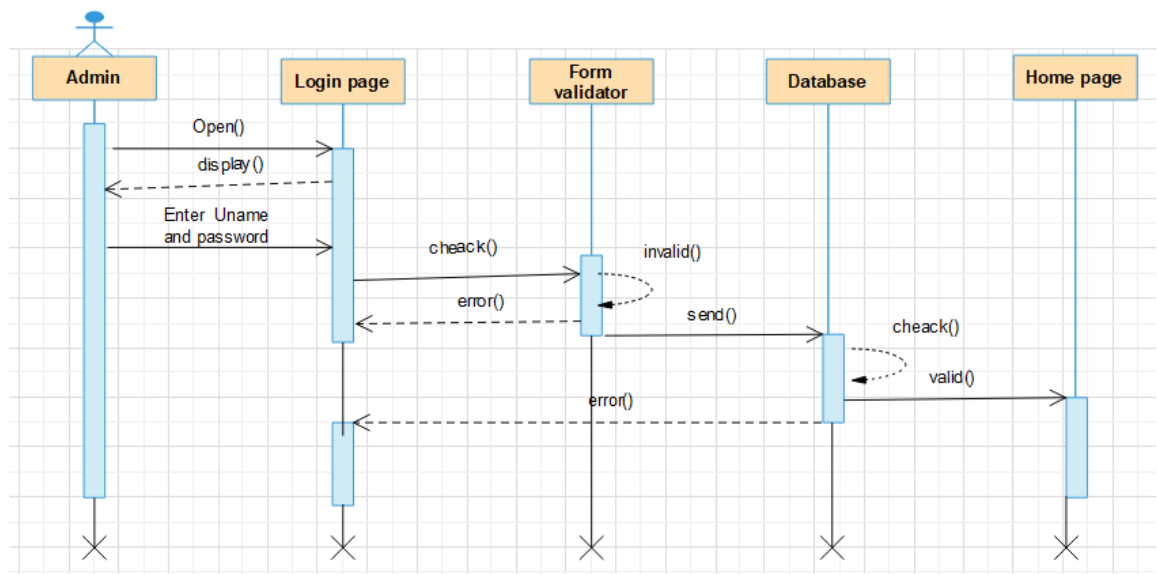

Figure 18 sequence diagram for login

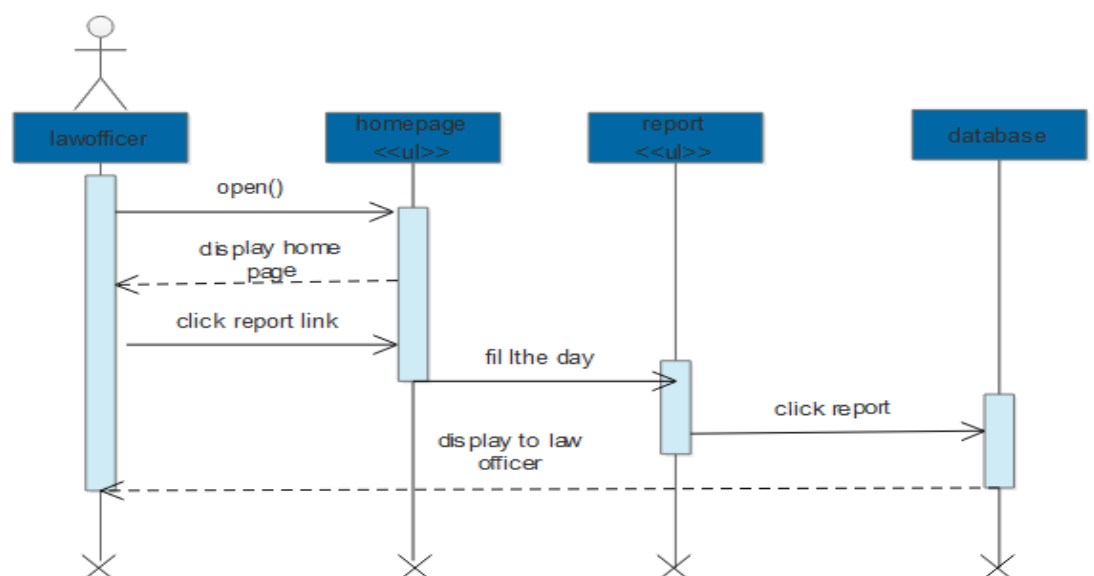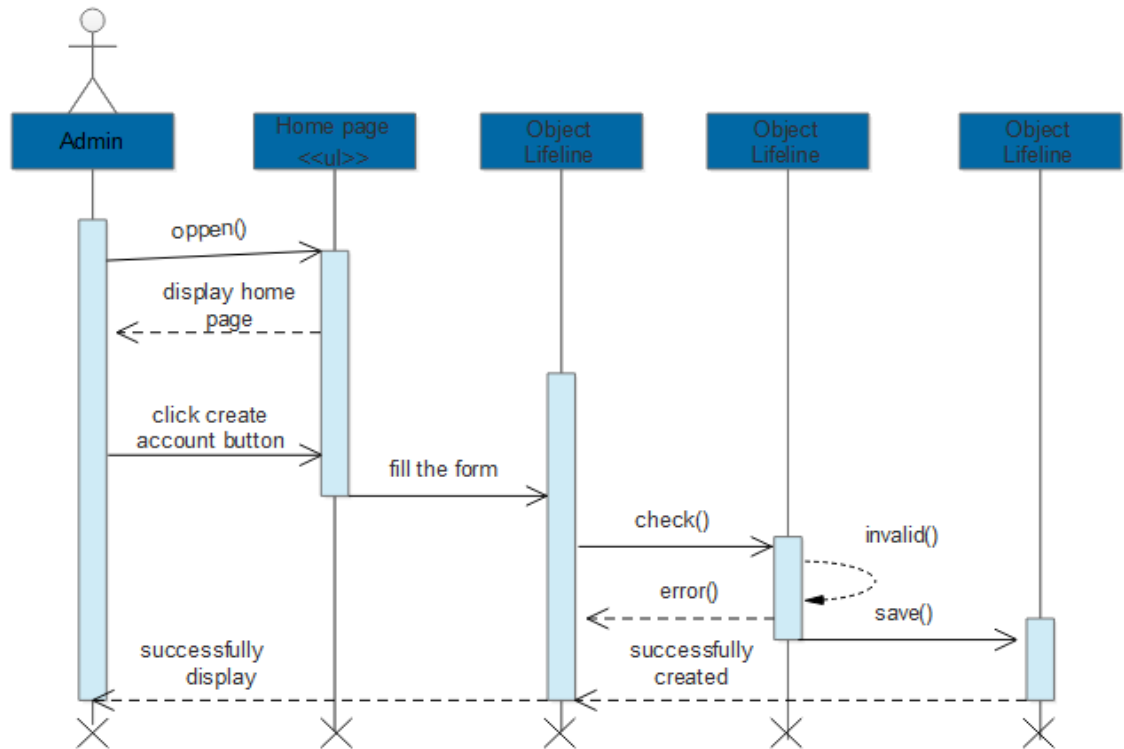Figure 19 sequence diagram for Generate Report

Figure 20 sequence diagram for Create Account
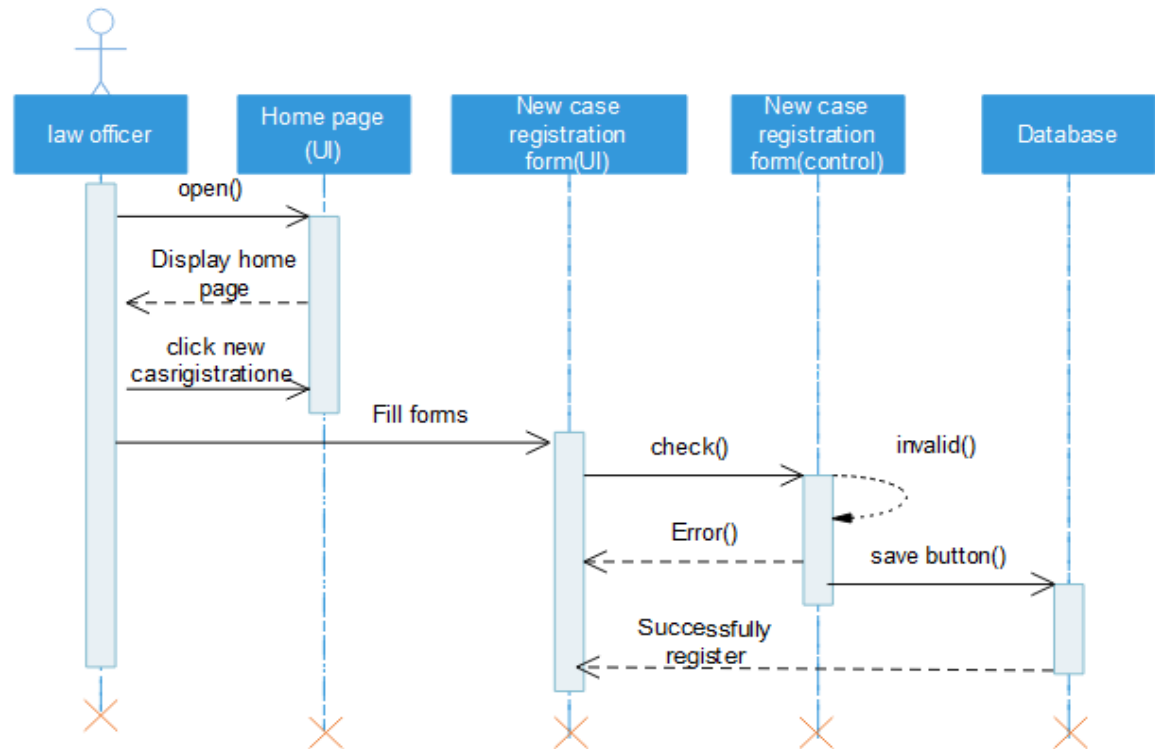
Figure 21 sequence diagram for new case Registration
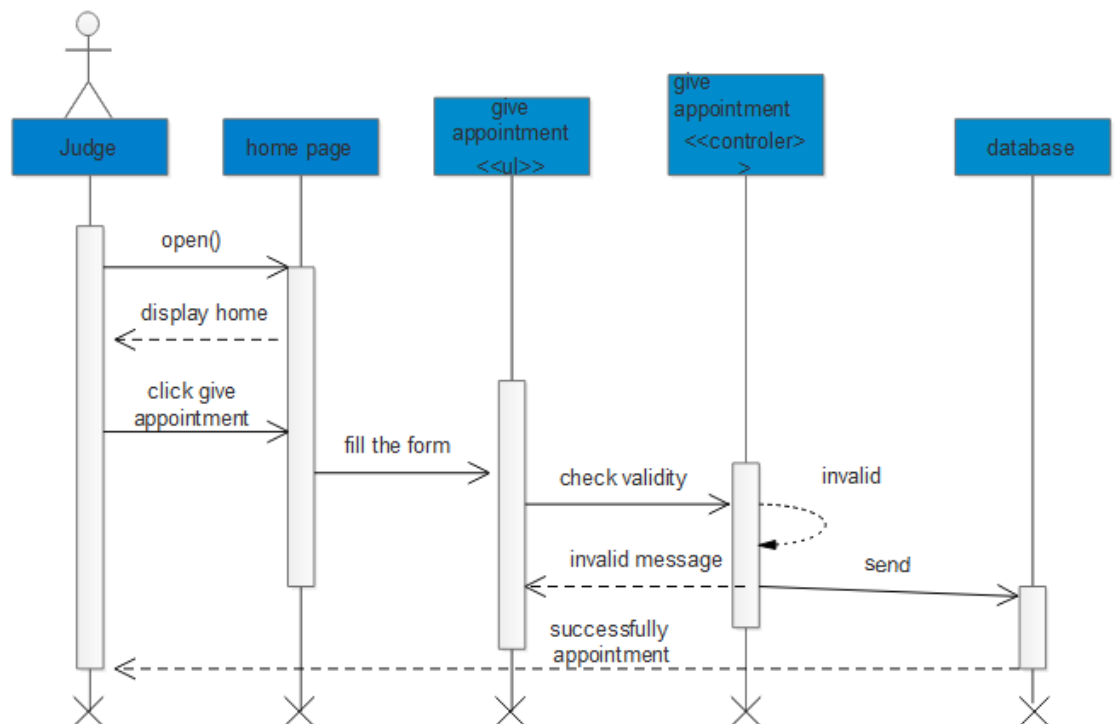
Figure 22 sequence diagram for Give appointment

2.3.8 Analysis Class Model
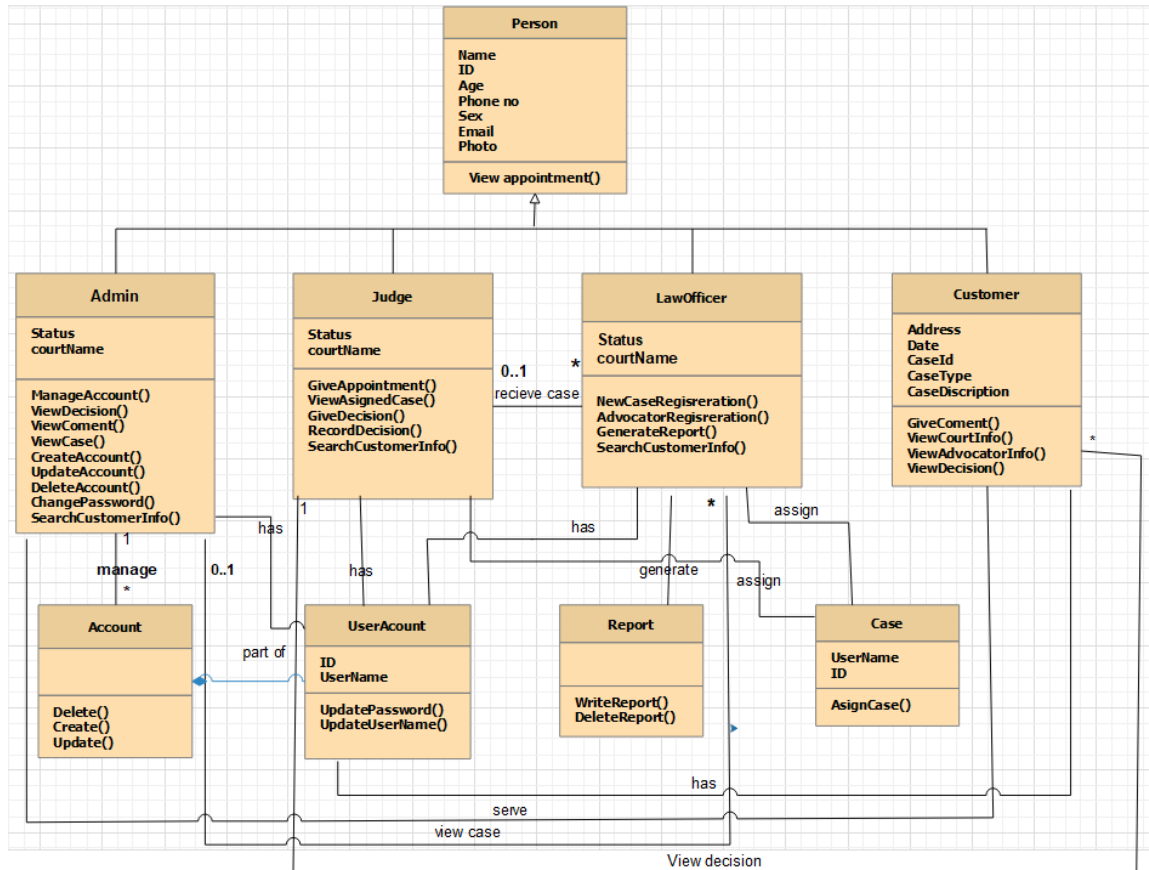
Figure 23 Analysis Class Model

2.3.9 Logic model

Pseudo code for Login

Users Involved: Administrators

Judge

Civil Law Officer

Criminal Law Officer

Customer

Begin

 Get: Login ID

Get: Login Password

Enter username and Password

Click the Login button

If (Form is filled)

If (valid) If (username==Login ID and passwords==Login Password) Access page based on role Else

 Login Failed

 ENDIF

 Else Invalid Input Value

ENDIF

Else Empty submission please fills valid input

ENDIF

End

Pseudo code for Advocator Registration

 Users Involved: Civil Law Officer

Begin

User clicks Register Advocator Form

Fill Information Provided

Click the save button

If (Form is filled)

If (valid)

Advocator file is Stored into Database

Else

Invalid input value. Please fill again?

ENDIF

Else Empty submission please fills all required inputs.

ENDIF

End

Pseudo code for New Case Registration

Users Involved: Law Officer Page

Begin

Get: Login ID

Get: Login Password

Enter username and Password

Click the Login button

If (Form is filled)

If (valid) If (username==Login ID and passwords==Login Password)
Access page based on role

User clicks add Law Officer page

Form displayed

Fill form

Clicks add button

If (Form is filled)

 If (valid)

User is added into Database

ENDIF

End

Pseudo code for search Customer Information

Users Involved: Administrators

Judge

Civil Law Officer

Criminal Law Officer

Begin

 Get: Login ID

Get: Login Password

Enter username and Password

Click the Login button

If (Form is filled)

If (valid) If (username==Login ID and passwords==Login Password) Access page based on role

User clicks search Customer Information

 button

Search bar displayed

User type's phrase

Clicks search button

If (item matches)

Result displayed

Else

Item doesn't match please try again?

ENDIF

End

Pseudo code for Logout

Users Involved: Administrator

Civil law officer

Criminal law officer

Judge

Customer

Begin

Actor's first login

User Click Logout button (link)

Delete database session

 Display the home page

End

2.4 Non functional requirement

> *Accuracy:* proposed system will be better due to reduction of error.

All operation can be one correctly and it ensures that whatever information is coming from the data base is accurate.

➢ *Performance:* Performance details the way the system will perform for the users.

➢ *Reliability:* The reliability of the proposed system will be better due to proper storage of information when users access the application.

➢ *No Redundancy:* In the proposed system can be avoided reputation of data anywhere in the database.

➢ *Availability:* All data in the system will be available all the time.

➢ *Efficiency:* The system must ensure allocation and use of services being requested for the users by using minimum memory storage, cost, time and human power.

➢ *User friendly Interface:* Users can easily input and retrieve their profile and history.

➢ *Security:* The system should allow login to only authorized users. For security issue, only authenticated user can visit the system.

➢ *Usability:* The system is user friendly. It can be easily understandable by the user. Any user who have known how about computer can easily do with it. For employers of the courts tutorials will give to adopt the system.

➢ *Error handling:* The system handles an error done by the user and display error message.

2.5 System Requirement

2.5.1 Hardware requirements

➢ Computer with internet connection
➢ flash disk(8 GB)
➢ Printer etc.

2.5.2 Software requirements

The different kind of software we used for developing the project is:

➢ SQL server 2008 – to develop database application.

- Microsoft office word 2010 for documentation.
- MS power point for presentation.
- Edraw-max—to design Diagram's.
- Programming Language: - PHP , HTML and JavaScript.
- Wamp server: for creating database and tables.

2.6 Key abstraction with CRC analysis

A Class Responsibility Collaborator (CRC) model is a collection of standard index Cards that have been divided into three sections; this is class name, responsibility and collaborator. A class represents a collection of similar objects, a responsibility is something that a class knows or does, and a collaborator is another class that a class interacts with to fulfill its responsibilities. [5] Those can be shown in the following table.

Class name	
Responsibility	Collaborator

Name: The name, located at the top of the card, describes the class that the CRC card represents.

Responsibility: A **responsibility** is something that a class knows or does, represented along the left side of the card.

Collaborators: Responsibilities will collaborate with one or more other classes to fulfill one or more Scenarios. Collaborators are listed on the right hand side of the CRC card, next to the responsibilities that they are helping to realize.

Login	
User name Password Login()	Administrator , Civil and Criminal Law Officer, Judge pages and Customer
Registration	
Id: Name Age Sex Address Phone no Case type Case id Court fee Register() Reset()	Law officer form

Assigned case

Judge ID Case ID Case type Date Send() Reset()	Judge form

Manage account	
User id User name Password Confirm password create() update() delete() reset()	Admin

Give Appointment	
Case ID Date Judge ID Submit()	Judge

Search	
CaseID Date JudgeID Search()	Registration Form

Comment	
Name Address Date Comment Submit()	Administrator Form

Table 21 Key abstraction with CRC analysis

2.6.1 Identifying change cases

Change case will used to describe potential modifications requirements to the system.

There are many cases that change the content of the project. From these:-

- **Missing   activities: -**Where there the important activities missed in each project development phase and the developing team latterly understood them, they should include them.
- **Important comments: -** When crucial comments are raised from the advisor, teachers and examiners that should be included and excluded the developing team assess the project again.
- **Lack of resources: -** If there is scarcity of resources occurred to develop many system activities, the developing team also restructured the contents of the project.

Chapter 3

System Design

System design is the transformation of the analysis model into a system design model. System design can reduce gab between problem and an existing machine, decomposes the overall system into manageable parts and uses the principles of cohesion and coherence. Under system design court management architecture, component, modules, interfaces and persistent data are mentioned in order to achieve specified requirements.

Court management works in a networked environment and is going to be a web based application. Users of the system can access it from a local area network or from anywhere over the Internet.

Therefore, the system design will use standard web based system development tools and technologies in order to allow users access the system seamlessly over a network.

Design Goal

The design goals of our system are inferred from nonfunctional requirements and explained as follows. It describes the qualities of the system that the developers should consider.

While developing Court Management System, there are a lot of design goals to be taken. The design goals are based on standard software design methodologies

➢ **User friendly**: our system should be designed in easy way. It is not difficult to learn or to understand. The system interface will be well-organized, easy to locate different buttons and operations.

➢ **Performance**: our system will be designed by considering performs tasks within a time frame that are acceptable for the user, and does not require too much memory.

> **Development cost**: Our system takes smaller development cost because the tools that we use for development can be easily gained. And the mvc design pattern also used to minimize our cost of implementation.

> **Portability:** our system is portable because it can work in different environments. This means, it is designed to run on different computers with compatible operating system and processers.

3.1 Architectural Design

We will use three tier client server architectures; we choose this architecture because of the following.

> As each layer is independent, it is possible to enable parallel development of each tier by using different sets of developers.

> Since application layer is between the database layer and presentation layer so database layer will be more secure and the client will not have direct access to the database.

> Posted data from presentation layer can be verified or validated at the application layer before updating it to the database.
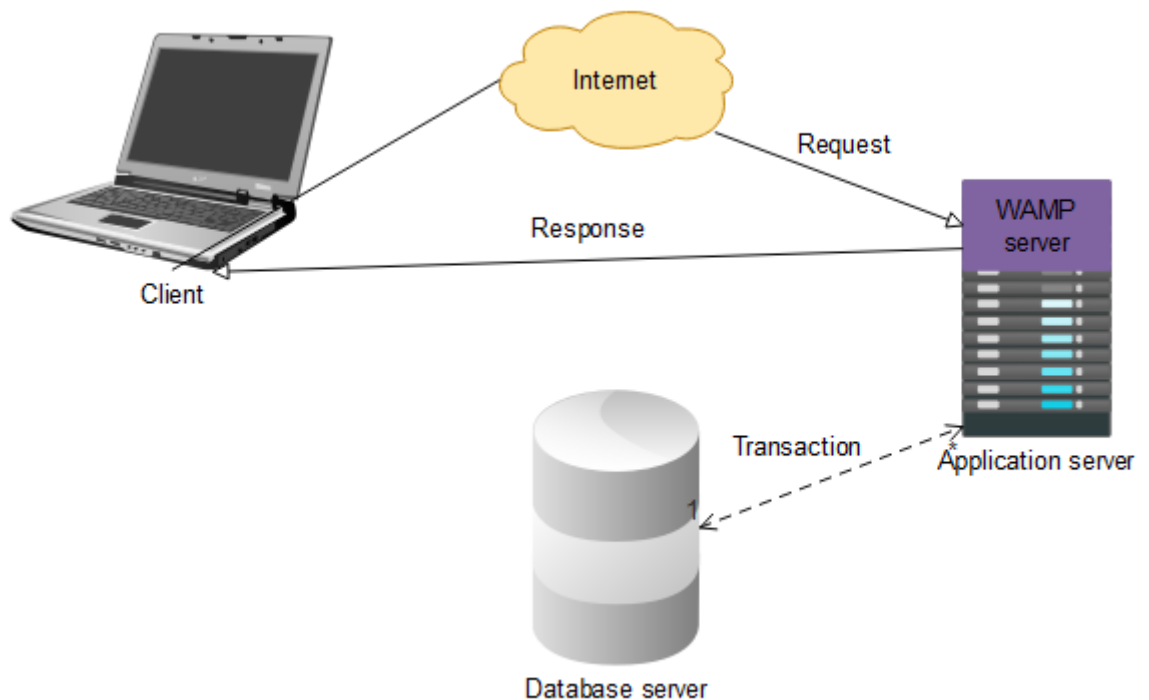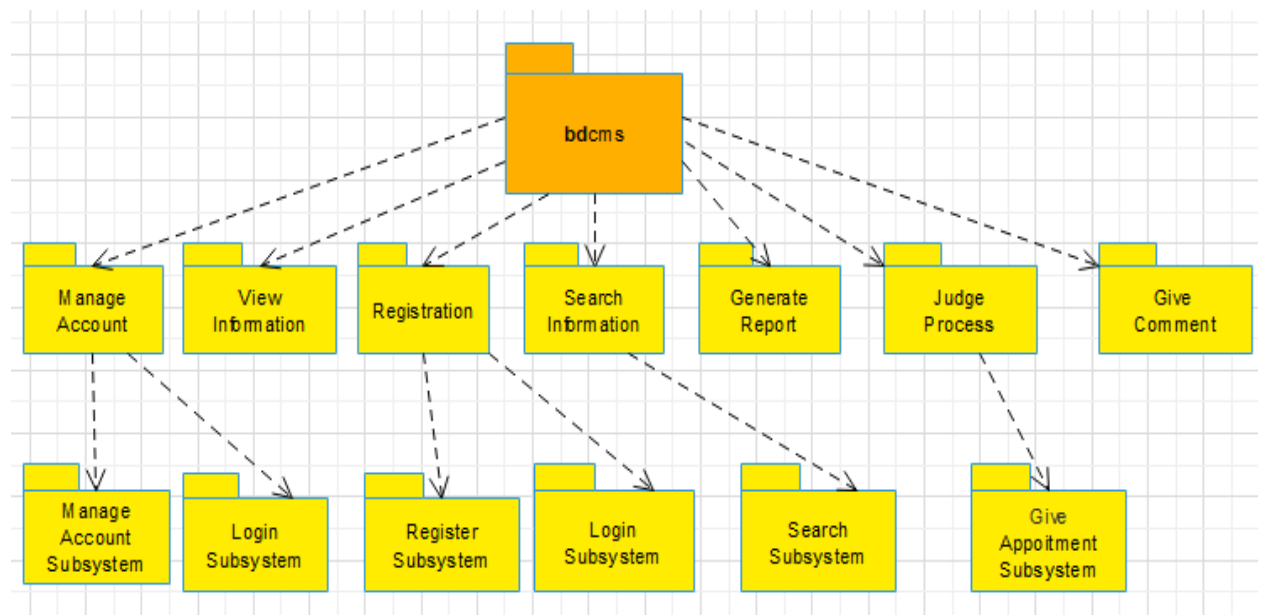
Figure 24 architecture of the system

3.1.1 Component model

Component   diagram are used to provide physical view of current
model. The purpose of component diagram is to visualize the
components of a system and relationships of the components.

Figure 25 Component modeling

3.1.2 Deployment Modeling

The deployment design used to show the hardware of the system,
the software that is installed in the hardware and also the
middleware that is used to connect the different machines to one
and other. It also shows how the software and the hardware
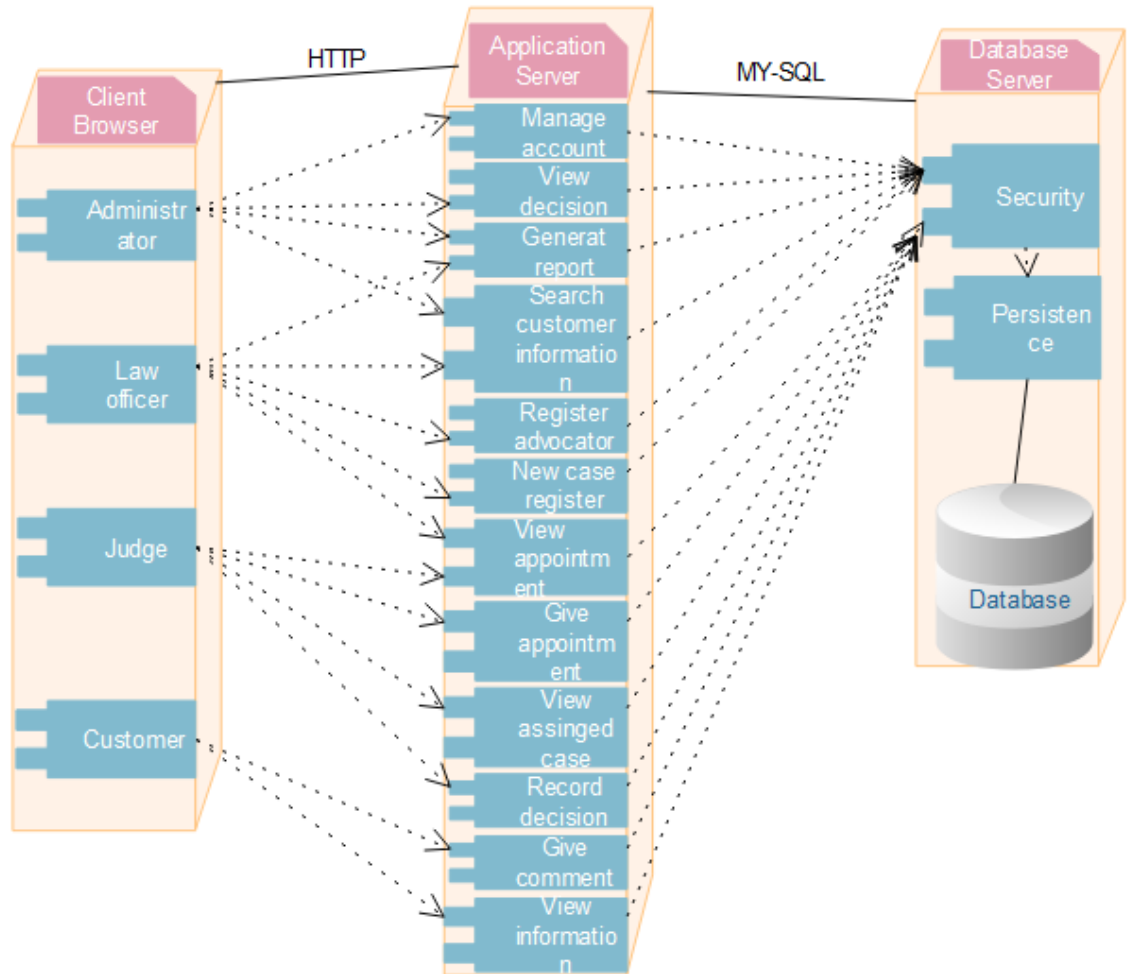components work together

Figure 26 deployment diagram for cms

3.2 Detail Design

3.2.1 Design class model

Figure 27 class model

3.2.2 Persistent model

Persistent model deals with how the persistent data (file, database) are stored and managed and it outlives a single execution of the system. Information related to court basic information, case registration, judicial processes, record decision and management information produced and other related information is persistent

data and hence stored in a database management system. This allows all the programs that operate on the Bahir dar around court management data to do consistently.
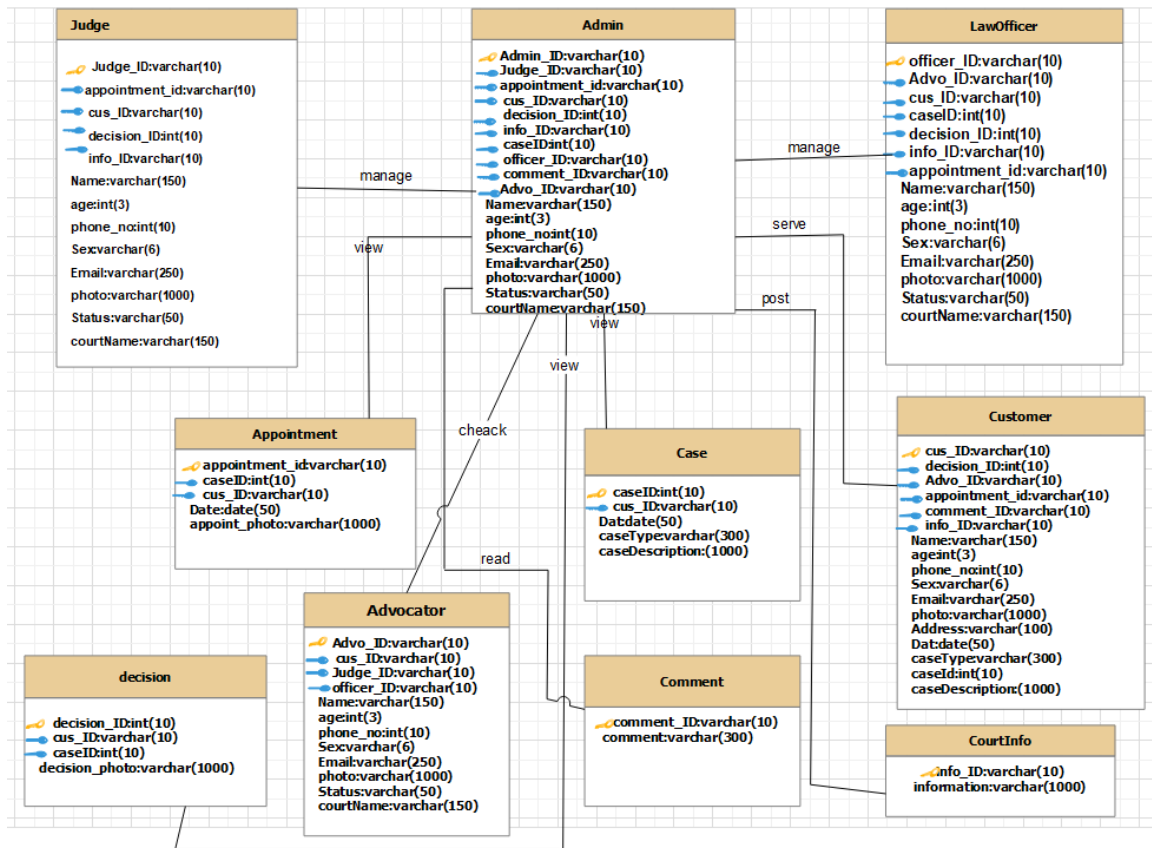

Figure 28 persistence diagram

3.3 User Interface Design

User interface prototype is to indicate the surface that can be used by user and the system to communicate to each other, but, not actual work area.
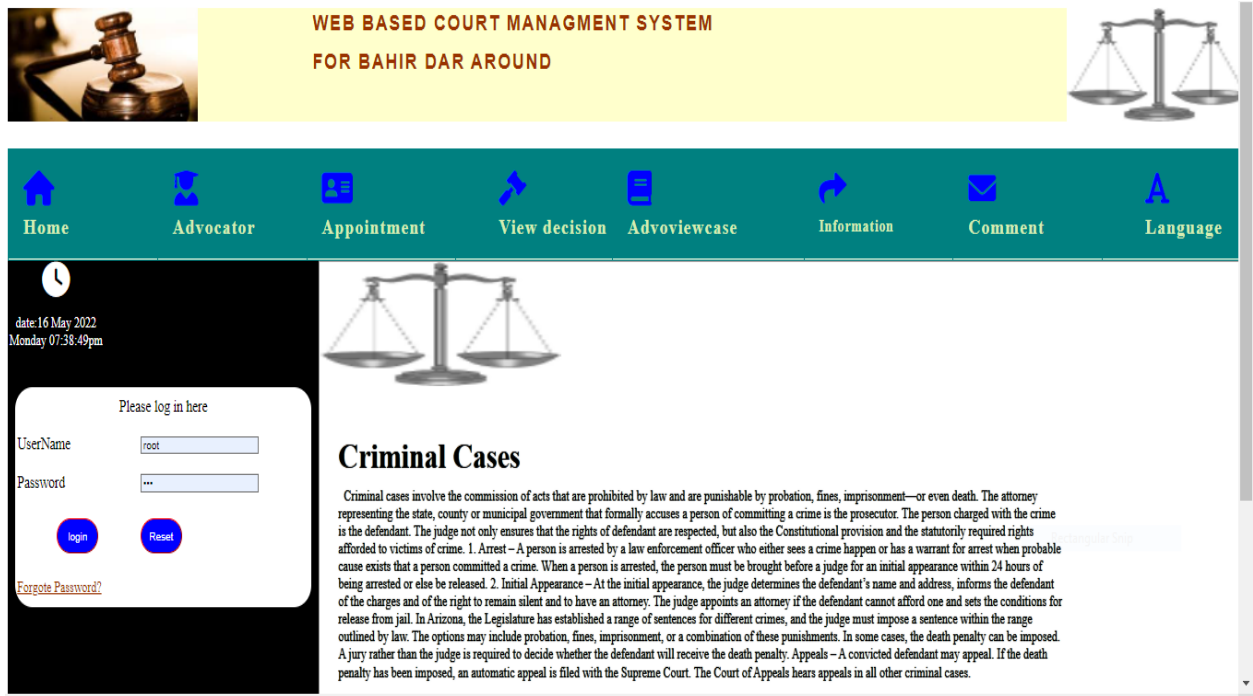
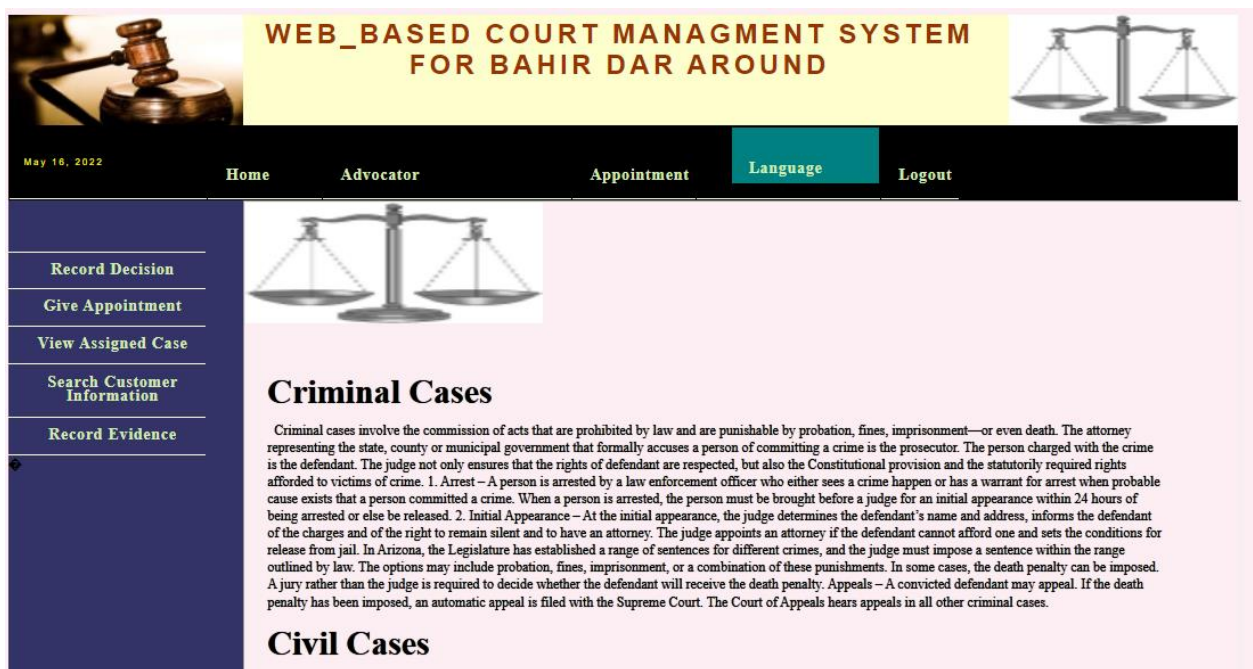**Figure 29 Login and customer home page**

Figure 30 User interface for judge page

Figure 31 User interface for law officer

3.4 Access control and security

Access control is way of enabling & limiting access to a system or to physical or virtual resources according to access level. A control is a process by which users are denied access to the system or granted access and certain privileges to systems, resources or information. When the user can login, the user will be authenticated and then authorized access to the system.

Table 22 System access control

Use case	Administrator	Judge	Law officer	Customer
Create account	✓			
Update account	✓			
Delete account	✓			
New case registration			✓	
View decision	✓		✓	✓
View appointment	✓	✓	✓	✓
Give appointment		✓		
Give comment				✓
Generate report	✓	✓	✓	
Register advocator			✓	
Record decision		✓		
View information				✓
View assigned case		✓		

References

[1].https://en.wikipedia.org/wiki/sequence diagram

[2].1https://en.wikipedia.org/wiki/object-oreinted_Analysis_and_design

[3].https://en.wikipedia.org/wiki/system_ design

[4].https://en.wikipedia.com/wiki/UML_design

[5].craig D.wilson.An introduction Object Oriented Analysis and design

using UML….MATINCOR,Inc.

Appendices

- ➢ Some important questions are rise during interview:
  - ▪ When the court established?
  - ▪ How many numbers of workers are there?
  - ▪ How the current system is difficult for workers and customers?
  - ▪ How many entities in the organization?
  - ▪ How the system works currently?
  - ▪ Is it better to develop web based system?
  - ▪ What are the procedures or steps to use your system easily?
  - ▪ What is the mission and vision of the organization?
  - ▪ How does your current system work?
    - Is it manual?
    - Is it computerize