Wolkite University

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COLLEGE OF COMPUTING AND INFORMATICS

DEPARTEMENT OF INFORMATION TECHNOLOGY

PROJECT TITLE: WOLKITE UNIVERSITY STUDENT'S ONLINE CLEARANCE SYSTEM

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APPROVAL SHEET

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LIST OF ABBREVIATION

Acronyms	Descriptions
BR:	Business Rule
CSS:	Cascading Style Sheet
DB:	Data Base
HTML:	Hypertext Mark-up Language
MYSQL:	My Structured Query Language
PHP:	Pre-processor Hypertext Protocol
UC:	Use case
UCID:	Use case ID
OOA:	Object Oriented Analysis
OOD:	Object Oriented Design
OOSAD:	Object Oriented System Analysis and Design
SRS:	System Requirement Specifications
UI:	User Interface
UML:	Unified Modelling Language
WKU	Wolkite University

ABSTRACT

Online clearance processing system is a project work that will help to build an effective information management for the Wolkite University. It is aimed at developing a system for making clearance for the students. The designed software will serve as more reliable and effective means of understanding student's clearance remove all to delay and stress as well as enable the user of the system to understand the procedures involved and how to do their clearance online. This project will be done by collecting the data about existing system from the university. The project is aimed to achieve effective (the student will access the system anywhere in the campus) and efficient (speed up) clearance process system for the students of Wolkite University. Moreover, the design and implementation will be carried out using HTML, CSS, PHP, JAVASCRIPT, APACHE Server, and MYSQL for data base.

CHAPTER ONE

1. INTRODUCTION

Clearance is a status granted to individuals typically students allowing them access to information [1]. The term clearance is also sometimes used in private organizations that have a formal process to check the employee's information. A clearance by itself is normally not sufficient to gain access the organization must determine the cleared individual has needed to know the information. Clearance is the process of determining and negotiating any permission that are needed to use of someone else's intellectual property creative project. Part of that process includes:-Determining the owner(s) of the intellectual property, contacting the owners and negotiating on agreement, administering written contracts, handling other issues related to the use and licensing of intellectual property. No one is supposed to be granted access to classified information solely because of rank or position, but once a clearance is obtained access to certain information or gain of freedom will be granted. The proposed system over comes one problem done by manual system. To reduce miss use of manpower, avoiding errors, to save time, to provide comfort clearance process for the students and to provide insurance for the organization especially for workers who play role in the clearance processing system. This system will works for students of Wolkite University. The online clearance processing system allows the students to register for the membership to access the service of the system.

1.1 Background of the study

1.1.1 Background of the organization

Wolkite University (WKU) is one of the third generation higher institutions that have been founded in 2012 G.C. It is established for the purpose of providing and promoting higher education learning, research, and outreach programs in the country to ensure the realization of the national vision of reaching the level of middle income countries by 2020. The University is located in the Southern Nation Nationalities Regional State, in Gurage zone, 158 km southwest of the capital city, Addis Ababa, on the way to Jimma. It is situated at Gubreye sub-city, 14 km away from Wolkite town, of the Gubrye-Butajira road. The major link road to the University is a direct route to Wolkite-Jimma, Wolkite-Hosanna and Wolkite-Butajira.

The first 543 students joined the University in 2011/12 academic year. Enrolling the assigned students, the University started its academic journey with 13 academic programs under three Colleges of Engineering and Technology, College of Computing and Informatics, and College of Natural and Computational science. Currently, the number of colleges has reached seven with one additional school in which a total of 32 academic programs are running. It is the intention of the University to gradually increase the number of students to a target of 15,000 total enrolment at the end of the first 5 years and 40000 to 50000 total enrolments by the end of the third 5 years [2].

1.2 Statement of the problem

The process of clearing students of a named institution wolkite university after the end of academic year requires that the students must be cleared in their various departments. This clearance processing system service currently uses manual system which creates the following problems.

- Data recording system is not centralized or not in the modern system which is difficult to search.
- Data redundancy & loss of data.
- Consumes more resources to complete the process which is of high cost such as:-
    - Stationary material.
    - Printers and computers etc.
- Need more manpower to process the clearance in the respective offices.
- Error is happened during process the clearance System.
- To process the clearance is lot of queue because of the number of users.

Hence, it will become imperative for computer software based online clearance system to eliminate the shortcoming of the manual system in place as above listed problem.

1.3 Objective of the project

1.3.1 General Objective

The main objective of this project is to create web-based wolkite university student's online clearance system.

1.3.2 Specific Objectives

The specific objective of this project includes:-

- ✓ To study the problem of existing system.
- ✓ To identify functional and non-functional requirement of the new system.
- ✓ To design a system that considers the current condition.
- ✓ To select the development tools for the system.
- ✓ To model the system and identify the business objects, organize the objects and identify the relationship between them.
- ✓ To evaluate and test the proposed system.

1.4 Scope and limitation of the project

1.4.1 Scope of the project

This project will limited only for Wolkite University students. Currently the university performs clearance system manually or paper based processing system. Generally the scope of this project includes:-

- ✓ Our system will used for WKU students only.
- ✓ Import students that's handled by SIMS or WKU registrar
- ✓ View status: means checks the status of the student whether cleared or not by using their ID No.
- ✓ Request clearance: our system will allows student can request for clearance for clearance.
- ✓ Generates clearance: our system will generate the final clearance or report on the computer screen rather than printing the paper.
- ✓ Clearance system for students: this belong the students who need their clearance form may be: end of academic year, with drawls, graduate, transfer to another university.

1.4.2 Limitation of the project

The limitation of this project includes: -

- ➢ The system couldn't give service to academic staff and administrative staff i.e. limited only for students.
- ➢ Our system will doesn't support digital signature.

- If the students lost/damage the university property, he/she couldn't gain clearance, until the students pay the cash personally to finance. i.e. our system doesn't contain a payment mechanism.
- Our system will access only by English language

1.5 Significance of the project

The project work will help in a good ways to ease the queuing system in the university as the online clearance system will help students to achieve whatever they want without coming to the various offices for clearance personally such as dormitory, bookstore, registrar, sport, library and Cafeteria. Online student clearance system allows the users to check their clearance status as whether they are in any way obligated to the university, fill and submit their clearance form, and obtain their clearance letter. There is many other advantage of student's online clearance system. Some of them are listed below:-

- ✓ It saves a time.
- ✓ It is convenient to use it right from the dormitories, office or anywhere in the campus.
- ✓ Information processing is fast and delays can be minimized.
- ✓ Help the University in reducing cost such as labour and stationary.
- ✓ Process clearance effectively and efficiently.
- ✓ Provides a reliable and transparent clearance processing system.
- ✓ It provides a reliable and transparent system devoid of person interest and inclination.
- ✓ The system removes the problems of stress, travelling to different office and queuing up of students during processing of the clearance.

1.6 Beneficiaries of the project

This project provides many benefits for:-

1. **Students**: - by providing fast access to the clearance system by reducing time like waiting in the queue and going to different offices. The students will access the system anywhere and anytime in the campus when they need the clearance. It improves the tiredness of student by avoiding to going to different offices to get the clearance system.

2. **University**: - in manual system there is loss of materials like time, paper, pen which is cost and more manpower, the system will be reduces loss of costly materials and manpower.
3. **Developers of the project**: - it increases our knowledge and we get moral satisfaction from the project we developed.

1.7 Feasibility Analysis

Feasibility analysis enables the system to determine ether or not the project can be developed, evaluates and identifies the newly developed system. Therefore, the feasibility analysis of proposed system involves the following feasibility:

1.7.1 Operational Feasibility

The proposed system will solve the business and time problem for the organization. Therefore the campus administration and other users providing effective processing system, which satisfies their needs

- ✓ The proposed system offers greater level of user-friendliness.
- ✓ The proposed system produces best results and gives high performance.
- ✓ The proposed system can be implemented easily.
- ✓ The proposed system can be solved the existing system problem and challenge.

1.7.2 Technical Feasibility

The system developers understand the scope, objectives including specific objectives and limitations of the proposed system well and the users have technical capability/ability to use this system. As a result they develop the system for Wolkite University successfully within proposed resources (budget, time, etc.). This also deals with the hardware as well as software requirements. We have to find out whether the necessary technology and the proposed equipment have the capacity to hold the data used in the project. The technical feasibility issues usually raised during the stage of fact finding includes the following:-

- ✓ This software is running in windows and Linux operating system.
- ✓ The system can be expanded in any system platforms.

1.7.3 Economic Feasibility

When the team can be analyses the system by comparing the cost with the benefit (the enterprise can get by using the proposed system), surely the benefit out weight the cost. The cost of developing a full system, including software and hardware cost for the class of application being considered should be evaluated. So, the benefit that obtain by using the proposed system can be categorized as tangible and in tangible.

Tangible benefits are*:*

- ✓ Using less man power than the existing system.
- ✓ Increase speed of activities and competence.
- ✓ Reduce cost.

Intangible benefits are*:*

- ✓ Knowledge required by project developer.
- ✓ Facilitating information processing.
- ✓ Updating information.
- ✓ Increasing the competitiveness of the individual.
- ✓ Improved productivity.
- ✓ Improving the morale of our team.
- ✓ Facilitating information processing of our team

Therefore the team will decided the proposed project is economically feasible.

1.7.4 Behavioural/Political Feasibility

Behavioural feasibility is the measure that how users use the system effectively [3]. The proposed system should be easy to operate, convenient in maintenance and effective in its working. Thus behavioural feasibility is very important factor to be considered for effective working of the system. Behavioural feasibility is dependent on human resources available for the project and involves projecting whether the system will operate and be used when it is functionally operate. The system is behaviourally feasible because of the following:-

- ✓ The proposed system is easy to operate.
- ✓ Retrieval of information is easy, accurate and fast.

Since developing this new system will be solve the clearance system problems, the users will undoubtedly have positive attitude towards the system and the system is politically feasible and free from any legal claims.

1.8 Methodology and Tools

1.8.1 Data Collection Techniques

Document Analysis: - For more information about the existing system we refer relevant documents, others reading materials.

Practical Observation: - we observed physically the current existing system which is done by manually.

Interview: - To get the basic information and background information about the existing system structure, we ask different question from different persons who provide clearance system.

1.8.2 System Analysis and Design

In this project the team agreed to use Object Oriented System Analysis and Development methodology (OOSAD). This has two phases.

Object Oriented Analysis (OOA):- During this phase the team will use to model the functions of the system (use case modelling), find and identify the business objects, organize the objects and identify the relationship between them and finally model the behaviour of the object.

Object Oriented Design (OOD):- During this phase the team will use to refine the use case model to reflect the implementation environment, model object interactions and behaviours that support the use case scenario, and finally update object model.

1.8.3 Testing Procedures

We use the above listed software development tools to design or implement the proposed system, because the tools are compatible to develop the proposed system. We will also perform different testing for checking functionality of our proposed system.

1. **Unit testing:** - First we will test each unit at each system. So, if a problem is encountered it will immediately maintain at which the problem is occurred.
2. **Integration Testing:** - After we test each unit of the proposed system we will perform an integration test to check whether the system meets all the functional requirements. When a number of components are complete, it will test to ensure that they integrate well with each other like operating system, and other components.
3. **System Testing:** - After all of the above testing are checked we will test our system by other peoples and we will conduct some comments how they get our system.

CHAPTER TWO

2. DESCRIPTION OF THE EXISTING SYSTEM

2.1 Introduction of the Existing System

The current clearance system of Wolkite University is the manual one. When the students of the university leave the university takes clearance form from registrar and go to the different office to sign clearance form. Student may take clearance form from registrar when they want to fill withdrawal, during the end of each year and finally when they graduate and leave the university. This makes the system so tedious and time consuming. Here, the student to visit all the clearance offices with a form for them to fill and get sign by the respected offices. Once these forms are signed, it proves that the users have been cleared and validate as they return the materials they borrowed. This process takes a lot of time to be completed and possess a lot of stress for all the students and workers who provide clearance system.

Before sign in the clearance form each officer first check all the property borrowed by the student whether return or not. If that is return, he /she sign the clearance he/she don't sign in the clearance form. In order to control the list of students who borrow the property from the office the use document paper which contain the information about borrower and borrowed material like name of borrower, identification number of borrowers, type of borrower material etc. In the manual system, the clearance forms are documented in a file cabinet. Each time the clearance form is needed, a search operation conducted on the file cabinets to locate a particular user's clearance form.

2.2 Users of Existing System

The players involved in the existing system are the following: -

- Students: - people who are getting clearance service from the system.
- Registrar: - are person who cleared the students at the end and they sign in the form and give the form to the students.
- Officer: - are office worker who sign clearance form for the students. These are employee are the following:-

- Proctors: - are person they check the dorm materials like bed, window, door, and the door key if all are not damage they sign in the students clearance form.
- Librarian: - are person they check either the borrowed books were returned or not.
- Sport Science: - are person they check sport materials whether the student take from the office or not.
- Student Service: - are person responsible any student debits are defined in this office.
- Book Store: - are person they check if the students have borrowed a book and return the book or not, if they have not borrowed the students are cleared and they put sign in to the clearance form.
- Departments head: - are person distribute clearance paper form for the students in respected department.

2.3 Major functions of the existing system

2.3.1 Input Analysis

Input to the system is the form which is fulfilled by the proper users. These forms are filled by student and submitted to the various offices for issuing of receipts.

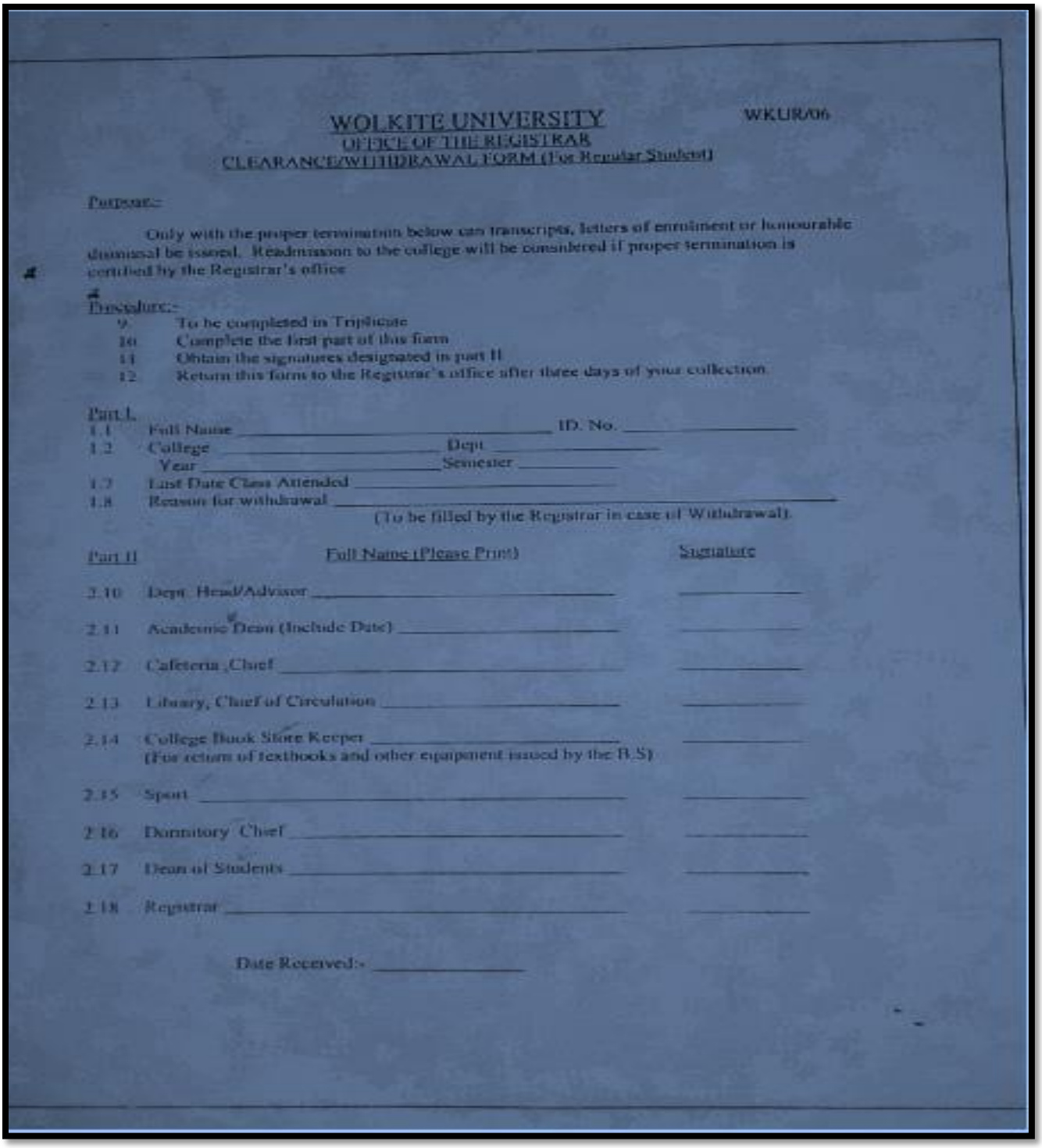
2.3.2 Process Analysis

The form is filling by the students then collected and signed by the respected offices to certify that the student has completed all the necessary things. Hence a certificate issued to show that the student have completed all the clearance processing.

2.3.3 Output Analysis

The output from the system is the certificate or one form of clearance issued to the student stating that the student fulfilled all university obligations and is now free to pass out from the university.

2.4 Forms and Other Documents of the Existing System



WOLKITE UNIVERSITY WKUR/06
OFFICE OF THE REGISTRAR
CLEARANCE/WITHDRAWAL FORM (For Regular Student)

Purpose:-

Only with the proper termination below can transcripts, letters of enrolment or honourable dismissal be issued. Readmission to the college will be considered if proper termination is certified by the Registrar's office

Procedure:-

9. To be completed in Triplicate
10. Complete the first part of this form
11. Obtain the signatures designated in part II
12. Return this form to the Registrar's office after three days of your collection

Part I.

1.1 Full Name _____ ID. No. _____
1.2 College _____ Dept _____
Year _____ Semester _____
1.7 Last Date Class Attended _____
1.8 Reason for withdrawal _____
(To be filled by the Registrar in case of Withdrawal).

Part II	Full Name (Please Print)	Signature
2.10	Dept. Head/Advisor _____	_____
2.11	Academic Dean (Include Date) _____	_____
2.12	Cafeteria ,Chief _____	_____
2.13	Library, Chief of Circulation _____	_____
2.14	College Book Store Keeper _____ (For return of textbooks and other equipment issued by the B.S)	_____
2.15	Sport _____	_____
2.16	Dormitory Chief _____	_____
2.17	Dean of Students _____	_____
2.18	Registrar _____	_____

Date Received:- _____

Figure 2. 1: The existing student's clearance form for WKU

2.5 Drawbacks of the Existing System

Due to the manual means being used by the university, in keeping information about student's clearance, a lot of problems are encountered which includes: -

2.5.1 Performance (Response time)

- Wait in the queue while processing the clearance form.
- Unavailability of some key staff while processing the clearance form.
- Takes a lot of time to get back a particular clearance from the respected offices.

2.5.2 Input (Inaccurate, redundant, flexible) and Output

During filling of the form the user may fill inaccurate or incorrect information and may miss necessary information, this show the system is inaccurate and the system is not flexible because if user wants to erase the form he/she must only change another form.

2.5.4 Security and Controls

- Loose of vital documents as the filing system is manual.
- Damage of document due to fire or rain incident.
- Take a lot of time to retrieve a particular clearance form.
- Delay in processing clearance form.
- Illegal removal of forms by falsified staff leading to insecurity.

2.5.4 Efficiency

Due to the manual operation most of the activities are easy to wastage of resources like stationary materials, manpower, time etc. to produce the corresponding outputs. This makes the current system inefficient while utilizing resources.

2.6 Business Rules

BR1: Anyone who signs clearance form must be the members of the university

BR2: Registrar officer give the clearance form only for the students of the university

BR3: Student must fulfil their responsibility before they go to sign clearance in officer

BR4: The officer of the university must put their signature and the date when they sign

BR5: When the student wants to sign clearance form, they must fill the required field and they must have an ID card of the university to check the validity of the university

BR6: Officer of the university are not expected to give service on Saturday, Sunday and holyday

BR7: Students should take one pieces of approved clearance form from registrar for the validity

2.7 Report generated in the existing system

The forms generated in the existing system are in the forms of form and files.

Forms: - Forms are the reports generated in the existing system that contains all information filled by the university student.

Files: -Files are the collection of information about the students who involve in the clearance processing system.

These all reports kept in the offices of the university to store information about the university student.

2.8 Practices to the Preserved

Even if the existing system has a lot of problems, there are a number of activities that need to be preserved. The system uses files and forms to define operations and to perform business rules in the clearance system. Our team members preserve the following practices form the existing system.

- System procedures.
- The rule and regulation of the university.
- Formalities of the users of the system, offices concerned staffs and students.

CHAPTER THREE

3. PROPOSED SYSTEM

The new system is designed to solve problems affecting the manual system in use. It is design to be used online thereby relieving both the students and the offices workers from much stress as experienced in the manual system. This system will do the analysing and storing of information either automatically or interactively. It will make use of online access to Internet. The proposed system will also have some other features like:-

- Login system must be present and secured by password and logout after cover.
- Accuracy in the handling of data.
- Fast rate of operation and excellent response time.
- The system is flexible i.e. it can be accessed at anywhere at campus.

3.1. Functional requirements

Functional requirement defines a function of a system and its components. The following are of them:

For Registrar admin:-

- The system allows the admin to create user account.
- The system allows the admin to search user record.
- The system allows the admin to delete user record.
- The system allows the admin to print record.
- The system allows the admin to set deadline.

For Student:-

- The system enables student to request for clearance approval or information.
- The system enables the student to edit their profile picture
- The system enables the student to change password.
- The system enables student to view clearance status.
- The system enables student to view request status.

For Office:-

- The system allows the admin to approve clearance request or information.
- The system enables the officer to search user record.
- The system allows the officer to add requirements.
- The system allows the officer to drop requirements.
- System allows the officer to view clearance status.

3.2. Non-functional requirements

Out of money our system has the following non-functionality requirement.

3.2.1. User Interface and Human Factors

The proposed system provides web application user interfaces that are compatible browsers like Internet Explorer, Mozilla Firefox, Google chrome, etc.

The Proposed system has several user interfaces to communicate easily with the User. Our team attempt to illustrate this interface in general as follows:-

- The system shall provide a user interface which is interactive, easy, interesting and understandable for all the user of the system.
- The system include various links, forms, buttons, dropdowns, radio buttons, text areas and text field that could help users to insert their data to the system as easily as possible.
- The system should have an interesting color combination which will not affect user's eye vision.
- The caption and the test of user interface should be self-descriptive and clear to understand.
- The user interface should be easy to understand.
- The user interface should be customized.
- The user interface should be accompanied with help files that describe the usage of each user interface.
- The font size and font style that will be used in the proposed system shall be visible, attractive and easy to read.

3.2.2. Hardware/software consideration

3.2.2.1. Hardware requirements

For the implementation of the system the following hardware devices are used: -

1. Server:-used for hosting the system.
2. Printer:-for printing the documents.
3. Cables: - For network connection purpose.
4. Computer: - for running the system which is hosted on the server.
5. Flash Disk 16GB:- for storing files

3.2.2.2. Software requirements

This project will use the following system development tools for different activities.

Table 3. 1: Software Tools

Tools	Activities
Notepad++	For editing code
CSS	For attractive layout
JSS	For formatting
PHP	Back end (Server side coding)
MYSQL	Back end(data base)
Apache Server	As server
Mozilla Firefox, Google Chrome, Opera	Browsers
Ms office word 2010	For Documentation
Ms office PowerPoint 2010	For Presentation
E-draw software	To draw UML Diagram and for designs
Adobe Photo Shop CS5	To design back ground images

3.2.3. Security Issues

Security and Access Permissions: - The system provides or contains user name and password for each users based on their privilege. This performs the following activity: -

- ✓ Authenticated user with predefined access right will only enter to the information related to database.
- ✓ Every users should use strong passwords especially admin.
- ✓ User must enter valid user name and password to login to system. Without this, access to the system is denied.
- ✓ Data is encrypted for security.
- ✓ System allows only registered users to access clearance system and also allows the users' to view their own profile not the other users' profile.
- ✓ And use also message digest algorithm(MD5)

3.2.4. Performance consideration

- ✓ The system shall fast since it is automated.
- ✓ The software shall support use of multiple users at a time.
- ✓ It works shall well with short response time, high throughput and high availability.
- ✓ Reduce costs and time waste by providing access to system in available place and time where Internet connection is available

3.2.5. Error handling and validation

- ✓ The system must have error handling.
- ✓ The system should display error message if the user input invalid information.

3.2.6. Quality Issues

Usability: - The system shall be easy to learn, needs a basic computer knowledge to use and have a help menu to guide the user.

Availability: - There is no delay in the availability of any information, whatever needed, can be captured quickly and easily. The server should be always on to be available.

Maintainability:- Backups for database and other sensitive information are available for recovery if damage is happen.

Accessibility:- The system provides access right control for each of its user and every user can access the data which belong to them.

3.2.7. Backup and Recovery

When failures happen, the system must be recoverable. One of the major ways to recover the data stored on the server during unexpected server failure is using distributed database which increase reliability and availability means that choose to distribute data over local servers instead of a central database. When team member standard to develop a system they must have to put use a backup mechanism by using removable flash disks.

CHAPTER FOUR

4. SYSTEM ANALYSIS

4.1 Introduction

This chapter deals with analysing the proposed system by using different UML analysis modelling techniques such as use case diagrams, the use case descriptions (scenarios), sequence diagrams, activity diagrams, analysis class diagram, and user interface prototype. After identifying the actors and use cases, the use cases are developed and textual descriptions (scenarios) are stated. The Sequence diagram id depicted based on the use cases which are developed for the proposed system [4]. Activities will be represented by the activity diagrams.

4.2 System model

4.2.1 Use case diagram

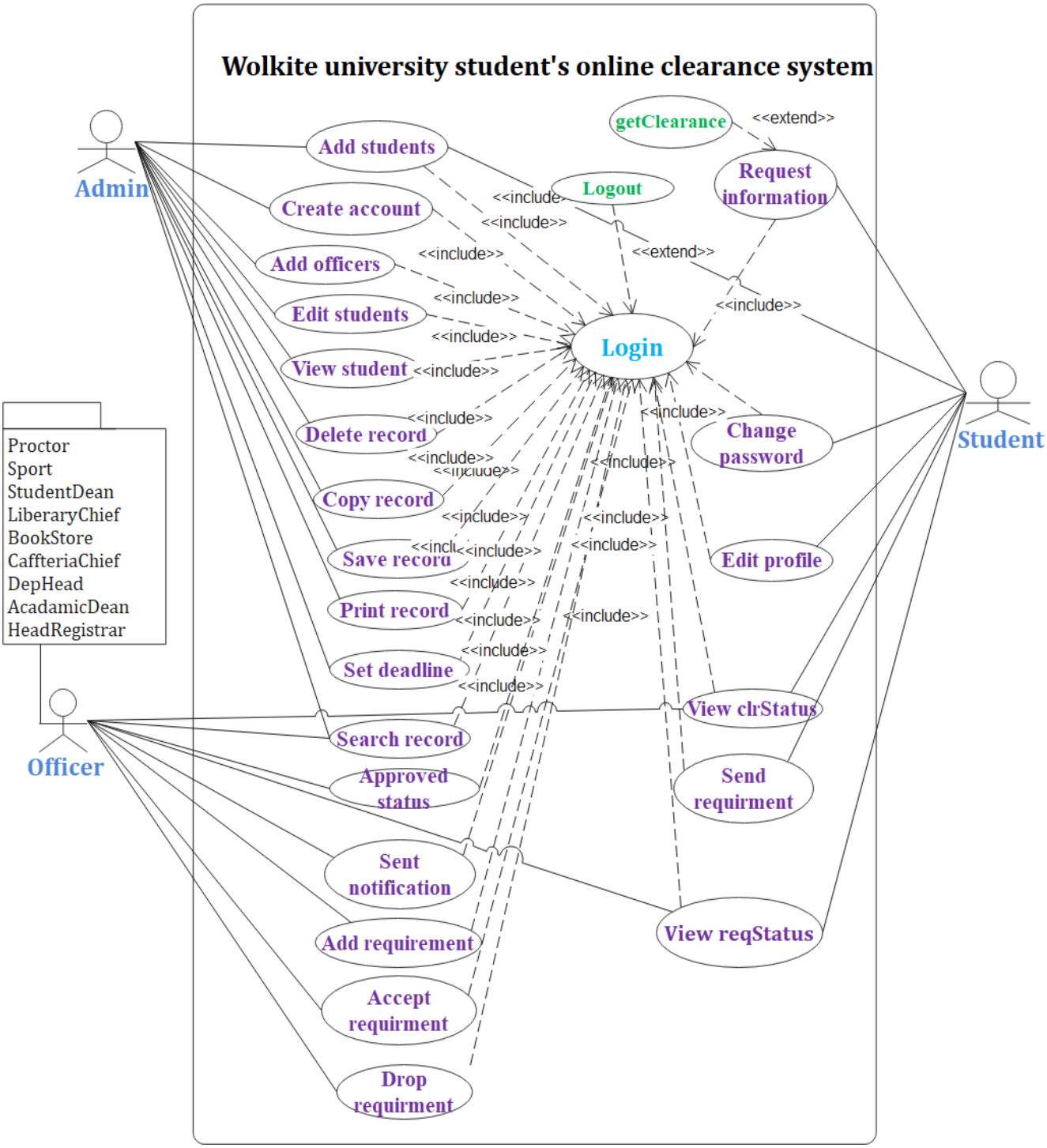


Figure 4. 1: Use case diagram of wolkite university student's clearance system

Actors Description

The actors that interact with the system are the proctors; registrar, student dean, sport, bookstore, library, student, admin and academic dean are users of the system. They are described here in brief:-

Name: Proctor

Description: A Proctor is a person who is responsible for Approve student status, drop requirement and search the student's information.

Name: Bookstore

Description: A Bookstore is a person who is responsible for Approve student status, drop requirement and search the student's information.

Name: Sport

Description: A Sport science is a person who is responsible for Approve, Update, delete, and search the student's information.

Name: Library chief

Description: A Library is a person who is responsible for Approve, Update, delete, and search the student's information.

Name: Student dean

Description: A Student service is a person who is responsible for Approve student status, drop requirement and search the student's information.

Name: Admin

Description**:** Registrar Admin is a person who is responsible for add students and officers.

Name: Student

Description: Student is a person who is responsible for Update profile, Request, and views their clearance status.

Key terms of Offices refers to

- Proctor
- Student dean
- Bookstore
- Library
- Sport
- Department head
- Academic dean

4.2.1.1 Use case descriptions

1. Use case description for Create Account

Table 4. 1: use case description for create account

UCID-01	Use case name	Create Account	
	Actor(s)	Admin	
	Pre-condition	The Actors is not creating account.	
	Post-condition	The Actors should be creating account.	
	Description	When the Actors enter user name and password, it stores the input information in to the database.	
	Typical course of action:	Actor Action	System Response

		Step1: This use case is initiated when the actors clicks on the create account option Step3: The actor enter the required information.	Step2: The system displays the create account page. Step4: The systems checks the information is correct or not.
	Alternative course of action:	Step5: If the actor does not fill the required information then the system displays error message and return to step 2.	

2. Use case description for login.

Table 4. 2: use case description for login

UCID-02	Use case name	Login	
	Actor	Student, Officer and Admin	
	Pre-condition	The Actor is not login the system	
	Post-condition	The Actor should be login in to the system	
	Description	When the students enter id and password, it checks the inputs from the database. If it is valid, it allows the user to access and if not it display authorization message.	
	Typical course of action:	Actor Action	System Response
		Step1: This use case is initiated when the actors clicks on the login option Step3: The actor enter the id and password	Step2: The system displays log in form Step4: The systems checks authorization. If she/he is authorized
	Alternative course of	Step5: If the actor does not fill the id and password then the system	

	action:	display error message and return to step 2.

3. Use case description for Add

Table 4. 3: use case description for Add

UCID-03	Use case name	Add students	
	Actors	Admin	
	Pre-condition	The Actors not to register	
	Post-condition	The users registers to the system	
	Description	This use case allows users to register in to the system	
	Typical course of action:	Actor Action	System Response
		Step1: The user wants to register in to the system. Step3: The user enters the necessary information in to the form in registration page.	Step2: The system displays registration page Step4: The system validates whether the information submitted is correct or not. Step5: The system register and
	Alternative course of action:	Step5: If the actor does not fill the id and password then the system displays error message and return to step 2.	
	Alternative course of action	If the input information invalid or empty Step4.1: The system indicates the user information invalid. Step4.2: The use case continues Step2 of the basic course of action.	

4. Use case description for delete record.

Table 4. 4: use case description for delete record

UCID-04	Use case name	Delete	
	Actor(s)	Administrator	
	Pre-condition	The Actors are not authorized and login in to the system	
	Post-condition	The administrator deletes the record from the database.	
	Description	The use case allows the administrator to delete record of students from database.	
	Typical course of action:	Actor Action	System Response
		Step1: This use case is initiated when the actor on delete option Step3: The actors enter the id for delete data from the data base.	Step2: The system displays the delete form page. Step4: The system verifies whether the existence of the data base.
	Alternative course of action	If the input information invalid or empty Step4.1: The system indicates the user information invalid. Step4.2: The use case continues Step2 of the basic course of action.	

5. Use case description for Update

Table 4. 5: use case description for update

UCID-05	Use case name	Update profile
	Actor(s)	Students Admin

	Pre-condition	The Actors cannot be Update profile	
	Post-condition	The Actors will have update their account information	
	Description	This use case allows users to update the user account.	
	Typical course of action:	Actor Action	System Response
		Step1: The actors can request to update his/her information. The system will display the current customer information to the users. Step3: The user enters the necessary information to update.	Step2: The system displays user account update page. Step4: The system validates information is correct or not. Step5: The system
	Alternative course of action	If the input information invalid or empty Step4.1: The system indicates the Actors information invalid. Step4.2: The use case continues Step2 of the basic course of action.	

6. Use case description for View Profile

Table 4. 6: Use case description for view profile

UCID-06	Use case name	View Profile
	Actor(s)	Students
	Pre-condition	The Actors not saw profile.
	Post-condition	The Actors has been viewed his/her profile.
	Description	This use case allows users request to view his/her profile.

	Typical course of action:	Actor Action	System Response
		Step1: The actors wants to View his/her profile. Step3: The actor selects the view profile option.	Step2: The system displays view option page. Step4: The system process selection.
	Alternative course of action	If the input information invalid or empty Step4.1: The system indicates the user information invalid. Step4.2: The use case continues Step2.	

7. Use case description for Search record.

Table 4. 7: use case description for Search record

UCID-07	Use case name	Search	
	Actor(s)	Administrator, and Offices	
	Pre-condition	The actors cannot search.	
	Post-condition	The Actors has been searched the selected record.	
	Description	This actors requests to search someone's information.	
	Typical course of action:	Actor Action	System Response
		Step1: The actors wants to search some record. Step3: The user enters the	Step2: The system displays user view option. Step4: The system process the selection. Step5: The system displays the

	Alternative course of action	If the input information invalid or empty Step4.1: The system indicates the user information invalid. Step4.2: The use case continues Step2 of the basic course of action.

8. Use case description for Approve

Table 4. 8: use case description for Approve

UCID-08	Use case name	Approve	
	Actor(s)	Offices	
	Pre-condition	The actors cannot Approve.	
	Post-condition	The actors should be approved the information.	
	Description	The actor to be approve if they get request some information from different corners.	
	Typical course of action:	Actor Action	System Response
		Step1: The actor wants to submit. Step3: The user selects the approve option.	Step2: The system displays the approve option. Step4: The system process the selections. Step5: The system displays
	Alternative course of action	If the input information invalid or empty Step4.1: The system indicates the user information invalid. Step4.2: The use case continues Step2 of the basic course of action.	

9. Use case description for Generate Report.

Table 4. 9: use case description for generate report

UCID-09	Use case name	Generate Report	
	Actor(s)	Admin	
	Pre-condition	The actor cannot be Generate Report.	
	Post-condition	The Actors should be generate the report.	
	Description	The actor wants to report how many students are clear from the university.	
	Typical course of action:	Actor Action	System Response
		Step1: The actor wants to generate report. Step3: The user selects the generate report option.	Step2: The system displays the generate report option. Step4: The system process the selections. Step5: The system display the all information's of the students.
	Alternative course of action	If the input information invalid or empty Step4.1: The system indicates the user information invalid. Step4.2: The use case continues Step2 of the basic course of action.	

10. Use case description for request information.

Table 4. 10: Use case description for Request information

UCID-10	Use case name	Request	
	Actor(s)	Student	
	Pre-condition	The actor cannot Request the information.	
	Post-condition	The Actors will be Request.	
	Description	The actor wants to request what they want.	
	Typical course of action:	Actor Action	System Response
		Step1: The actor wants to request. Step3: The user selects the request option.	Step2: The system displays the request option. Step4: The system process the selections action. Step5: The system send information's to the other page.
	Alternative course of action	If the input information invalid or empty Step4.1: The system indicates the user information invalid. Step4.2 The use case continues Step2 of the basic course of action.	

11. Use case description for print clearance

Table 4. 11: use case description for print clearance

UCID-11	Use case name	Print clearance	
	Actor(s)	Admin	
	Pre-condition	The Actors is not print clearance.	
	Post-condition	The Actors should be print clearance.	
	Description	When the Actors print the clearance on screen.	
	Typical course of action:	Actor Action	System Response
		Step1: This use case is initiated when the actors clicks on the print option Step3: The actor gets the required information and click print.	Step2: The system displays the print page. Step4: The systems allow being print.
	Alternative course of action:	Step5: If the actor does not get the required information then the system display error message and return to step 2.	

4.3 Object Model

4.3.1 Class Diagram

- ✓ It represents the properties of entities, their operations and relationships. Also it drives use case diagrams from use case.
- ✓ The class diagram is the main building block in our project modelling.
- ✓ It is used both for general conceptual modelling of the systematic of the application and for detailed modelling translating the models into programming code.

- ✓ The classes in a class diagram represent both the main objects and or interactions in the application and the objects to be programmed.
- ✓ Generally the project is including the following class in the class diagram the over view of the class diagram is:-

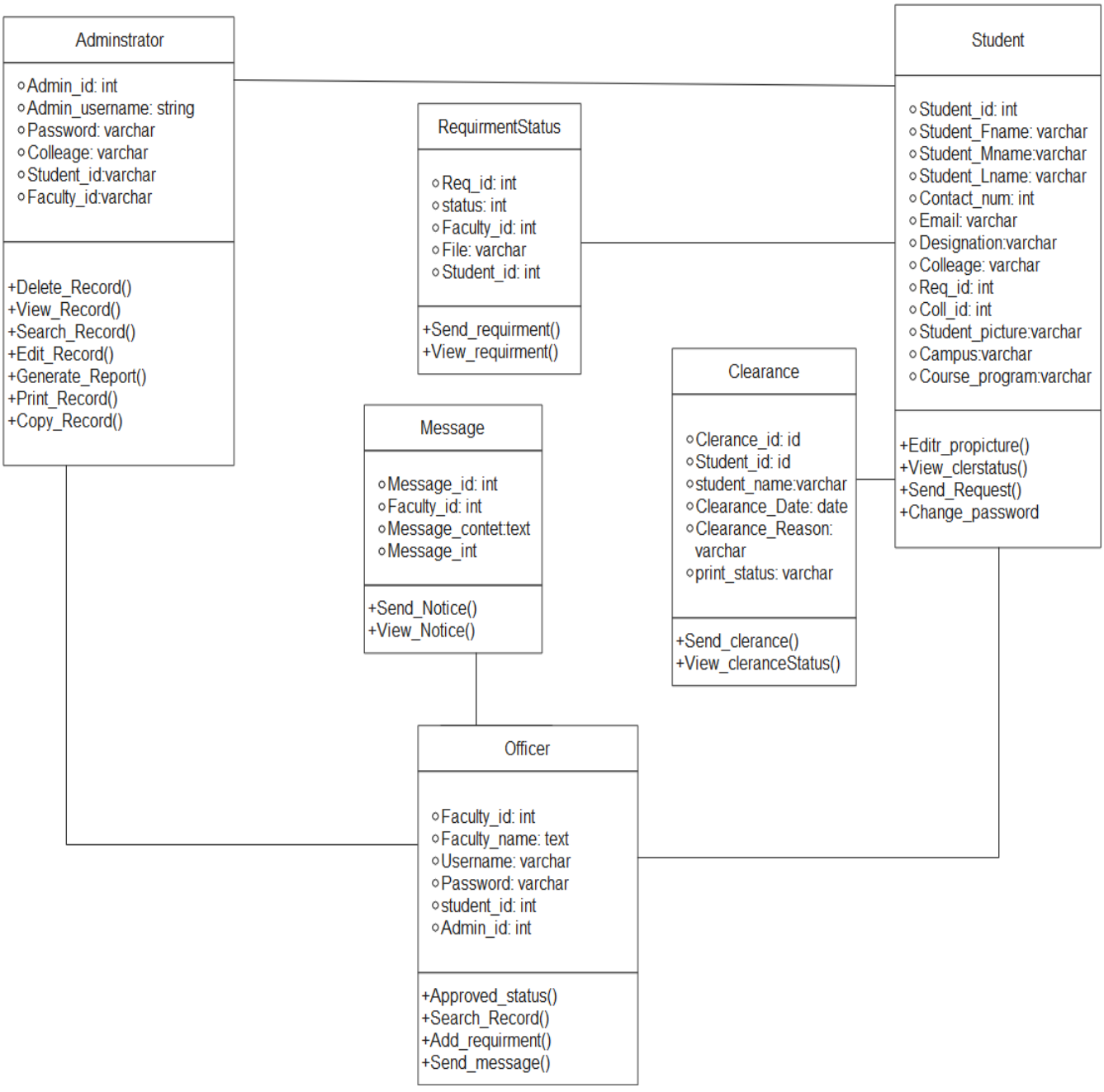


Figure 4. 2: class diagram of student's clearance system

4.3.2 Data dictionary

Table 4. 12: data dictionary for student data

Field name	Datatype	Other information
Student_id	int	Primary key
Student_Fname	varchar	Varchar(20)
Student_Mname	varchar	Varchar(20)
Student_Lname	varchar	Varchar(20)
Contact_num	int	Varchar(10)
Email	varchar	Varchar(20)
Designation	varchar	Varchar(20)
College	varchar	Varchar(20)
Campus	varchar	Varchar(15)
Course_program	varchar	Varchar(20)

Table 4. 13: data dictionary for Clearance data

Field name	Datatype	Other information
Clerance_id	int	**Primary key**
Clerance_date	date	**Varchar(11)**
Clerance_reason	varchar	**Varchar(11)**
Print_status	varchar	**Varchar(11)**

4.4 Dynamic Model

4.4.1 Sequence Diagram

Sequence diagrams show the interaction between participating objects in a given use case. They are helpful to identify the missing objects that are not identified in the analysis object model.

1) Sequence diagram for Registration.

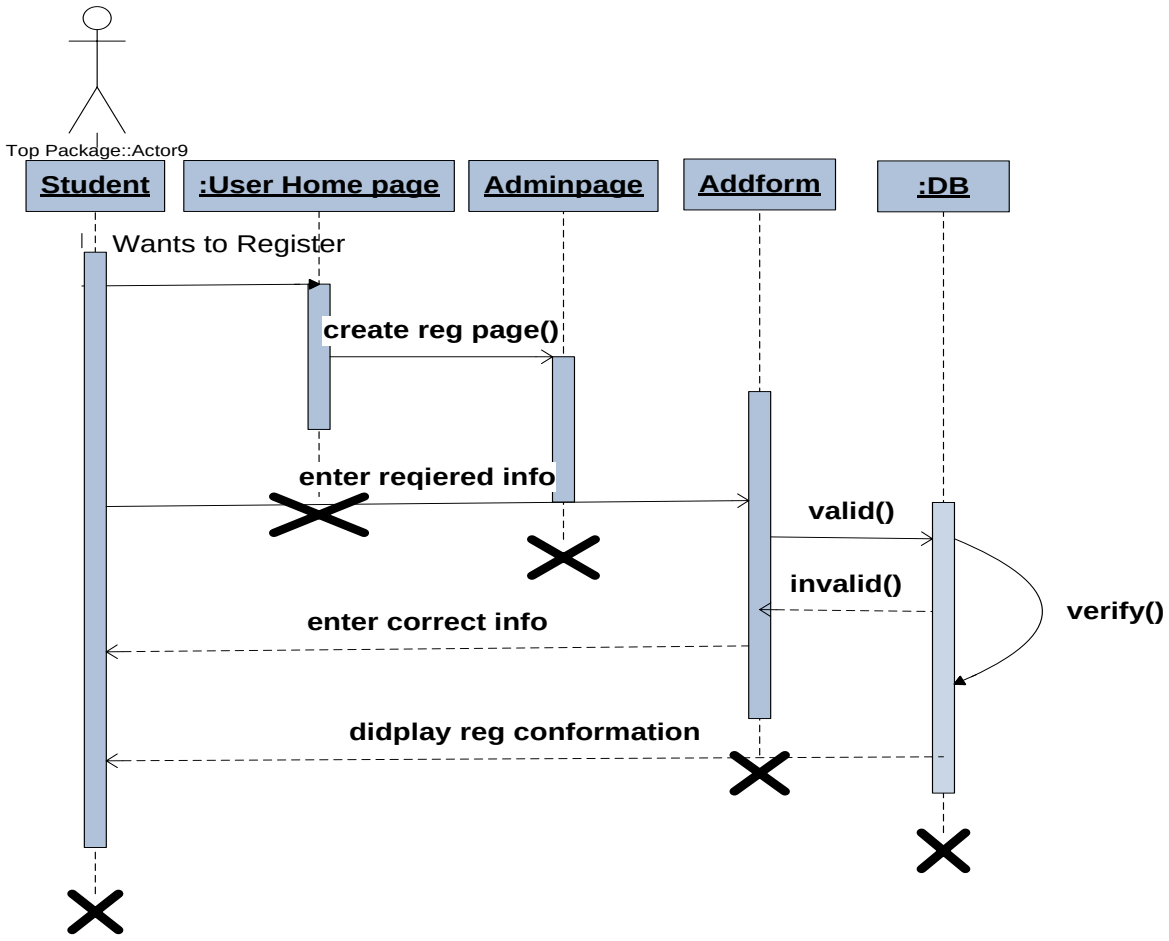


Figure 4. 3: Sequence diagram for registration

2) Sequence diagram for Login

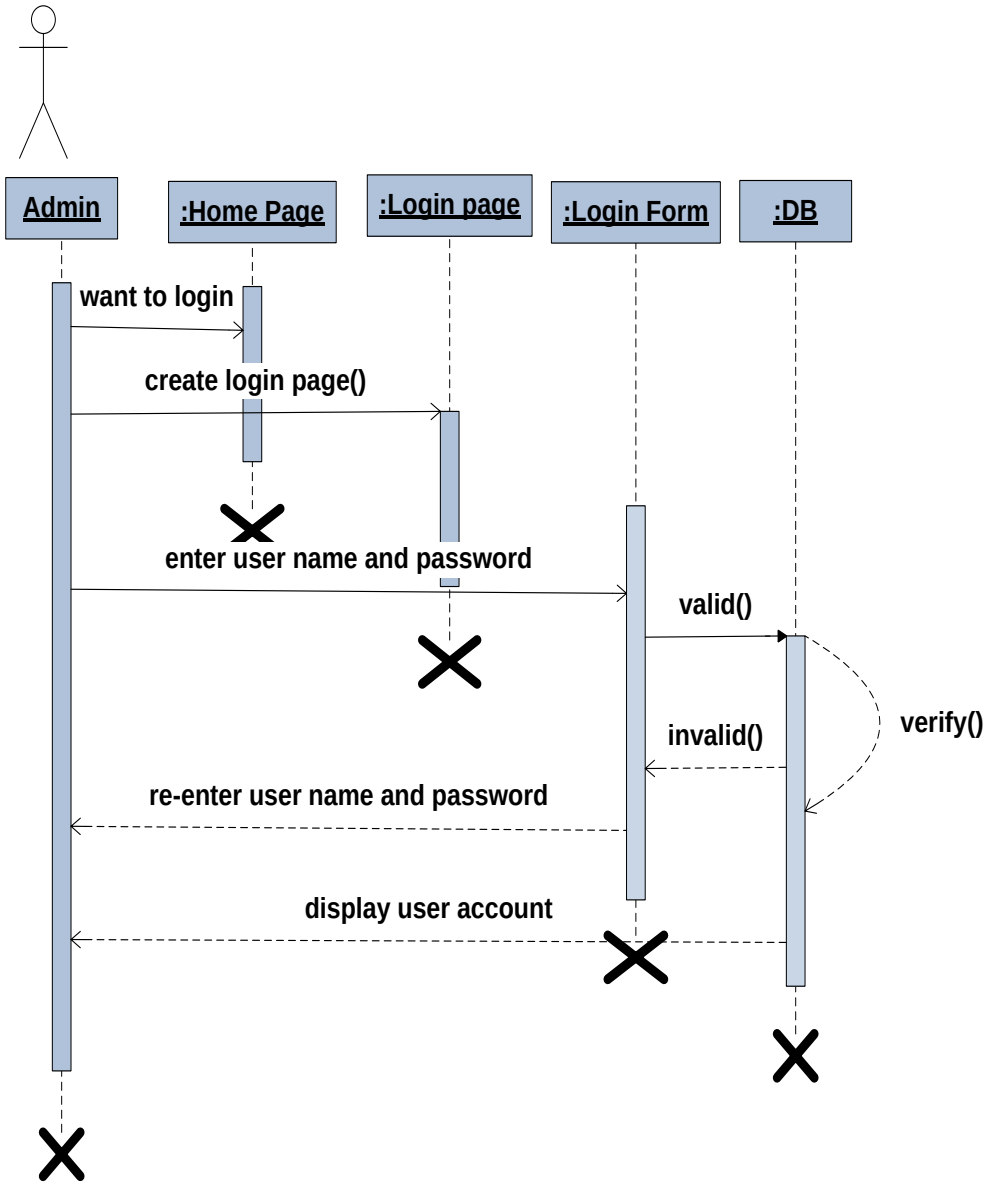


Figure 4.5: sequence diagram for login

3) Sequence diagram for View.

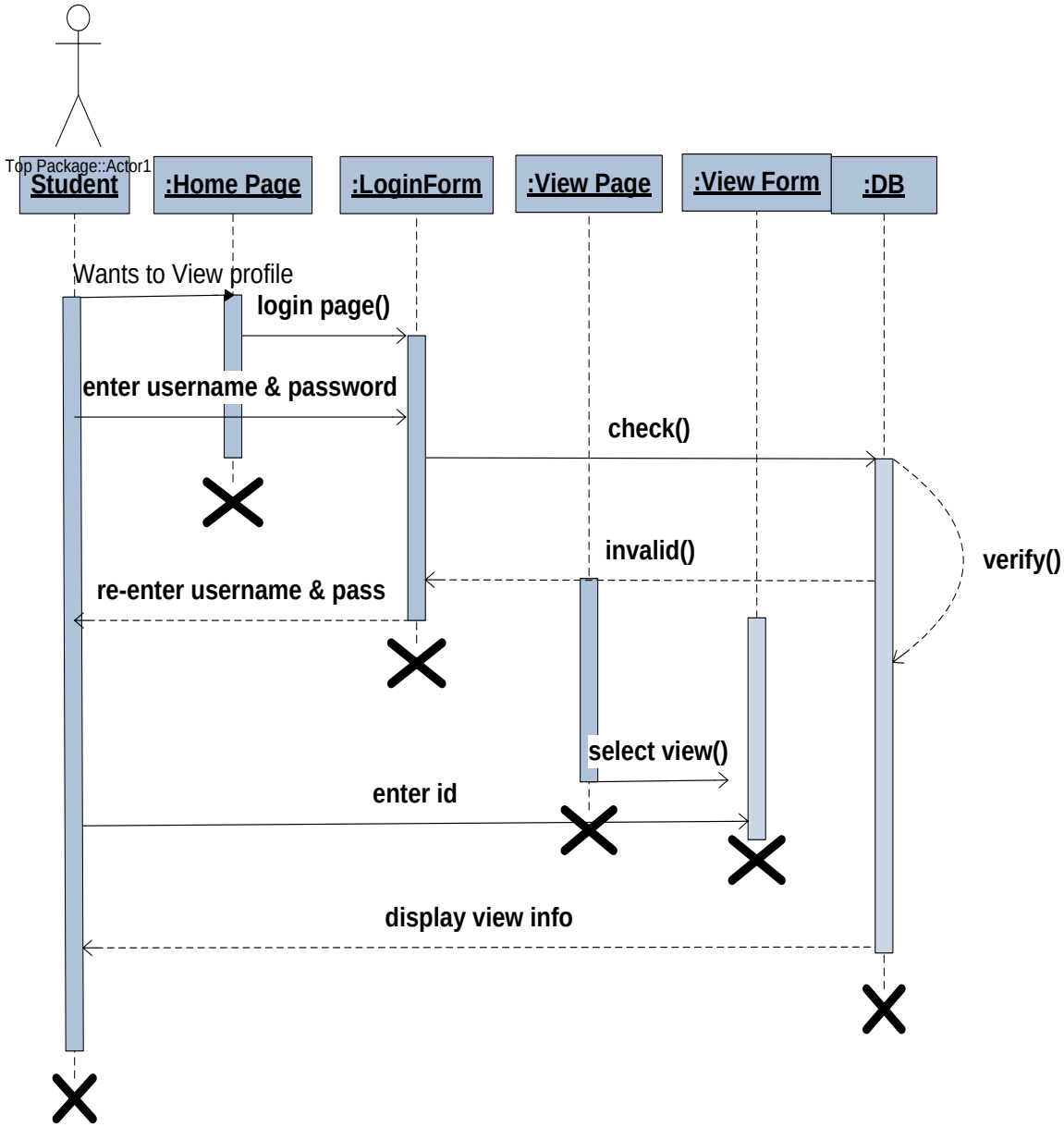


Figure 4. 4: sequence diagram for view

4) Sequence diagram for Search.

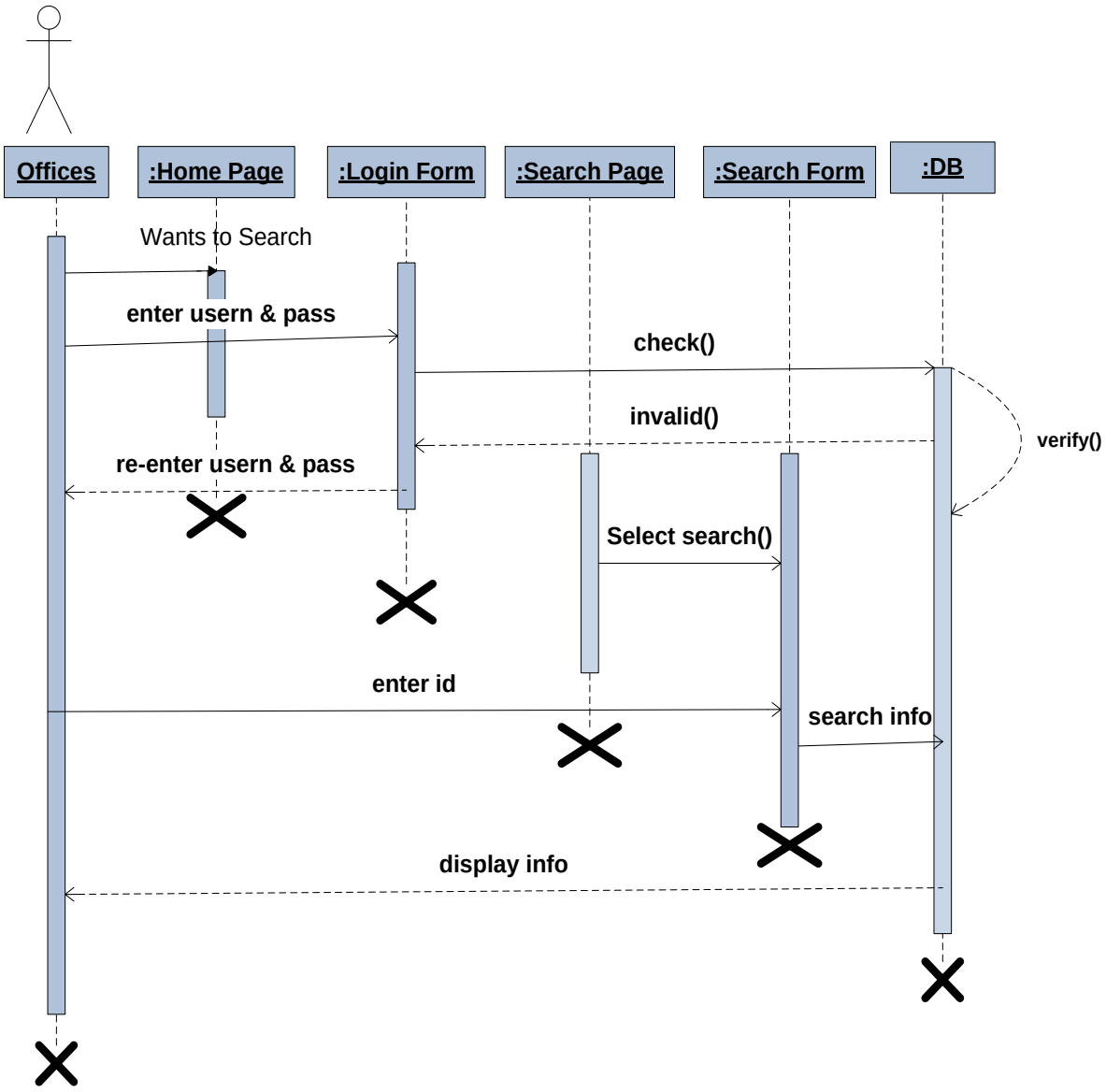


Figure 4.6: sequence diagram for search

5) Sequence diagram for Delete.

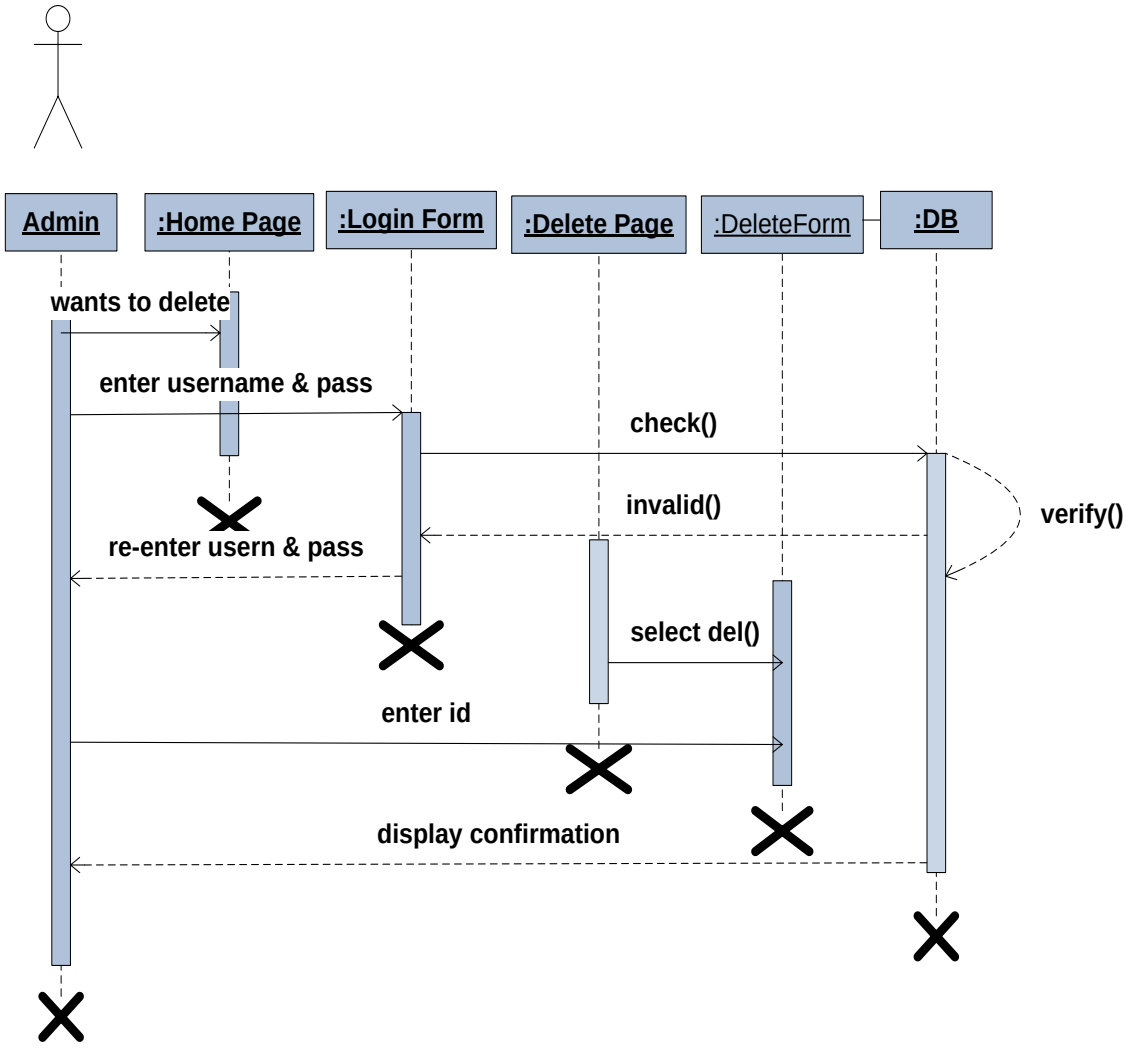


Figure 4. 5: sequence diagram for delete

6) Sequence diagram for Approve.

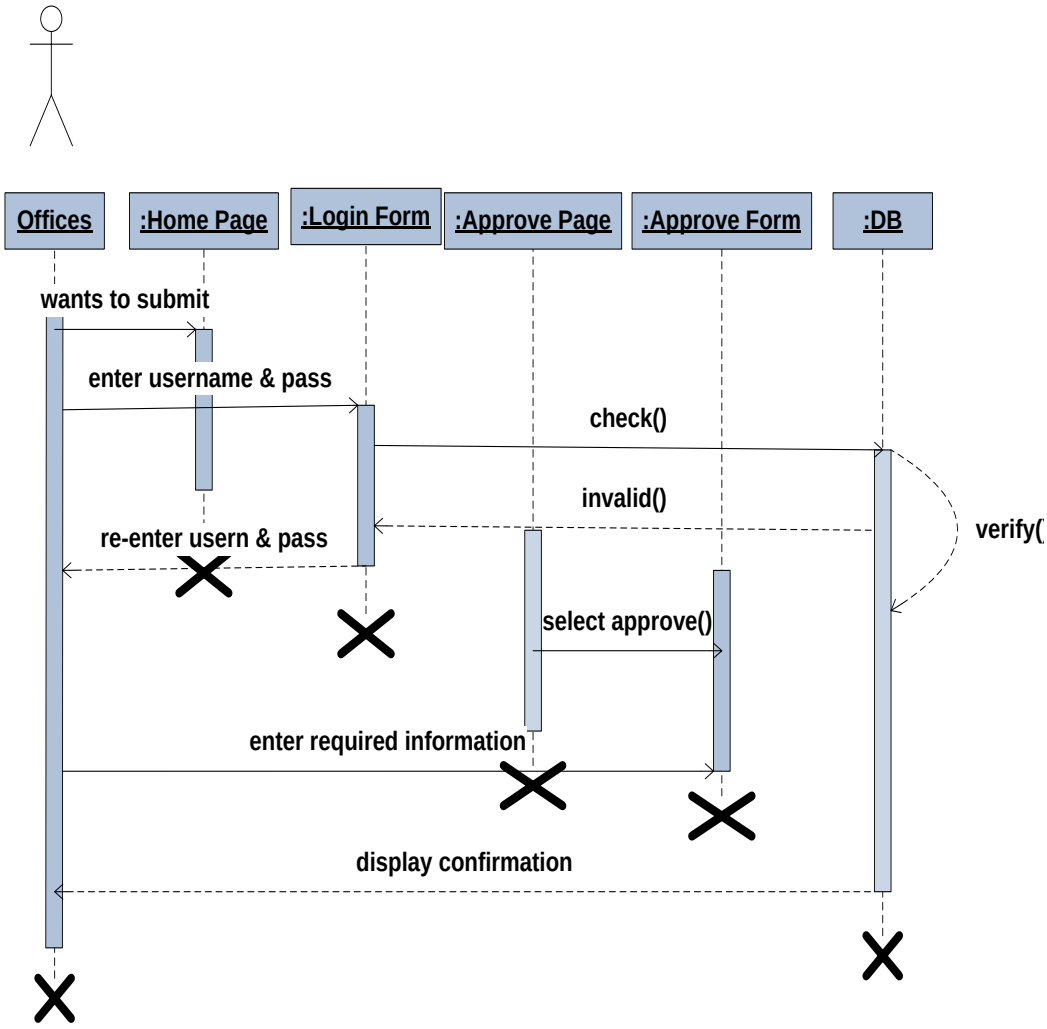


Figure 4. 6: sequence diagram for approve

7) Sequence diagram for Generate Report.

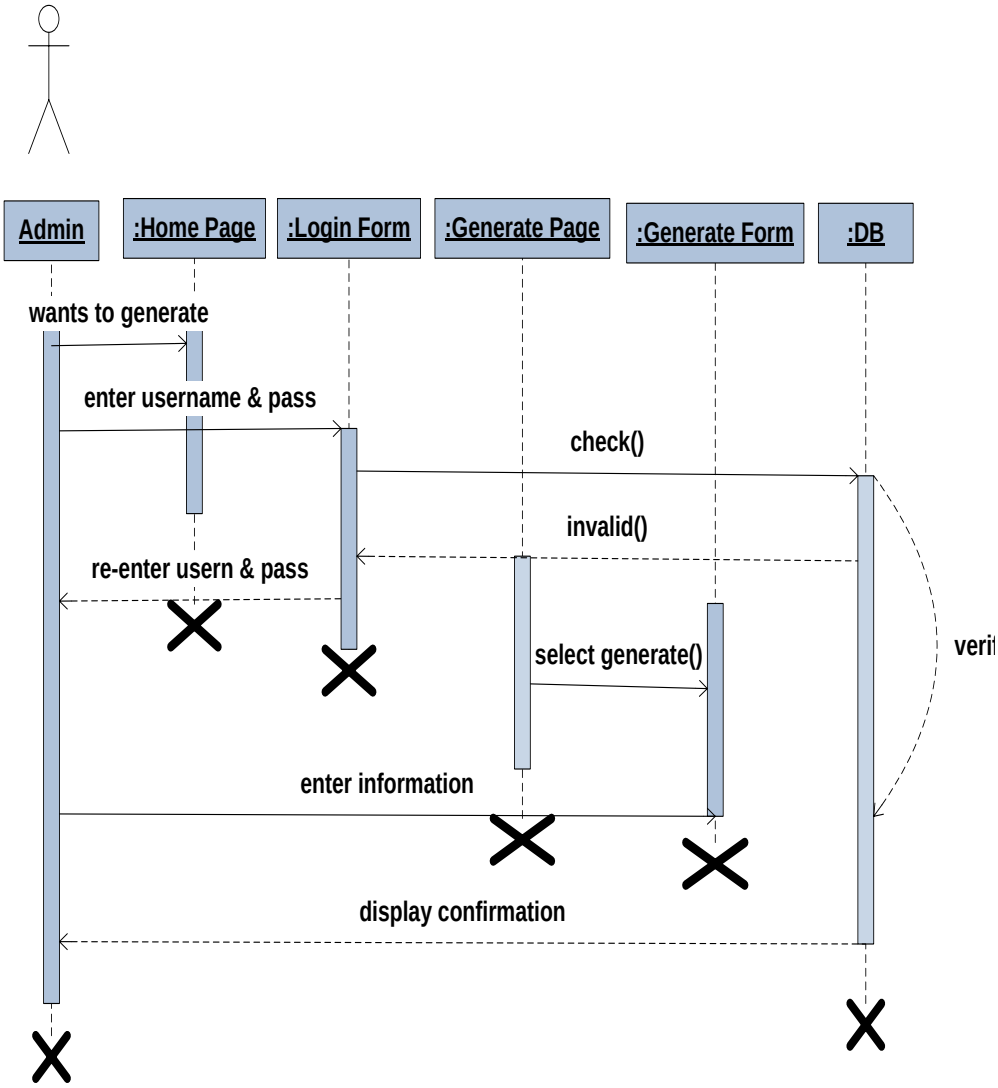


Figure 4. 7: sequence diagram for generate report

8) Sequence diagram for Request.

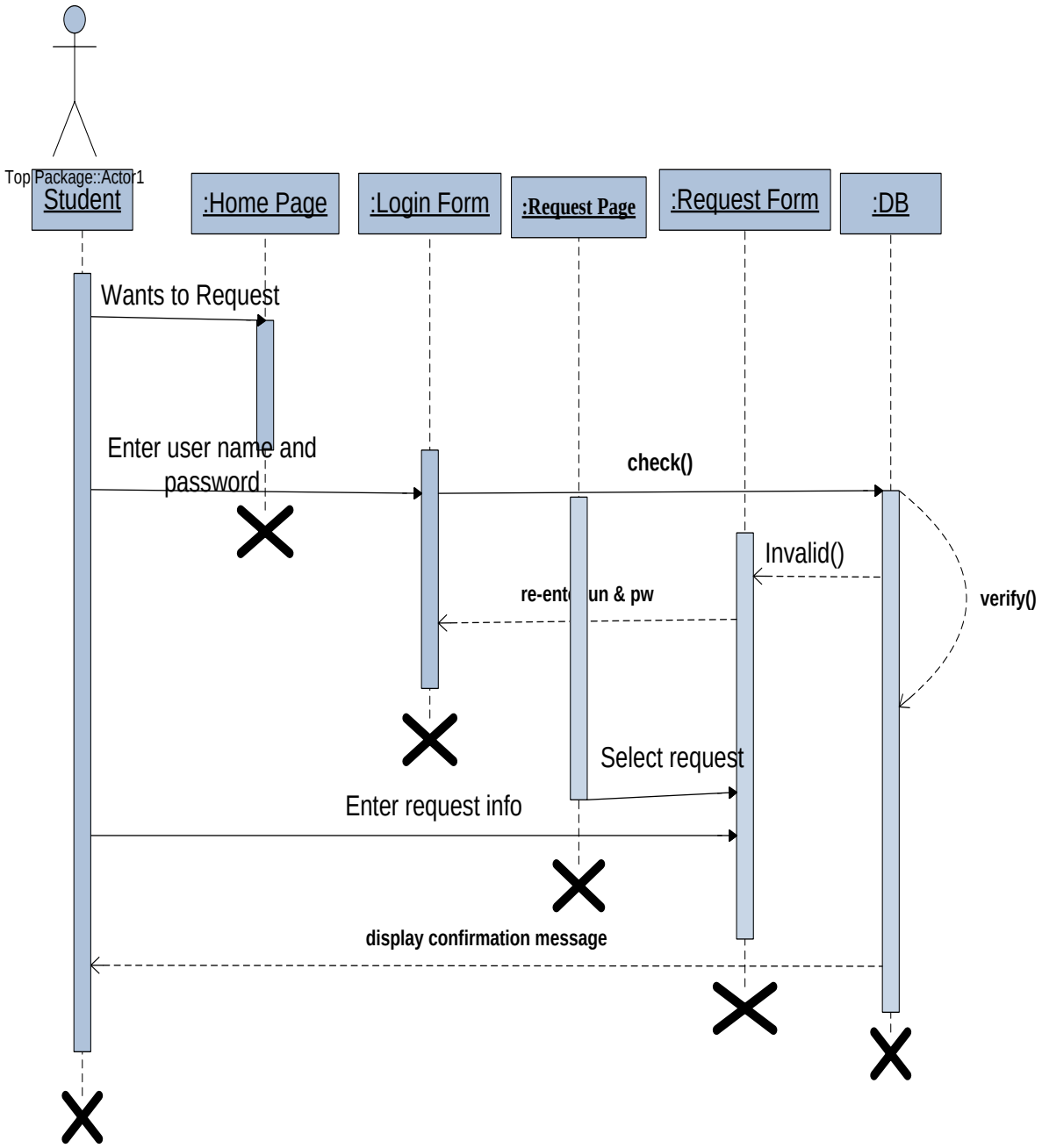


Figure 4. 8: sequence diagram for request

4.4.2 Activity Diagram

Activity diagram used to emphasize the flow of control from activity to activity or to model the flow of an object as it moves from state at different points in the flow of control.

1. Activity Diagram for Registration

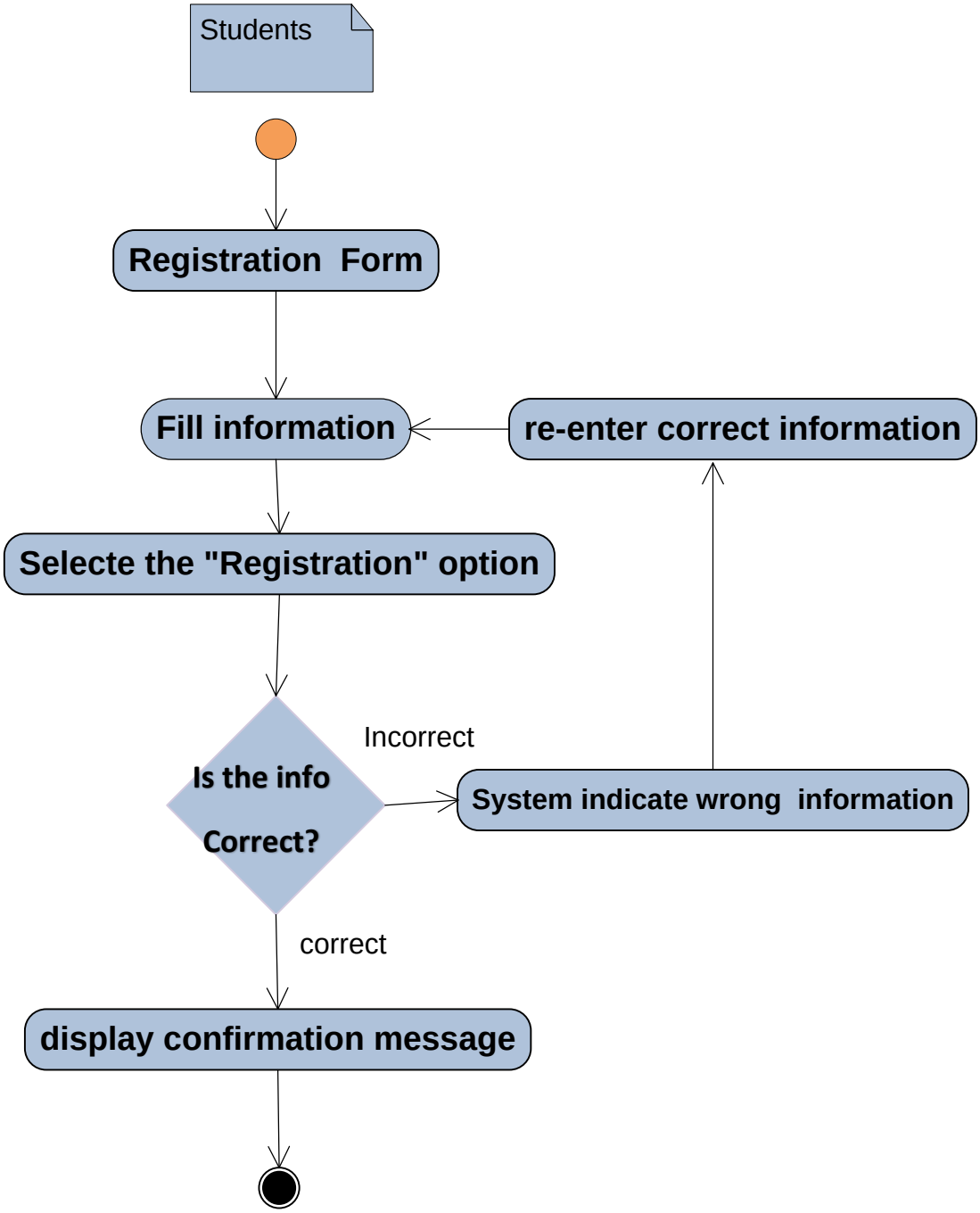


Figure 4. 9: activity diagram for registration

2 Activity Diagram for Login.

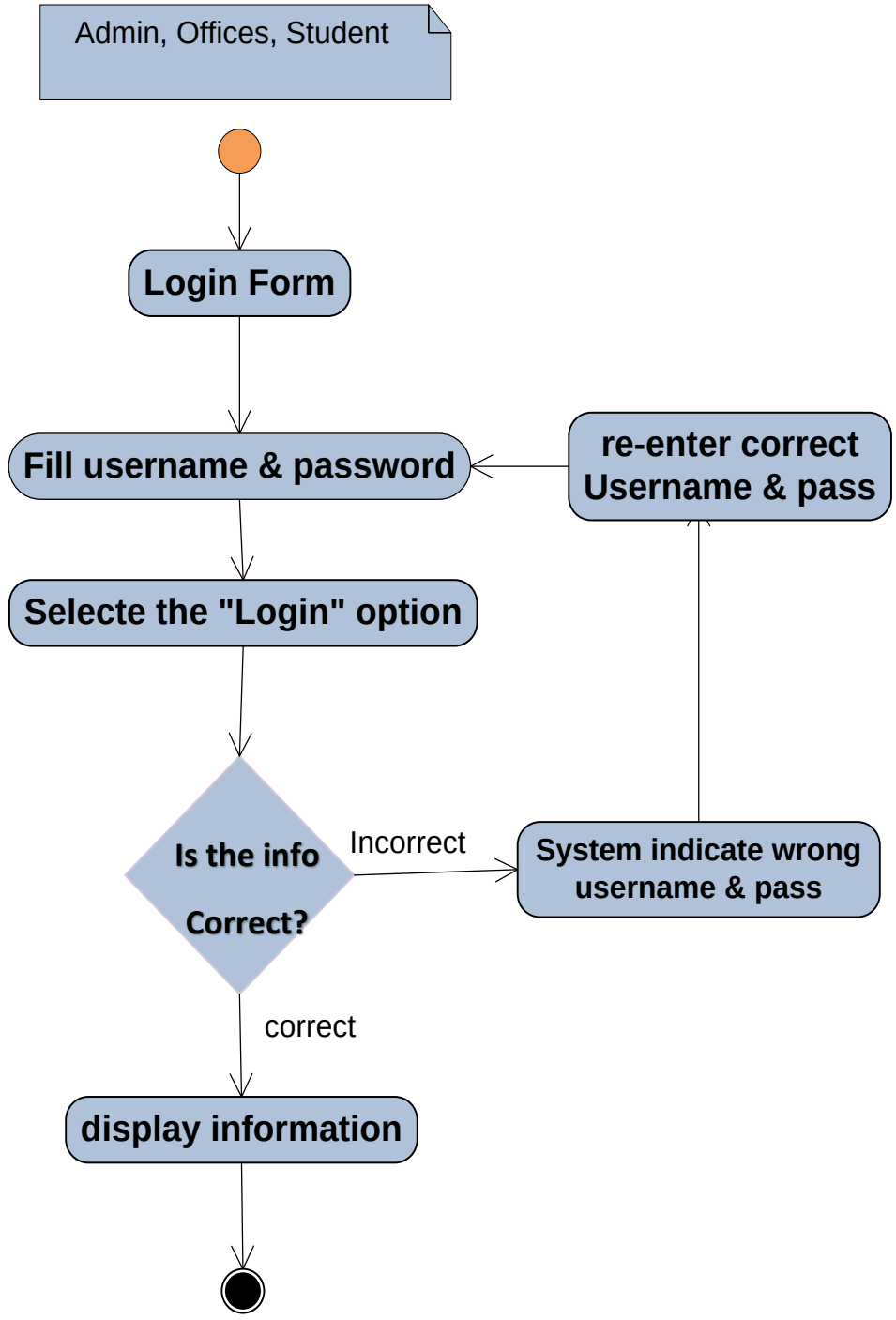


Figure 4. 10: activity diagram for login

3 Activity Diagram for Delete

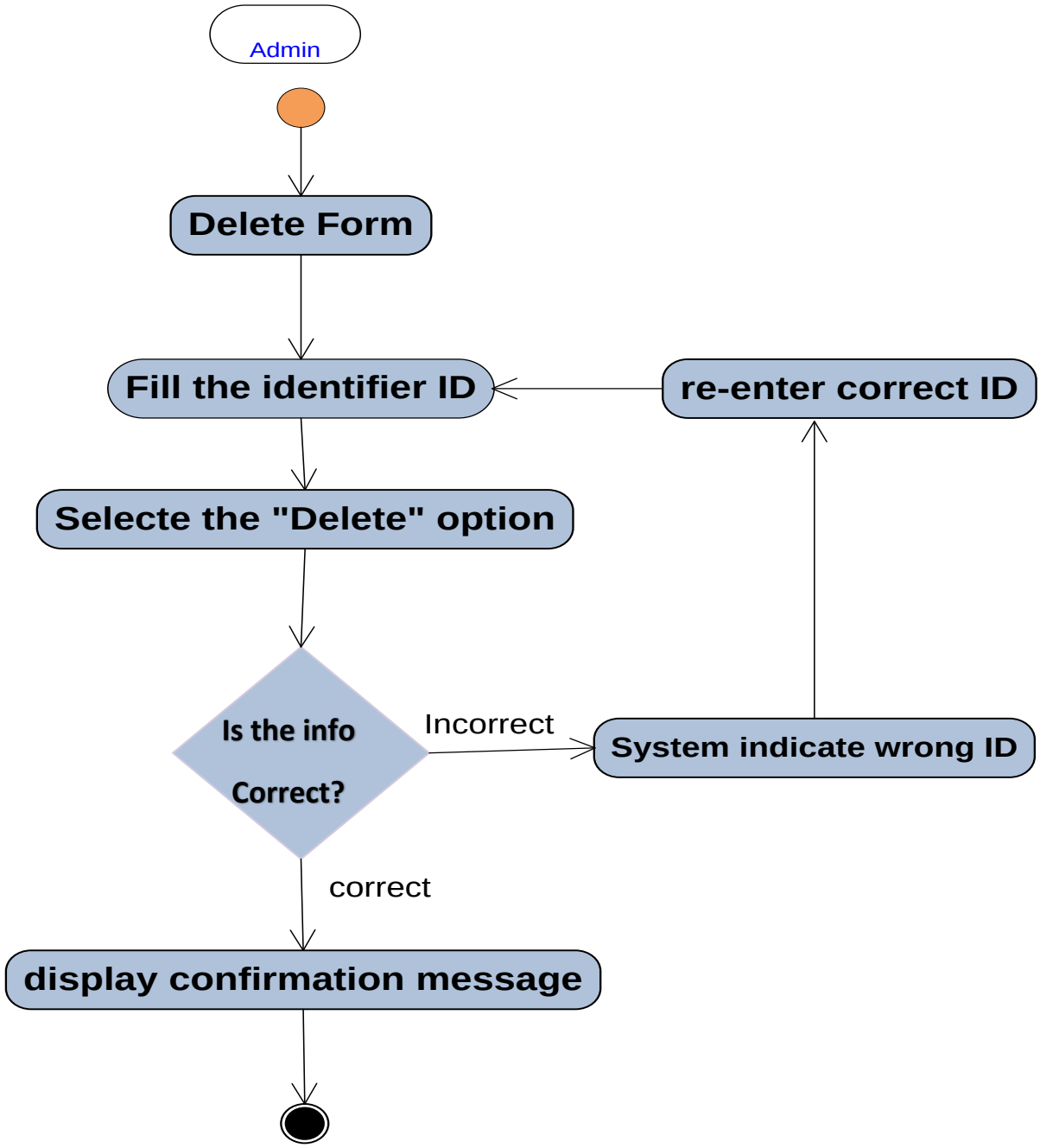


Figure 4. 11: activity diagram for delete

4 Activity Diagram for Update Profile

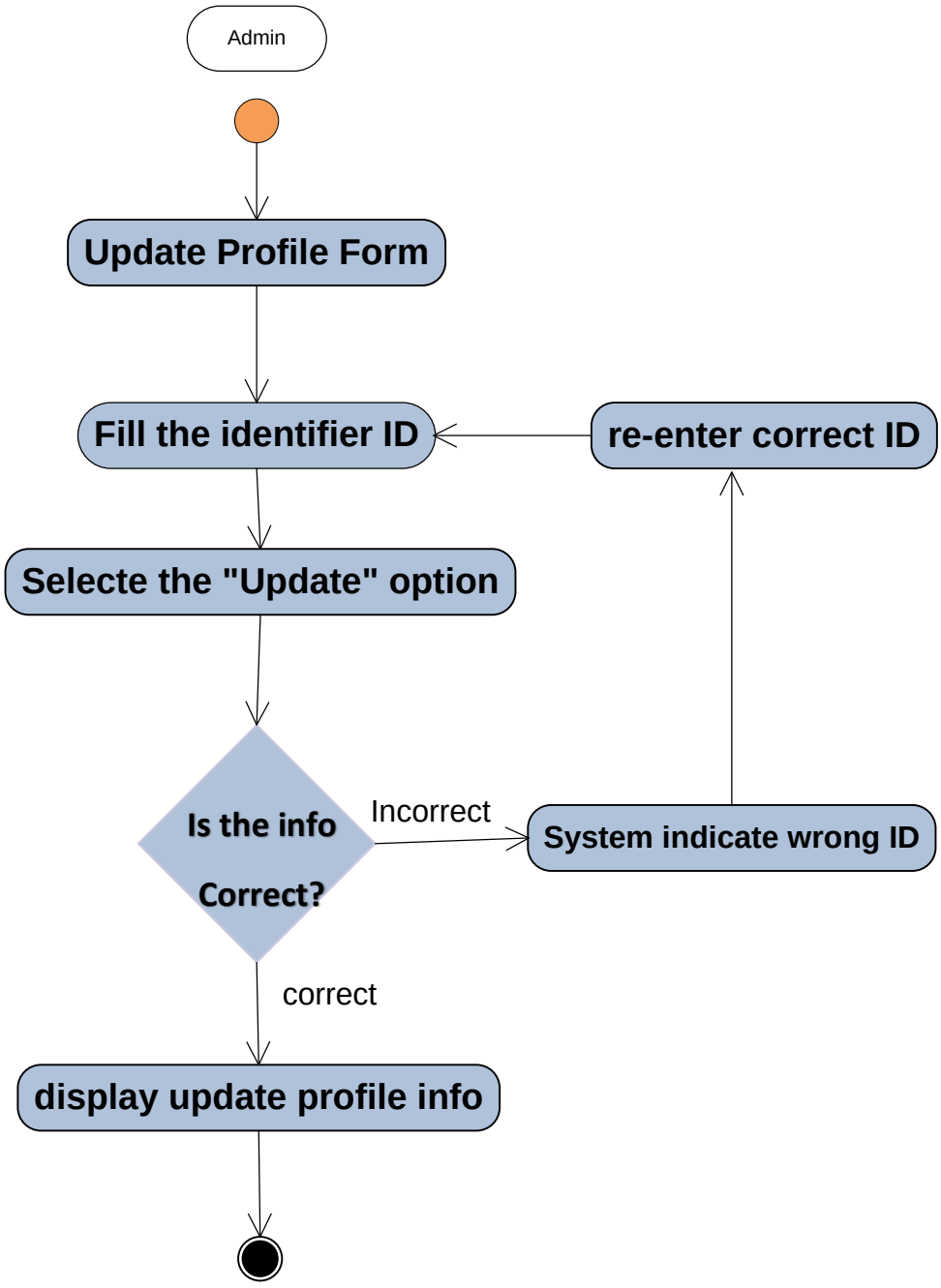


Figure 4. 12: activity diagram for update profile

5 Activity Diagram for View Profile

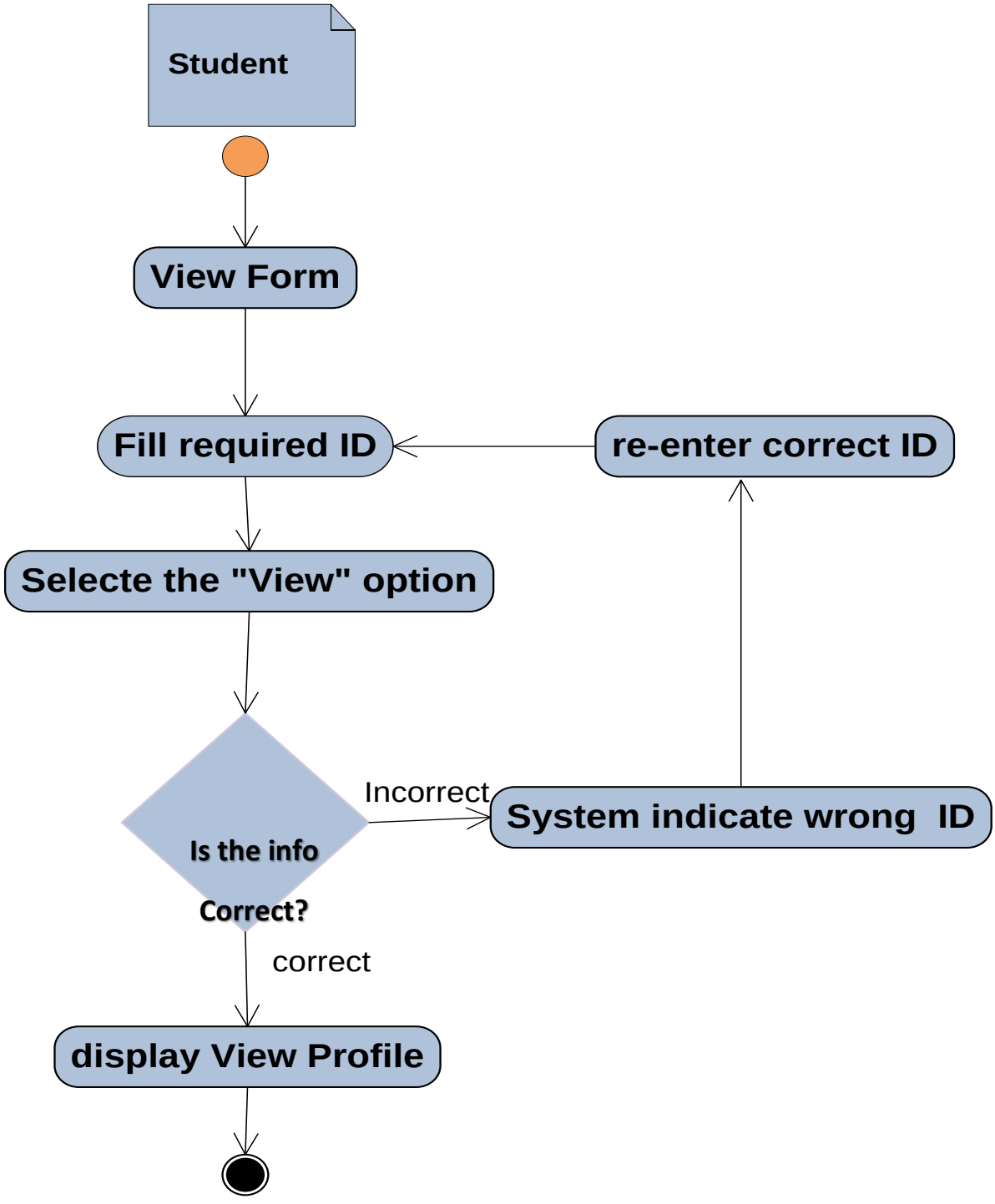


Figure 4. 13: activity diagram for view

6 Activity Diagram for Search

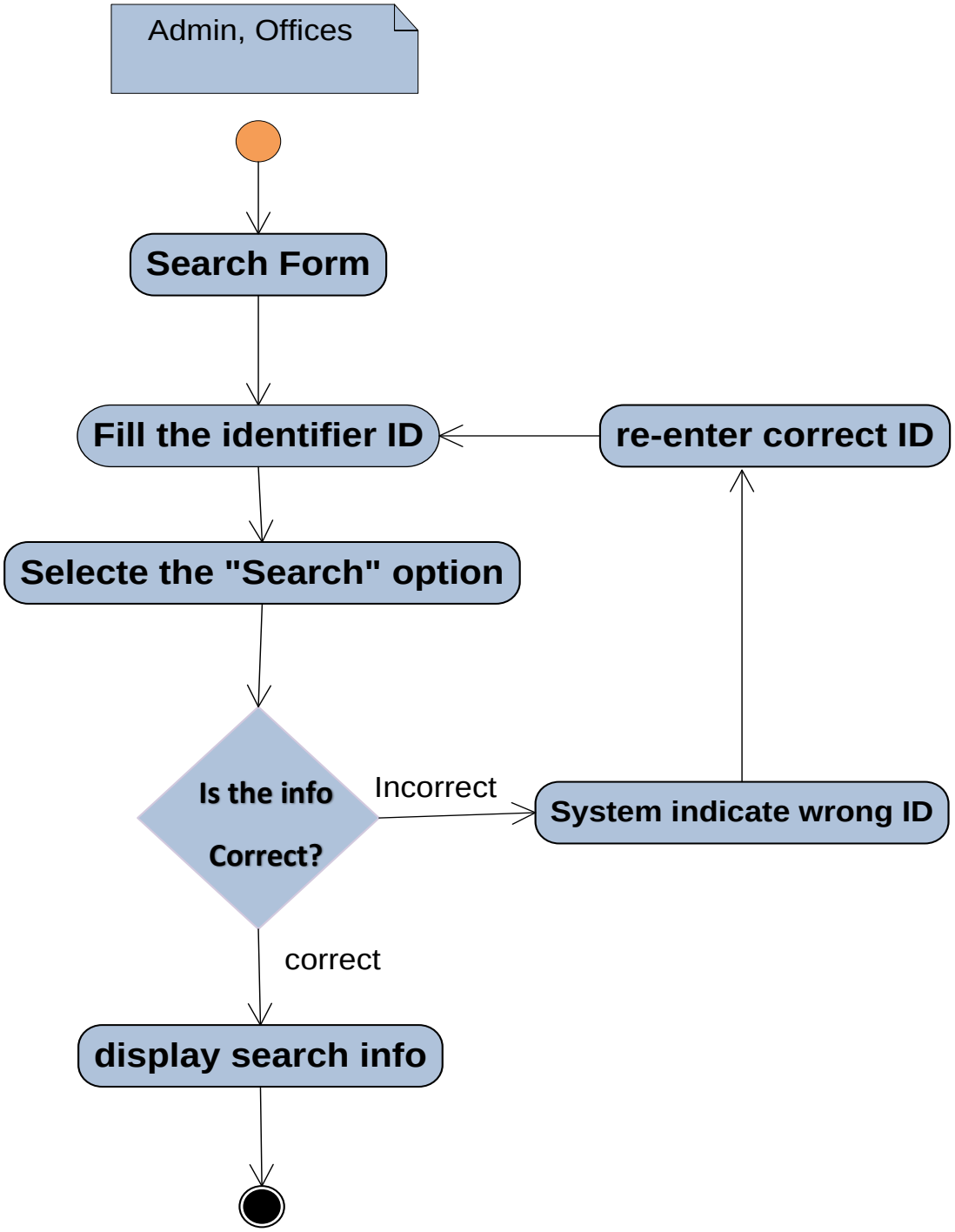


Figure 4. 14: activity diagram for search

7 Activity Diagram for Approve

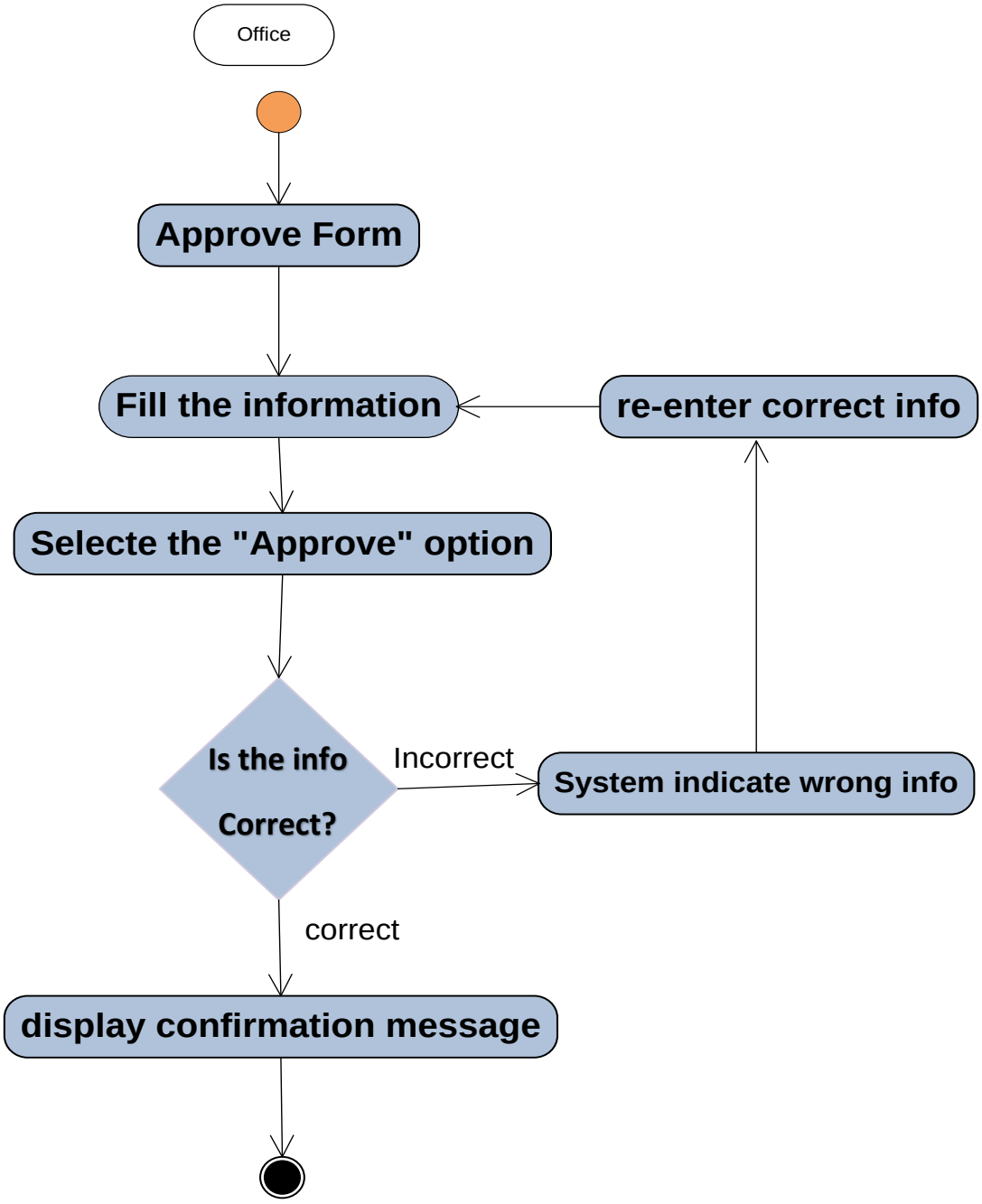


Figure 4. 15: activity diagram for approve

8 Activity Diagram for generate report

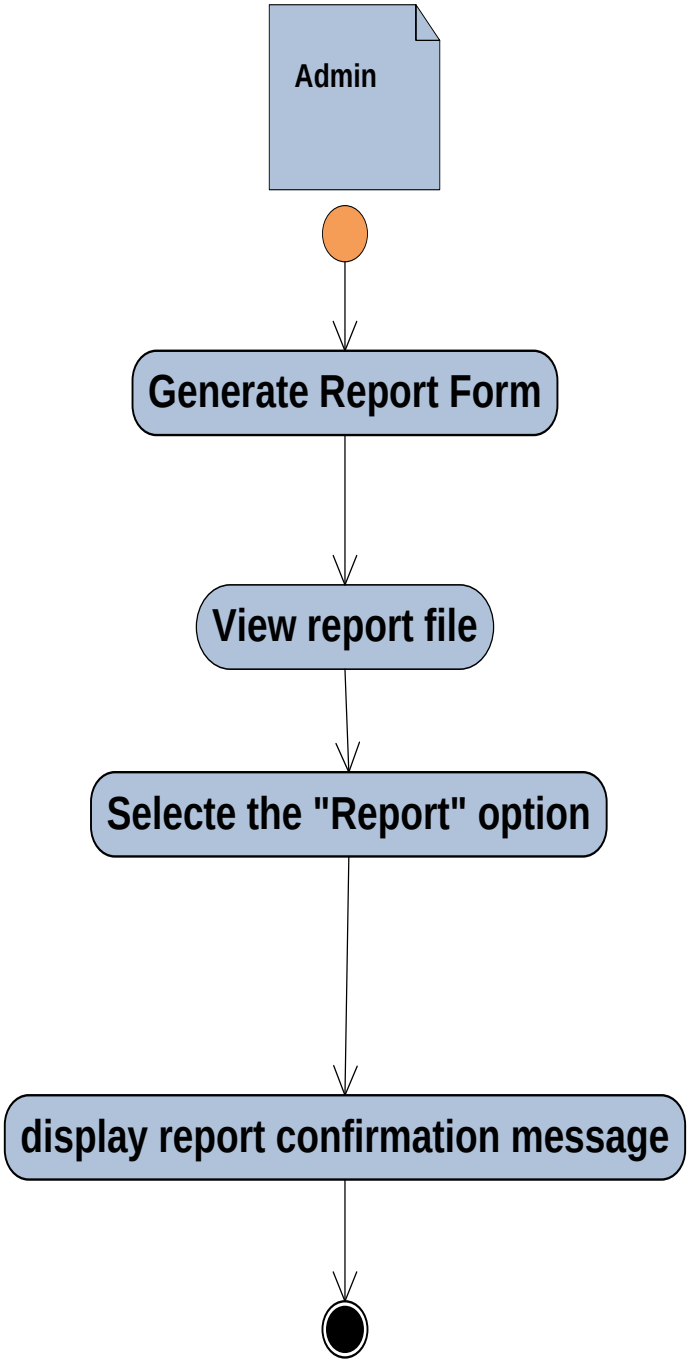


Figure 4. 16: activity diagram for generate report

9 Activity Diagram for Request.

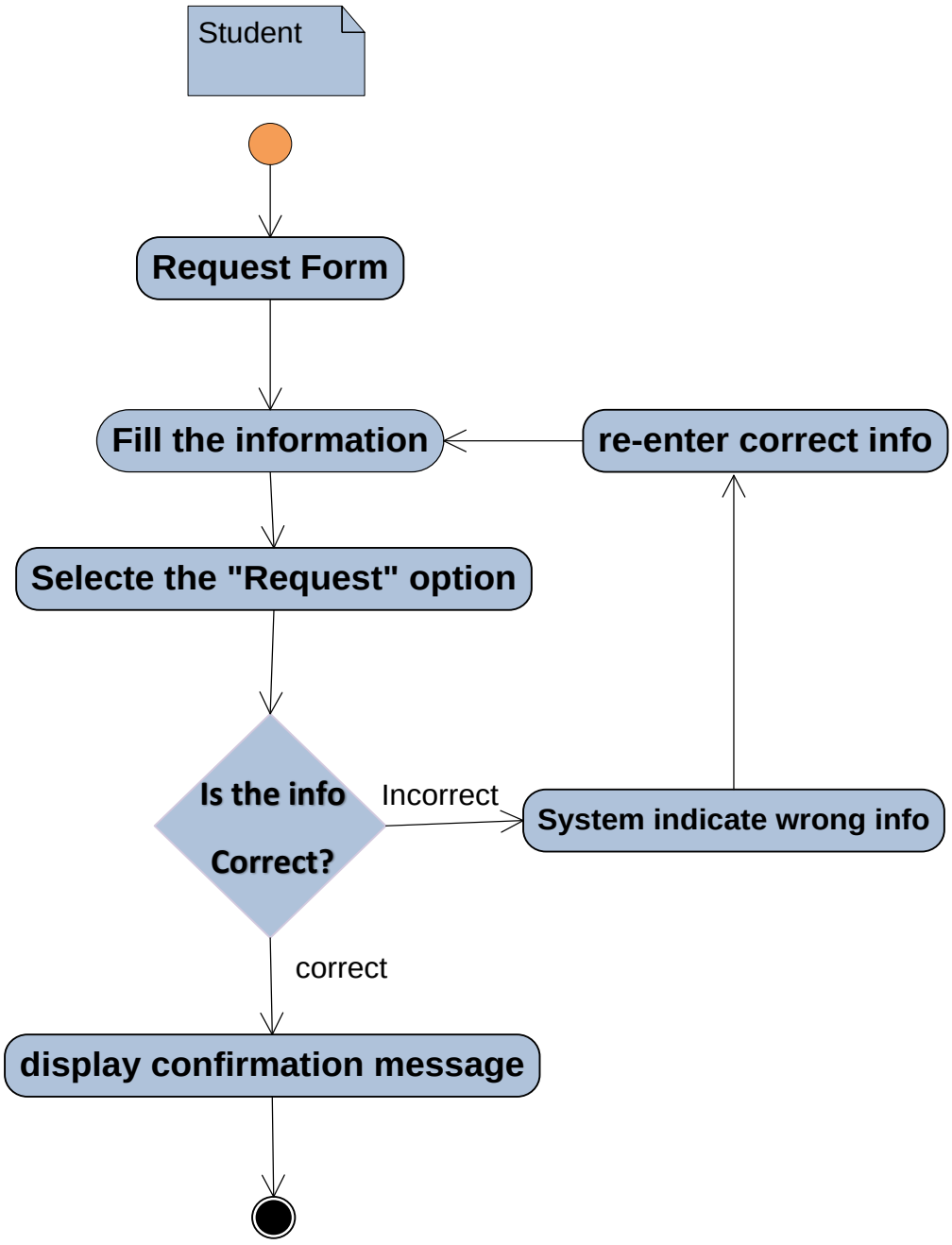


Figure 4. 17: activity diagram for request

4.4.3 State Chart Diagram

A state chart diagram shows the behaviour of classes in response to external stimuli. This diagram models the dynamic flow of control from state to state within a system.

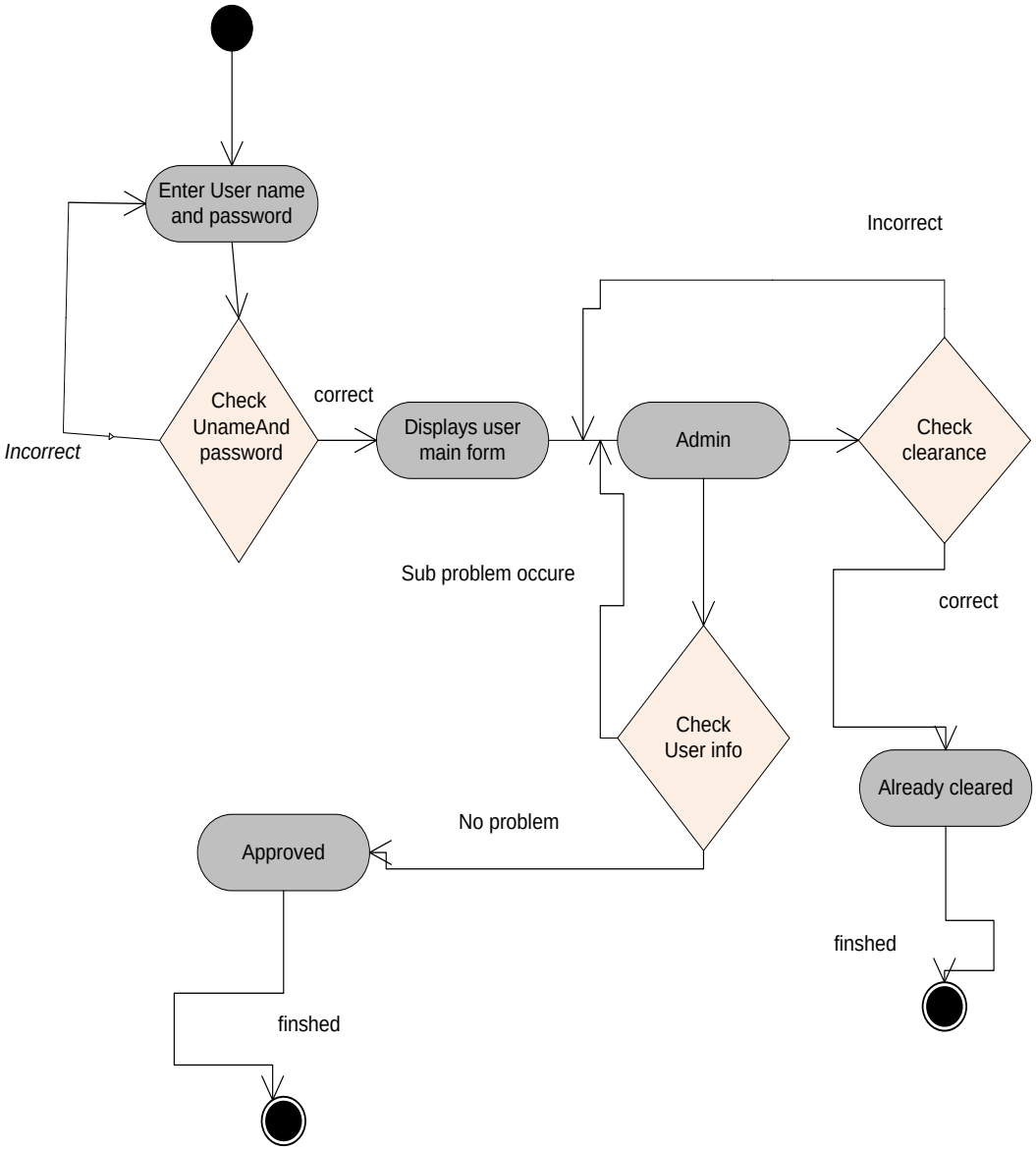


Figure 4. 18: state chart modelling

CHAPTER FIVE

5. SYSTEM DESIGN

5.1. Introduction

This is the second phase of our project entitled Wolkite University Online students clearance System. In this chapter we will deal with design goal, system decomposition, system architecture, deployment diagram, persistence data management, access control and security and user interface design depends on the clearance system [5].

Review of phase one (I)

In the last phase, we have tried to describe the following:

- **Chapter one**: Introduction

In this chapter we have discussed the background of the organization, statement of the problem, and objectives of the problem, scope and limitations of the, and feasibility of the project.

- **Chapter two**: description of the existing system.

In this chapter we have described about current system including its practices, players of the system, business rules,

- **Chapter three**: Proposed Systems

In this chapter we have discussed alternative solutions to the existing system, functional and nonfunctional requirements user interface hardware/software requirements, and security.

- **Chapter Four**: system analysis

In this chapter we have discussed use case diagram and dynamic model which contain sequence and activity diagrams of the system.

In phase two (II) of the Wolkite University Online students clearance System, the following points will be discussed.

5.2 Design Goal

The design goal below represents the quality of Wolkite University clearance management system focus on the following

5.2.1. Performance

The system complete tasks quickly to allow easy input of a large amounts of data and to retrieve data from the server. This project is powerful to give a good service for the people who use it to facilitate their activities. The system is accessible from any computer with internet and can be accessible anytime a user would want to use the program.

5.2.2. Dependability

- Robustness

The system has an ability to detect invalid input by responding message according to the error, and the system has guidance mechanisms for its user.

- Security

The system provides privileges to authorized user by giving account. The system should have security keeping mechanisms, which is called session mechanism. In addition it should has a mechanism to prevent malicious attackers.

5.2.3. Maintenance

The system is better and is not highly suffered by damage.

5.2.4. End user

The system has a well-defined and easily understood interface and the processes is easy to understand and useable by the users at any level. Anyone who can read English can uses the system, because, to use the system only navigating through the system part by clicking a link is the only required thing from the system users.

5.2.5. Priorities of design goal

- Developing reusable components that are easy to modify and maintain by paying attention to low coupling and high cohesion principle.
- Providing easy graphical users interface to increase user's friendliness.
- Developing system that can handle error that is invalid inputs and give meaningful feedback to users.

5.3. Current System Architecture

The existing system is expected to replace WKU clearance management system is manual system and hence there is no existing software architecture that will be considered. As a result we software architecture of the newly proposed system

5.4. Proposed System Architecture

- User Interface Layer: - This layer is the in which users used to access your system. There are two categories of interface class-user interface (UI) classes that provide people access to external system to tour system.
- Domain Layer :- This Layer implements the concepts relevant to your business domain such as student focusing on the data aspects of the business objects, plus behaviours specific to individual objects.
- Process Layer: - This process layer implements business logic that involves collaborating with several domain classes or even other process classes.
- Persistence Layer: - This layer encapsulates the capability to store, retrieve, and delete objects without revealing details of the underlying storage technology.
- System Layer: - System classes provide operating system specific functionality for your application, isolating your software from the operating system (OS) by wrapping OS specific feature, increasing the portability of your application.

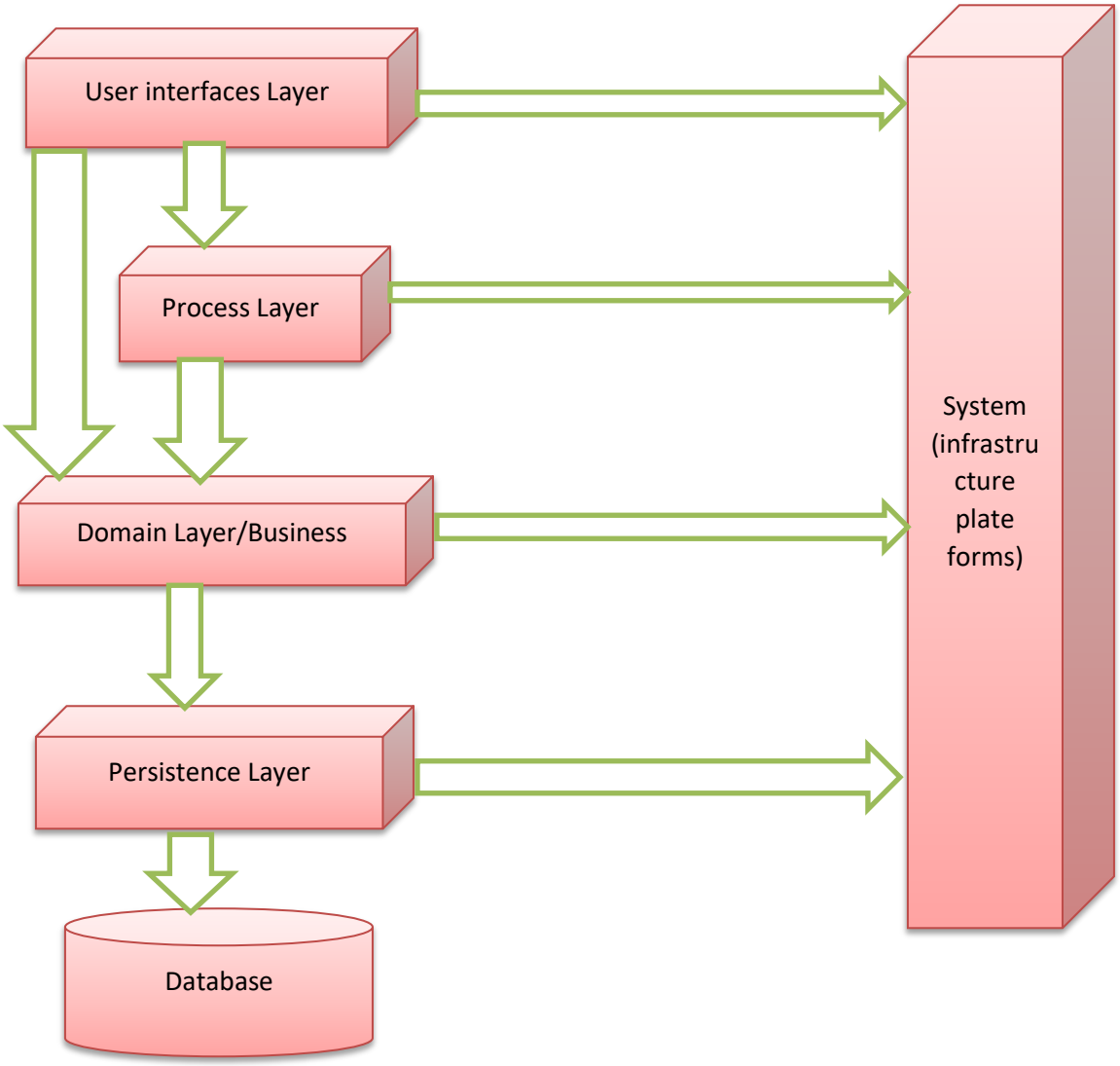


Figure 5. 1: proposed system architectur

5.4.1 Subsystem Decomposition and Description

In this modelling the diagram describes the organization of the physical components in a system.

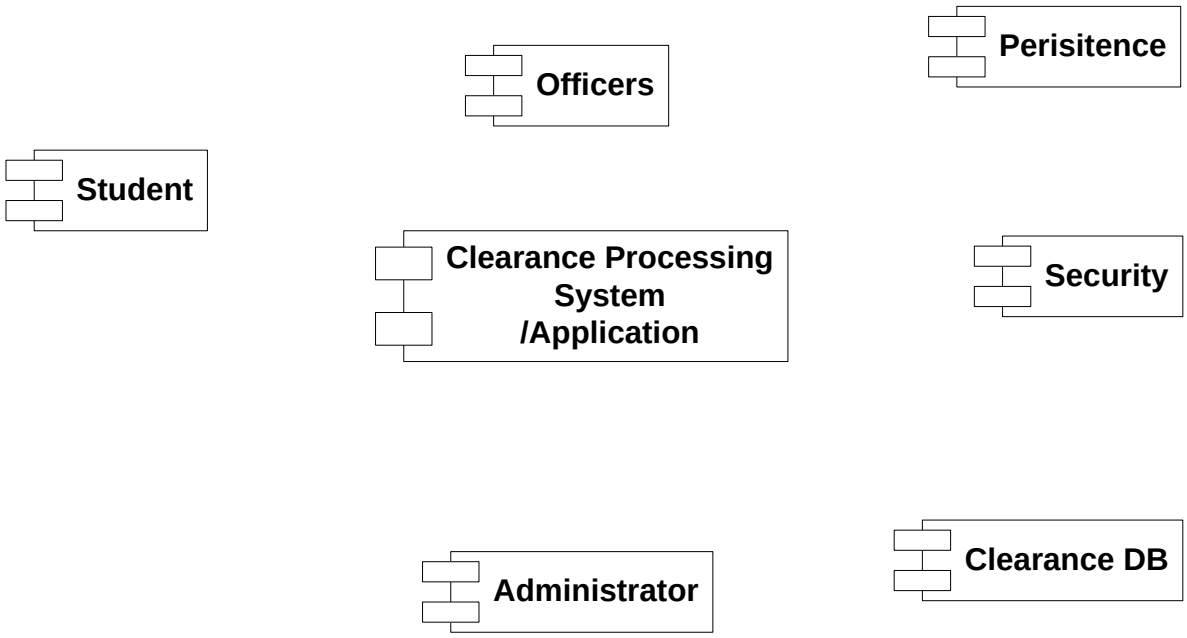


Figure 5. 2: component modelling diagram

5.4.2 Hardware/Software Mapping

UML deployment diagram show physical view of system, taking software into real world by showing how software gets assigned to hardware and how communicates. The deployment diagram shows how the software components, processes, and objects are deployed into the physical architecture of the system. It shows the configuration of the hardware units (e.g. Computers, communication devices, etc.) and how the software components are distributed across the units.

Wolkite University Online clearance System is server client structure architecture, where clients access services offered by server. The deployment diagram is shown as follows.

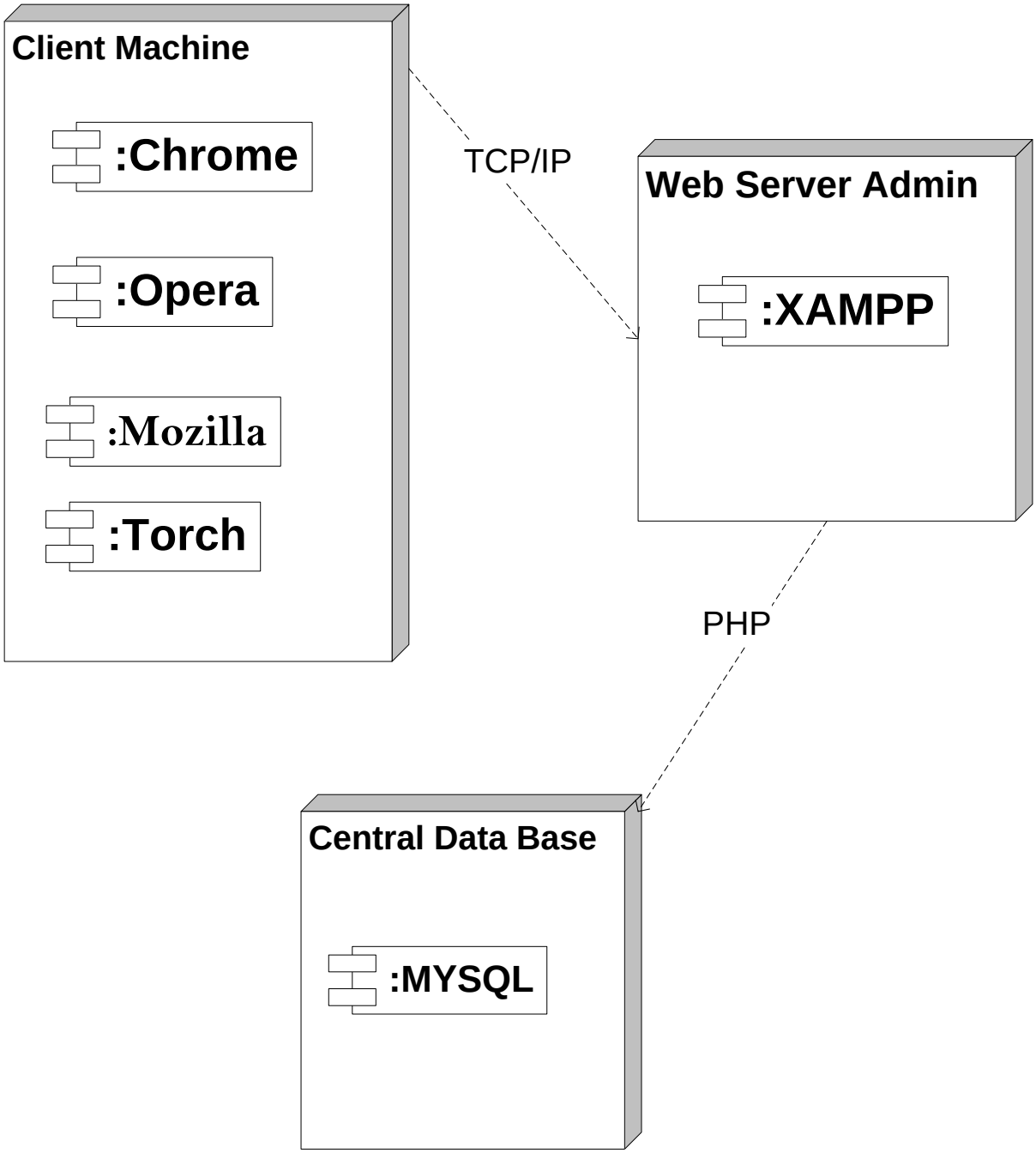


Figure 5. 3:deployment modelling diagram

Description of the architecture of the system is described as follows.

Clients are responsible for:-

- ✓ Provide user interface to the user enabling to get services
- ✓ Receiving inputs from user

- ✓ Checking range of performance
- ✓ Initiating database transactions once all necessary data are collected.

Server responsible for:-

- ✓ Transaction performance
- ✓ Guaranteeing the integrity of data.
- ✓ Putting backup of the database

5.4.3 Detailed Class Modelling

Class Modeling is design level that introduces changes to analysis class model based on implementation technologies. It focuses on the solution domain instead of the problem domain. It shows static nature of how the software is built.

- ✓ It represents the properties of entities, their operations and relationships. Also it drives use case diagrams from use case.
- ✓ The class diagram is the main building block in our project modelling.
- ✓ It is used both for general conceptual modelling of the systematic of the application and for detailed modelling translating the models into programming code.
- ✓ The classes in a class diagram represent both the main objects and or interactions in the application and the objects to be programmed.
- ✓ Classes are represented by rectangles with three sections.

  These are:-

  - ✓ The top section is the name of the class.
  - ✓ The middle section contains the attributes which store information about an item
  - ✓ The bottom section contains the methods/operation that show what are done on object or class.

The class Diagram below shows the class of our system, their inter relationship (including inheritance and association) and the operations and attributes of each classes.

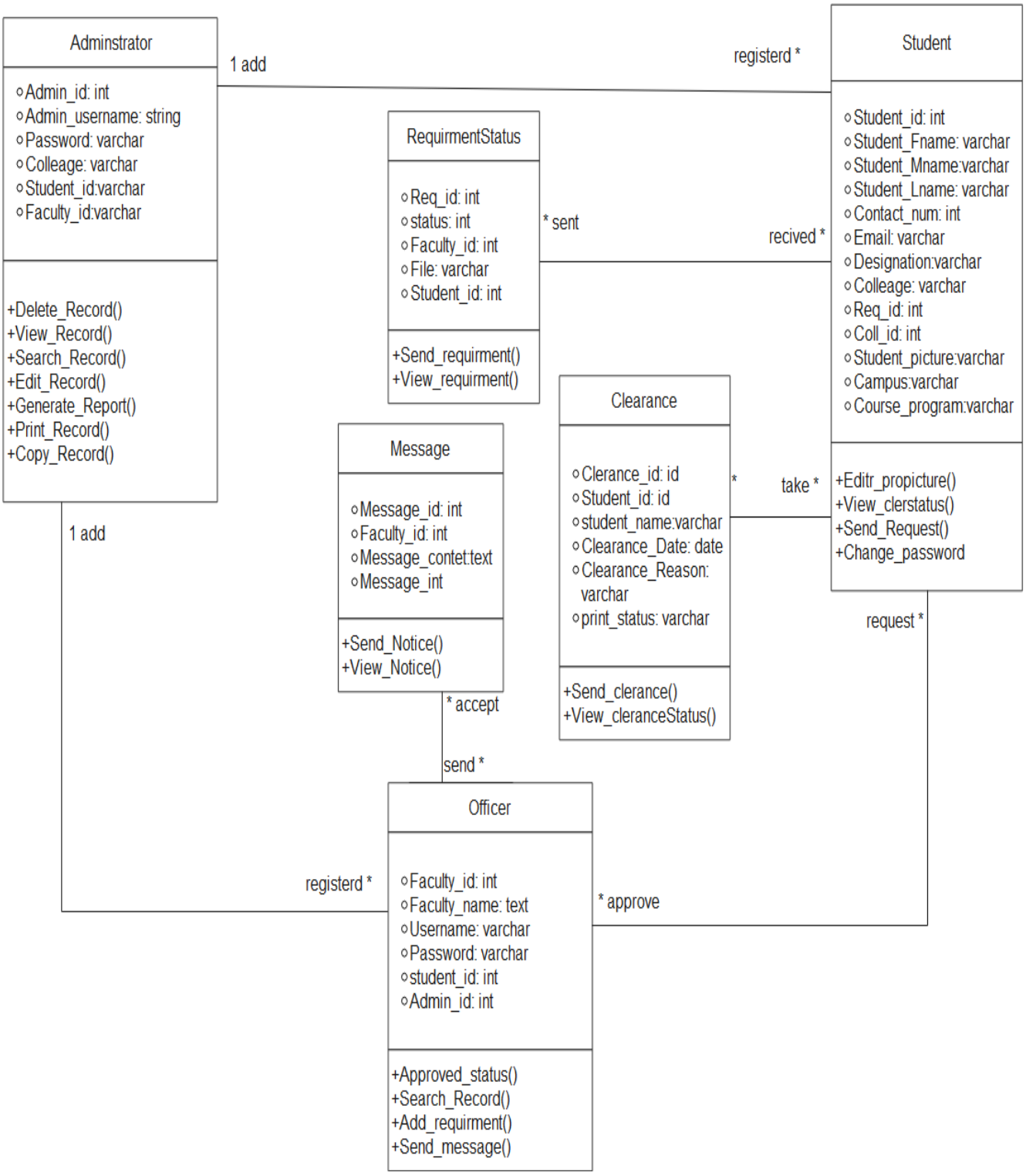


Figure 5. 4: detail class modelling

5.4.4 Persistent Data Management

Persistence of our object can be achieved by relational database since it used as machine to make object persistent. It describes the persistent data aspect of software system. Our system includes the basic table that handles the data of system implemented using MySQL server.

Mapping class and relational table

Mapping refers how objects and their relationship are stored in relational database.

The mapping of the data to be persisted in our system is given as follows:

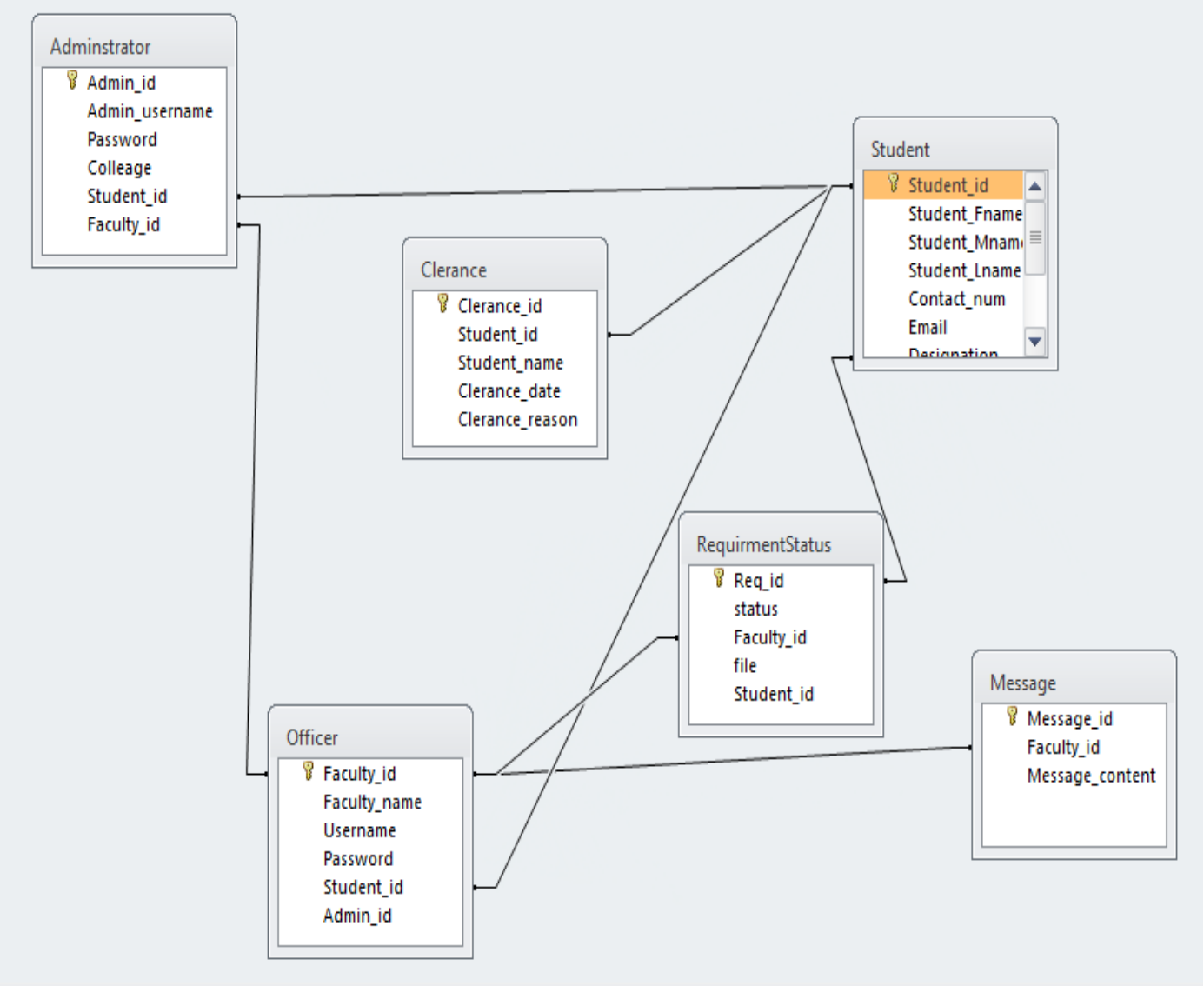


Figure 5. 5: relational database modelling for the system

5.4.5 Collaboration Modelling

A collaboration diagram describes interactions among objects of our system in terms of sequenced messages. Collaboration diagrams represent a combination of information taken from class, sequence, and use case diagrams describing both the static structure and dynamic behaviour of a system.

5.4.5.1 Collaboration diagram for login

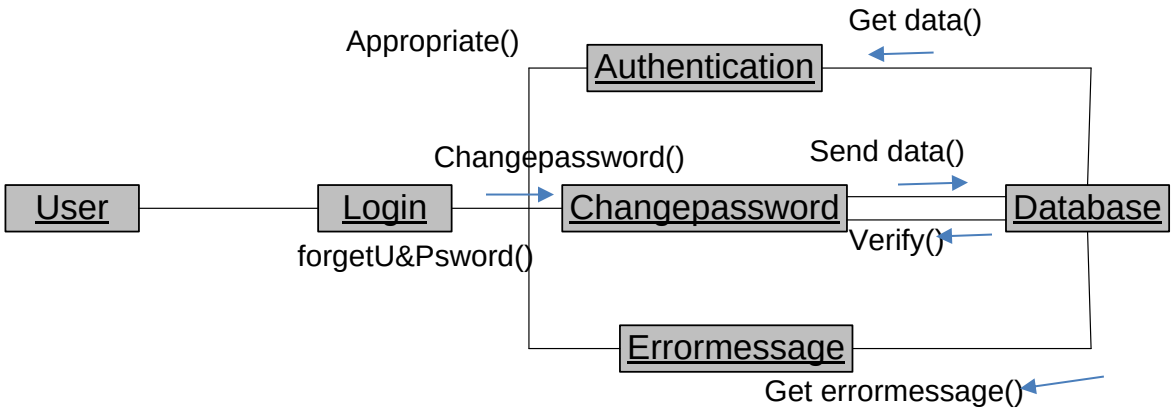


Figure 5. 6: collaboration diagram for login

5.4.5.2 Collaboration Diagram for Register user

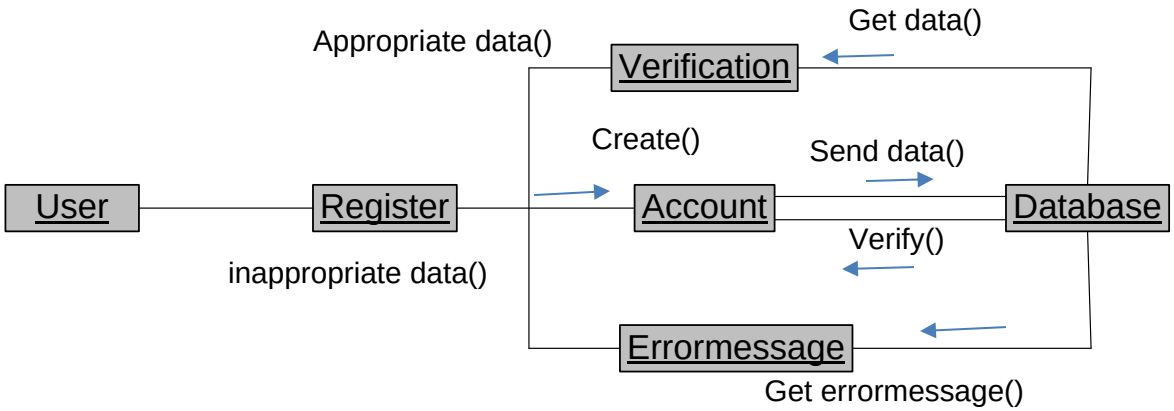


Figure 5. 7: collaboration diagram for register

5.4.5.3 Collaboration Diagram for View profile

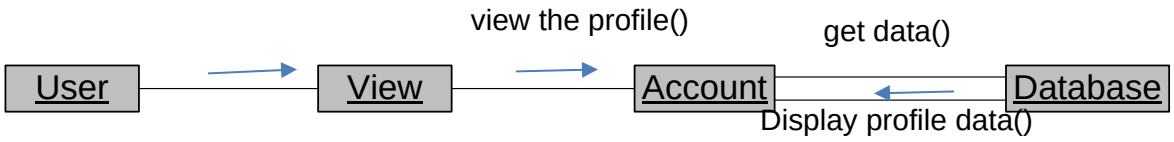


Figure 5. 8: collaboration diagram for view profile

5.4.6 Access control and security

In our project, different actors have access to different information and data. Access control and security specifies what the user can access or what cannot perform by some users. This access control is verified by ID and password. System administrator represents an authenticated user. In our system only authenticated user can access the system and only permitted user can use the system. The proposed system have:.

- **Confidentiality**: Only authorized person can see the information. Private data is kept private; personal privacy is respected.
- **Integrity**: There are limits on who can change the data in the system.
- **Availability**: The system is available to authorized user.

Table 5. 1: Access control and security

Functions	Actors		
	Administrator	Officer	Student
Create account	✓		
Request information			✓
Generate report	✓		

Search record	✓	✓	
Registered information			✓
Approve information		✓	
View profile			✓
Copy record	✓		
Print clearance	✓		
Delete record	✓		

5.5 Packages

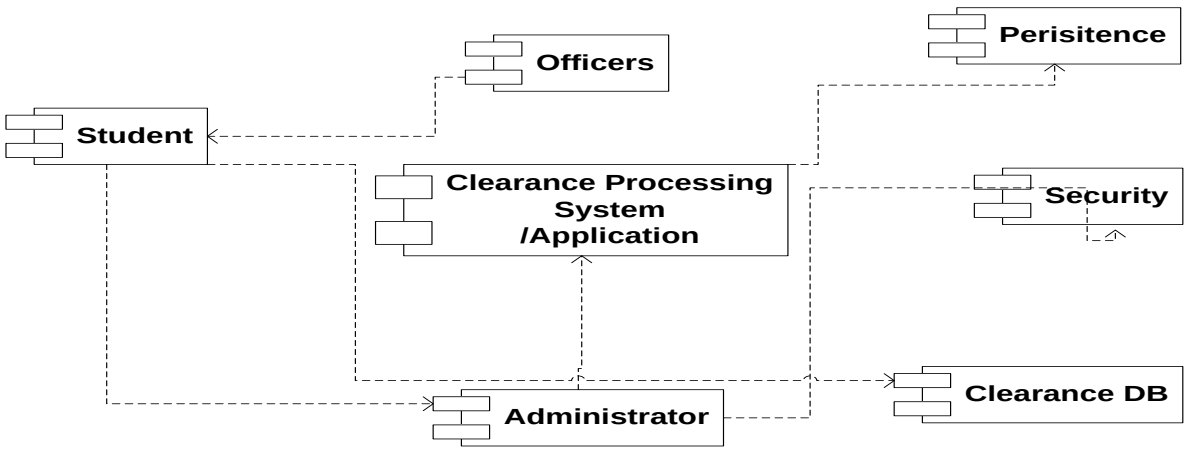


Figure 5. 9: package diagram for clerance system

5.6 Algorithm Design

Pseudo code for login:

Step

Method name: login

Begin

GET Username

Get Password

If(username==correct entered username&&password==correct entered password)

Put into session and display the authorized page

Else

Not login to authorized page display error message

End

Pseudo code for logout:

Method name Logout

Variable user session

Then destroy user session from server

CHAPTER SIX

6. IMPLMENTATION AND CODING

6.1 Implementation

Implementation is one of part of the project development phase where project inputs are converted to project outputs. In implementation phase, main task is coding. In implementation; we tried to put into practice what was proposed in the project document i.e. transforming the project proposal into the actual project. Then the developed system is implemented or hosted on the server for the users to get the purpose or benefit of the system.

6.1.1 Database implementation

We implemented databases of the system based on the class diagram that we have designed. And we used My SQL 5.5.9 for the database implementation. The system which we implemented involves in a central database system that accessing and storing runs on the server or host computer. Then the students access the database through the remote terminals. The foremost advantage of centralized system is centralized security and the ability to handle enormous amount of data on storage devices. The database application on the client or students side referred to as front end, which handles the screen input output processing. The back end on the server handles data processing where the front-end application sends across the network to the server. The system can give users the ability to access back end databases in real time. Users can submit queries against the entire database from the main server to obtain the most up-to-date data.

Database Code

```
-- phpMyAdmin SQL Dump

-- version 4.7.4

-- https://www.phpmyadmin.net/
```

```
-- Host: 127.0.0.1

-- Generation Time: Aug 24, 2021 at 11:31 PM

-- Server version: 10.1.28-MariaDB

-- PHP Version: 7.1.11

SET SQL_MODE = "NO_AUTO_VALUE_ON_ZERO";

SET AUTOCOMMIT = 0;

START TRANSACTION;

SET time_zone = "+00:00";

/*!40101 SET @OLD_CHARACTER_SET_CLIENT=@@CHARACTER_SET_CLIENT */;

/*!40101 SET @OLD_CHARACTER_SET_RESULTS=@@CHARACTER_SET_RESULTS
*/;

/*!40101  SET  @OLD_COLLATION_CONNECTION=@@COLLATION_CONNECTION
*/;

/*!40101 SET NAMES utf8mb4 */;

//-- Database: `studentclearance`----

-- Table structure for table `admin`

CREATE TABLE `admin` (

  `admin_id` int(10) NOT NULL,

  `admin_username` varchar(25) NOT NULL,

  `password` varchar(50) NOT NULL DEFAULT '1a1dc91c907325c69271ddf0c944bc72',

  `depr` int(10) NOT NULL
```

```
) ENGINE=MyISAM DEFAULT CHARSET=latin1;

//-- Dumping data for table `admin`--

INSERT INTO `admin` (`admin_id`, `admin_username`, `password`, `depr`) VALUES

(1, 'admin', 'a01610228fe998f515a72dd730294d87', 0),

(2, 'shemsu', 'bcbe3365e6ac95ea2c0343a2395834dd', 0),

(3, Mohammed, '1a1dc91c907325c69271ddf0c944bc72', 0);

//----Table structure for table `faculty`----

CREATE TABLE `faculty` (

  `faculty_id` int(11) NOT NULL,

  `faculty_name` text NOT NULL,

  `username` varchar(20) NOT NULL,

  `password` varchar(50) NOT NULL DEFAULT '81dc9bdb52d04dc20036dbd8313ed055'

) ENGINE=InnoDB DEFAULT CHARSET=latin1;

//---- Dumping data for table `faculty`-----

INSERT INTO `faculty` (`faculty_id`, `faculty_name`, `username`, `password`) VALUES

(1, 'Dep_Head', 'dephead', '81dc9bdb52d04dc20036dbd8313ed055'),

(2, 'Liabrary_Chief', 'liabrary', '81dc9bdb52d04dc20036dbd8313ed055'),

(3, 'Dormitory  Chief', 'dorm', '81dc9bdb52d04dc20036dbd8313ed055'),

(6, 'College Book Store', 'book', '81dc9bdb52d04dc20036dbd8313ed055'),

(7, 'Registrar', 'registrar', '81dc9bdb52d04dc20036dbd8313ed055'),

(10, 'Cafteria_Chief', 'cafe', '81dc9bdb52d04dc20036dbd8313ed055'),
```

(11, 'Sport', 'sport', '81dc9bdb52d04dc20036dbd8313ed055'),

(12, 'Dean of Student', 'deanstu', '81dc9bdb52d04dc20036dbd8313ed055'),

(14, 'Acadamic Dean', 'academic', '81dc9bdb52d04dc20036dbd8313ed055'),

(15, 'Head of the registerar', 'headreg', '81dc9bdb52d04dc20036dbd8313ed055');

//----Table structure for table `message`----

```
CREATE TABLE `message` (
  `message_id` int(11) NOT NULL,
  `faculty_id` int(11) NOT NULL,
  `id` int(11) NOT NULL,
  `message_content` text NOT NULL,
  `message_status` int(11) NOT NULL
) ENGINE=InnoDB DEFAULT CHARSET=latin1;
```

-- Dumping data for table `message`

INSERT INTO `message` (`message_id`, `faculty_id`, `id`, `message_content`, `message_status`) VALUES

(32, 7, 66, 'please back the book', 1),

(33, 7, 65, 'please signed another officer', 1);

6.1.2 Implementation of the Class Diagram

We use EDRAW MAX to implement class diagram of the system and we implemented the class diagram in our project code.

Admin Class code

```
<div class="right_col" role="main">
                                        <div class="">
                                                <div class="page-title">
                                                        <div class="title_left">
                                                                <h3> <i class="fa fa-dashboard"></i>
Admin Board</h3>
                                                        </div>
                                                        <div class="title_right">
                                                                <button class="btn btn-primary btn-md pull-
right" data-toggle="modal" data-target="#myModal" style = "margin-left: 1%;">
                                                                        <i class="fa fa-plus"></i> Add
Student
                                                                </button>
                                                                <button class="btn btn-success btn-md pull-
right" data-toggle="modal" data-target="#myModal_user">
                                                                        <i class="fa fa-plus"></i> Add
Admin User
                                                                </button>
                                                                <button class="btn btn-primary btn-md pull-
right" data-toggle="modal" data-target="#myModal1" style = "margin-left: 1%;">
                                                                        <i class="fa fa-plus"></i> Add
Officer
                                                                </button>
                                                                        <?php
                                                                        $sql = "SELECT *
FROM student WHERE status = 0";
                                                                        $query = $conn-
>prepare($sql);
                                                                        $query->execute();
```

```
                                                    $fetch = $query->fetchAll();

                                                    foreach ($fetch as $key => $value) { ?>

                                                    <tr>

                                                        <td class="hidden"><?php echo $value['id'] ?></td>

                                                        <td><?php echo $value['student_id'];?></td>

                                                        <td><?php echo $value['student_Fname'], ' ', $value['student_Mname'], ' ', $value['student_Lname']?></td>

                                                        <td><?php echo $value['Email'] ?></td>

                                                        <td><?php echo $value['Contact_num']?></td>

                                                        <td><?php echo $value['Department']?></td>

                                                        <td><?php echo $value['Designation']?></td>

                                                        <td><?php echo $value['Campus']?></td>

                                                        <td><?php echo $value['course_program']?></td>

                                                        <td class = "center" style = "text-align:center;">

                                                            <form action="admin_view_info.php" method="post">

        <a href = "#edit<?php echo $value ['id']?>" data-toggle="modal" class = "btn btn-success btn-xs"><i class = "fa fa-pencil"></i> Edit</a>

        <input type="hidden" name="haydi" value="<?php echo $value ['id']?>">
```

```
<button type="submit" class="btn btn-primary btn-xs"><i class = "fa fa-eye"></i>View</button>

</form>

<form action="../deactivate.php" method="POST">

<input type="hidden" name="haydi" value="<?php echo $value ['id']?>">

<button type="submit" class="btn btn-danger btn-xs"><i class="fa fa-close"></i> Delete</button>

</form>

</td>

<?php include '../modal_edit1.php';?>

</tr>

<?php } ?>

</tbody>

</table>

</div>

</div>

</div>

</div>

</div>
```

Officer class code

```
<div class="right_col" role="main">

<div class="">

<div class="page-title">
```

```
                    <div class="title_left">
                        <h3><font color="black"><b><?php echo $name_faculty;
?></b></font></h3>
                    </div>
                </div>
                <div class="clearfix"></div>
                <div class="col-md-12 col-sm-12 col-xs-12">
                    <div class="x_panel">
                        <div class="x_title">
                            <h2><font color="black">List of
Student</font></h2>
                            <div class="clearfix"></div>
                        </div>

                        <div class="x_content">
                            <table id="datatable-buttons" class="table table-
striped table-bordered">
                                <thead>
                                    <tr>
                                        <th class="hidden">ID</th>
                                        <th><font color="black">Id
no.</font></th>
                                        <th><font
color="black">Name</font></th>
                                        <th><font
color="black">Email</font></th>
                                        <th><font
color="black">Contact No.</font></th>
                                        <th><font
color="black">Colleage</font></th>
```

```
                                                    <th><font
color="black">Student Status</font></th>
                                                    <th><font
color="black">Status</font></th>
                                                    <th><font
color="black">Action</font></th>
                                                    <th width="10%"
style="text-align:center;"><font color="black"></font></th>
                                                        </tr>
                                                    </thead>
<div id="sidebar-menu" class="main_menu_side hidden-print main_menu">
        <div class="menu_section">
                <h3>Regisrar</h3>
                <ul class="nav side-menu">
                        <li><a href="offices.php">List</a></li>
                        <li><a href="offices_addrequirements.php"> Add Requirements</a></li>
                </ul>
        </div>
</div>
```

Student class code

```
<script>
 (window.location='../index.php');
 </script>
 <?php
 }
 ?>
<?php
```

```
$session_id = $_SESSION['id'];


$sql = "SELECT * FROM student WHERE id = $session_id ";
$query = $conn->prepare($sql);
$query->execute(array($session_id));
$row = $query->fetch();


$name = $row['student_Fname']. " " . $row['student_Mname']. " " . $row['student_Lname'];
$designation = $row['Designation'];
$pic = $row['student_picture'];
$sess_pass = $row['password'];
?>
<!DOCTYPE html>
<html lang="en">
<head>
        <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
        <!-- Meta, title, CSS, favicons, etc. -->
        <meta charset="utf-8">
        <meta http-equiv="X-UA-Compatible" content="IE=edge">
        <meta name="viewport" content="width=device-width, initial-scale=1">


        <title>Wolkite University </title>


        <!-- Bootstrap -->
        <link href="../vendors/bootstrap/dist/css/bootstrap.min.css" rel="stylesheet">
        <!-- Font Awesome -->
        <link href="../vendors/font-awesome/css/font-awesome.min.css" rel="stylesheet">
        <!-- NProgress -->
```

```
<link href="../vendors/nprogress/nprogress.css" rel="stylesheet">
<!-- jQuery custom content scroller -->
<link href="../vendors/malihu-custom-scrollbar-plugin/jquery.mCustomScrollbar.min.css" rel="stylesheet"/>

<!-- Custom Theme Style -->
<link href="../build/css/custom.min.css" rel="stylesheet">
<!-- icon -->
<link rel="icon" href="../images/wel.jpg" >
<style>
```

6.1.3 Configuration of the Application Server

We use Xampp application server because Xampp is simple, lightweight Apache distribution it is extremely easy to create a local web server for testing and deployment purposes. Everything you needed is to set up a web server – server application (Apache), database (Maria DB), and scripting language (PHP). XAMPP works equally well on Linux, Mac, and Windows. Since it is suitable and have the function, we listed above we use Xampp application server.

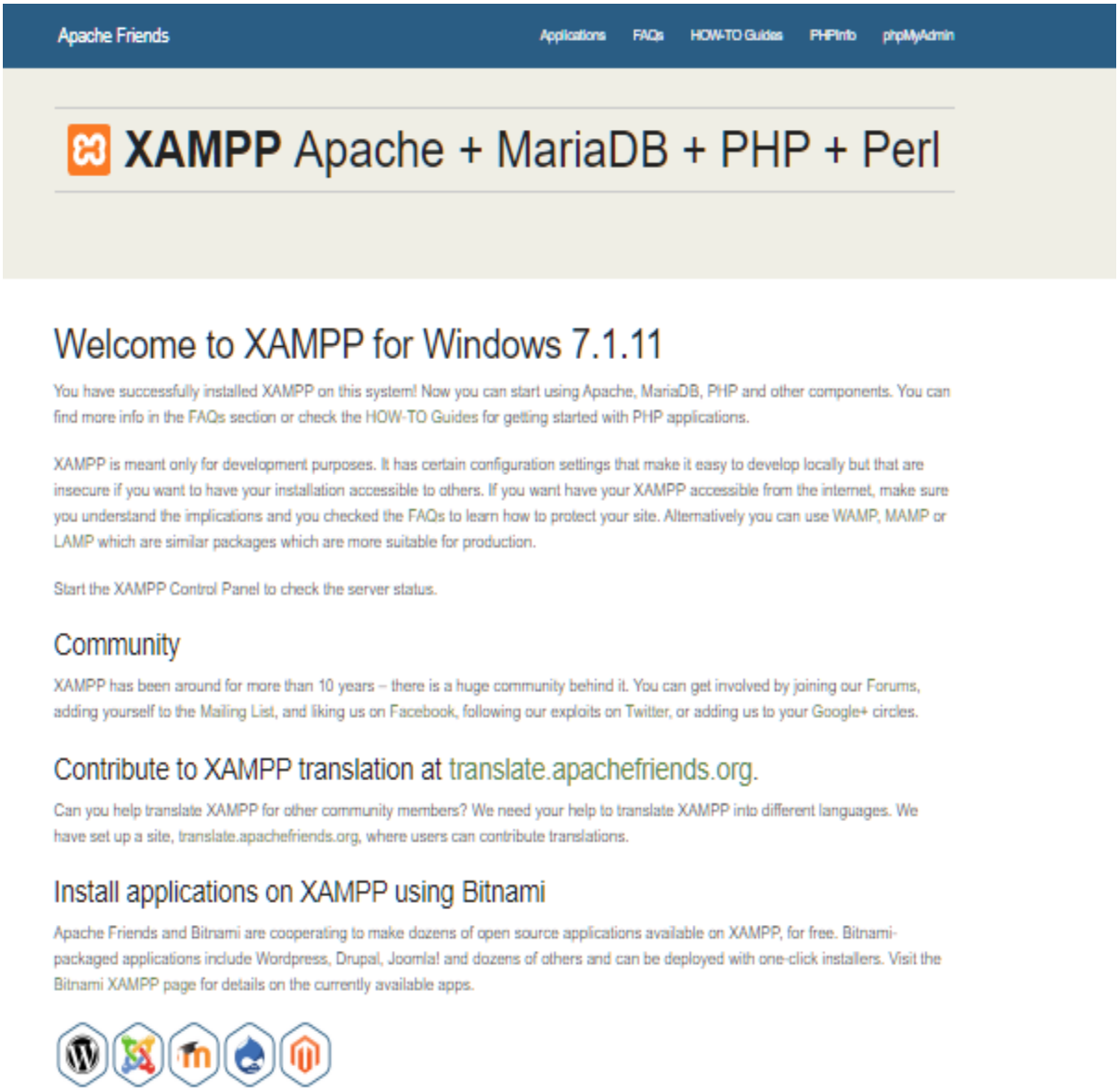


Figure 6. 1: Xampp application server

6.1.4 Configuration of Application Security

Our system validates all the input by returning error message and suggesting trying again when invalid input occurs by using JavaScript. We implement encryption for user password when the system admin creates a user account or when the user changes their password the system encrypts the password by using base 64 encryption algorithm. We implemented session for each user login page.

6.1.5 Implementation of User Interface

We implement the user interface by considering the users of our system and easy for use Interface of our system is developed using English language.

Home page

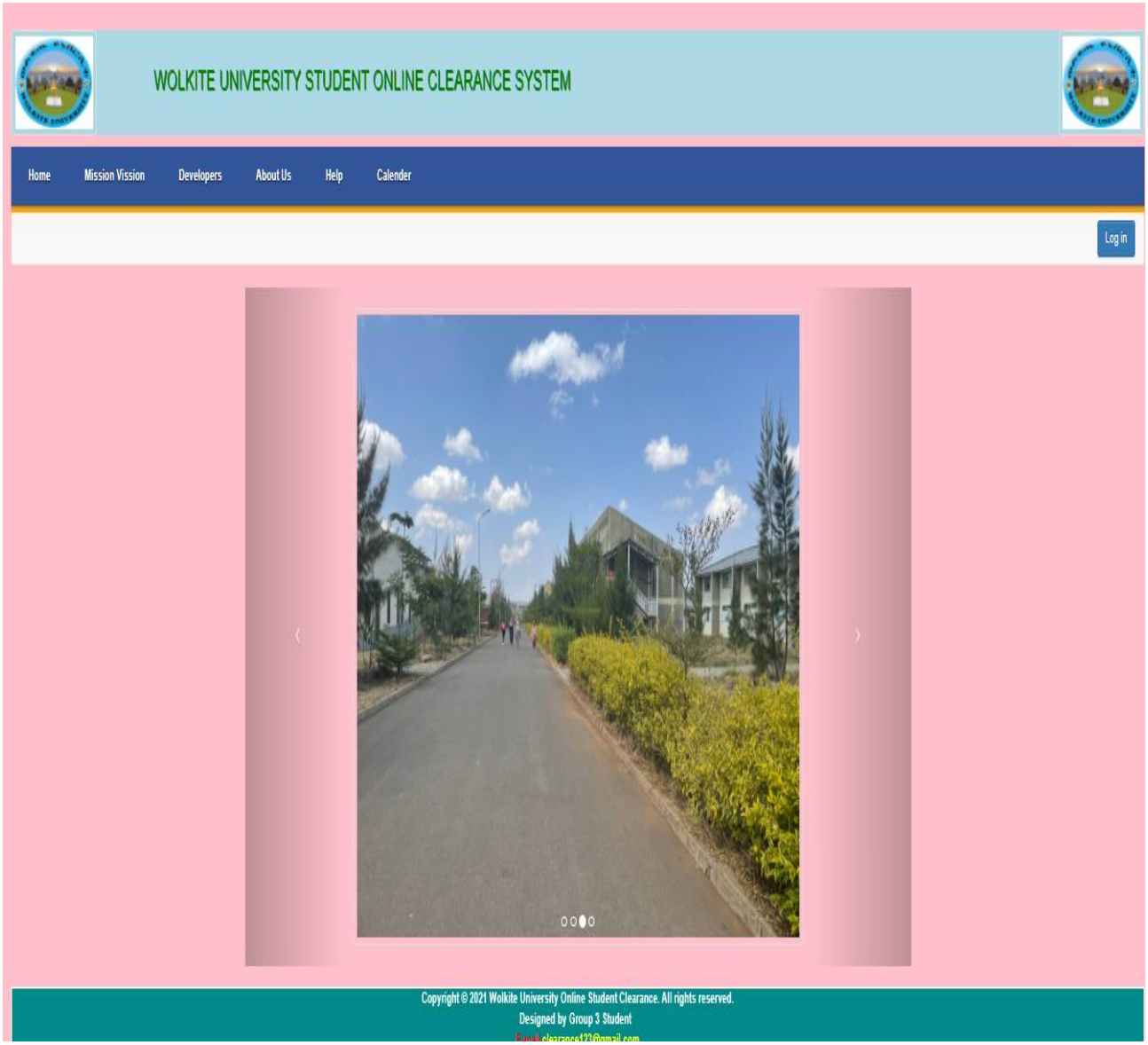


Figure 6. 2: user interface for home page

Login page

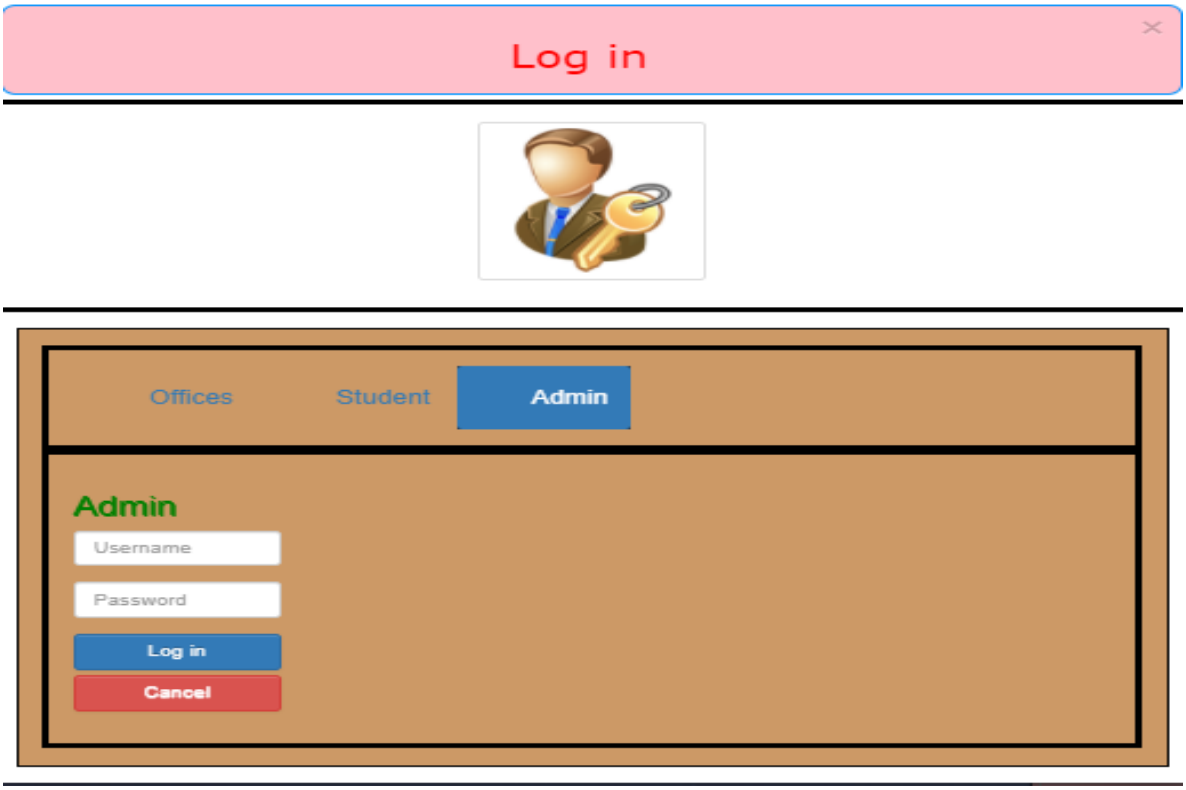


Figure 6. 3: User interface for home page

Admin page

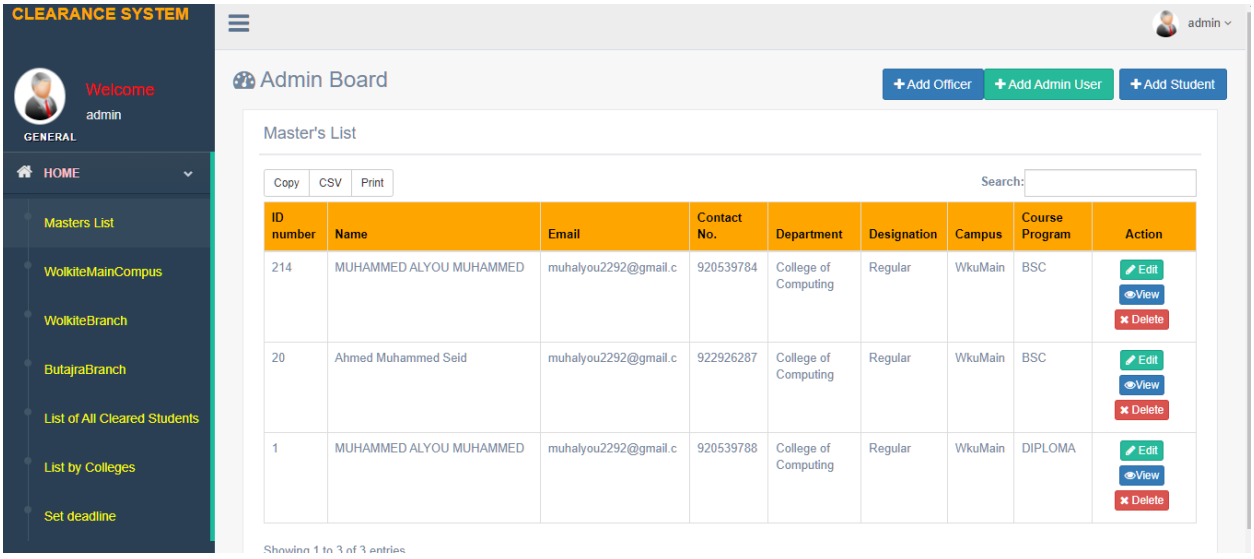


Figure 6. 4: User interface for admin page

Officer page

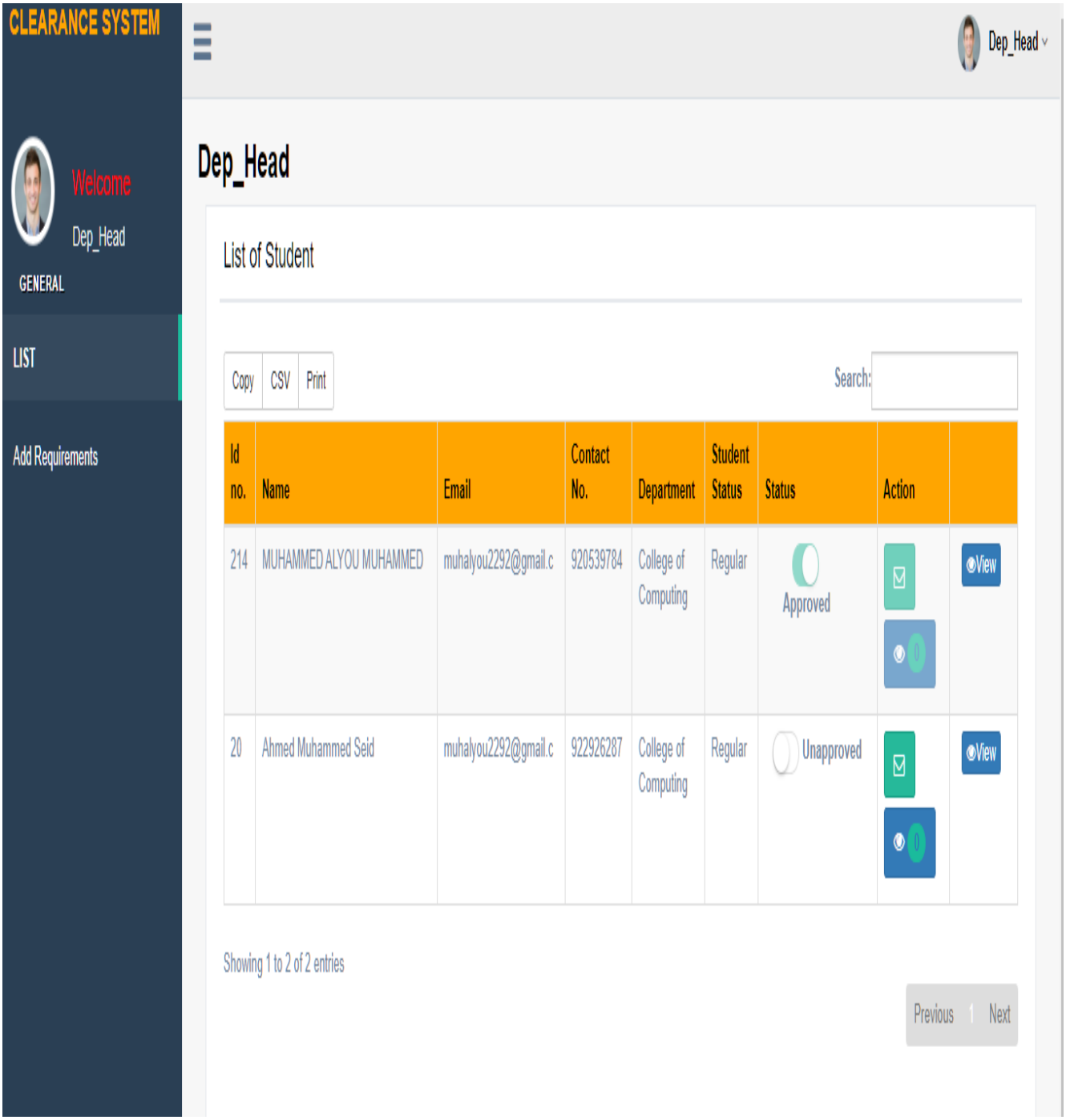


Figure 6. 5: User interface for officer page

Student page

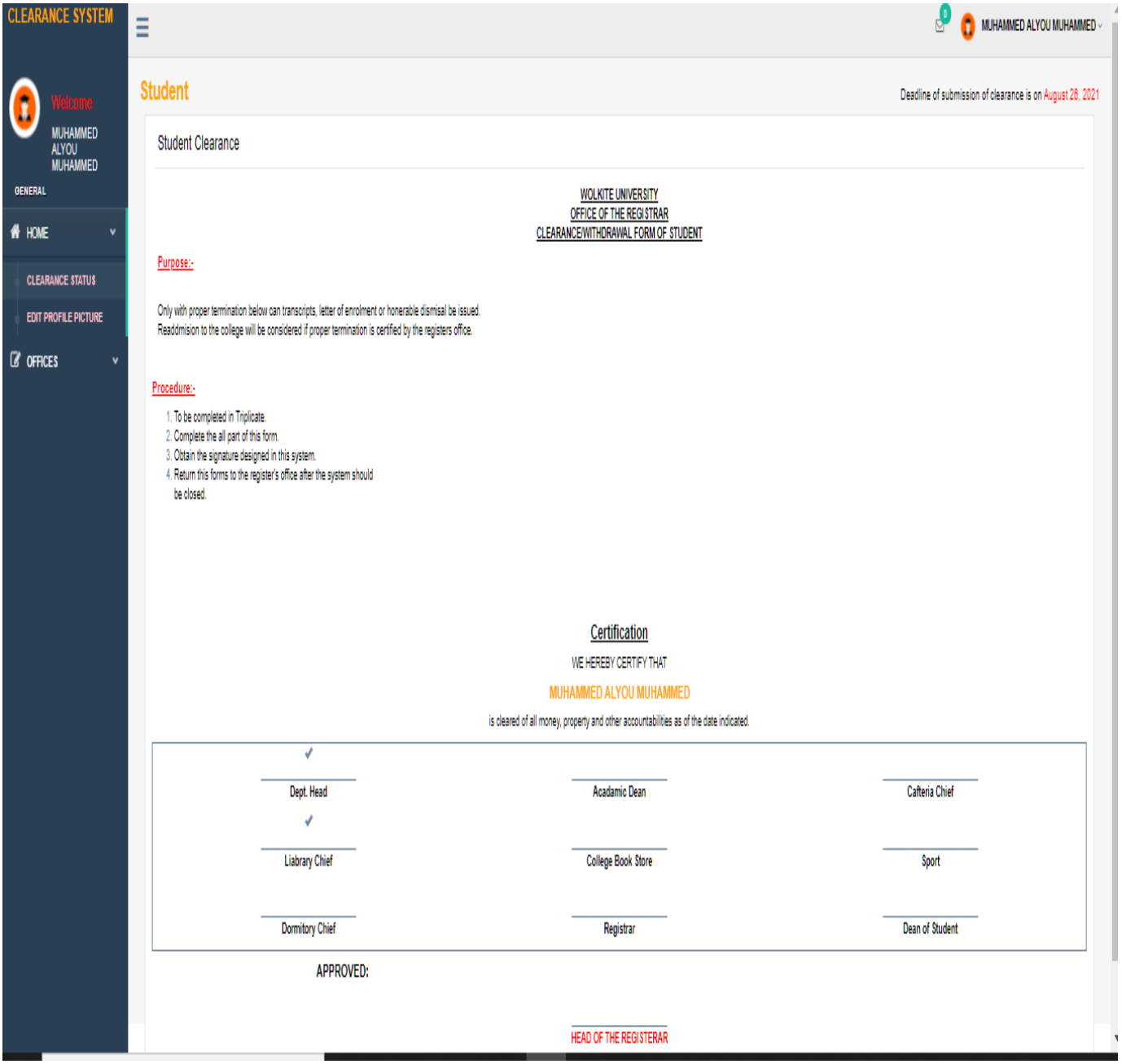


Figure 6. 6: User interface for student page

6.2 Testing

We will perform following testing techniques for checking functionality of our proposed system.

6.2.1 Test Case

Table 6. 1: Test Case1-User authentication

Test Case ID=TestCase1		
Unit to Test=Authentication of the admin Login		
Assumptions=Redirects to Required Login.php		
Test Data=User name(valid user name, invalid user name, empty) Password(valid password, invalid password, empty)		
Steps to be Executed	Data	Expected Results
Empty User name and all others filled and click login button	Any valid data for the others filed	"Enter your user name"
Enter invalid user name and all others and click login button	User name=Shemsu Doesn't exist in the login table	"invalid user name"
Enter valid user name, empty password and click login button	Username=admin	"please enter password"

	any valid data for the others fields	
Enter user name, invalid password and click login button	User name=admin password=comp123	"invalid password"
Enter valid user name, password, and click login button	User name=admin password=1234	Redirected to the user php

6.2.2 Testing Tools and Environment

Test Environment consists of elements that support test execution with software, hardware and network configured. Test environment configuration must mimic the production environment in order to uncover any environment/configuration related issues.

A typical Environmental Configuration for a web-based application is given below: For web server we use Apache server, for Database MySQL, we use widow operating system, and we use chromes and opera browser.

6.2.3 Unit Testing

First we will tests each unit at each system. Each modules of the System can be tested check the working of each classes, methods and attributes of the System. For immediately maintain at which the problem is occurred.

6.2.4 System Testing

We tested our system by other peoples and we were conduct some comments what look like our system. Our system will start after providing the following information. It requires username and password for administrator to operate or manage the system and other users to access their own profile and requesting for clearance who is already the members of the system. For those who are not member of the system, they can view only the home page and

they cannot do anything or they cannot access clearance form. If they want they can register in the registration page by providing the proper information.

6.2.5 Integration Testing

After we test each unit of the proposed system we will perform an integration test to check whether the system meets all the functional requirements. When a number of components are complete; it will test to ensure that they integrate well with each other, the operating system, and other components.

6.2.6 Acceptance Testing

Fourth year IT students (real users) were participating on the acceptance testing of our system. According to system requirements and other resources (documentation, source code, user manual) test cases are generated to determine (validation and verification) whether the system satisfies users need and expectation to maintain the reliability of our system and also meet the user's requirements.

6.3 Training

No long term and continues training will be given regarding the system. The team will provide short training term for the administrator how he/she manage and operate the system. The teams can explain information regarding the operation of the system for the administrator during deploying the system on. As the system is user friendly, it is not complicated for the administrator to manage the system.

6.4 Installation Process

Since we are developing web based project which can be hosted on the server, our system does not need installing it on a particular machine. So system cannot need installation process. It can be accessed using the URL (universal resource locator) given to it and browsing the URL to get the access to the system.

CHAPTER SEVEN

7. CONCLUSIONS AND RECOMMENDATIONS

7.1 Conclusions

Wolkite University Students Clearance processing system is one of the activities which are done manually. By considering the problems of the manual system, our team found solution which reduces the problems of the existing system. With the contribution of each member of the team, advisor and co-advisor in developing the new system from starting of data (requirement) analysis to the implementation, we reached to the final result. During the developing this project, team face some challenges, but by the cooperation's of all team members reach to their goal and come with this new project.

Generally, based on the existing system problems the team will find a proposed solution which solves some problems of the existing system. Like it decreases time consumption, energy consumption, resource loses during processing the clearance system in manual system.

7.2 Recommendations

Based on shortage of time and some other condition like resources we do not include some features to our project. The team wants to recommend those who wants further work on our project like adding chat room, which facilitates communication between administrator and the different offices listed in this project and student to ask the administrator why he/she can't approved their clearance request and if the students lost the university property he/she cannot physical contact with the casher person in order to payment. The other features we recommend to be added to in this project are clearance processing for administration of students and other worker like cafeteria workers, and library workers and all employees of the Wolkite University.

8. REFERENCE

[1] https://www.merryam-webster.com/dictionary/clearance.

[2] https://www.wku.edu.et.

[3] Anigbogu, Systematic planning for educational change, 2000.

[4] T. Daglas, "System Analysis and Design for Software Engineers NIIT," 2005.

[5] M. O. Docherty, "Object Oriented Analysis& Design, Understanding System Development with UML 2.0," 2005.

[6] System Analysis and Design for Software Engineers, NIIT(2005).

[7] Object Oriented Analysis& Design, Understanding System Development with UML 2.0 and Mike O Docherty, 2003.

[8] A. G., "system palanning for education change," Calfornia, Mayfield publishing Company.

9. APPENDICES

Appendix A: Sample source code

Code segments for admin login

```
<?php
include ('connect.php');


$admin_username = $_POST['admin_username'];
$password = md5($_POST['adminPass']);


$sql = "SELECT * FROM admin WHERE admin_username = ? AND password = ?";
$query = $conn->prepare($sql);
$query->execute(array($admin_username,$password));
$row = $query->fetch();
$count = $query->rowCount();
if ($count > 0){
        session_start();
        $_SESSION['id'] = $row['admin_id'];
        echo 1;
}else{
        echo 0;
        echo'  <p class="wrong">Check Your username or/and Password</p>';
}
?>
```

Appendix B: User interface

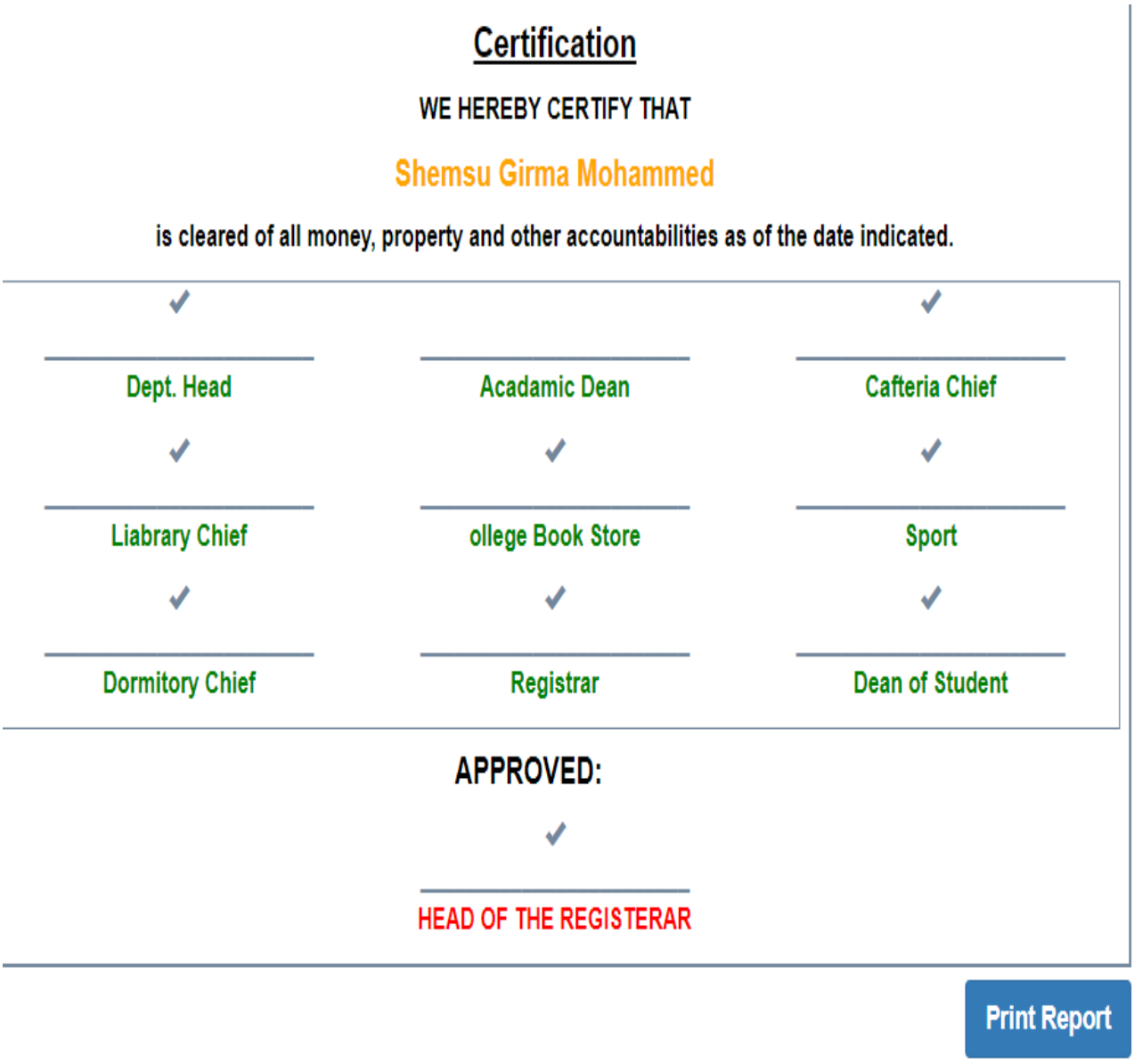


Figure 9. 1: User interface for clearance status