BULE HOR UNIVERSITY

FACULTY OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF INFORMATION TECHNOLOGY

TITLE: AUTHOMATED DORMITORY MANAGEMENT SYSTEM IN PARTIAL FULFILLEMENT OF THE REQUIREMENTS FOR THE DEGREE OF BACHELOR OF SCIENCE IN INFORMATION TECHNOLOGY

By:-

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FINAL PROJECT SUBMITED TO DEPARETEMENT OF INFORMATION TECHNOLOGY

Bule Hora University

November, 2015

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Acronyms

BHU: Bule Hora University

WBS: Work Breakdown Structure

PHP: Hyper Text Pre-processor

UML: Unified Modeling Language

HTML5**:** Hyper Text Markup Language frame work 5

MYSQL**:** My Structured Query Language

CSS3: Cascading Style Sheet frame work 3

WWW: World Wide Web

OOAD: Object-oriented analysis and design

Acknowledgments

First of all We thanks for God that helps me through my life. Secondly, we heartily thankful to my advisor, Instructor Mulatu Gebiyaw and Sadik for his guidance and support from the very beginning until the end of this project. His help was always available at any time for me throughout the project. We also thankful to the Instructor Ali for his inspiration to me. It is only through their support and encouragement that this work has been possible.

We would like to dedicate this project to my parents who have been a source of inspiration to me all my life. Lastly, many thanks to the Department of Information Technology for being such a great Department offering anything a student might need especially academic excellence

Abstract

The intension of this project is developing a computerized Dormitory management system for Bule Hora University. The current mechanism for handling the Dormitory management system in Bule Hora University is limited on manual work. This has limitation on controlling the work securely and has high consumption on resources. Many countries are using different technologies to support this system activity and have got successful results. Computerized Dormitory management system is the most known technology for Dormitory system from the existed alternatives. The project replaces the manual file handling system into computerized system and it makes secure the processes by providing different security mechanisms for internal and external users. And this feature is helpful for user authentication. The project is helpful for giving user especially students satisfaction, reliability, consistence, correctness, completeness, and timeless information for the users.

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Chapter one (1)

1. Introduction

Technology is spreading its wing in almost every walks of human life activities. Now a day it is better if every activity is done using new technology in order to fulfill the need of human being, Organization, Enterprise etc. As today's world there are many organizations and each organizations needs to be preferable, computable and work on fastest way in order to satisfy users interest etc. i.e. they should have facilitate their activities in computerized way.[1]

Many developing countries are in a good position to exploit the opportunity of technology revolution and advance human development. The information and communication technology provide new resource materials for expanding communication. [2]

In fact the second half of 20th century has wittiness the global phenomena of an information explosion. The development in communication technology has made it possible for millions of people to have fast access to vast information presented in several forms. Today computer and other electronic device increasingly communicate and interact directly with other devices over a variety of network such as internet. The internet provides individuals and small business centers for the ability to communicate inexpensively.[3]

Hence, the system using technology has a tremendous effect for organizations and offices; which is developing in our case the Bule Hora University Online dormitory management system (BHUODMS). Currently, the system is manual based; due to this the students and proctors faces some problems Because of this, we are initiating to develop our project on dormitory system in order to minimize the problem by using computerized system. [4]

1.1 Background of the project

Online Dormitory Management System previously developed by Mekele and Debire Markos University that means currently functional on those Universities to be students can view their block and room in their home. Bule Hora University does have Online Dormitory Management system by this case many problems created in this University.

The current system is a manual file handling System. The main target of the project is to develop new, automated and computerized system that has the ability to overcome the problems that occurred in the existing system. The project utilizes some technological resources that are intended for the development of the new computerized system. These technological resources help out in solving many of the problems of the existing system. With the new system the personnel can achieve the goals of Automated Dormitory Management System in working with fast and better environment

1.2 Statement of the problem

Currently, BHU dormitory management system uses manual approach. To process the operation first the ministry of education sends all the information to the registrar bureau and gives to the student affairs (dormitory) and to the dinning office. After taking the list, they assigned students to each block and room. At that time they face different problems during operating their tasks. Working by paper based i.e. manual system is not only affecting the management members, rather it also for student during viewing of their dormitory information. Students does not view the their dorm, it is difficult to assign students in their Faculty, and Department, it is not attend student and proctors and the current system is takes highly human power and time consuming system. It is difficult to distribute and return room materials.

1.3 The Proposed System

The goals of the proposed system are to replace the manual system currently used by Bule Hora university dormitory service to computerized web based system. This will bring operational efficiency by minimizing time wastage and cost funded by the university to dormitory service and minimizes the burden of proctors by replacing paper based system to computerized, replace stumping and pasting allocation paper by announcing throughout internet or intranet.

And the main objective of proposed system is minimizing material and time wastage during allocation of dorm and handling information of buildings in consistent way using database.

The following are the functions which can be delivered from the new system.

- The system accepts (read) the uploaded record.
  - ✓ The system should arrange the buildings for the allocation.
  - ✓ The system should arrange students for the allocation.
  - ✓ The system should assign dorms for students.
- The system should generate timely report about the allocation.
- The system should store all the data related with all the tasks performed into a database

1.4 Objective of the project

1.4.1General Objective

The main objective the project is to develop Online Dormitory Management system for BHU which is secured, reliable, accurate and accessed on the internet.

1.4.2Specific Objectives

In order to achieve the main objective, we have the following specific objectives:

- ✓ To design interactive graphical user interface
- ✓ To design the database that store information
- ✓ To assigns the dorm for the students.
- ✓ To make attendance form for student and proctors
- ✓ To design proctor manager and proctor profile
- ✓ To design the system that used to distribute and collect dorm material
- ✓ To develop system that used to generate report

1.5 Beneficiaries of the new system

The beneficiaries of the system are:

- Students**:** the students can view their dormitory information easily and timely.

- ❖ Proctors and other administrative officials**:** they can access dormitory and related information easily.
- ❖ University**:** the university gets better audience

1.6 Significance of the project

The new online dormitory management and allocation system is highly reliable, easy, fast and consistent and will play a crucial role for reliable service for students, proctors, and for the management. The significance of the system includes:

- ✓ To minimize time and efforts needed to perform tasks.
- ✓ To minimize the work load of the employees (proctors).
- ✓ To make tasks simple and efficient in every aspects.
- ✓ To manage the students and building information.
- ✓ Providing a well-organized and guaranteed record keeping system with minimum space and effort need.
- ✓ To enable the university to get acceptance in the outside community.
- ✓ Developing students' effective communication with the university.

1.7 Scope and out of scope (limitation) of the project

1.7.1 Scope of the project

- ❖ The scope of the proposed system is mainly works only Bule Hora University for regular and new students related to dormitory activities. It used internet to connect the offices in the University that student visit during view their dorms.
- ❖ The main area of system will cover :-
  - ✓Student to view dorm placement
  - ✓Proctor can access student information
  - ✓To view dorm
  - ✓Assigning students
  - ✓User registration system
  - ✓Assigning Block and room
  - ✓Post latest information
  - ✓Assign new and Disability students

1.7.1 Out of scope

- ❖ It's difficult to know students information and in the time data collection
- ❖ Handling students attendance
- ❖ Proctors shift controlling
- ❖ Generate System Report

1.8 Methodology of the Project

1.8.1 Data Collection Methodology

There are different methods for gathering information; among the methods we choose the following two methods;

Interview Technique (supplementary method)

- ✓ During Interviewing the team got various necessary information's from the staffs, students and members of the university. We will have interviewee students mainly from the class, staffs from their office, and members from their work place.
- ✓ Document analysis: reading the document available in the organization.
- ✓ Direct Observation (primary method) 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 doing or how they are doing it.
- ✓ From focused group:-discuss each other about those problems after that taking different idea from different directions.

1.8.2 Analysis and design method

Object-oriented analysis and design (OOAD) is the principal industry-proven methodology for developing high-quality object-oriented systems. It defines the design requirements and overall architecture of a system, and is focused on describing what the system should do in terms of key objects in the problem domain. It translates system architecture into programming constructs (such as interfaces, classes, and method descriptions).It implements these programming constructs. It has the ability of object decomposition, breaking the complex software system down into its various objects, combining the data and the functions that operate on the data into a single unit or object and used for code reusing due to inheritance. To design the work flow of the system by using prototyping system analysis and design methodology and to show for users and take feedback from customer. It defines the design requirements and overall architecture of a system.

1.8.3 Database and programming tool

- ✓ Programming languages
  - ➢ Increased efficiency& usability - PHP provides incomparable efficiency and usability when it is used for the development of websites.
  - ➢ Compatible- PHP is compatible on all operating systems including Windows and UNIX- among other systems.
  - ➢ Data processing - A website that has been developed using the PHP functions has fast features of data processing.

- Easy to understand - When compared with other scripting languages, PHP can be understood easily because it has simple techniques and features.
- Integration - it is easy to integrate popular web applications using this scripting language.
- Cost advantages - PHP based websites are affordable to develop, design, modify and customize. There are many website development companies which provide professional services within the area of PHP, including CMS development, websites designing, developing web application and so forth.

✓ Database tool

❖ Back-End: MYSQL

Because: MYSQL is a relational database management system which is an open source database. Because of its unique storage engine architecture MYSQL performance is very high. Supports large number of embedded applications which makes MYSQL very flexible. Use of Triggers, Stored procedures and views which allows the developer to give a higher productivity.

✓ For writing documentation

- Microsoft word 2007

✓ For Presentation

- Microsoft PowerPoint 2007

✓ For drawing UML diagrams

- E-draw max

1.8.4 System Testing Methodology

In order to deliver this system as well operated system to test this project at implementation phase by using different types of testing methodologies. Those testing methods are:

I. Unit testing: - To test the independent module using this mechanism of testing.
II. Integration testing: - using this type of testing method to test the modules which are independent and dependent to each other.
III. System Testing: -using this methods will test the functionality of all modules considering as a single system

1.9 Requirement Analysis

In the progress to completion this project we are going to use the following software and hardware; those are:

1.9.1 Software Requirement

To do our project we will plan to use software such as:

- Power point and MS-word-: for Documentation and presentation
- XAMPP server for debugging server side scripting language
- E-draw Max for scheduling, use case, class diagram, sequence diagram, and any other designing related task.
- Window -8 operating system version 2012-: has good Graphical User Interface and also we are familiar with it. It also support apache server to run on it.

1.9.2 Hardware Requirement

The following hardware tools are the tools that we are going to use our project

- USB flash(8GB) :we use to back up our project if unexpected

Computer (Laptop): for editing and writing the document

1.10 Feasibility Study of the new System

Feasibility study is essential to evaluate the cost and benefits of the new system. On the basis of the feasibility study decision is taken on whether to proceed or to cancel the project**.**

Need of the feasibility study:

- It determines the potential of the existing system.
- It used to determine/finds out the problem of the existing system.
- To determine all goals of the new system.
- It finds all possible solutions of the problems of the existing system.

1.10.1 Operational Feasibility

The system to be developed will provide accurate, active, secured service and decreases labor of workers and also it is not limited to particular groups or body. And also it is plat form independent i.e. it run's in all operating system. That means compatible with window operating system and others to use different notification for the purpose user's simple access the system without any ambiguity.

1.10.2 Technical Feasibility

In this project the team uses languages such as HTML5, PHP, Ajax, JQuery, Java script and CSS3 to develop the new system. All these are the technology side. The technical persons who develop the new system are all the members of the project. The project team, to develop the new system, gathers the required information/data from the University as much as possible make the analysis and design phase and implementation and test phase within the schedule or as per schedule. The next phase is the person who gives training (technical person) for the user of the system. This person should have the knowledge of using the developed system and he/she also maintain some problem that may be in countered, giving access to the user and checking whether the system doing its work as it proposed.

1.10.3 Economic Feasibility

The system to be developed is economically feasible and the benefit is outweighing the cost. Since this project already computerizes the existing system, by now the reduction of cost for materials used in manual operation becomes beneficiary to the organization.

Generally the system that will be developed, BHUODMS brought a number of tangible and intangible benefits.

Tangible benefits:

1. Cost Reduction
2. Error Reduction
3. Increase Speed of activity

The team member calculated the corresponding the tangible benefits with sample monetary:

1. **Cost Reduction**: - To calculate these following things will be considered.

   Total Number of proctors in existing system= **35**

   Average Salary of each proctor per month = **1250.00Birr**

   Total money required for payment per year= **35*1250*12= 525,000Birr**

   Average Number of proctors needed when the new system is deployed= **30**

   Average salary of each of them per month = **1250.00Birr**

   Total money required for payment per year= **30*1250*12= 450,000.00Birr**

   Difference b/n before and after deployment money required for payment

   Cost Reduction and Avoidance= **525,000Birr -450,000.00Birr**

   = 75,000.00Birr

2. **Increase Speed of activity**: - Increased speed calculated as follows

   Especially in allocation:-

   Average Days required for allocation= **15 days**

Average proctor per dim per day=**41.61birr**

Average Days required for allocation in terms of money=35*41.61*15= **21,845.25Birr**

Average days required for the system= 3 day

Average Days required for allocation in terms of money=30*41.61*3= **3744.90Birr**

Difference = **21,845.25Birr-3744.90Birr=18,100.35 Birr**

Total cost consumes after developed =**93,100.35 Birr**

Intangible benefits:

1. Reduce Resource Consumption
2. Increase security
3. Increase Management flexibility
4. More timely information
5. Faster decision making
6. Boosting employee morale
7. Increase accuracy
8. increase information processing efficiency

Costs per Year=**93,100.35** Since the benefits are larger than the costs break down analysis , then the project is economically feasible.

1.10.4 Political feasibility

The system to be developed is not conflict with any government directives, because it gives services for the people effectively and efficiently, all the stakeholders also agreed before the system developed. So the government is profitable and the system will be politically feasible.

1.10.4 Legal Feasibility

This is the need to gain an understanding of any potential or legal permission due to the construction of system previously. The System is expected not to violate any regulations, rules of the government or/and the University. We are only selecting services of the University which are legally feasible. But, since the team is using Microsoft's products such as Microsoft word, without giving credit to Microsoft This is a common situation in Ethiopia, most people use and copy software illegally that is without buying and getting license. In this case the project team is committing software piracy. Thus the project is not legally feasible.

1.11Work Plan of the Project

Activities	Time																							
	Oct 3-2008		Oct 15-2008		Nov 12-2008		Nov 22-2008		Dua 2-2008			Feb2-2008					mar9-2008		app 12-2008		may 30-2008		jun15-2008	jun 20-2008
Project Proposal Submission																								
Requirement Analysis																								
Design																								
Implementation & Coding																								
Testing																								
project Presentation																								

Table 1Work Plan of the project

1.11 Cost break down analysis

No	Material	Amount	Price per unit	Total price
1	A4 size paper	1Destin	100 Birr	100Birr
2	Pen	4	5Birr	20 Birr
3	Flash disk	3	160 Birr	480 Birr
4.	For Print	100 sheet	1 Birr	100Birr
5	CD	4	10 Birr	40 Birr
6	Dell computer	1	8000	8000 Birr
7	Microsoft office 2007	1	400	400 Birr
8	Transportation	4	3	12 Birr
9	Microsoft office 2010	1	400	400 Birr
10	XAMPP	1	400	400Birr
11	Microsoft Visio 2003	1	400	400 Birr
12	Apache WAMP server	1	400	400 Birr

13	Toshiba laptop	1	10000	11000Birr
14	Notepad++	1	400	400 Birr
15	Code lobster PHP edition	1	400	400 Birr
16	Testing Server	1	1000	1000 Birr
17	Deployment computers	2	4000	8000 Birr
18	Digital Camera	1	2000	2000 Birr
19	Maintenance	1	1000	1000 Birr
20	Select or develop algorithms	4	1000	4000 Birr
21	Design graphical user interfaces	4	500	2000 Birr
22	Data gathering	4	200	800 Birr
23	Data Analysis	4	200	800 Birr
Total	**30,612Birr**			

Table 2Cost break down analysis

Chapter Two (2)

2.1 Introduction to Business area Analysis

Business Area Analysis is the evaluation of an organization's needs—followed by the identification and management of requirements—to arrive at a solution. In short, it is the discipline of working with stakeholders to define an organization's requirements in order to shape the output of projects and ensure they deliver the expected business benefit.
It is a research discipline of identifying business needs and determining solutions to business problems. Solutions often include a software-systems development component, but may also consist of process improvement, organizational change or strategic planning and policy development. To analyzing the purpose, goals, objectives and function of the existing system. It produces a broad outline of the proposed system that identifies the function to be performed and the technical aspects that the system must fulfill and briefly describe the existing system functionality, problem of the existing system. And the team put the functional and non- functional requirements of the proposed system. During this phase, the analysis must become full aware of the root problems and must develop enough knowledge about the existing system to enable an effective solution to be proposed.

2.2 Existing system description

The current system of BHU dormitory management system is manual (partial). In order to arrange and allocate students to dorms, they have to follow the record as it is arranged by BHU Registrar office and allocate Students depending on department and the lists of the students' arrangement. After getting the list from the registrar office, the proctor allocates the students to each block and dorm. Since there are so many students, the allocation method causes problems like assigning female students to males' dorm and vice versa and also assigning students more than the capacity of the dorm. In addition to these problems, during assignation there is no consideration of disable students.

2.2.1 Users of the existing system

An existing system compromises different users to carry out its job. Among those different actors (users), the most common are **Proctor manager**, this body provides the list of all students who fulfilled every requirement for allocation to proctors, **Students**, they will be placed in their dorm by proctors and assigned for the property they get from the proctor, **Proctors**, They involved strongly in the existing system. Proctors collect students list from registrar. After they get all these information's from this body they will place those students according to their sex, class year, department and faculty.

2.2.2 Activities of the existing system

Even if the existing system is performs its activities manually (partial), it has different major functions.

- **Arranging buildings for the allocation:** here the total number of building is determined with its holding capacity
- **Arranging students for allocation:** here total number of students and their academic information such as department, sex, faculty, and class year is received from registrar. Students are then arranged based on their sex, class year, and their department and faculty for dormitory allocation.
- **Dormitory allocation:** based on the arrangement of students dorms are allocated for students along with associated dormitory resources, like lockers, tables, chairs, beds and the like.
- **Generating allocation report:** based the dormitory allocation the allocation report is prepared and posted for student when they arrive at the campus after annual break.
- **Managing and controlling dormitory materials:** at the beginning and end of each year, dormitory materials are recorded and controlled whether they are functioning properly or not, then appropriate measure is taken.
- **Controlling student's discipline:** In addition to the above functionalities student's discipline measures are controlled and recorded, whether they use the dormitory materials properly or not, and whether they act and perform things as per the dormitory rules and regulations.

2.2.3 Problem of the current system

There are so many problems in a existing system these are, Proctors perform their activities by using fully manual system, The proctor manager has no modern database management system record student personal information, block information and proctor information. This process of working procedure creates problems. The team puts this using **PIECES** frame work.

Where, P stands for performance

I stand for information

E stands for economical

C stands for control and

E stands for efficiency

S stands for service

- **Performance**

  Performance of a system is measured by its throughput and response time.

  - ✓ Response time:-the performance of the current system is weak because of its response time is very high. For instance when proctor want to update or change the allocation information of a student who assigned wrongly in the existing system, it takes too much time to search the document and change it.
  - ✓ Throughput:- due to every task is performed by manual way the throughput of the existing system is very high. For instance when the proctor manager arranges blocks for allocation it takes too much time to arrange the buildings.

- **Information**

Information can be seen as input, output and stored information.

- ✓ Input:-data is not handled in a way that is not efficient for retrieval or processing purpose.
- ✓ Output:- to provide information, it may take inevitably long time by searching the necessary facts to which it is intended for. And it takes much time to get recorded information in manual system.
- ✓ Stored data:-data is stored repeatedly in different files or the same information is stored in many copies repeatedly in different forms.

  File mixed each other (misplaced) and Lose of students files during file transfer.

- **Economical**

  Manual handling of data is expensive as compared to automated system. In general, cost in terms of time is very high. when the number of student increases, the existing system will increases cost to handle those requirements, for instance, paper, printer and some other materials. As the number of employees to handle the task of manual processing increases, the organization spends a lot of money for its staff.

- **Controlling**

  In the existing system all information or records are processed and handled manually using file cabinet, the security that the system provide for the privacy of this records is

not protected or data is not secured. Due to this, some secret information is opened for unauthorized users or agents.

- **Efficiency**
  - ✓ Time wastage:- employees waste time due to manual:- data processing, data entry, report generation and Preparation of different forms.
  - ✓ Material wastage:- The organization wastes many materials especially concerning stationery materials, and file cabinets
- **Services**

The services given to users is not flexible i.e. the users (proctor manager, proctor and student) must be in the university to access the system. For instance students must be in the university to see their dormitory information stumped on the wall of buildings.

2.2.4 Forms and Reports current in the existing system

In an existing system there are different reports generated for different purposes. Those reports include Student Dormitory allocation report, Student status report; Resource received report, and clearance report in addition to conditional report such as discipline case report, damaged resource report, and etc.

The dormitory allocation report contains the report related to student's block number and dorm number. Resource received report includes reports of materials that a student has taken from a Proctor when he/she first assigned in to that dorm. The student status report is any report that contains any up-to-date information about a student. Discipline measurement report embraces reports such as does a student contains any discipline record in this campus and what type of discipline measure were taken will be generated in the report. Clearance report is a report which is generated when any student wants to leave a campus because of different reasons. When he/she leave a campus the above reports will be checked by the proctor collectively

Those all reports were checked to clarify a student whether he/she returned all resources that he/she used, is he/she free of discipline measures? After checking those reports a proctor will clear the student that ensures that the student is free of any resources while he/she was in dorm.

No	ID no.	Name of Student	Sex	Department	Block No.	Dorm No.	Remark
1	FE/R/0599/12	ABATE NEGATU MOTI	M	COTM	203	1	
2	FE/R/0542/12	ABATE NIGUSE GEBREYEHONS	M	COTM	203	1	
3	FE/R/0607/12	ADUGNA LEMMI MIDEKSA	M	COTM	203	1	
4	FE/R/0600/12	ABDI ABAS JIBRIL	M	CIVIL	203	1	
5	FE/R/0602/12	ABDIREZAK MUKTAR BUDUL	M	CIVIL	203	1	
6	FE/R/0662/12	ABDULEREZAKE EMAMU YESUF	M	CIVIL	203	1	

No	ID no.	Name of Student	Sex	Department	Block No.	Dorm No.	Remark
1	FE/R/0720/12	ADUNA ASRASE GEMEDA	M	COTM	203	2	
2	FE/R/0666/12	AKALU GEZAHAGN FOGE	M	COTM	203	2	
3	FE/R/0726/12	BADOK OKACH OGUD	M	COTM	203	2	
4	FE/R/1653/12	ABERA LAMECHA DUGUMA	M	CIVIL	203	2	
5	FE/R/0609/12	ALEMAYEHU BELETE FEYISA	M	CIVIL	203	2	
6	FE/R/0671/12	ASHENAFI DEMISE UMBUSHE	M	CIVIL	203	2	

Figure 1Forms and Reports current in the existing system

2.2.5 Structures of existing system (System architecture)

The current (existing) system of BHU dormitory management system takes all student information from minister of education, after that to distribute for individual proctors. Then proctors placed students excel form that means manual system. This graph indicates the current (existing) organizational structure of the organization.

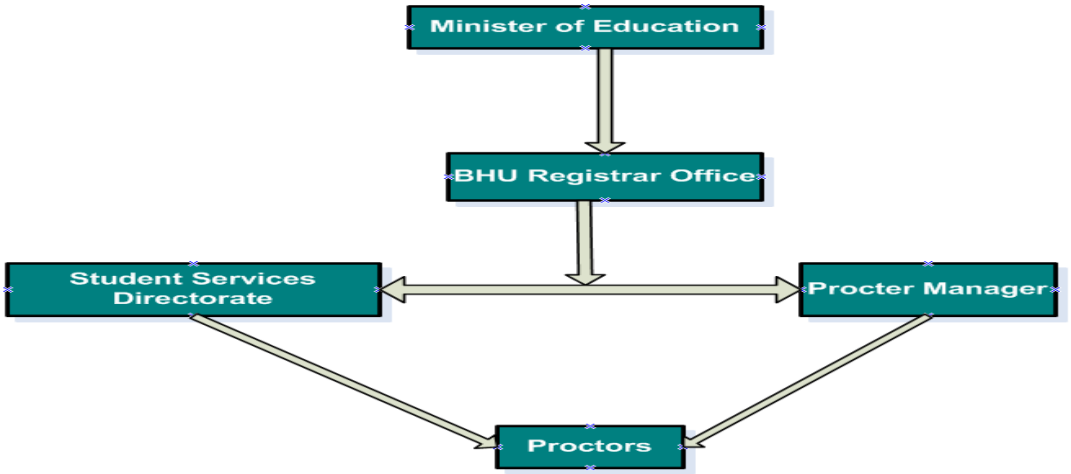


Fig 2.2.5.1 system architectures of existing system

2.3 The proposed system

The proposed system is computerized web based system that will change the existing system that is currently used by Bule university dormitory service. And can will be accessible using internet and intranet. The general overview of the proposed system is designed to address the problems of the existing system of dormitory services. The proposed system solves those entire problems in the existing system. Because the system is very integrated. It control all the data input and error which happen during data registration. It will provide online dorm announcement for the student. The proposed system will be able to access and retrieve different data effectively and efficiently.

2.3.1 Description and purpose of the proposed system

The goal of the proposed system is replace the manual system currently used by Bule Hora university dormitory service to computerized web based system. This will bring operational efficiency by minimizing time wastage and cost funded by the university to dormitory service and minimizes the burden of proctors by replacing paper based system to computerized, replace stumping and pasting allocation paper by announcing throughout internet.

2.3.2 System Architectures the proposed system

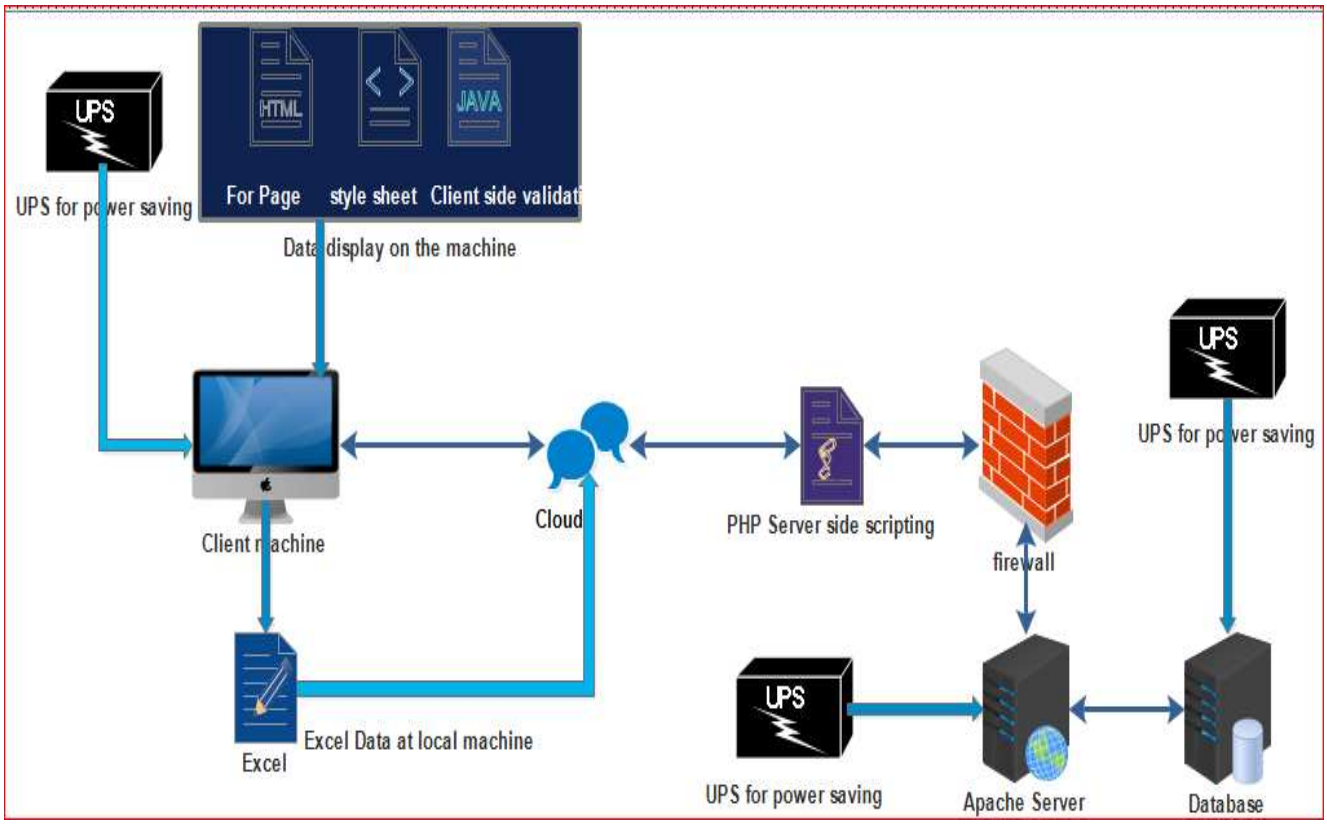


Figure 2System architectures of proposed system

2.3.3. Data processing architectures of the proposed system

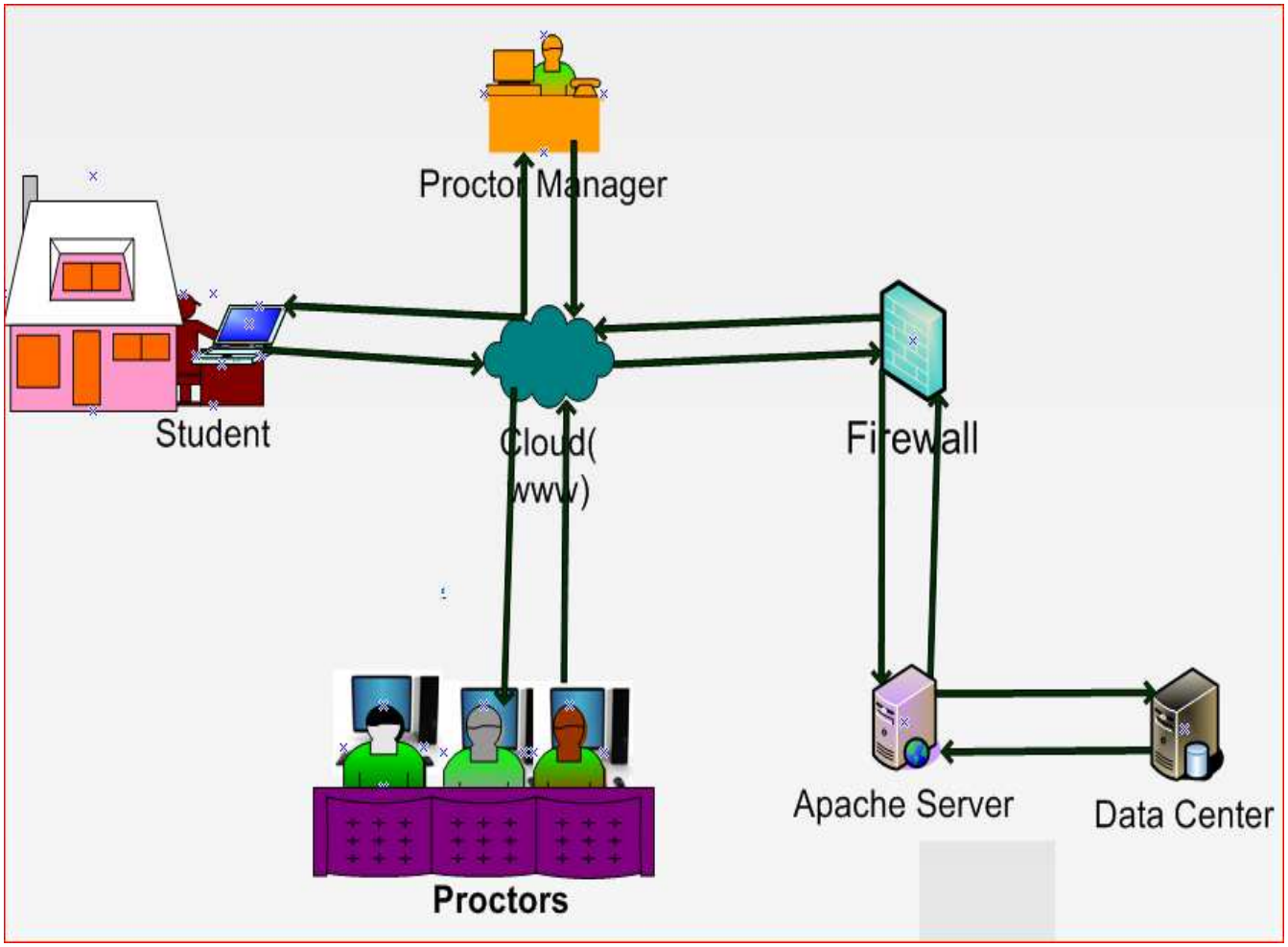


Figure 3 Data processing architecture of the proposed system

2.4 Requirement determination

Gathering Requirements is the phase in the project where we begin by identifying what the user or the customer (the person who is going to use the project/product) wants. Without a clear cut idea of what the user wants, it cannot possibly give it to him. A requirement is a condition, characteristics, or a capability that a specific outcome of the project must have. Requirements may come from different sources, such as from standards, specifications, and contracts. Stakeholder expectations and needs often materialize into requirements as well. The requirements should be documented, actionable, measurable, testable, traceable, related to identified business needs or opportunities, and defined to a level of detail sufficient for system design.

2.4.1 Functional requirement

Functional requirements explain what has to be done by identifying the necessary task, action or activity that must be accomplished. Functional requirements analysis will be used as the top level functions for functional analysis. A function is described as a set of inputs, the behavior, and outputs. Functional requirements may be calculations, technical details, data manipulation and processing and other specific functionality that define what a system is supposed to accomplish. Behavioral requirements describing all the cases where the system uses the functional requirements are captured in use cases. Functional requirements drive the application architecture of a system.

- **Data entry:**

This is the functionality that data is entered to the database. The system serves different interface that can manage data entry mechanisms in the system.

The main data entries are the following:

- Submission
- Login
- Search information
- User registration (all actors)
- Manage the student data.
- Assign the students in their dorm.
- Display student information.
- Manage the block and dorm information.
- Retrieve the students, blocks and dorm information.
- check the status of block and dorm
- accept comment
- The system should store all the data related with all the tasks performed into a database.

- **Data processing:**

The system on input data will provide the following data processing:

1. Member's validation
2. Verify the requested information (delete, update, search, add based on granted users, forgot password)
3. Search user request (view dorm placement, view report, view assigned students)
4. Validate submission details (files like comment, private property, student ask basic service)

2.4.2 Nonfunctional requirement

i. User Interface

This works as an interface between the user and the system by properly guiding the user how to use it and perform operations. Proctors can change the data in the BHUODMS based on their privilege, whereas, students can only view their dorm information and they can give comment. Any sort of training is not required for using the system. It is important that the system is easy to learn. The input device is given to keyboard and the output is viewed on the monitor.

ii. **Quality Issue**

Information in database should be as much as possible correct and updated in each semester.

iii. Security Issue

This system provides an access to an authorized user by giving account for each and every special function. Students can view their dorm information by using their identification card number and/or registration number, and give comment without any validation.

iv. Error Handling

Our system handles the errors in a very efficient manner. It can tolerate to wrong inputs and prompts the users to correct the inputs. It gives notifications as and when required, guiding the users to properly utilize it.

v. Performance characteristic

Performance requirements are concerned with quantifiable attributes of the system such as System should quickly respond for user request that is system must immediately display the Needed service along with their allocation details after he/she insert needed information to view.

Vi. Backup

A backup or the process of backing up refer to making copies of data so that these additional copies may be used to restore the original after a data loss event. These additional copies are typically called "backups."

Backups are useful primarily for two purposes.

1. The first is to restore a state following a disaster (called disaster recovery).

2. The second is to restore small numbers of files after they have been accidentally deleted or corrupted.

There are several realistic methods for backing up data. Some of them are Flash Memory, DVD Backup, Tape Backup, and Hard Drives.

The best backup method for data depends upon many factors, including: the importance of the data, the amount of data to be backed up, and the funds available for backup.

For the system we are going to develop, we choose Hard Drives because copying and retrieving data from separate hard drives is very easy and cheap compared to tape drive systems. All we have to do is plug the hard drive into our computer's USB port. And while hard drives do fail, their failure rate is much lower than that of backup media such as CDs.

2.5 Business rule Identification

A business rule (BR) is effectively an operating principle or polices that must be fulfilled and obligated in order the system will function properly and effectively. It often pertain to access control issues, business calculations, or operating polices and principles of the organization.

#BR1: Only one dorm is assigned for minimum six maximum eight students, and those students should live in the dorm which belongs to him/her.

#BR2: Students should not change their dorm without the permission of the proctor with sufficient reason.

#BR3: Students are allocated in such a way that male students are not allocated with female students.

#BR4: Proctors should not assign one student in more than one dorm.

#BR5: Proctors should not use student's personal information for other purposes.

#BR6: Buildings should be arranged before the allocation.

#BR7: The system has to generate the report automatically.

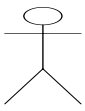
2.5 Use case

2.5.1 Actor identification and description

In this case an actor interacts with the system to perform a piece of meaningful work that helps them to achieve a goal and has access to define their overall role in the system and the scope of their action. Actor is a person, or external system that plays a role in one or more interaction with the system.

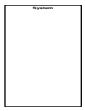
Use case components:

- **Actor:** is a person, or external system that plays a role in one or more interaction with the system. And represented with:



- **Use case**: describes a sequence of actions that provides something of measurable value to an actor and is drawn as a horizontal ellipse.

- **System boundary**: indicates the scope of the system project. Anything within the box represent functionalities in side in scope.



- **Student**: The students view his/ her dormitory information online and submit comment.
- **Proctor**: The proctor can assign student and view report.
- **Proctor manager**: search, generate report and change password.
- **Administrator**: The administrator manages the overall system.

2.5.2 Use case identification

A use case diagram is one of the Unified modeling language that indicates an interaction between users and a system. It captures the goal of the users and the responsibility the system to its users. It is the functionality of the system or the service provided by the new system. The main purpose of a use case diagram is to show what system functions are performed for which actor. These diagrams contain the following elements:

Use Case represents interaction between a user (human or machine) and the system.

Each Use Case describes the functionality to be built in the proposed system, which can include another Use Case's functionality or extend another Use Case with its own behavior. The most important and basic use cases of this system are the following:-

- ✓ **List of use cases**:-

1. UC-01- Login
2. UC-02-Register student
3. UC-03 -Add block
4. UC-04 -Add dorm
5. UC-05 -Update record
6. UC-06 -Search record
7. UC-07 -Add news
8. UC-08 - Register proctor
9. UC-09 -View allocation result
10. UC-10- Send report
11. UC-11-View dorm online
12. UC-12 -Delete record

13. UC-13- Send comment
14. UC-14 Create Account
15. UC -15- View student information
16. UC-16- View comment
17. Logout
18. View report
19. Security

2.5.3 Use case Diagram

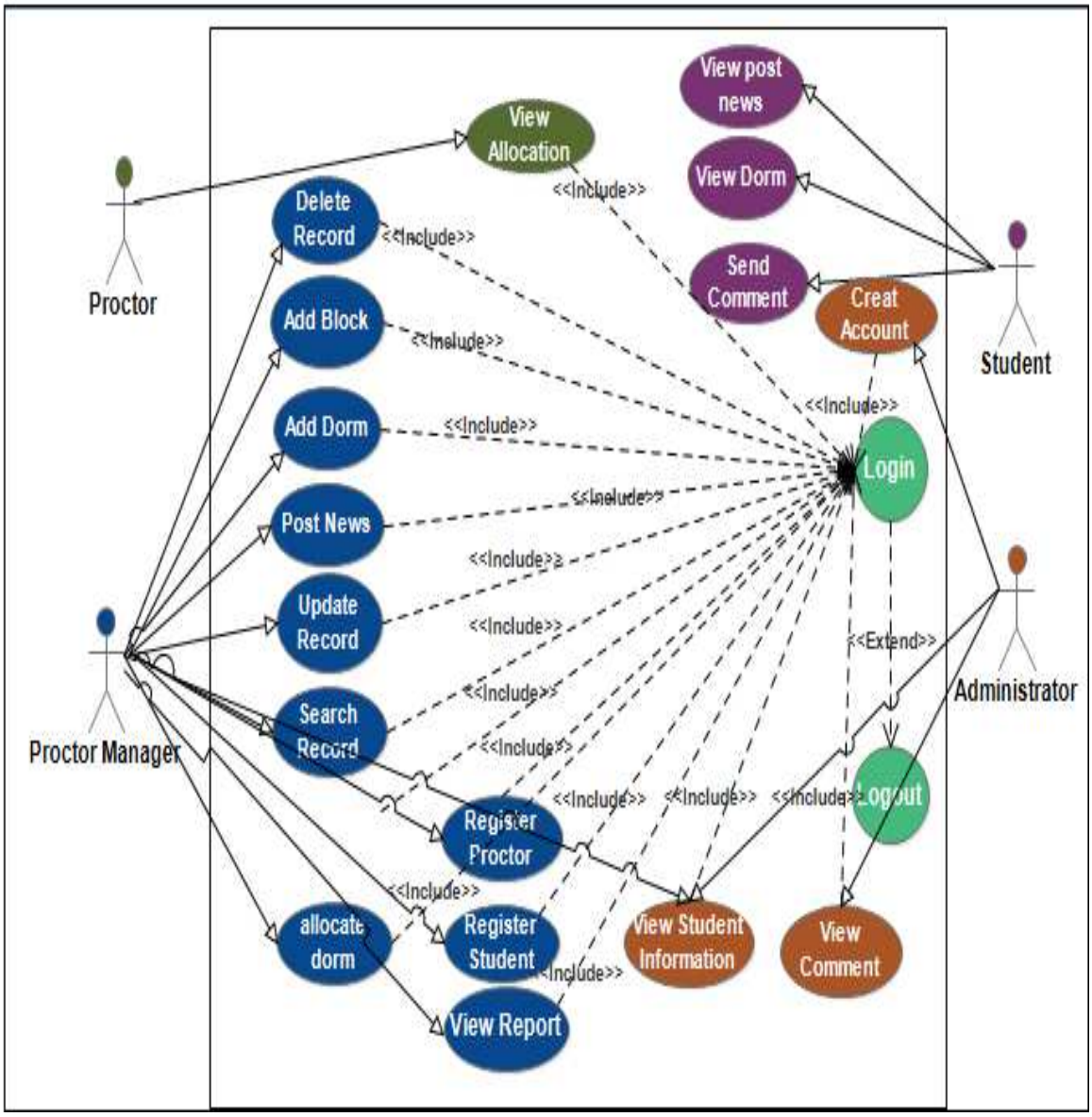


Figure 4Use case

2.5.4 Use case description

- ✓ Use case documentation for "**login**"

Use case ID	UC-01
Use case name	Login
Use case description	Validates the user to enter to the system
Actors involved	Adminstrator,proctor manager, Proctor
Pre conditions	The user must have valid user name and password.
Include	Login
Triggers	The Administrator, proctor manager or proctor wants to enter to the system.
Flow of events	1. The user browses the home page. 2. The system displays the login form. 3. The user fills and submits the username and password. 4. Authentication controller validates 5. Authentication controller send detail to system 6. The system validates the login information. 7. The system displays user's home page. 8. Use case end.
Alternate flow	A4. If the authentication controller validate error it display error message A5.the use case continue at step 3 A6. The system error message A.7. the use case continue at step 3 A8. Use case end
Post condition	The user logs in to the home page

Table 3 **use case description for login.**

✓ Use case documentation for "**Register student**"

Use case ID	UC-02
Use case name	Register student
Use case description	Enable to register student information.
Actors involved	Proctor manager
Pre conditions	The user must have a valid user name and password.
Include	Login
Triggers	The Proctor manager wants to register a student.
Flow of events	1. The user browses the home page. 2. The system displays the homepage. 3. The user login and selects register student form. 4. The user fills the information. 5. Registration controller validates 6. Sends detail to the system 7. The system saves in to database. 8. The system displays successfully registered message. 9. Use case ends.
Alternate flow	A5. If registration controller validates error. It display the error message A6. The use case continue at step 4 10. Use case end
Post condition	The student information is registered.

Table 4 **use case description for register student**

✓ Use case documentation for "**Add block**"

Use case ID	UC-03
Use case name	Add block

Use case description	the Proctor manager r registers all available blocks
Actors involved	Proctor manager
Pre conditions	The Proctor manager wants to add a new block
Include	Login
Triggers	The Administrator accepts student list from student dean
Flow of events	1. The user browses the home page. 2. The system displays the homepage. 3. The user login and selects add block form. 4. The user fills the information. 5. Authentication controller validates 6. Sends detail to the system 7. The system saves in to database. 8. The system displays successfully added message. 9. Use case ends.
Alternate flow	A5. If registration controller validates error. It display the error message A6. The use case continue at step 4 10. Use case end
Post condition	The block information is added.

Table 5use case description for add block

- ✓ Use case documentation for "**Search record**"

Use case ID	UC-06
Use case name	Search record
Use case description	Search for the wanted information.
Actors involved	Proctor manager

Pre conditions	Proctor manager identifies and decides which information will be searched.
Include	Login
Triggers	Proctor manager wants to see or update the information recorded in the database.
Flow of events	1. The user browses the home page. 2. The system displays the homepage. 3. The user login and selects search form. 4. The users enter the primary key. 5. Authentication controller validates 6. Sends detail to the system 6. The system validates the student information. 7. The system displays the information. 8. Use case ends.
Alternate flow	When user inserts invalid student ID. A5. If the authentication controller validate error it display error message A6.the use case continue at step 4 9. Use case end
Post condition	The needed information is displayed on the screen.

Table 6 use case description for search record

- ✓ Use case documentation for "**send report**"

Use case ID	UC-09
Use case name	Generate report
Use case description	The proctors send annually, monthly and weakly reports to the proctor manager.
Actors involved	Proctor
Pre conditions	If the manager wants any report or request for report.
Include	Login

Triggers	The proctor wants to generate reports to proctor manager.
Flow of events	1. The user browse home page. 2. The user login and selects generate report from main menus. 3. The user select on the report type. 4. The system display report form 5. The users fill form the information. 6. Authentication controller validates. 7. Sends detail to the system. 8. The system saves in to database. 9. The system displays successfully added message. 10. Use case ends.
Alternate flow	A6. If registration controller validates error. It display the error message A7. The use case continue at step 5 11. Use case end
Post condition	The report is sent.

Table 7 use case descriptions for sent report

- ✓ **Register proctor**

Use case ID	UC-10
Use case name	Register proctor
Use case description	Enable to register proctor information.
Actors involved	Proctor manager
Pre conditions	The Proctor manager has a valid user name and password.

Include	Login
Triggers	The Proctor manager wants to register a student.
Flow of events	1. The user browses the home page. 2. The system displays the homepage. 3. The user login and selects register form. 4. The user fills the information. 5. Authentication controller validates. 6. Sends detail to the system 7. The system saves in to database. 8. The system displays successfully register message. 9. Use case ends.
Alternate flow	A5. If registration controller validates error. It display the error message A6. The use case continue at step 4 10. Use case end
Post condition	The Proctor manager register proctor information is registered.

Table 8 use case descriptions for register proctor

- ✓ Use case documentation for "**View dorm online**"

Use case ID	UC-11
Use case name	View dorm online
Use case description	The student can get available information from the view dorm online link and he/she know the dorm where he/she assigned.
Actors involved	Student
Pre conditions	The student has valid name and exam ID (given by MOE) or Idno. Of the university.
Triggers	The student wants to see the dorm where he/she assigned.

Flow of events	1. The user browse home page. 2. The user selects the view dorm form from homepage. 3. The system display view form 4. the User enter ID(seniors student) and Full name or (for fresh student) 5. Authentication controller validates 6. Authentication controller send detail to system 7. The system validates the student information. 8. The system displays the details of allocation information. 9. Use case end.
Alternate flow	A5. If the authentication controller validate error it display error message A6.the use case continue at step 4 A7. The system error message A8. the use case continue at step 4 A.9. Use case end
Post condition	The student viewed the dorm where he/she assigned.

Table 9 use case descriptions for view dorm online

2.6 Essential User Interface Prototype

Essential User interface (UI) prototyping is an iterative analysis technique in which users are actively involved in the mocking-up of the UI for a system. User interface modeling moves from requirements definition into analysis at the point you decide to evolve all or part of your essential user interface prototype into a traditional UI prototype. UI prototypes have several purposes:

- As an analysis artifact that enables you to explore the problem space with your stakeholders.
- As a requirements artifact to initially envision the system.
- As a design artifact that enables you to explore the solution space of your system.
- A vehicle for you to communicate the possible UI design(s) of your system.

- A potential foundation from which to continue developing the system (if you intend to throw the prototype away and start over from scratch then you don't need to invest the time writing quality code for your prototype).

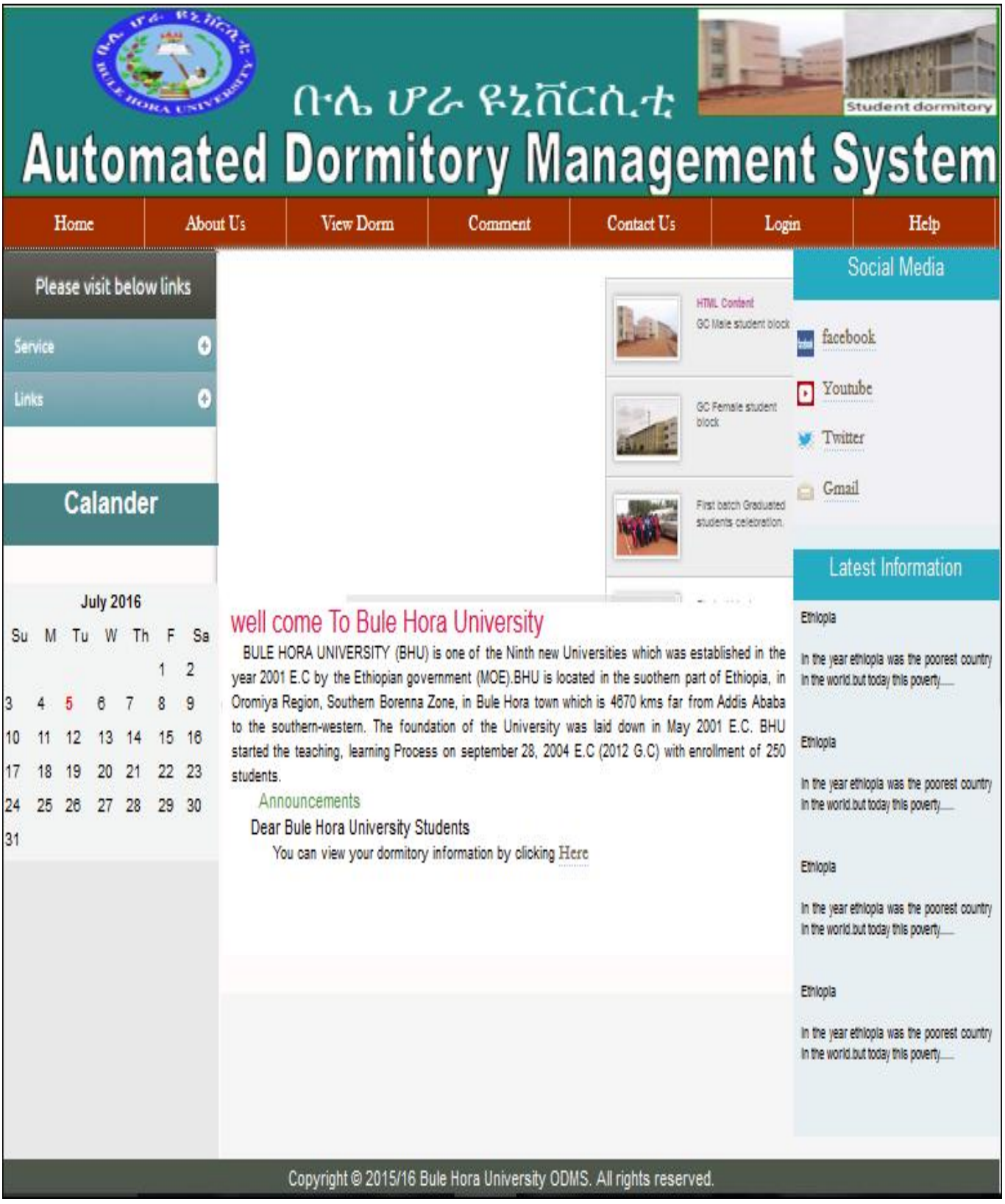


Figure 5 **User home Page**

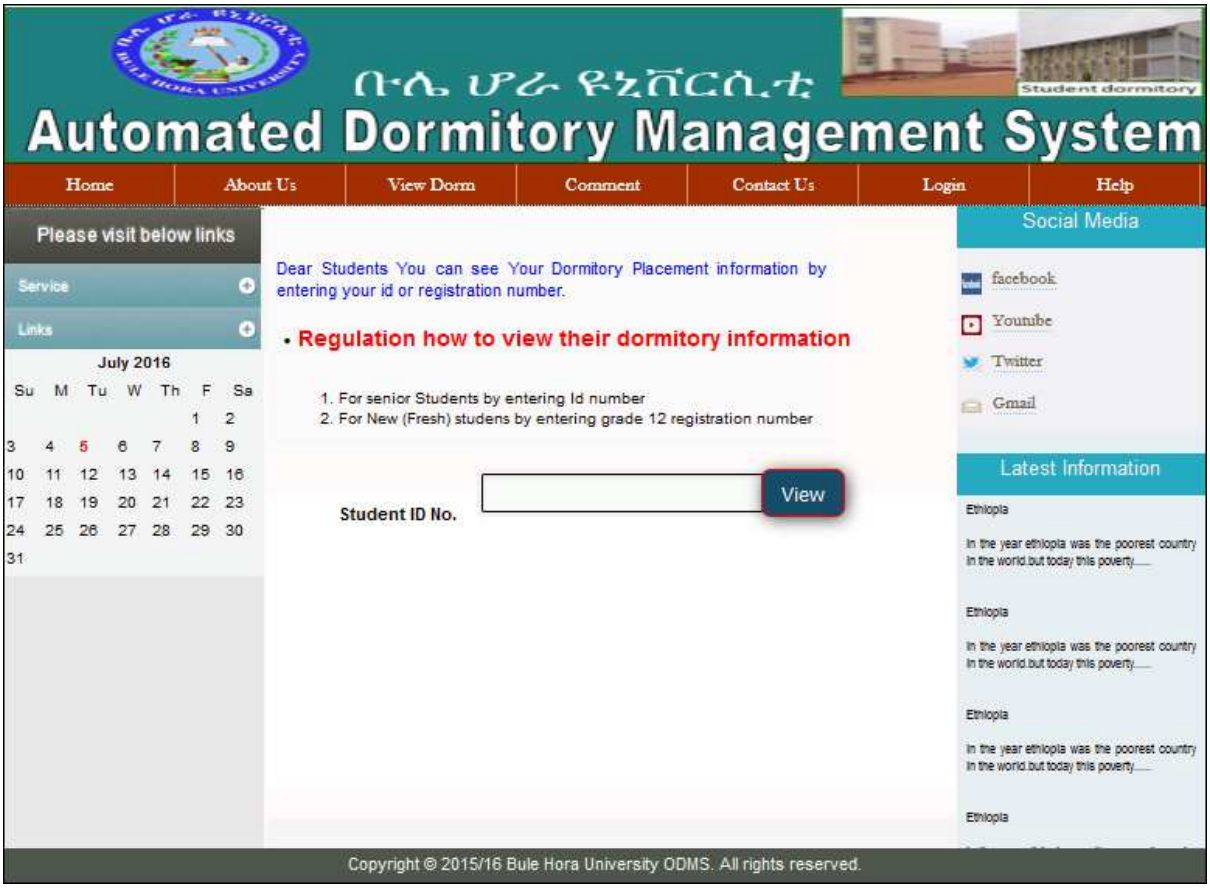


Figure 6User View Page

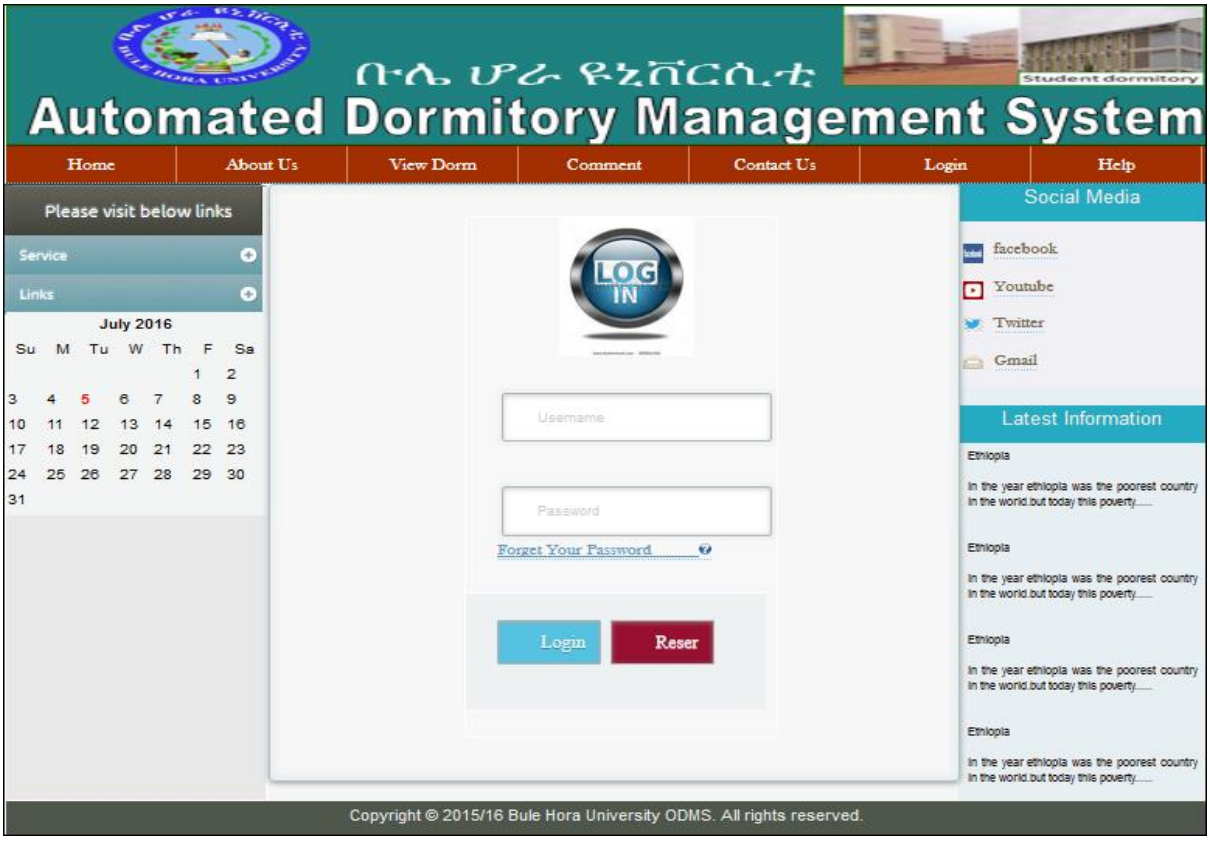


Figure 7User Login Page

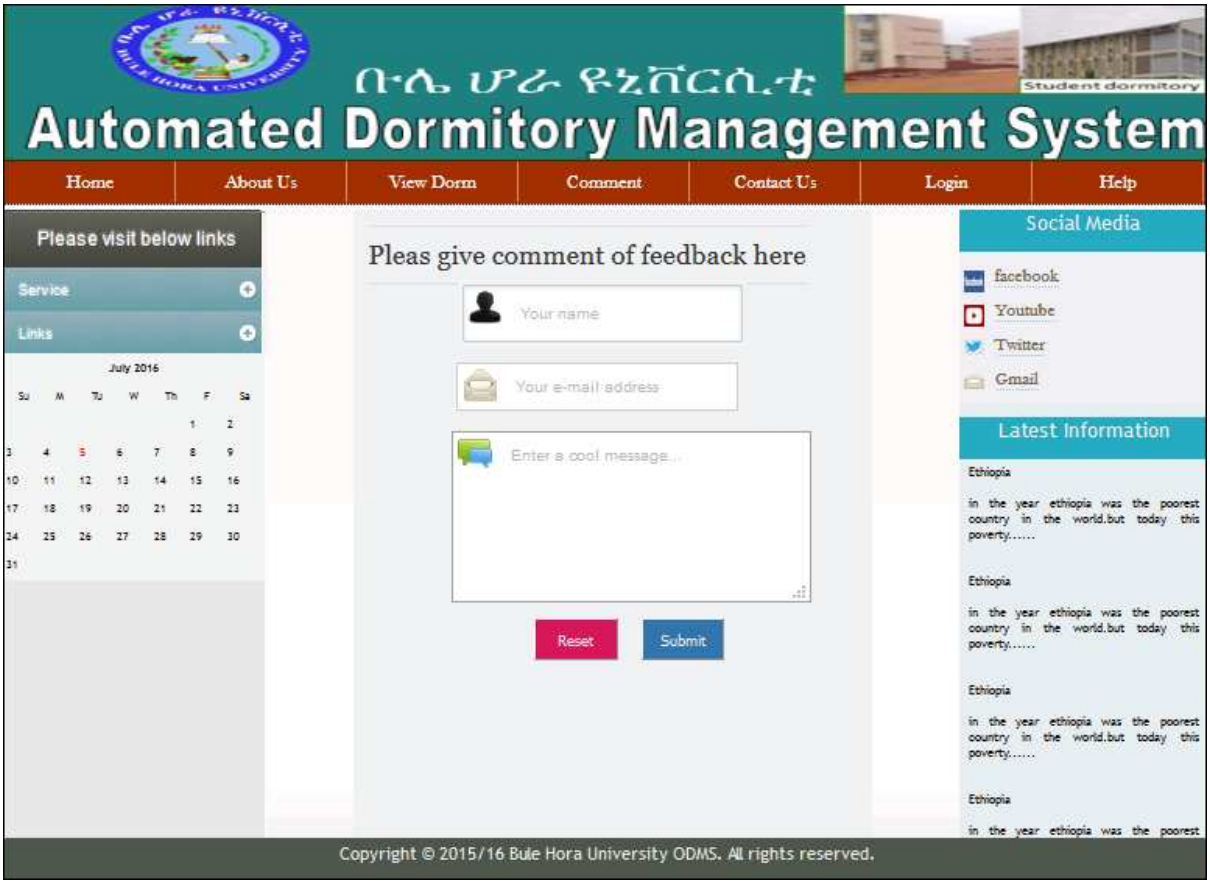


Figure 8 **User Comment Page**

2.7 Analysis Model

The requirements model is the first technical representation of a system. Requirements modeling process uses a combination of text and diagrams to represent software requirements (data, function, and behavior) in an understandable way. Software engineers build requirements models using requirements elicited from customers. Building analysis models helps to make it easier to uncover requirement inconsistencies and omissions. The System Analysis Model is made up of class diagrams, sequence or collaboration diagrams and Activity diagrams. Between them they constitute a logical, implementation-free view of the computer system that includes a detailed definition of every aspect of functionality. This model:

Defines what the system does not how it does it.

Defines logical requirements in more detail than the use case model, rather than a physical solution to the requirements.

Leaves out all technology detail, including system topology

2.7.1 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. A sequence diagram shows object interactions arranged in time sequence. It shows the objects and classes involved in the scenario and the sequence of messages exchanged between the objects needed to carry out the functionality of the scenario.

- Dormitory management system has the following sequence diagrams:-

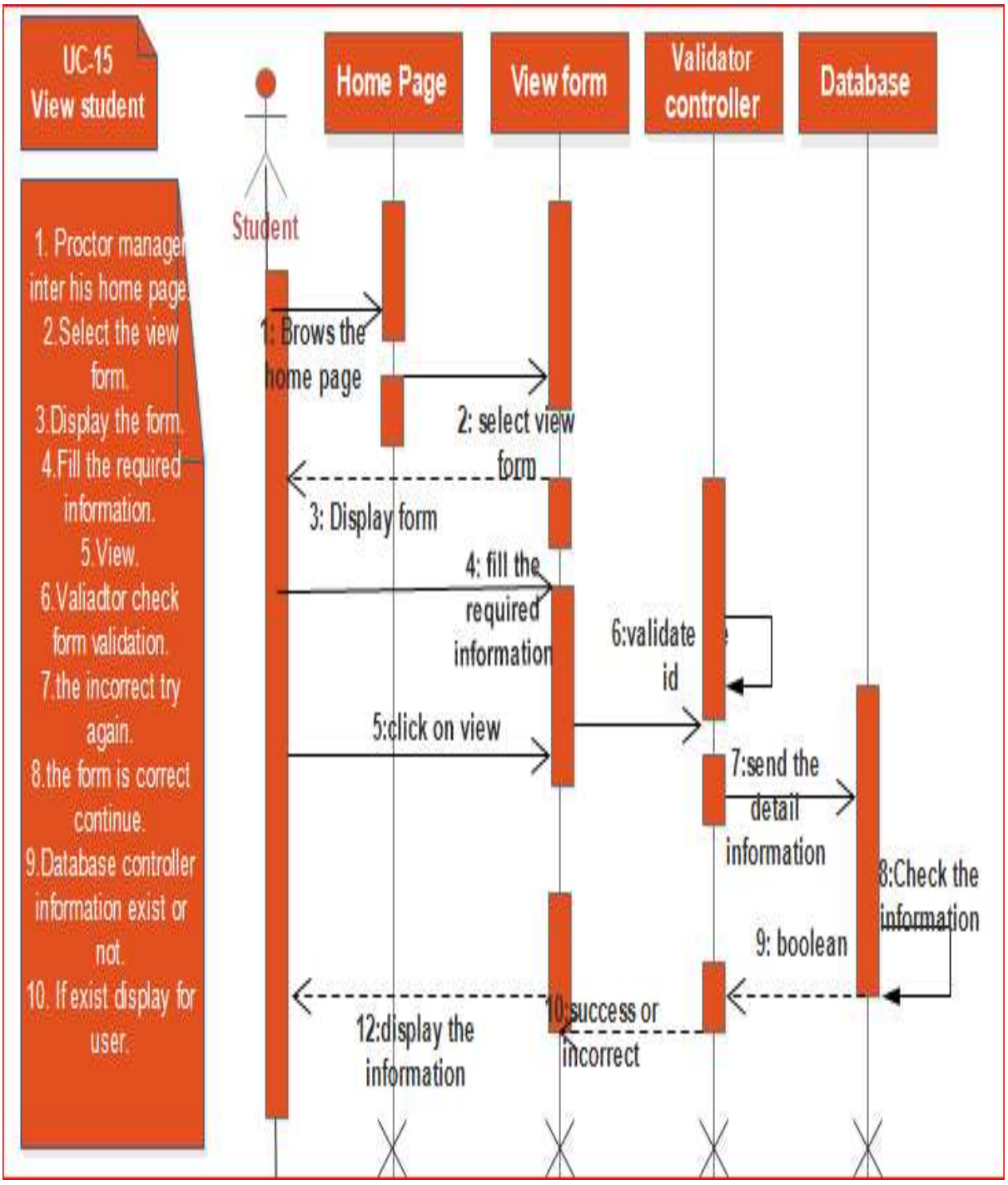


Figure 9*Sequence diagram for View dorm*

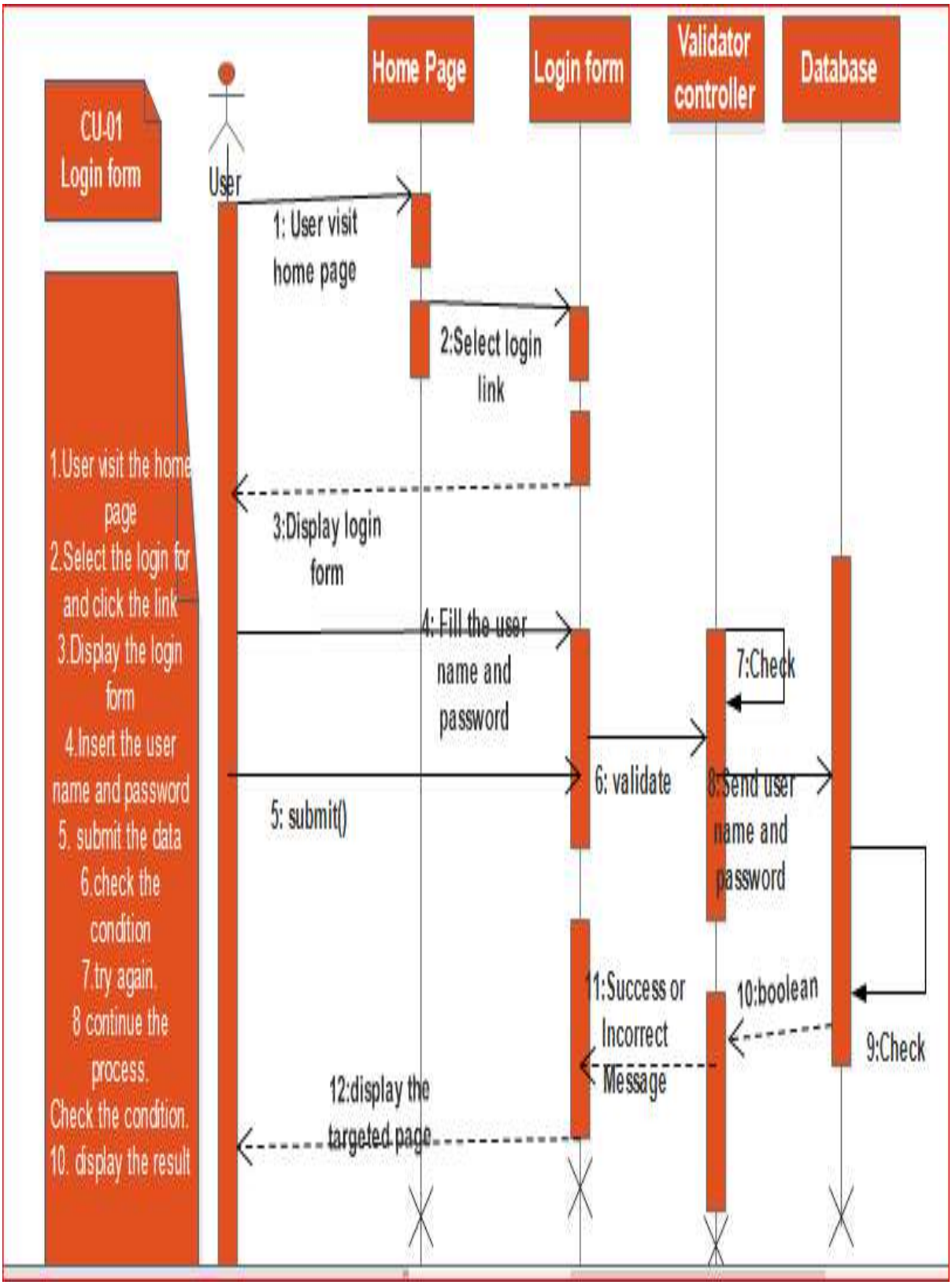


Figure 10*Sequence diagram for Login*

Figure 11*Sequence diagram for Send report*

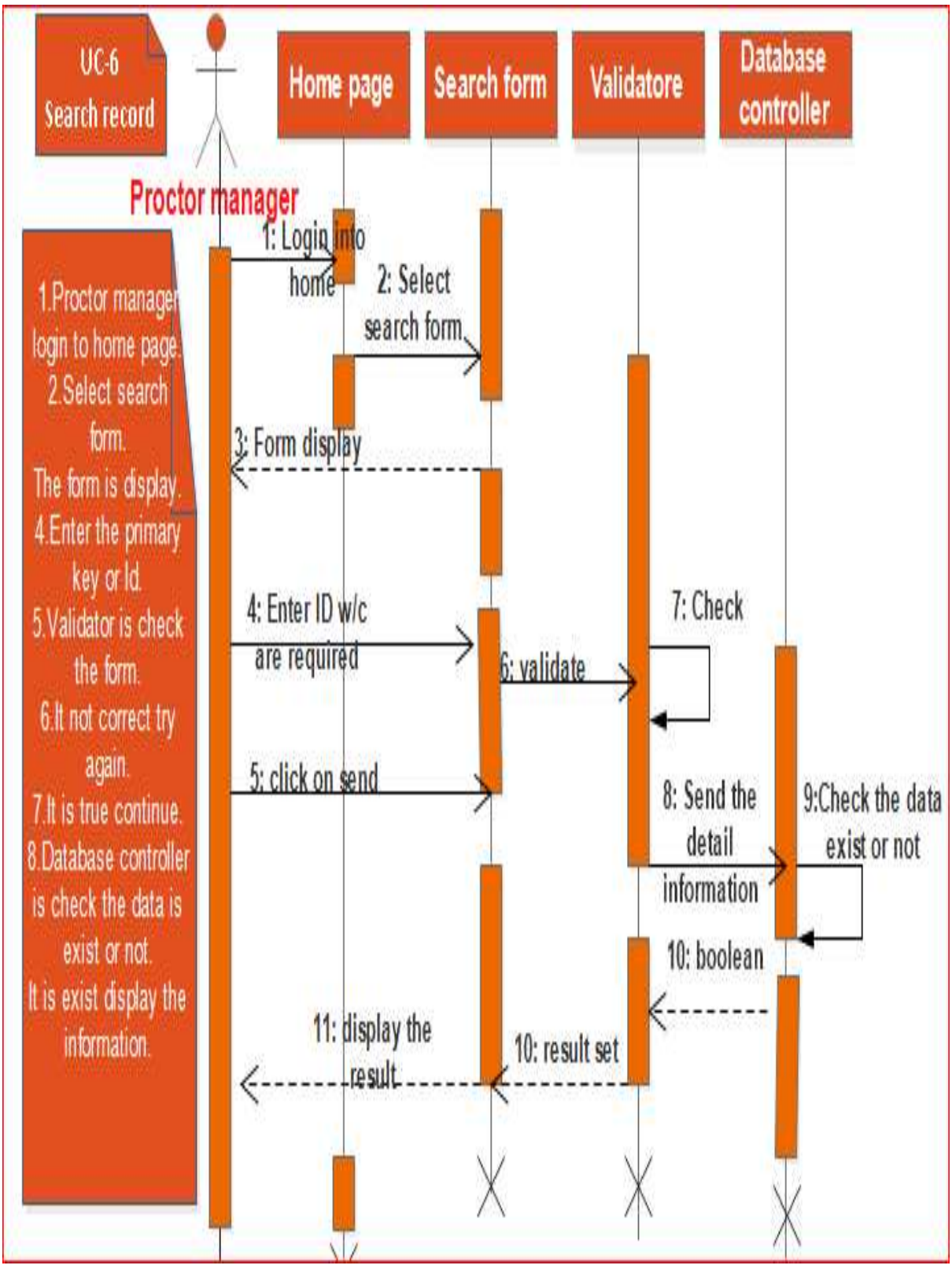


Figure 12*Sequence diagram for Search Record*

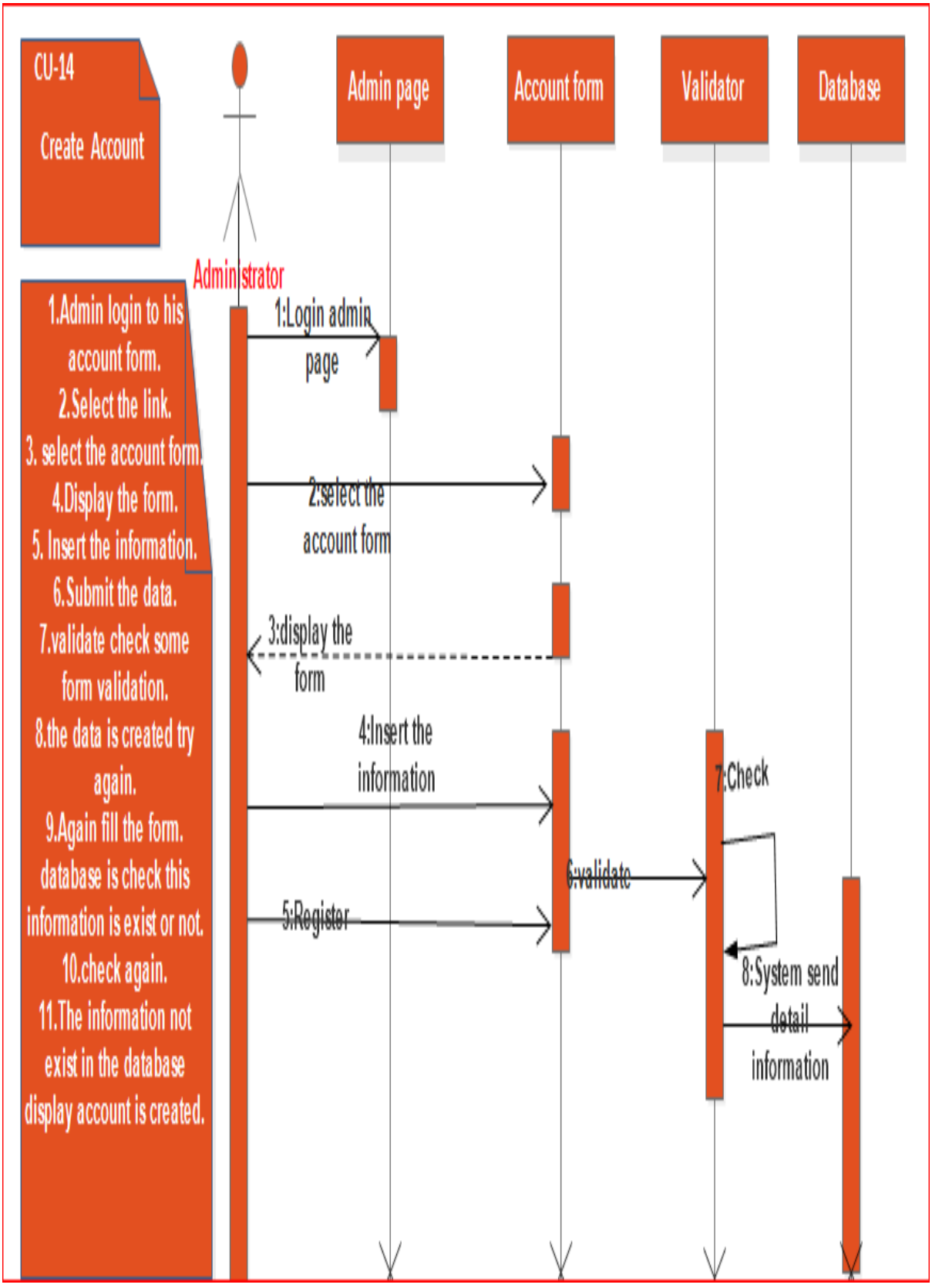


Figure 13*Sequence diagram for Account form*

2.7.2 Activity diagram

Activity diagram is another important diagram in UML to describe dynamic aspects of the system. Activity diagram is basically a flow chart to represent the flow form one activity to another activity. The activity can be described as an operation of the system. So the control flow is drawn from one operation to another. This flow can be sequential, branched or concurrent. Activity diagrams deals with all type of flow control by using different elements like fork, join etc.

The purposes of activity diagram can be described as:

- Draw the activity flow of a system.
- Describe the sequence from one activity to another.
- Describe the parallel, branched and concurrent flow of the system.

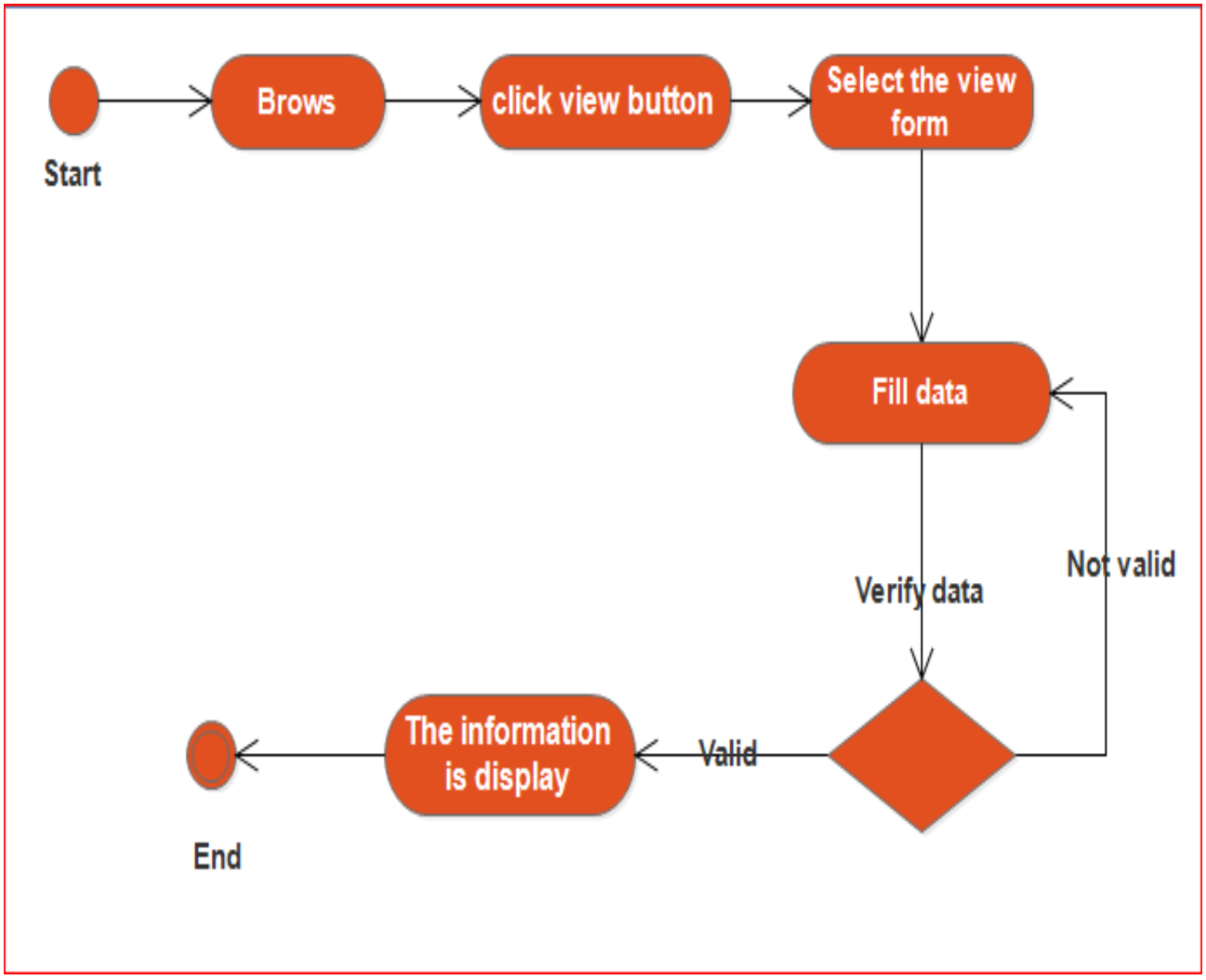


Figure 14*Activity diagram for dorm View form*

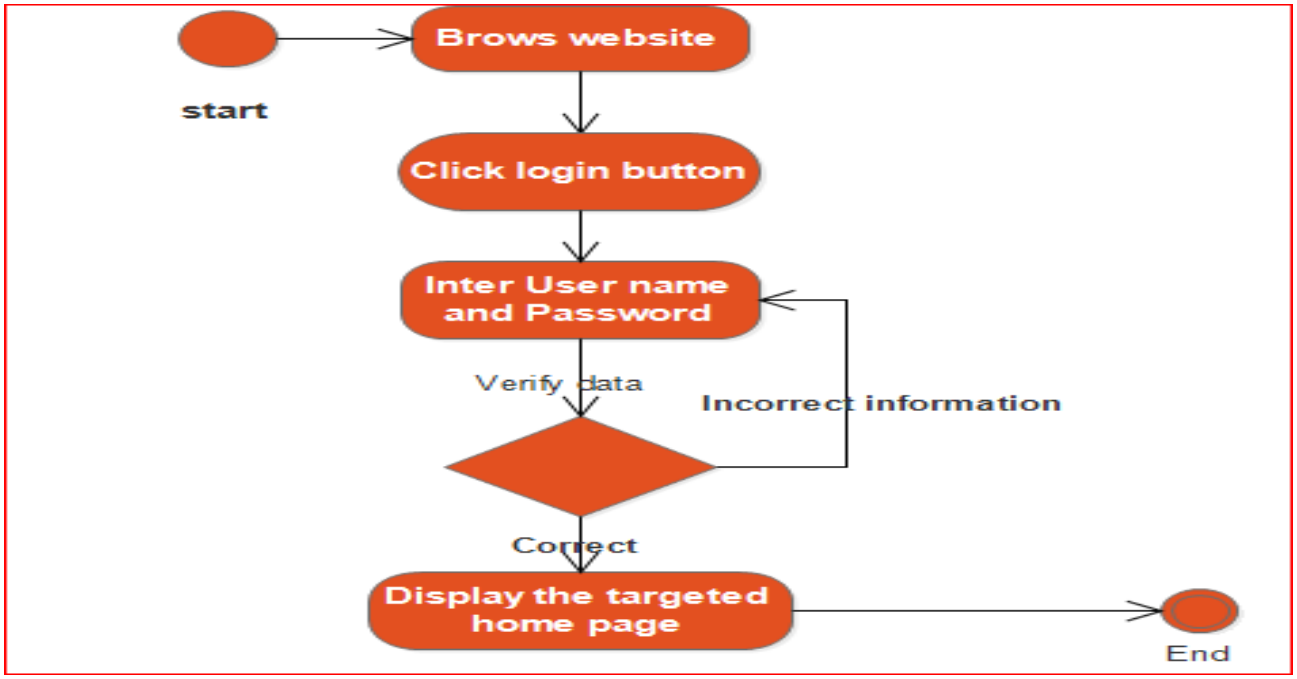


Figure 15*Activity diagram for dorm Login form*

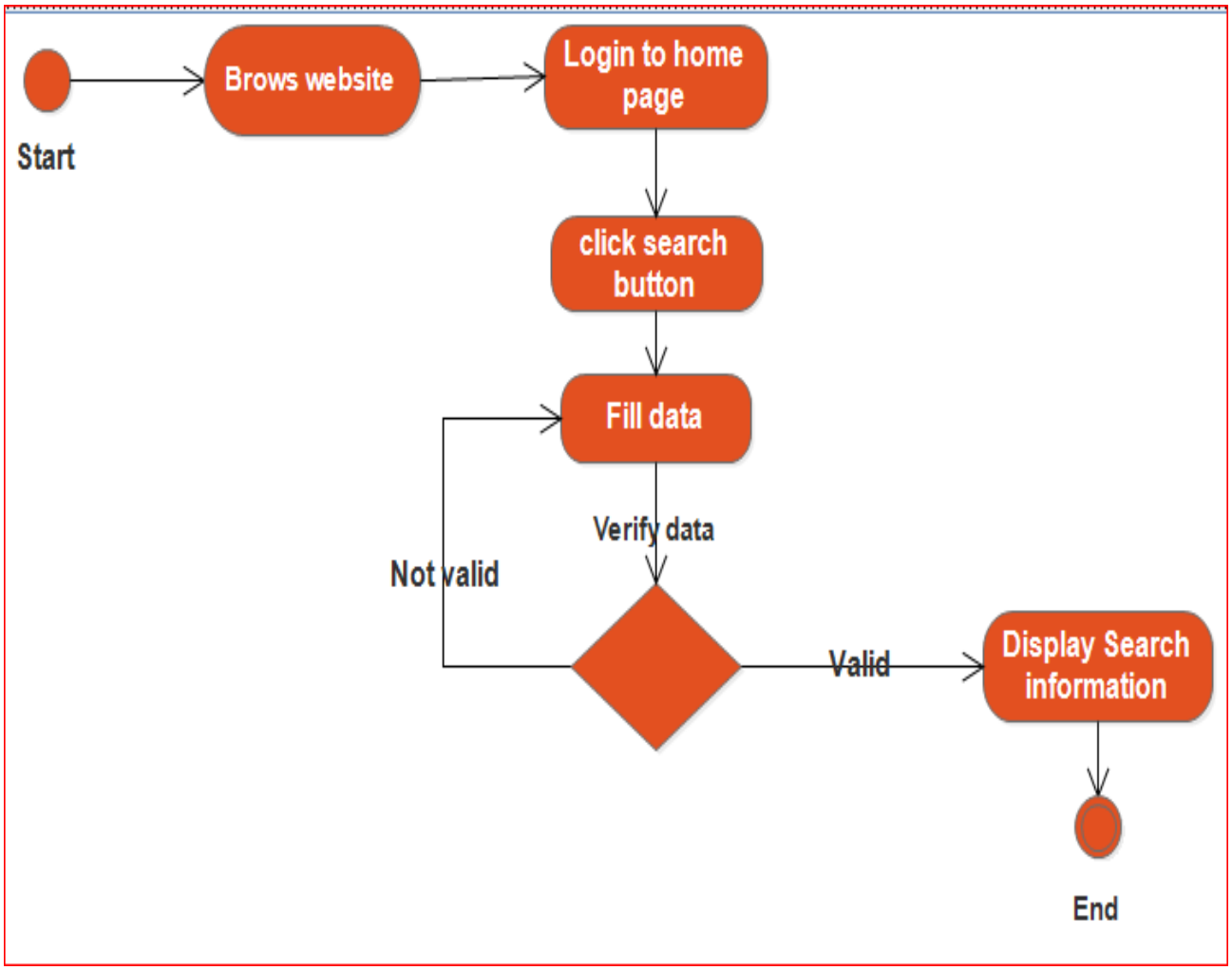


Figure 16*Activity diagram for Search form*

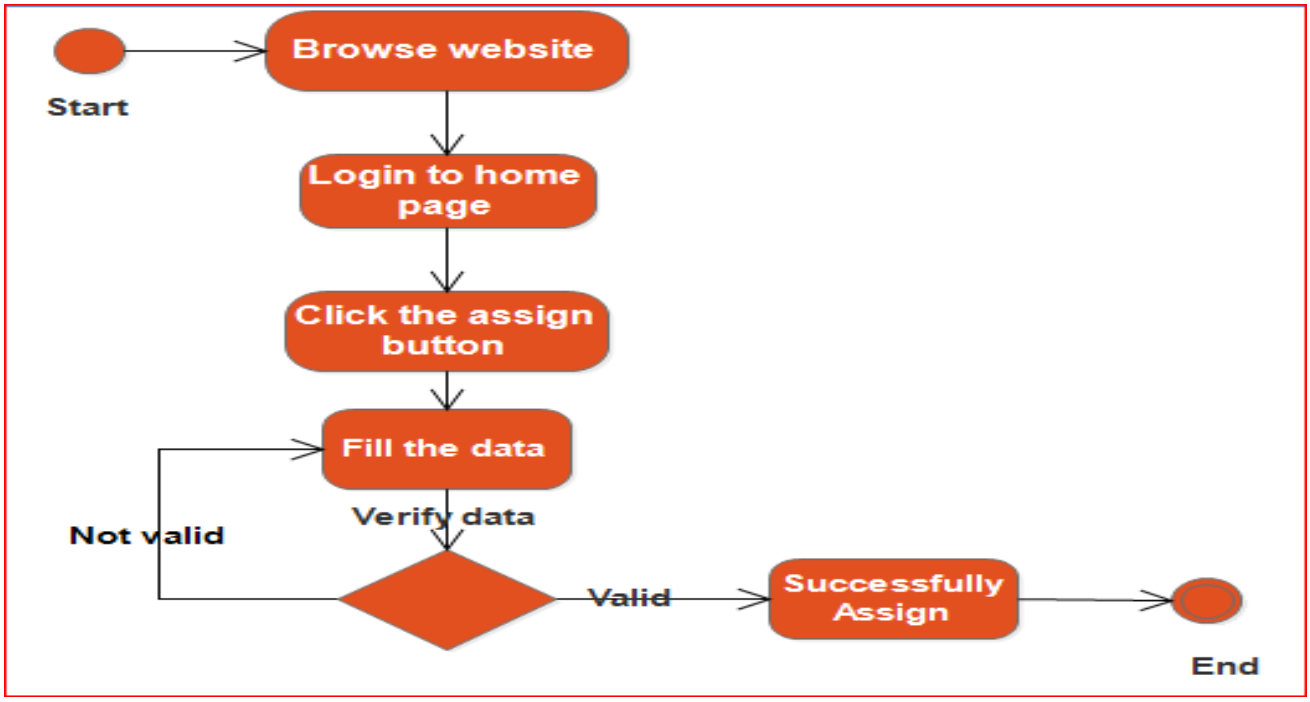


Figure 17*Activity diagram for assign form*

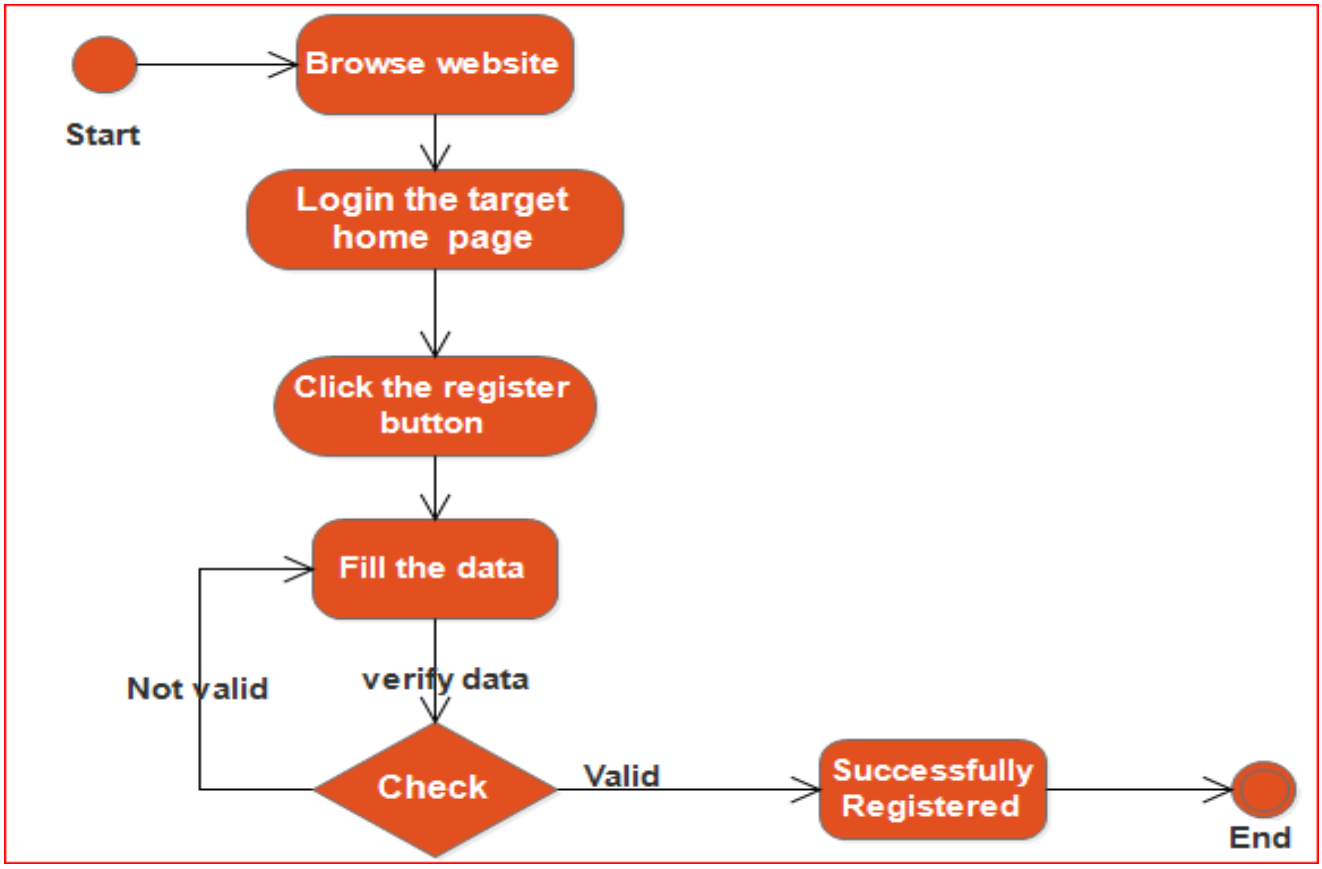


Figure 18*Activity diagram for Student Registration form*

2.7.3 Collaboration diagram

A collaboration diagram describes interactions among objects 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 behavior of a system.

The UML Collaboration diagram is used to model how objects involved in a scenario interact, with each object instantiating a particular class in the system. Objects are connected by links, each link representing an instance of an association between the respective classes involved. The link shows messages sent between the objects, and the type of message passed. Collaboration diagrams show the message flow between objects in an OO application, and also imply the basic associations (relationships) between classes. Collaboration diagrams are often used to:

- ✓ Provide a birds-eye view of a collection of collaborating objects, particularly within a real-time environment.
- ✓ Allocate functionality to classes by exploring the behavioral aspects of a system.
- ✓ Model the logic of the implementation of a complex operation, particularly one that interacts with a large number of other objects.
- ✓ Explore the roles that objects take within a system, as well as the different relationships they are involved with when in those roles

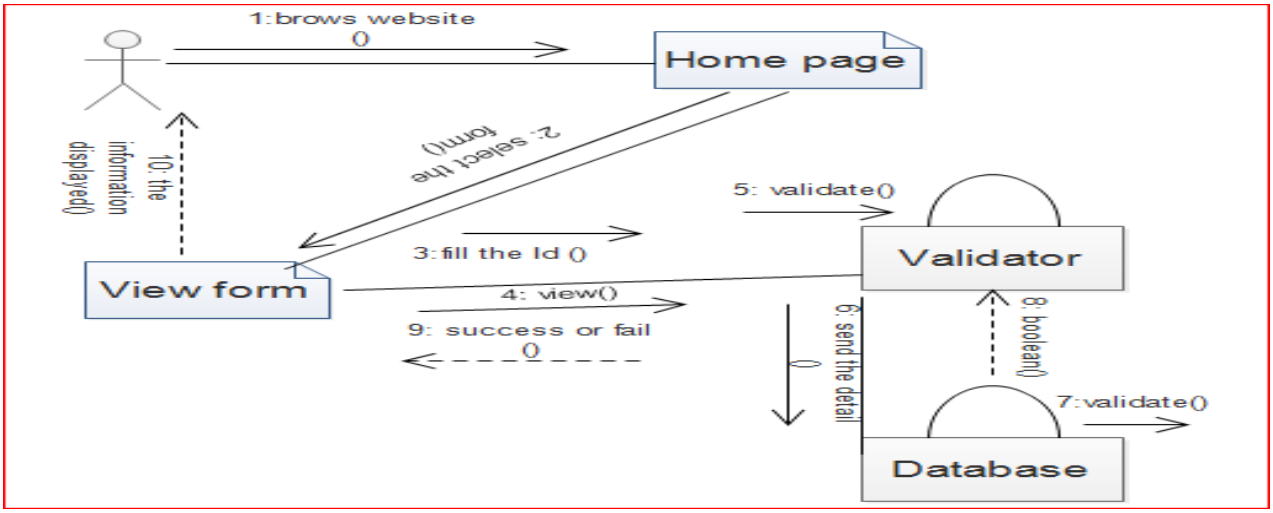


Figure 19*Collaboration diagram for dorm View form*

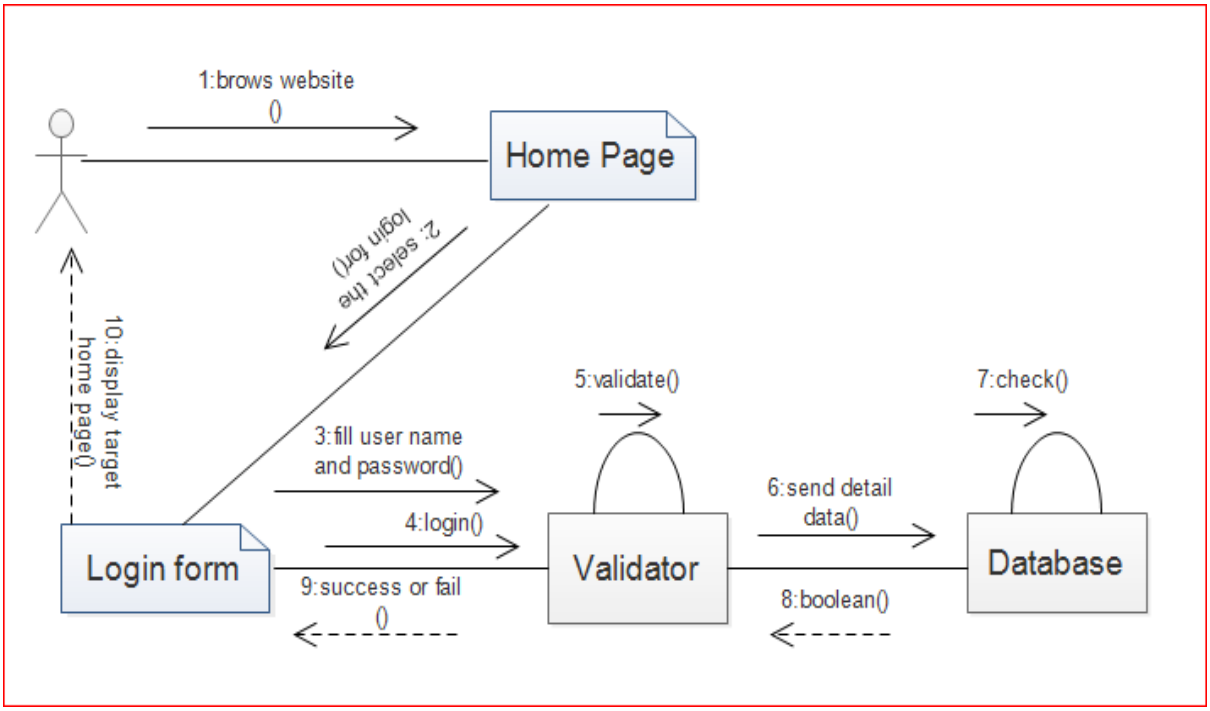


Figure 20*Collaboration diagram for Login form*

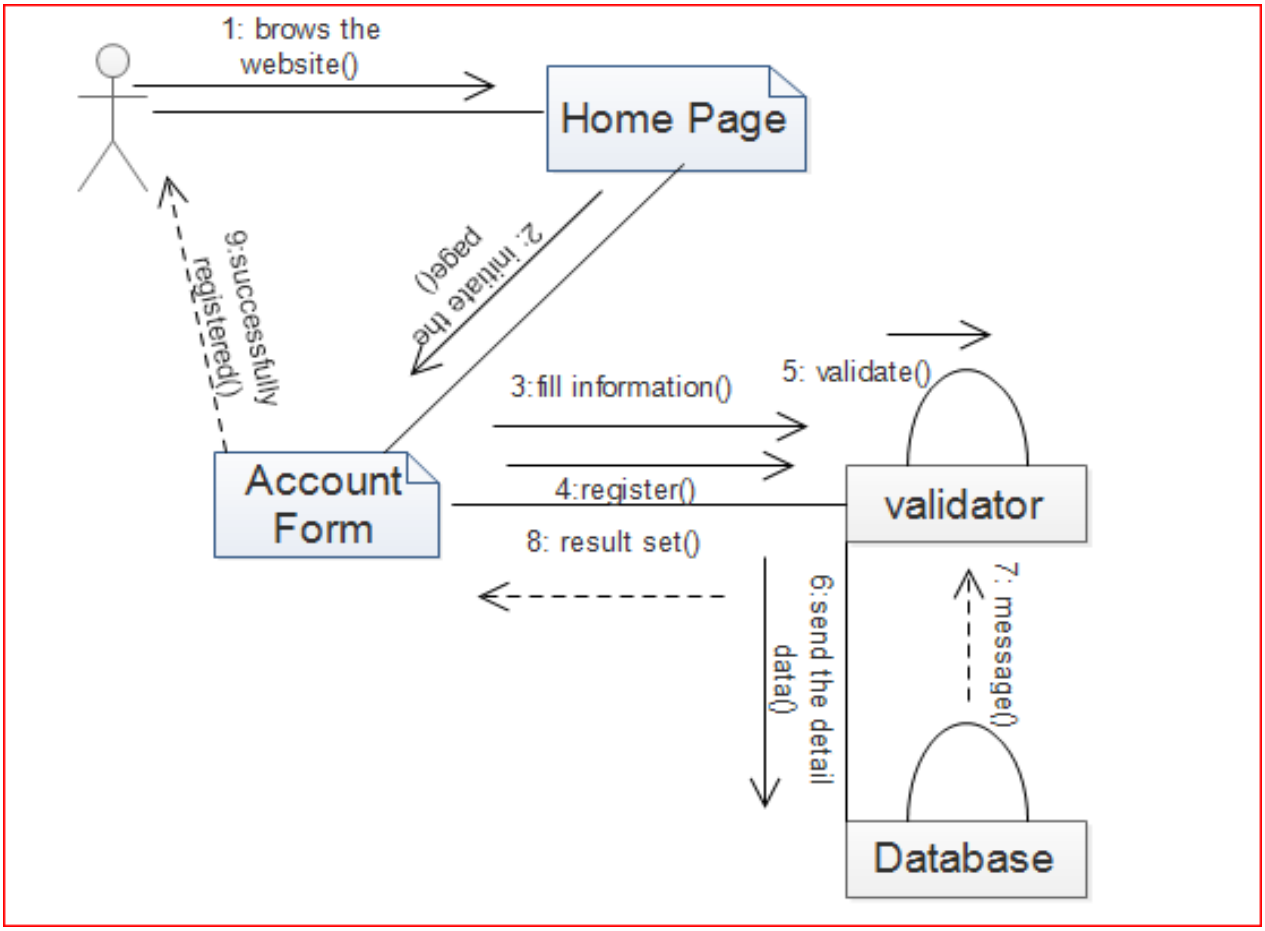


Figure 21*Collaboration diagram for Account form*

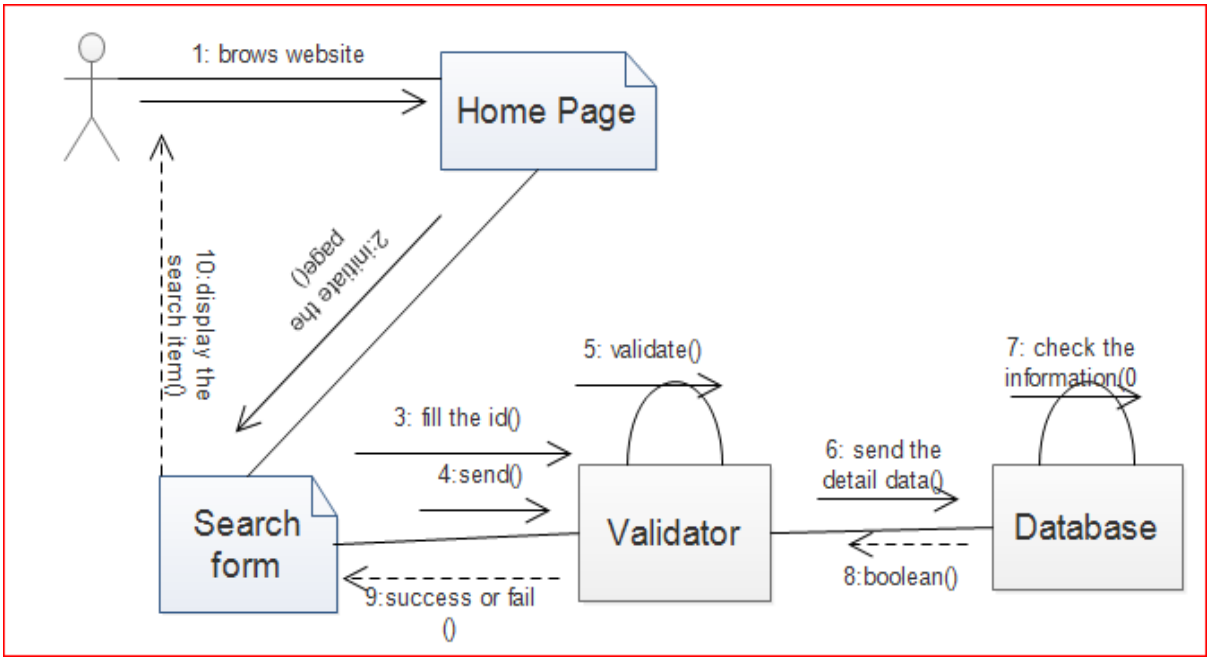


Figure 22*Collaboration diagram for Search form*

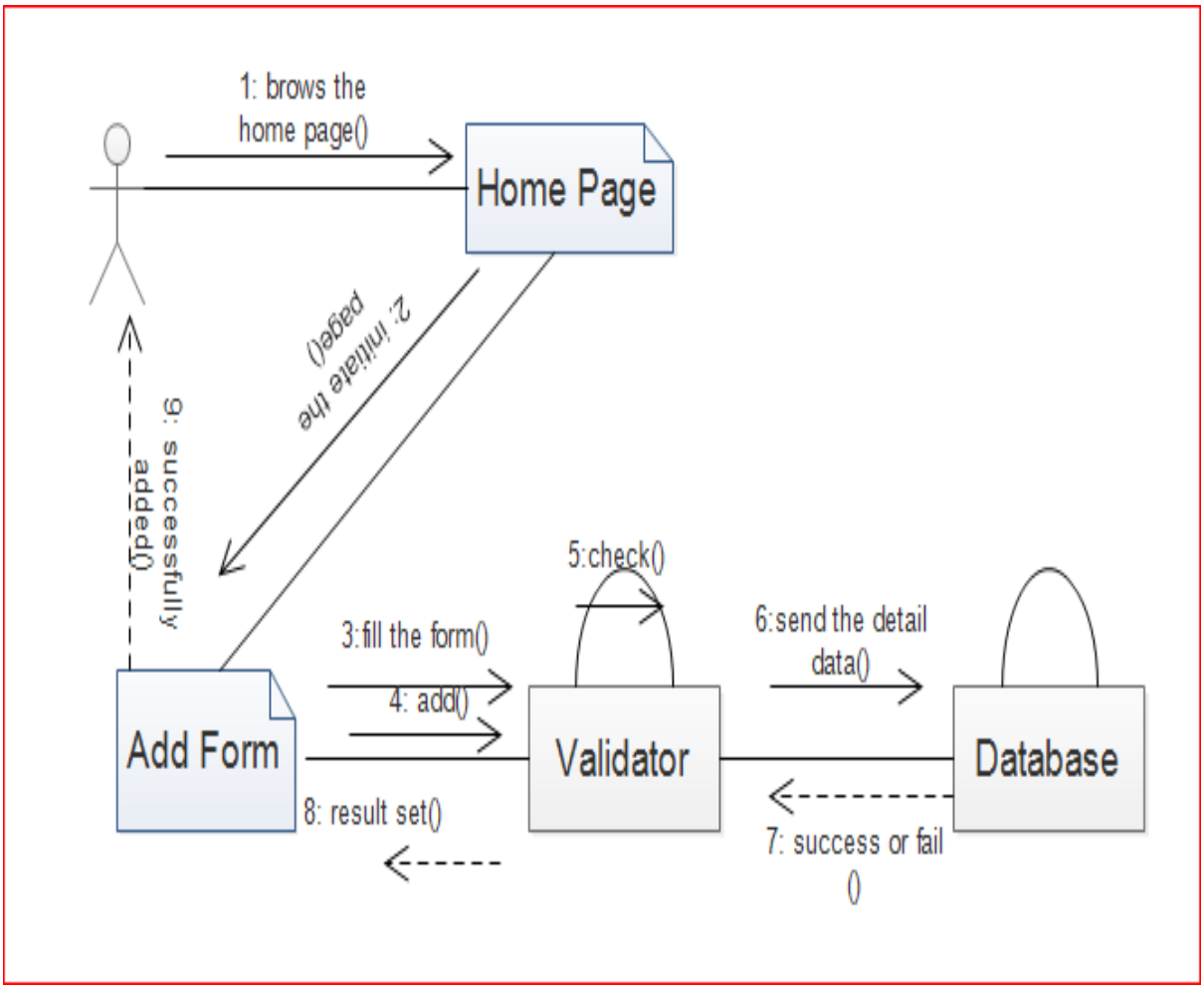


Figure 23*Collaboration diagram for Update form*

2.7.4 Class diagram

Class diagram is static model that shows the classes and the relationships among classes that remain constant over the time. Class is the main building block of class diagram, which stores and manages information in the system. In the phase of conceptual class modeling we just create or classes ad their interrelationship.

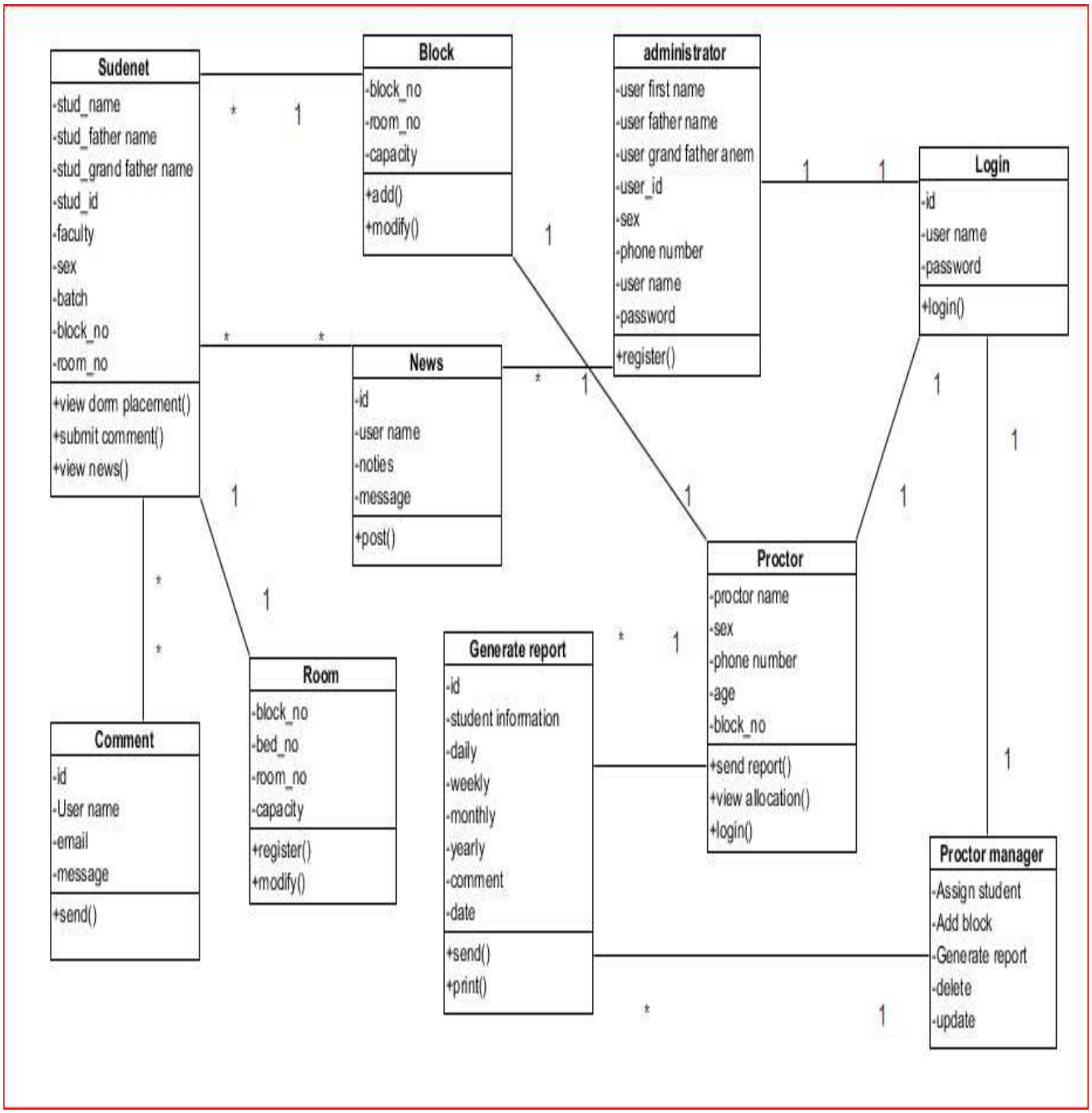


Figure 24*Class diagram*

Chapter three (3)
1 Overall System Design Goals

The purpose of designing is to show the direction how the webpage is built and to obtain clear and enough information needed to drive the actual implementation of the system. It is based on understanding of the model the webpage built on.

The design phase is the "architectural" phase of system design. The flow of data processing is developed into charts, and the project team determines the most logical design and structure for data flow and storage. For the user interface, the project team designs mock-up screen layouts that the developer's uses to write the code for the actual interface. It is decided how the system will operate, in terms of the hardware, software, network infrastructure; the user interface forms, and reports that will be used; and the specific programs, databases, and files that will needed

The design goals describe the qualities of the system that the developed system should improve. Design goals are normally derived from the non-functional requirements of the system. So the followings section describes the design goals of the system:

Low Operating Costs – This system will be very low cost and will have minimal upkeep costs.

Easy to use – The system will have a well-defined and easily understood interface. The processes will be easy to understand and use by a user of any level.

High availability – The system will be accessible from any computer with internet and will be accessible anytime a user would want to use the program.

Easy Maintenance – The system will require minimal upkeep and maintenance to stay working at optimal levels and easily maintain and also user different form validations, such as java script, JQuery and Ajax.

Speedy request handling – The system will complete tasks quickly to allow easy input of large amounts of data.

Security – Since the system will hold important personal data, the system will require strong security features to protect that valuable information.

3.1.1 Performance criteria

This project is highly powerful because it does not need any of external servers it needs only local server (Bule Hora university server). The system will complete tasks quickly to allow easy input of large amounts of data and to retrieve data from the server.

The system will be accessible from any computer with internet and will be accessible anytime a user would want to use the program.

3.1.2 Maintenance criteria

It needs one database administrator and one or more site administrators to maintain it.It does not need expertise person but just it needs any professional person in IT who can use database and internet. The system will require minimal upkeep and maintenance to stay working at optimal levels.

3.1.3 End user criteria

This project is very simple to use. Anyone who can read English can use the system, because, to use the system only clicking a button, it does not need to write commands and to think how to use it. This program will have a well-defined and easily understood interface. The processes will be easy to understand and use by a user of any level.

3.1.4Security requirement

The authorization mechanism of the system will block the unwanted attempts to the server...How the server will block. If unauthorized users try username and password for more than three times, the system check authorization issues and lock the system or access denied.

User should have an account to enter the system, if user does not have an account he/she cannot access the system.

3.1.4 Service availability

The reliability of the proposed system would be high due to the above stated reasons. The reason for the increased reliability of the system is that now there would be proper storage of information, its maintenance would be well managed and retrieval would be possible in the desired manner.

3.2 Architectural Design (3 tier arch)

The application will follow three-tier architecture. In three-tier architecture application will run the traditional client/server model but from the web server. The client only displays the GUI and data but has no part in producing results.

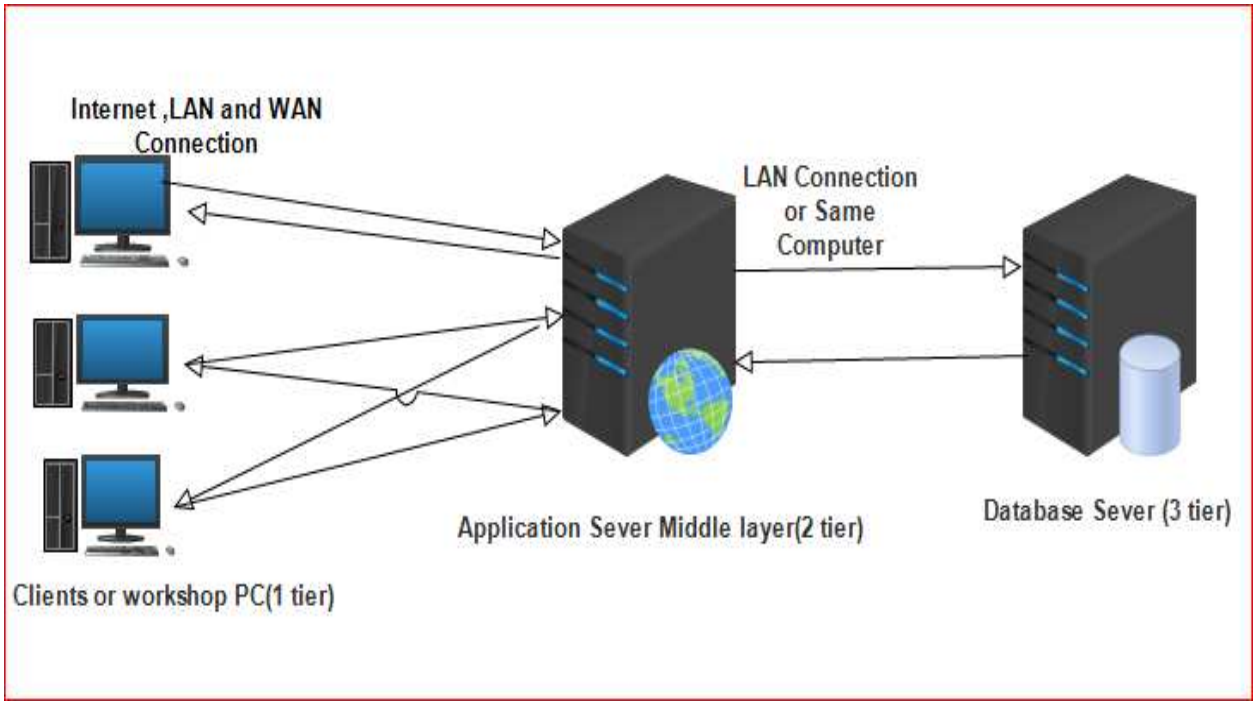


Figure 25 Three-tier architecture

Three-tier architecture will contain the following tiers:

Client/Presentation Tier:

This tier includes all the HTML content or forms to be displayed on the client browser. It is the form which provides the user interface to end user. Programmer uses this tier to get or set the data back and forth.

Business Logic (Application) Layer

In the Business logic tier, the actual processing of the data and the logic behind the implementation of the application will be present. This tier can contain a class, which can be used to write the functions, and also works as a mediator between the presentation tier and data tiers.

Data (Database) Tier:

Data Tier contains methods and classes that deal with passing and storing data to the data Storage Layer. Queries or stored procedures are used to access the data from the database or to perform any operation to the database. It stores the data passed by the presentation tier.

The design part is very important so as to make the implementation very easy. The different types of the system modeling techniques that are used for the implementation of the system

such as deployment and component modeling are show in detail. Not only the system modeling techniques but also some system design techniques such as system decomposition design are cover in detail in this phase. The non-functional requirement is the description of the feature characters and attributes of the system. The purposes of the system are:-

- To replace the bad parts of the existing system by an automated system.
- To ensure security in the system by using different security mechanisms.
- To make the data organized and centralized implementing a database system.
- To increase the flexibility of the system.
- To give clearance to legal students

3.2 Site map

A hierarchical visual model of the pages of a Web site. Site maps help users navigate through a Web site that has more than one page by showing the user a diagram of the entire site's contents. Similar to a book's table of contents, the site map makes it easier for a user to find information on a site without having to navigate through the site's many pages. A site map, sometimes written "sitemap," is an overview of the pages within a website. Site maps of smaller sites may include every page of the website, while site maps of larger sites often only include pages for major categories and subcategories of the website. While site maps can be organized in a variety of ways, most use an outline form, with pages arranged by topic. This gives visitors a good overall picture of how the site is organized and clearly defines all the resources the website has to offer.

Figure 26Sit map of home

3.4 System/subsystem decomposition

Subsystem decompositions will help reduce the complexity of the system. The subsystems can be considered as packages holding related classes/objects. The DMS under consideration is decomposed into subsystems. My system is divided into 2 main subsystems, the first one is User account subsystem, and the second subsystem is Dormitory subsystem. This subsystem decomposition is look like this below diagram.

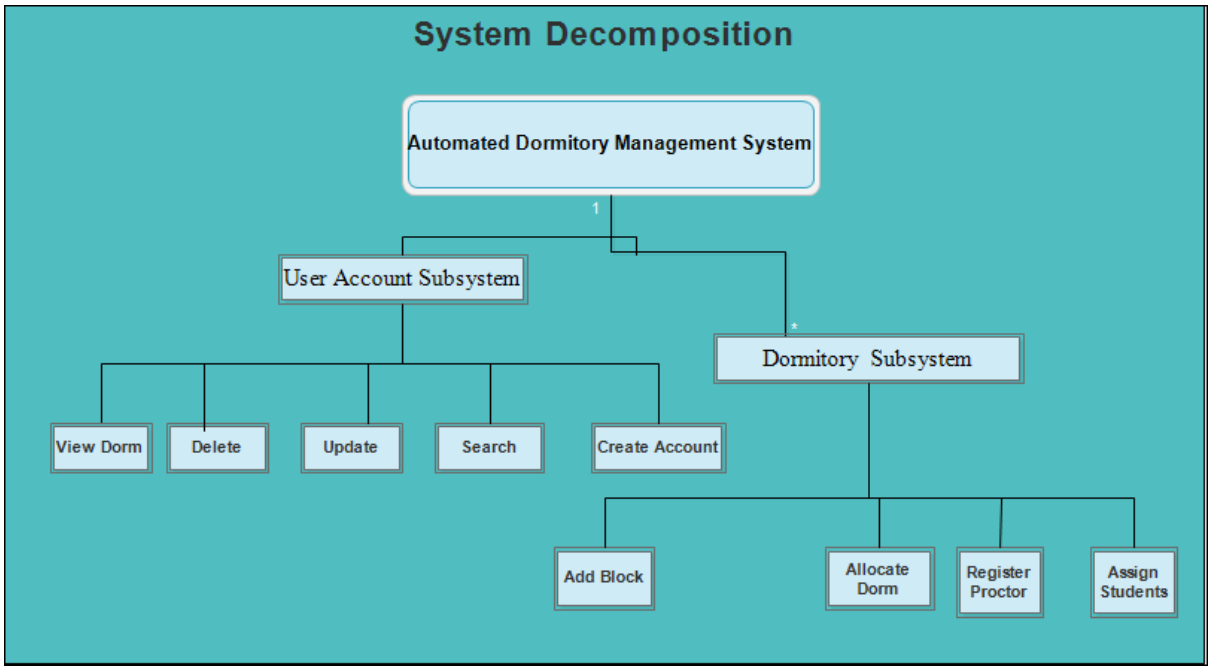


Figure 27System decomposition

The major subsystems identified are:-

A. User account Subsystem decomposition

3.4.1 Subsystem 1:- Create Account:

This system is used to create administrators for this system. In this system the administrator only registers for other Proctor and Proctor manager if it is necessary.

3.4.2 Subsystem 2:-View Dorm:

Students view their dorm placement by entering id for senior students and for new students by entering full name to access any dorm information.

3.4.3 Subsystem 4:- send comment:

User has any unclear idea, suggestion, or any types of feedback about the system can give comment.

3.4.4 Subsystem 5:- Manage account:

This system is serves for managing students meaning that the Proctor Manager can, modify (update) student's records, search and delete (remove) student's information if necessary.

B. Dormitory subsystem decomposition

3.4.10 Subsystem 10:- Add block and dorm:

Proctor manager assign blocks and dorms to students depend on sex, faculty, departments, also year and to allocate proctors for each block.

3.4.11 Subsystem 9:- Register Students and Proctors:

Proctor manager is adding (register) students and Proctors. For students consider by Faculty, Departments and sex .For Proctor based on sex, Departments and Faculty to give its own Id for both.

3.4.12 Subsystem 12:- Allocation room:

Proctors allocate student's dorm and to identify this placements are correctly placed and which are not allocated.

3.6.5 Design Class Diagram

a **class diagram** in the Unified Modeling Language (UML) is a type of static structure diagram that describes the structure of a system by showing the system's classes, their attributes, operations (or methods), and the relationships among objects.

The class diagram is the main building block of object oriented modeling. It is used both for general conceptual modeling of the systematic of the application, and for detailed modeling translating the models into programming code.

Class diagram represent both the main objects, interactions in the application and the classes to be programmed. In the diagram, classes are represented with boxes which contain three parts

- ✓ The top part contains the name of the class. It is printed in bold and centered, and the first letter is capitalized.
- ✓ The middle part contains the attributes of the class. They are left-aligned and the first letter is lowercase.
- ✓ The bottom part contains the methods the class can execute. They are also left-aligned and the first letter is lowercase.

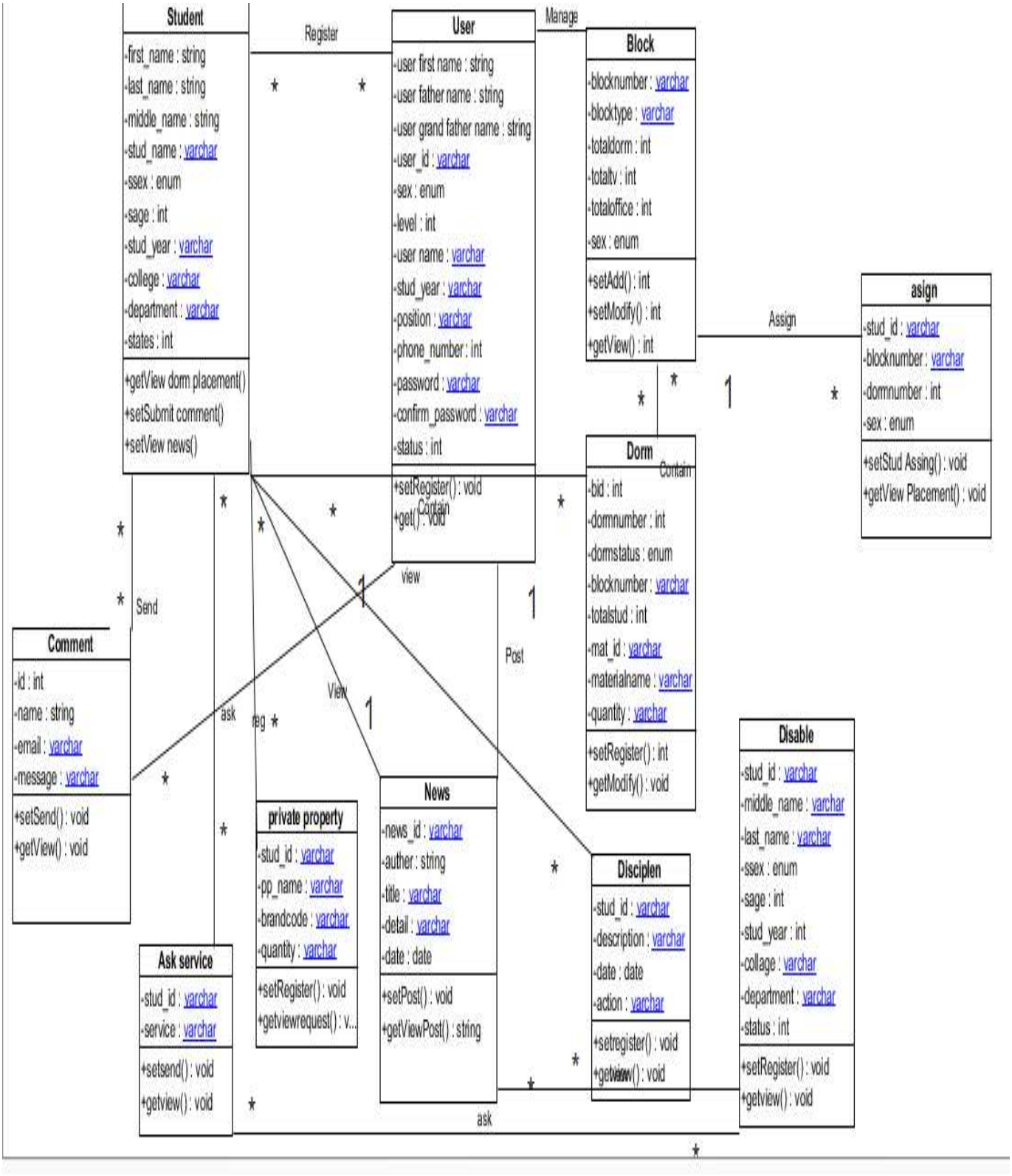


Figure 28 design class diagram

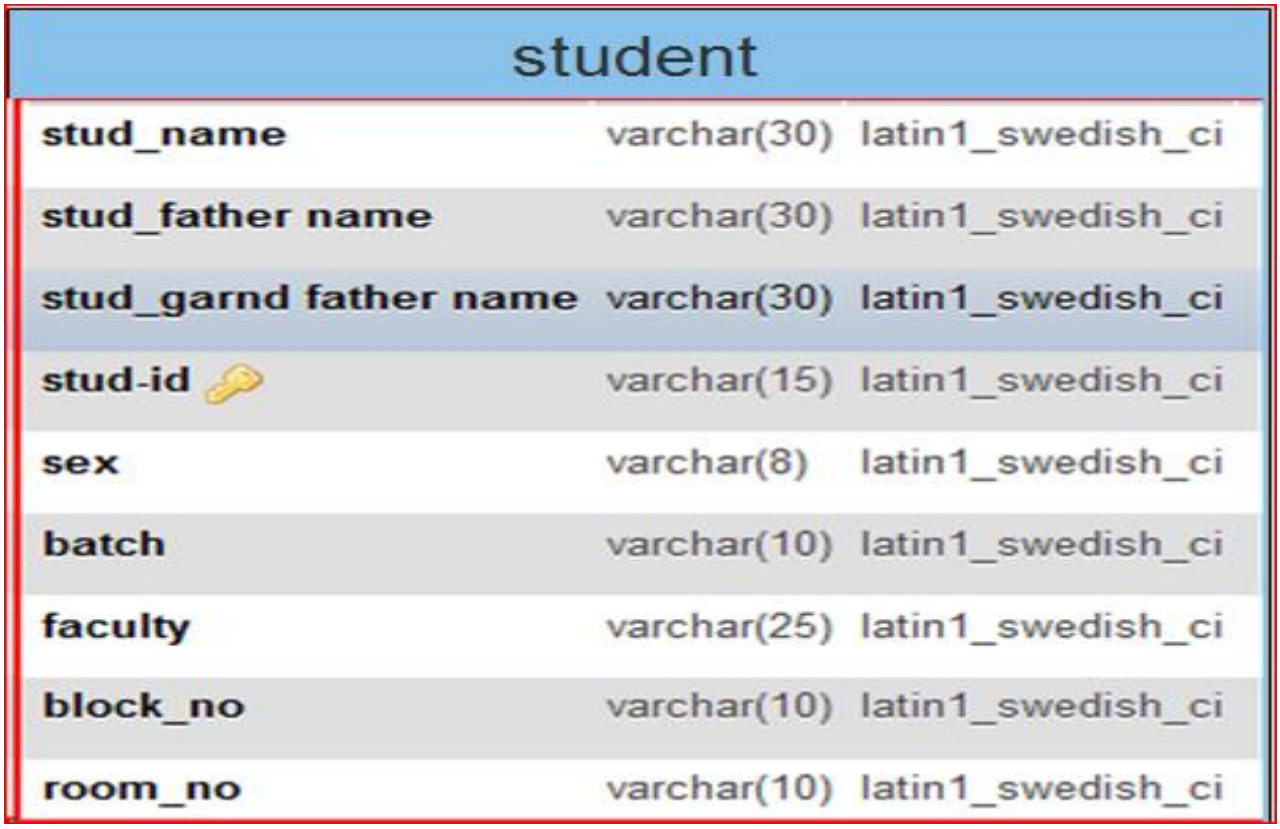
3.5 Database design and class mapping

3.6.1 Class mapping

In this part the team describes how the persistent data stored by the system and the data management infrastructure required for it. The system will use the **MYSQL** database server for storing data. This will allow the database to be easily integrated with and accessed by the rest of the system. The database will retain student information (name, Identification number etc.), and also retain configuration data such as authorized administrator. Each of these items will be store in a separate table.

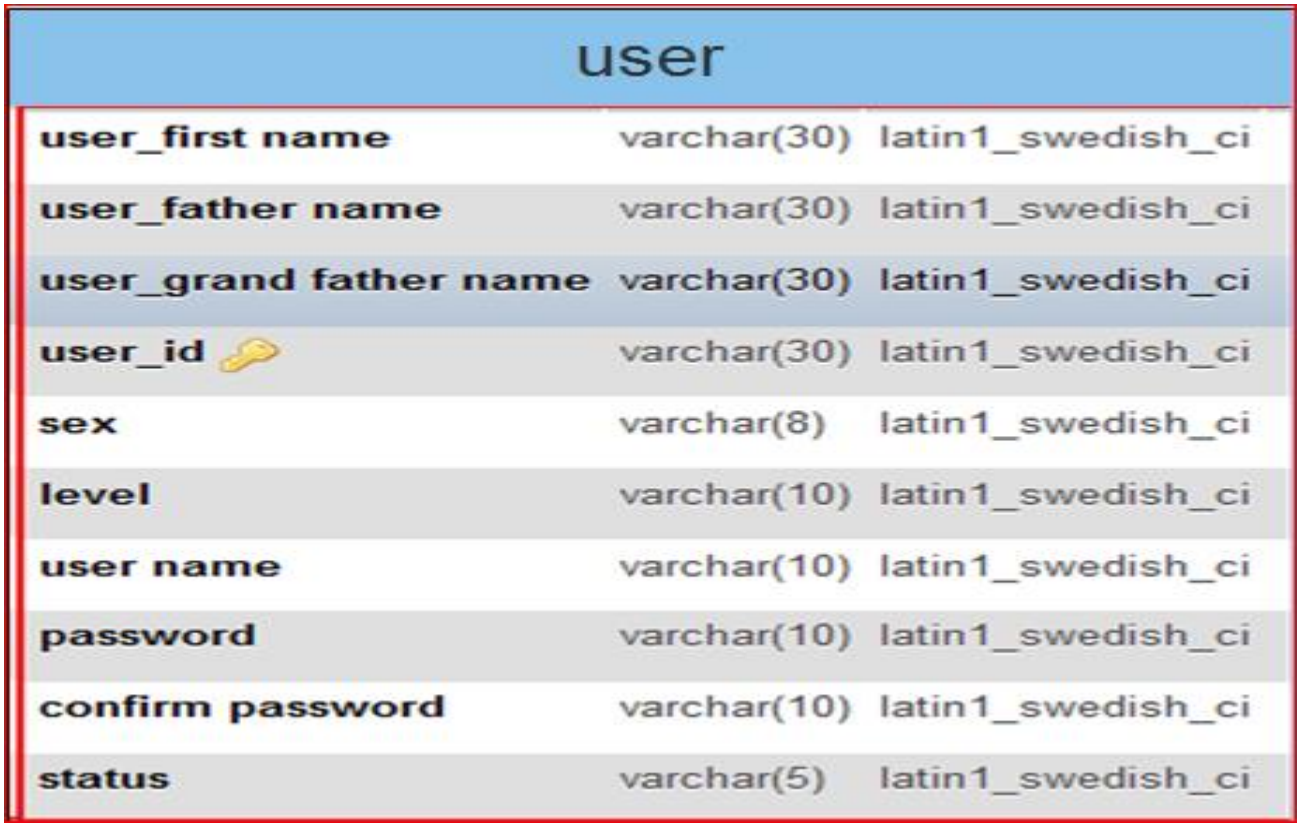
As described in the class diagram in analysis model, the system contains eight (8) tables which are stored in MYSQL server. These tables are:

- Student table: a table which stores allocation information.
- User table: a table which stores faculty information.
- Comment table: a table which stores department information.
- Block table: a table which contains information related with blocks.
- Room table: a table which contains information related to dorm.
- News table:- a table which post for user to announce the latest information.



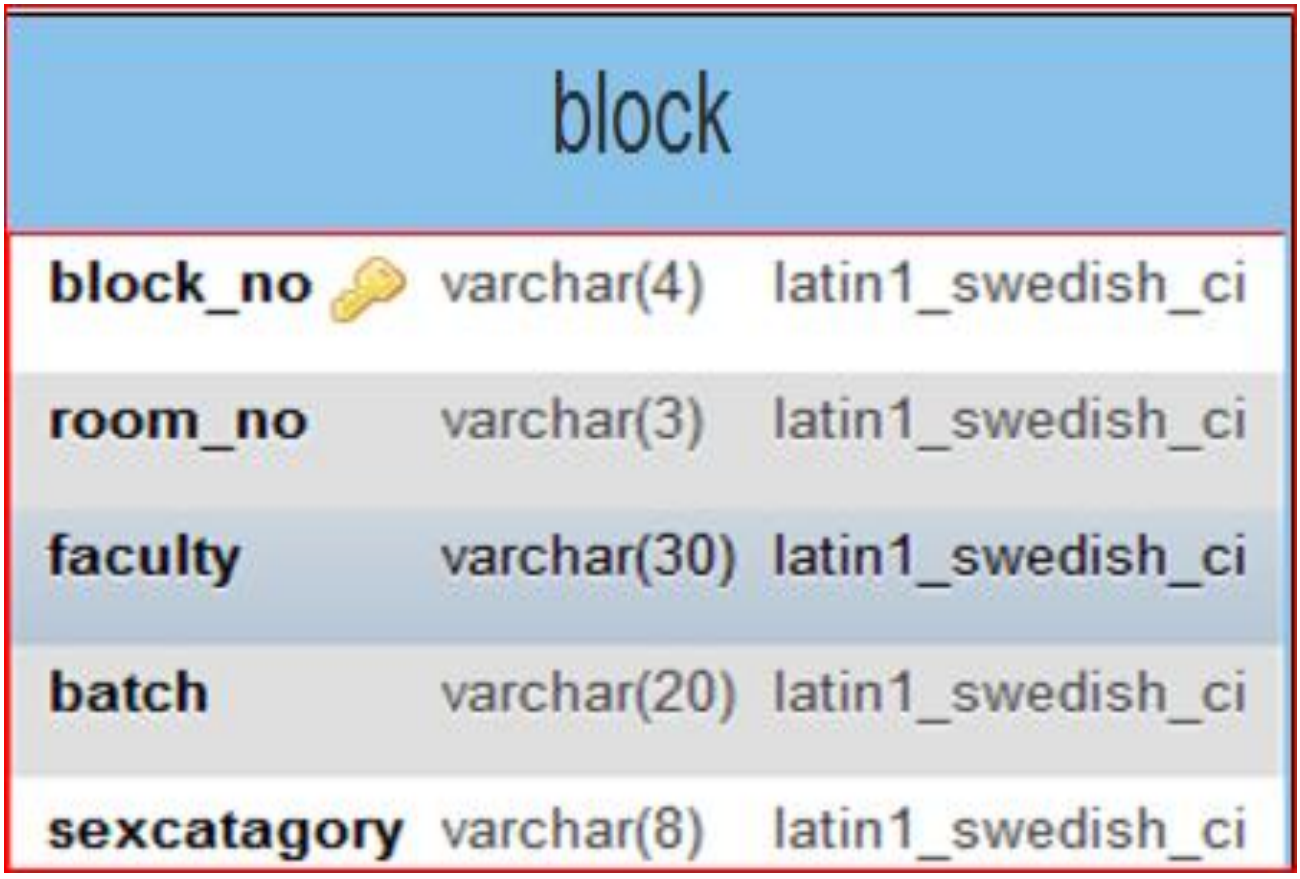
student		
stud_name	varchar(30)	latin1_swedish_ci
stud_father name	varchar(30)	latin1_swedish_ci
stud_garnd father name	varchar(30)	latin1_swedish_ci
stud-id	varchar(15)	latin1_swedish_ci
sex	varchar(8)	latin1_swedish_ci
batch	varchar(10)	latin1_swedish_ci
faculty	varchar(25)	latin1_swedish_ci
block_no	varchar(10)	latin1_swedish_ci
room_no	varchar(10)	latin1_swedish_ci

Figure 29Student table



user		
user_first name	varchar(30)	latin1_swedish_ci
user_father name	varchar(30)	latin1_swedish_ci
user_grand father name	varchar(30)	latin1_swedish_ci
user_id	varchar(30)	latin1_swedish_ci
sex	varchar(8)	latin1_swedish_ci
level	varchar(10)	latin1_swedish_ci
user name	varchar(10)	latin1_swedish_ci
password	varchar(10)	latin1_swedish_ci
confirm password	varchar(10)	latin1_swedish_ci
status	varchar(5)	latin1_swedish_ci

Figure 30User table



block		
block_no	varchar(4)	latin1_swedish_ci
room_no	varchar(3)	latin1_swedish_ci
faculty	varchar(30)	latin1_swedish_ci
batch	varchar(20)	latin1_swedish_ci
sexcatagory	varchar(8)	latin1_swedish_ci

Figure 31Block table

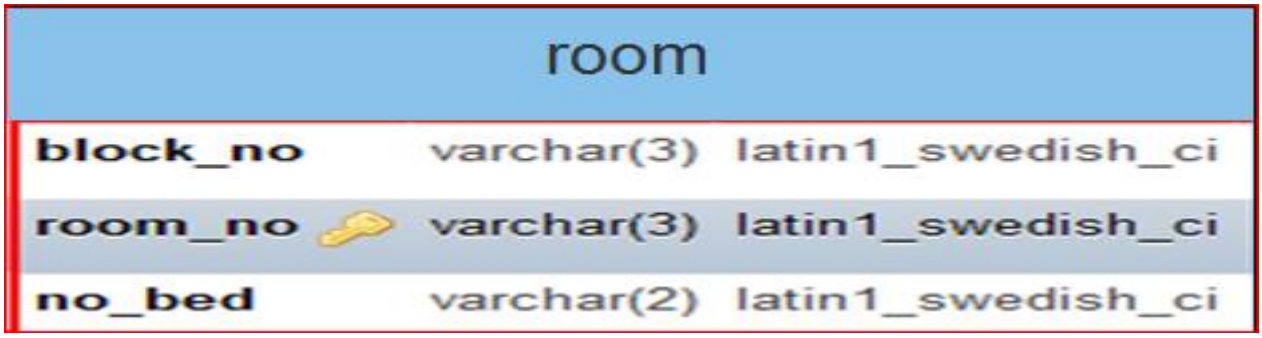


Figure 32Room table

Figure 33News table

3.6.2 Class mapping description

Student table description

Table Name	Description
Student	1. stud_name:- identifies student first name. 2. Stud_father name:- it identifies the student father name. 3. Stud_grand father name:- this identifies the grandfather of the student. 4. Stud_id:- this identifies the student id . 5. Sex:- it identifies the sex of student that means male or female. 6. Batch:- this indicates the first or the second batch of the student. 7. Faculty:- faculty o the student. 8. Block_no:-this identifies the block number of the student. 9. Room:- this indicate the student in which block is placed.

Table 10 **Student table description**

User table description

Table name	Description
User	1. User_name:- identifies student first name. 2. User_father name:- it identifies the student father name. 3. User_grand father name:- this identifies the grandfather of the student. 4. User _id:- this identifies the student id . 5. Sex:- it identifies the sex of student that means male or female. 6. Level: - this indicates the position of the student. 7. User name:- user name of user which are used for creating something. 8. Password:-this identifies the password of the users. 9. Confirm password: - this indicate the password which are forgotten in which the password using.

Table 11**User table description**

Block table Description

Table name	Description
Block	1. Block_no:- it identify the block number 2. Room_no:- identifies the room number 3. Faculty: the faculty of the students 4. Batch:- the batch of the students 5. Sexcatagory it indicates the sex of the students

Table 12**Block table Description**

Room table description

Table name	Description
Room	1. Block_no student a field that indicates block number where the student assigned 2. Room_no indicates student room number 3. Nobeds: this indicates numbers of beds which are exist in the room

Table 13Room table description

News table Description

Table name	Description
Block	1. News_id- indicates the id of the news 2. Author:- it indicates the which one is posted this news 3. Title :- this title of the news 4. Detail:- this indicates the description of the news 5. Date:- when the news is posted

Table 14News table Description

3.6.4 Physical database design (persistent database design)

Database design is the process of producing a detailed data model of a database. This data model contains all the needed logical and physical design choices and physical storage parameters needed to generate a design in a data definition language, which can then be used to create a database. A fully attributed data model contains detailed attributes for each entity.

Physical database design translates the logical data model into a set of SQL statements that define the database. For relational database systems, it is relatively easy to translate from a logical data model into a physical database.

Rules for translation:

- ✓ Entities become tables in the physical database.
- ✓ Attributes become columns in the physical database. Choose an appropriate data type for each of the columns.
- ✓ Unique identifiers become columns that are not allowed to have NULL values. These are referred to as primary keys in the physical database. Consider creating a unique index on the identifiers to enforce uniqueness.
- ✓ Relationships are modeled as foreign keys.
- ✓ Physical Database Design (Defined): Process of producing a description of the implementation of the database on secondary storage; it describes the base relations, file organizations, and indexes used to achieve efficient access to the data, and any associated integrity constraints and security measures.

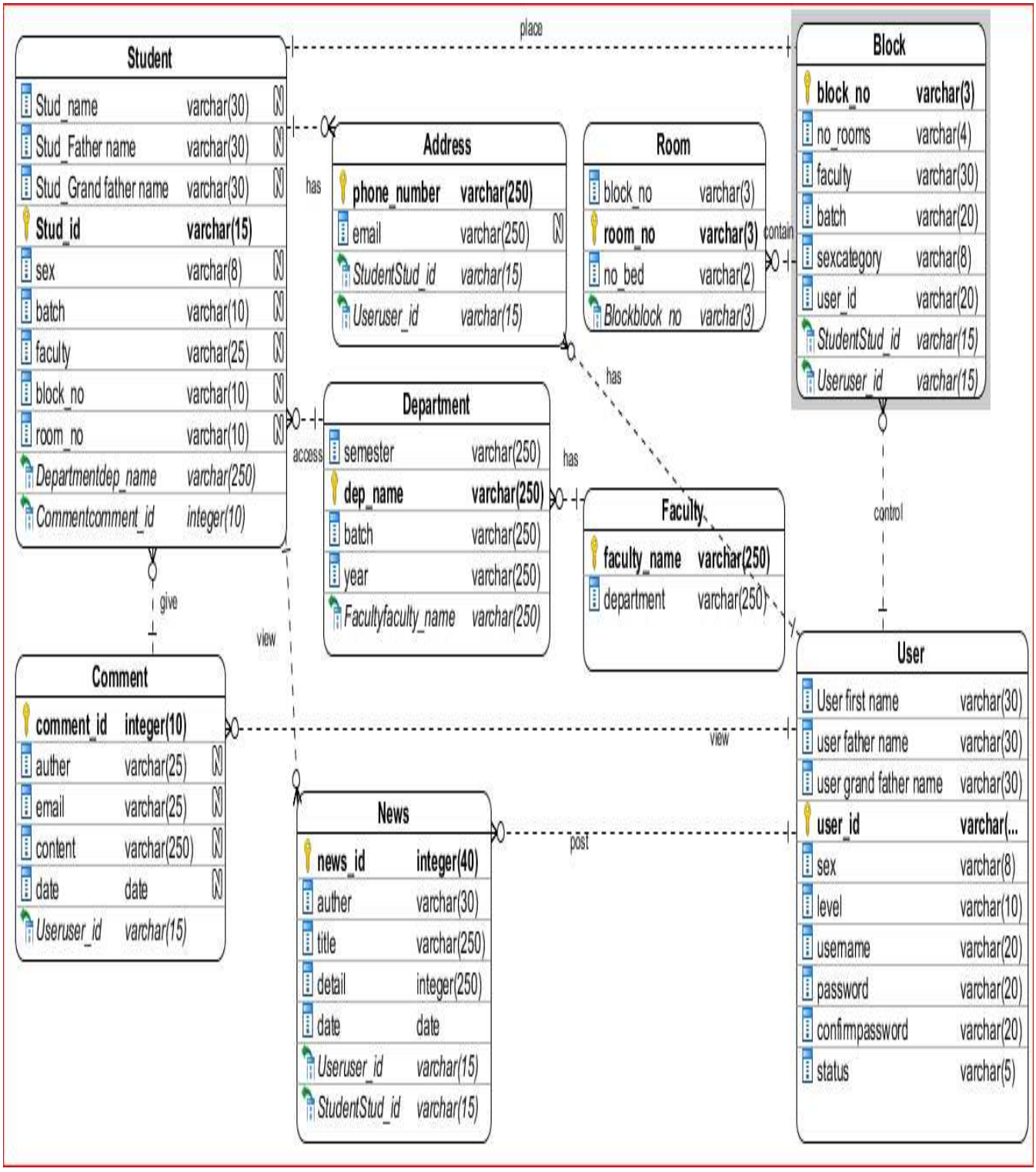


Figure 34 persist anent database

3.6 Component diagram

Component diagram is a special kind of diagram in UML. The purpose is also different from all other diagrams discussed so far. It does not describe the functionality of the system but it describes the components used to make those functionalities.

So from that point component diagrams are used to visualize the physical components in a system. These components are libraries, packages, files etc.

Component diagrams can also be described as a static implementation view of a system. Static implementation represents the organization of the components at a particular moment.

A single component diagram cannot represent the entire system but a collection of diagrams are used to represent the whole.

So the purpose of the component diagram can be summarized as:

- Visualize the components of a system.
- Construct executables by using forward and reverse engineering.
- Describe the organization and relationships of the components

Now the usage of component diagrams can be described as:

- Model the components of a system.
- Model database schema.
- Model executables of an application.
- Model system's source code.

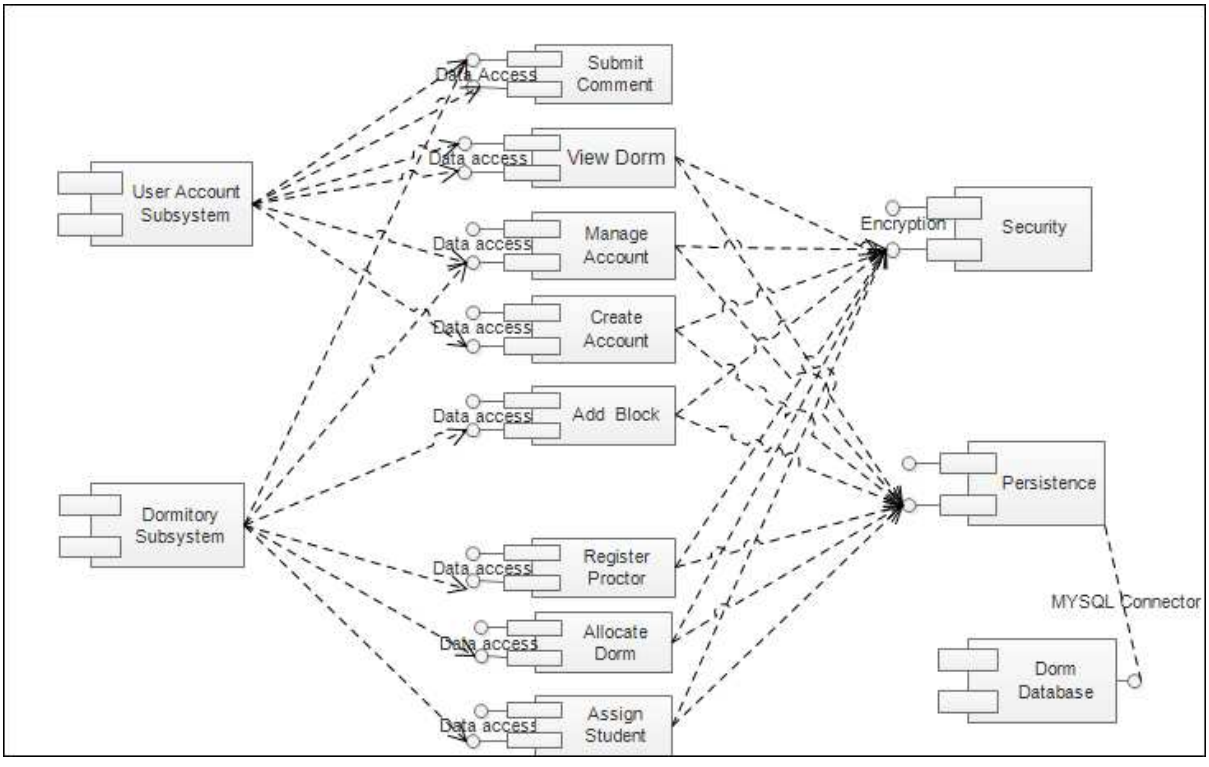


Figure 35 component diagram

3.7Deployment diagram

The name Deployment itself describes the purpose of the diagram. Deployment diagrams are used for describing the hardware components where software components are deployed. Component diagrams and deployment diagrams are closely related.

Component diagrams are used to describe the components and deployment diagrams shows how they are deployed in hardware.

UML is mainly designed to focus on software artifacts of a system. But these two diagrams are special diagrams used to focus on software components and hardware components.

So most of the UML diagrams are used to handle logical components but deployment diagrams are made to focus on hardware topology of a system. Deployment diagrams are used by the system engineers.

The purpose of deployment diagrams can be described as:

- Visualize hardware topology of a system.
- Describe the hardware components used to deploy software components.
- Describe runtime processing nodes.

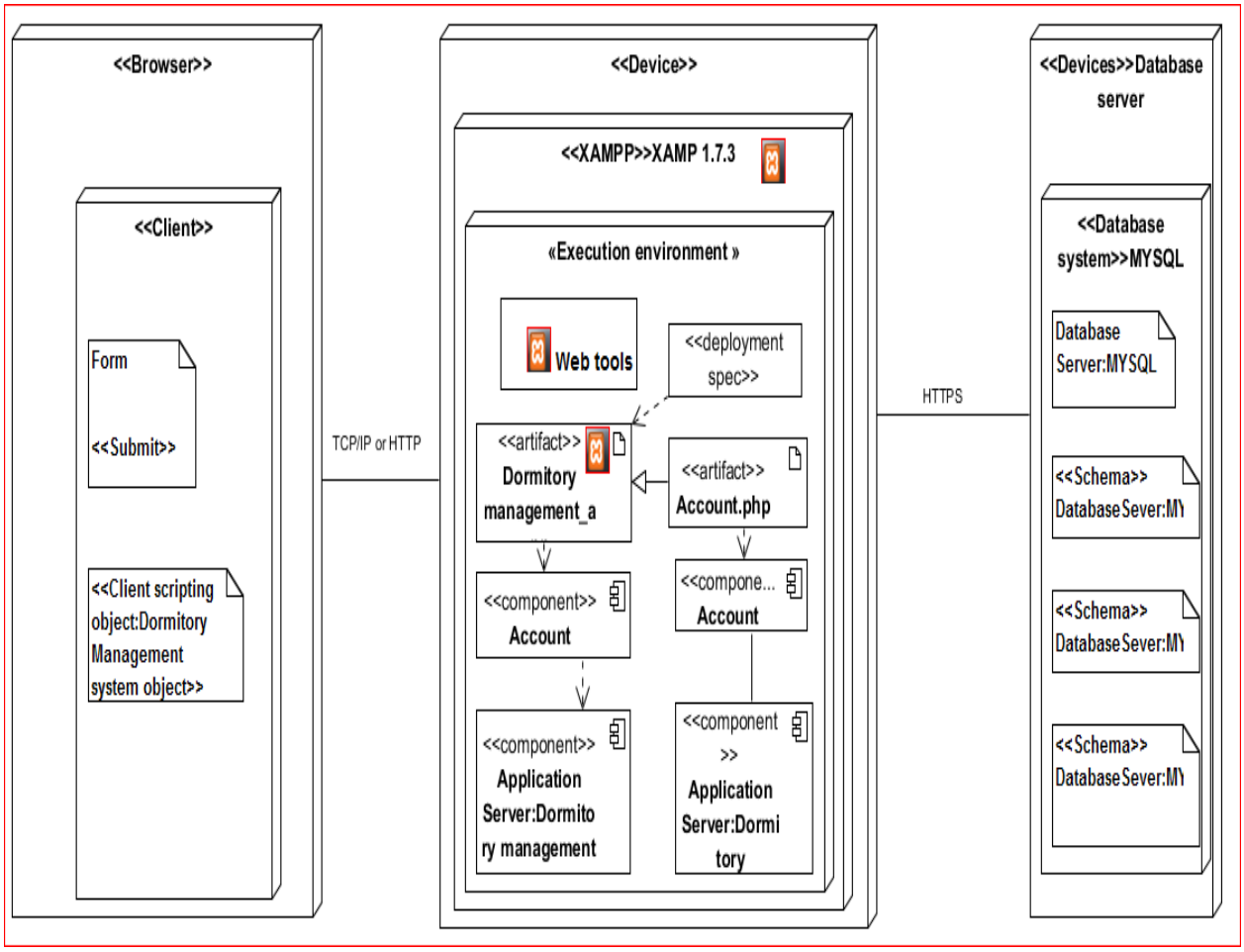


Figure 36 Deployment diagram

3.8 User Interface Prototyping design

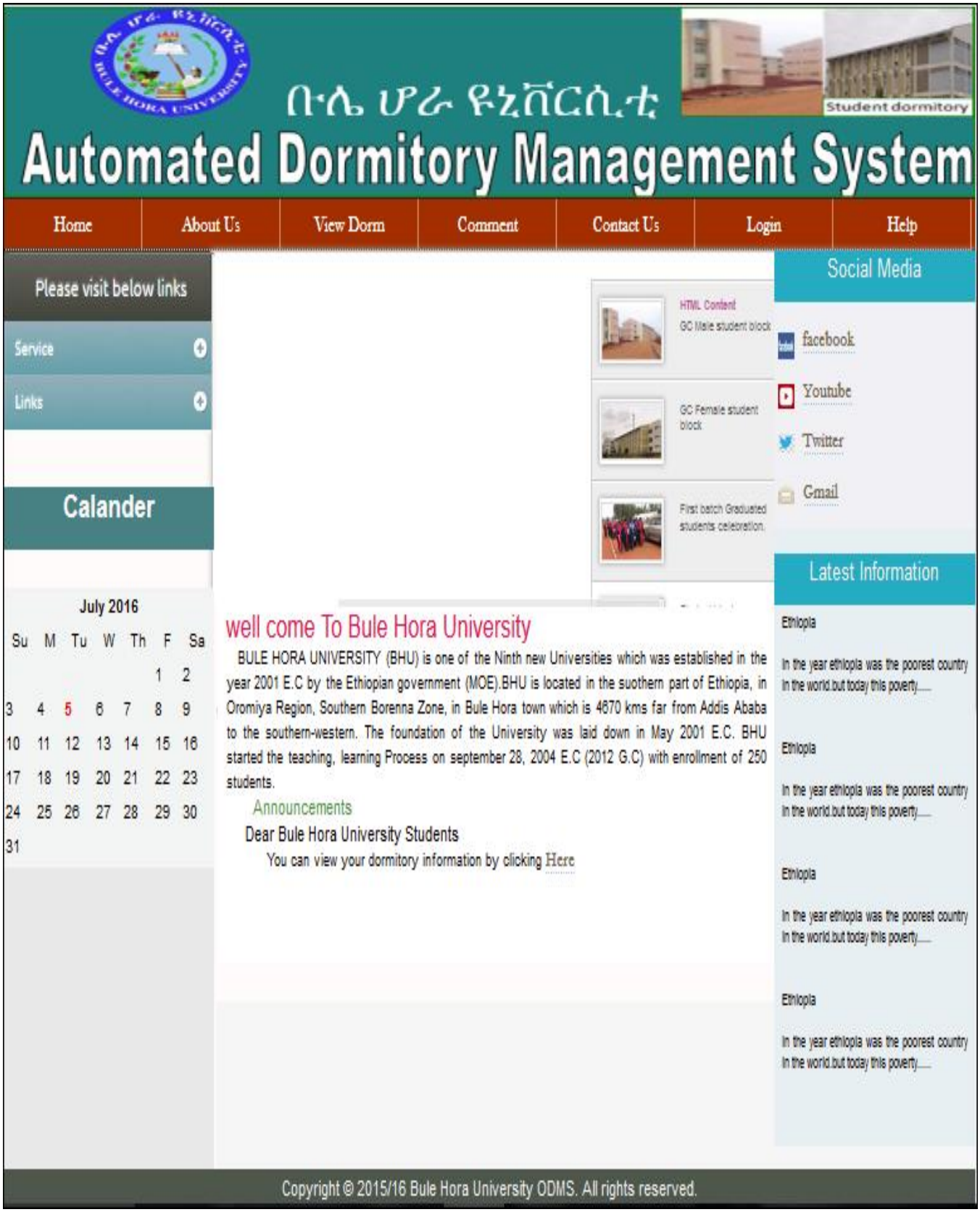


Figure 37User Interface Prototyping design for home page

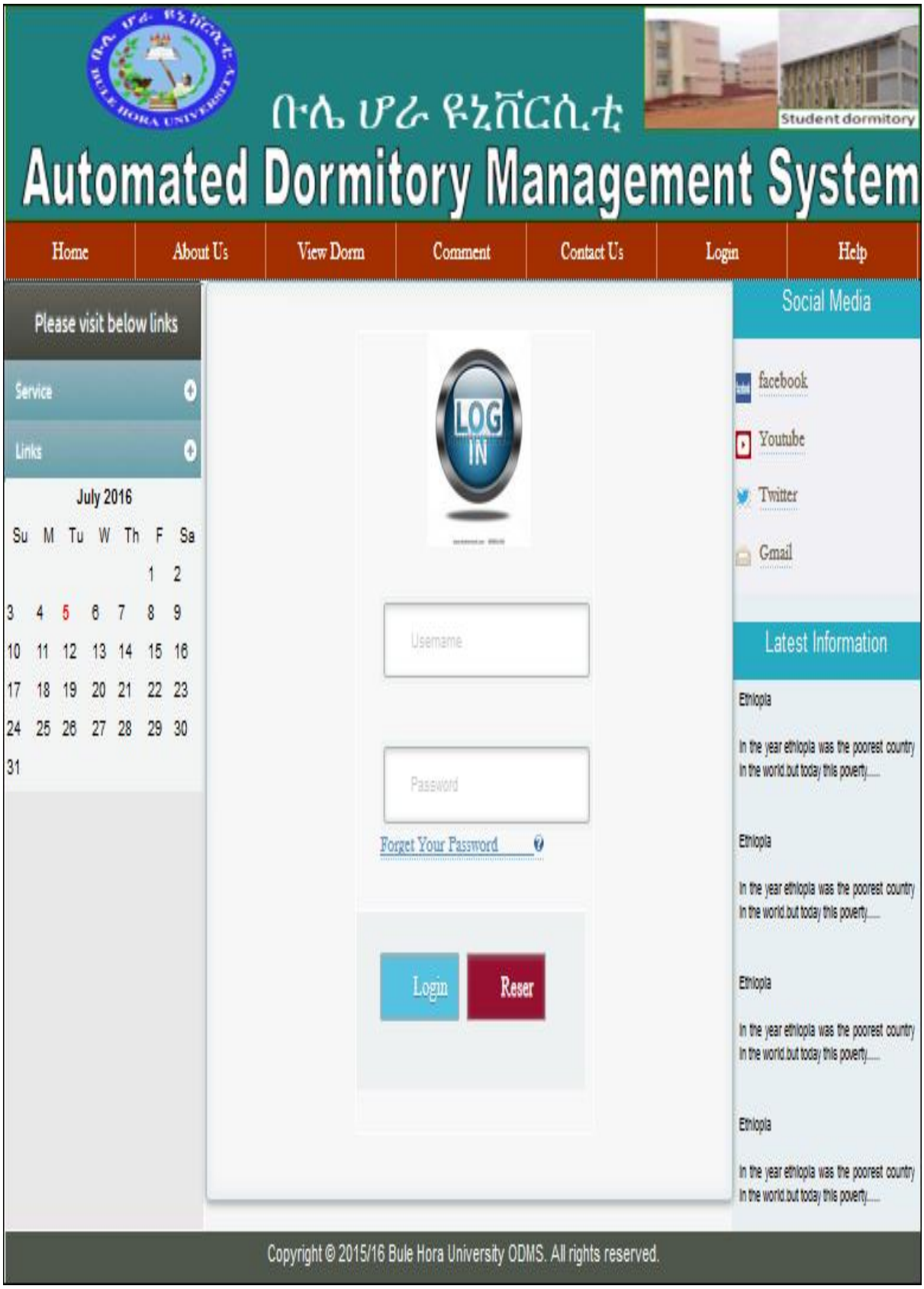


Figure 38User Interface Prototyping design for Login home page

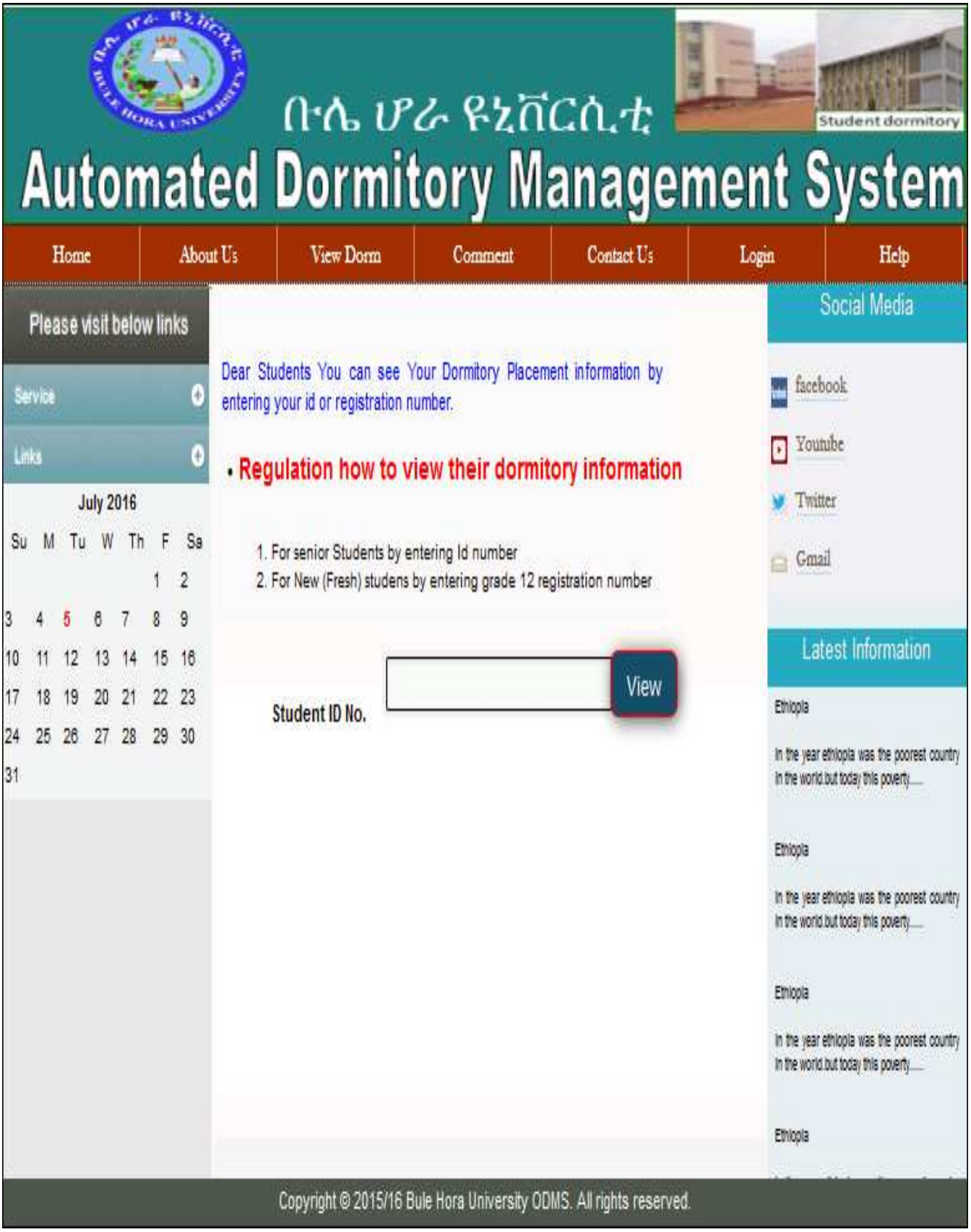
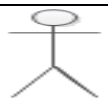
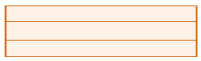
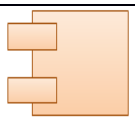
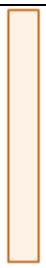


Figure 39**User Interface Prototyping design For View home page**

3.9. Appendixes

Symbol	Description
	Actor
	System boundary
	Decision
	Use case
	Class
	Component diagram
	Destroy
	Object life line
	Deployment diagram
	Note
	Message line extends from the lifeline of one object to the lifeline.
	Return message extend from the lifeline of one object to the lifeline
	Starting point of activity/state diagram

	Ending point of activity/state diagram
MVC	Model view controller
	Xampp server
BR	Business rule
	Interface
	Note
	Time Activation
	Self delegation
	Message call
	Message return
	Horizontal synchronization
*	Multiplicity many(zero)

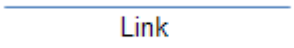
	Package
1	Mandatory
	Object
	Association role
	Transition
UC	Use case
CRC	Class Responsibility collaborator
BHU	BuleHora university
IDE	Integrated Development Tool
DMS	Dormitory Management System
UML	Unified Modeling Language
UI	User Interface

Table 15summery of Appendix table

1.12. References

1. [http://www.sgoogle.com[accessed on October 12]
2. [http://www.sgoogle.com[accessed on October 12]
3. [http://www.sgoogle.com[accessed on October 12]
4. [http://www.sgoogle.com[accessed on October 12]
5. Essentials of System analysis and design(fifth edition by Joseph S. Valacich, Joey F. George and Jeffrey A. Hoffer)
6. A modern, modular approach to standards-compliant web design Craig Grannell Foreword by Jon Hicks, Hicks design Andrew Curioso, Ronald Bradford, Patrick Galbraith
7. *Join the discussion @ p2p.wrox.com* Wrox**Programmer to ProgrammerPHP and MYSQL® PHP5 and MySQL® Bible by Wiley**