

Dormitory Management System

A Project Report submitted to the
Department of Computer Science and Engineering, Jahangirnagar University
in partial fulfillment of the requirements for the degree of
BSc in Computer Science and Engineering.

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FEBRUARY 2018

Abstract

The students' dormitory of a university is the main place to students' daily life, so the students' dormitory management is a vital part of University management. This project provides the searching facilities and information about students' conditions at dormitory and various factors. It allows administration to allocate a seat of a student in the dorm and manages room distribution sector; this is an automated system where the students can take all services of dorm at online. Our hope is that the system will reduce a lot works for students, the admin panel as well. The main purpose of our system is to manage the details of old and new students, payments of students, distributing rooms among the students and managing hall programmes using the web portal. The development of our system also concentrates on security of the information and privileges and access rights are attributed to students and admins. The method used to make the web portal is easier to understand but highly secured to maintain the information secured. We used highly secured method to build the web portal using ASP.NET Framework.

Keywords: web-based, web portal, management system.

Declaration

The project work entitled “**DORMITORY MANAGEMENT SYSTEM**” has been carried out in the Department of Computer Science and Engineering, Jahangirnagar University is original and conform the regulations of this University.

I understand the University’s policy on plagiarism and declare that no part of this project has been copied from other sources or been previously submitted elsewhere for the award of any degree or diploma.

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Acknowledgement

Thanks to Almighty ALLAH for providing us ability and strength to learn, understand and complete our project and report. We'd like to reveal our gratitude to all those who have given the possibility to finish this report. A special gratitude we give to our project supervisor, Sanjit Kumar Saha, Department of Computer Science and Engineering, Jahangirnagar University, whose contribution in stimulating encouragement and suggestions helped us to coordinate our project especially in writing this report. Many thanks go to the current chairman of our department, Dr. Md. Imdadul Islam, who has invested his full effort in guiding us all. And Special thanks to Professor Mohammad Zahidur Rahman Sir; Department of Computer Science and Engineering, Jahangirnagar University, who took Technical Writing Lab and taught us how to write a research paper or a project report. We attribute heartiest thanks to all the faculty members of the Department of Computer Science and Engineering, Jahangirnagar University, and our friends for precious advices and encouragement.

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Chapter 1

INTRODUCTION TO THE SYSTEM

1.1 Introduction

Traditionally Dormitory/Hall Management System uses physical paper for documentation and other works. We want to make the management system easier and make the system comfortable for the users and Hall authority. The project is totally built at administrative end for the welfare of both the students and hall authority.

The motivation of building the project has come from digitalization of hall management system which was based on physical before and the system will be digitalized using online-based web portal.

The general terms are a web portal for searching facilities based on various factors such as rooms, session, student's name etc. for the information of old and new students of hall and stay connected with each others.

The main objective of the Dormitory Management System is to manage the details information of old and new students, payments of students, distributing rooms to the students and managing hall programmes using the web portal.

The structure is based on Web Engineering tools using HTML, CSS, JavaScript and ASP.NET Framework. There will be a "Web Portal" available for the welfare of students and the administrators or authority of the Dormitory Management System which will have a database connection for documentation purposes.

Here, students must check for the successful or unsuccessful list of accommodation application at the residence administrator. Since the new system to be adopted is computerized, it will automatically send notifications to successful and unsuccessful applicants through email.

1.2 Problem Description

The problem is to make a web based System. Dormitory Management System will be prepared using Web Engineering techniques. Our aim is to make the website user friendly and making a Web Application using software engineering techniques for the Hall authority.

Website is managed and updated by selected administrator panel from the hall authority who will manage the users' activities. We have two types of actors: Students who are the users and Administrator panel which is the authority of the Hall.

1.3 Motivation

The motivation of building "Dormitory Management System" has come from digitalization process of managing hall students which was based on physical paper before and the system will be digitalized using online-based web portal.

Here, our aim is to make quality system for managing hall students and their information. Generally students' information are provided and stored with physical paper. When a student's information is needed, the hall authority can hardly give the total information which is a lengthy process. If those information are stored in a web portal, it will be quite easier to find all the information of the students than before. It will help both hall authority and students and make their connection system easier. From these views, the motivation of building the project came from.

Australian Company, Auskor Australia, developed a student accommodation management model consist of the following important components:

Operations management:

- Application and Room Booking Systems
- Room Inventory Management
- Tenancy Management
- Rules of Conduct
- Financial Reporting and Account Management Systems
- Marketing and Students recruitment. (Auskor Australia, 2008)

After knowing and observing this company model, we got motivation to develop the Dormitory Management System in such away all these components will include.

1.4 Objectives

- Making a web based system
- Provides the searching facilities and information about students
- Going to develop a web portal for managing hall system.
- Information of individual's is stored in database
- Users can edit his/her information and update his/her information

- Details of old and new students are preserved
- Payment of students is maintained by administrator panel
- Room Distribution is maintained by administrator panel
- Project is totally built at administrative end
- Any hall-based program can use this web portal for registration process, payment process and other related purposes.

1.5 Contribution and Related works

- Website provides information of old and new students connected with the dormitory system.
- Users can access by login page with valid username and password authenticated by administrators.
- There will be a “Homepage” available for the selected searching data.
- Administrators manage and give security to the users.
- The payment process of hall charge can be done by using debit card, credit card & mobile banking system and will be updated by administrators.
- The payment process of any hall-based program can be done by using same process.
- Room distribution process can be held by using the web application. Available free rooms will be found easily.
- User’s information can be updated by changing the user’s profile database.
- Administrators can add, delete and update user’s information.
- Highly secured management system.

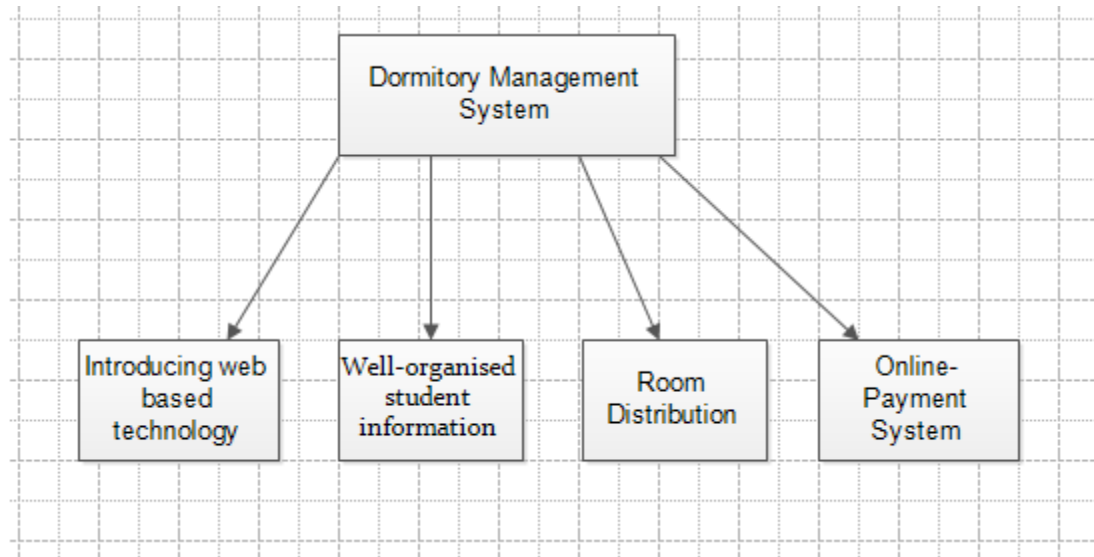


Fig 1.5.1 Contribution and Services of the System

Related Works:

Digital world is being digital by using information technology like many web-based automation system. A WEB-based Computer Experiment Management System is designed and implemented by IJWA at 2017. (Reference: 1) They develop the system to manage Computer Experiment through online. A web-based multi-agent decision support system for a city-oriented management of cruise arrivals is developed by Int. Syst. In Accounting, Finance and Management at 2017.(Reference:2) There are various works related to Management System. Effective Project Management Using Web-Based System with Integrated Knowledge Base is developed by ISAT at 2016.(References: 4) Besides these Management System, there is also existence of Dormitory Management System in Developed Countries. Mothe, Adithya; Suragoni, Koushik Kumar; and Vakity, Ramya, "Online Dormitory Reservation System" is developed at 2015. (References: 5) From these Management systems we get motivation to do our project.

Chapter 2

USER REQUIREMENTS

2.1 Introduction

In the 1st chapter, we discussed with the users of the system and the present system. This chapter describes the requirements of users' and their views and expectation around this system as well as what types of data collection tools we used. We will try to find out sample data and their relations and sort out the problem arose by developer and user relationship.

2.2 Problem Domain

The problem domain of our project is to make a computerized dormitory management system in which users can access into this system from anywhere by online. We will use Web Engineering tools to solve the problem. This is helpful to hall authority to manage students allotted to the dorms. This is the main problem domain of our project.

2.3 Sample Data Collection

We used data collection tools to collect actual information about a certain dormitory system and our system requirements were collected from staffs, provost and other persons of a students' dormitory.

We had done some questions to students and by observing a lately system where staffs works manually we were looking forward to gather the existing problems and how they work with their files and account. We went to the hall office and talked with officers about some internal topics of a dormitory system.

We have to collect students' information from the users and check them comparing with the data collected from the hall office. After validation and testing, user's registration will be completed and information will be stored at our database.

2.4 Problem of Users' and Authority

The users are students and administrators and they face with different problems about our system. The information collected from both users is as follows:

STUDENTS' PROBLEMS

- When students fill up the forms for their exam, they have to moving around from department to dorm and then dorm to register office and then register office to exam control office and so on.
- When a student applies for testimonial, it takes a long time to process.
- When a student gets a seat in the dorm, then he has to register his room. It becomes always a long process.
- When the students go to register a room, previous student's information has to be updated by new one.
- There is no online objection or suggestion box. The students can not complain, or make suggestions or comments about the problem they face with the system and they cannot send an email to the administrator as well.
- When a student wants to know about other student's information for any crying need, he can't get proper information and can't communicate with him/her.

ADMINISTRATORS PROBLEMS

- Student's information management at physical paper is a lengthy work and searching any student's information is tough for hall authority.
- Room Allocation is a tough and important task of hall authority. Allocation of same seat of same room to two different people can cause harm to the students. Students make a mistake of booking a single room which is booked by different students at the same time.
- Continuous capturing data and processing of the paper-based student applications.
- Managing hall payment of each and every student physically is major problem of administrator panel.
- Users do not have the access to database to get the information about students e.g. those who fail, those who leave the university for different reasons etc.

2.5 Security and Fraud Prevention

We have to maintain and ensure strong security system for making our project usable. In our project, we are using a secure gateway for the payment. It will automatically contact with the concerned bank and the payment process will continue. We are applying some security factors for fraud detection purposes. Fraud can harm a large amount of damage at the system. We are using the security measures for the frauds to not to interrupt the payment process and login procedure is well-maintained. System Security: Setting Up Authentication for Web Applications

2.6 Users' expectation and Limitation

Fulfilling user's expectation is the main objectives of our system. Our system will be user friendly. Administrator and student's are the main users to get benefits from the system. There will always some limitations at any project. During system implementation, the developer will not have direct access to the Students' database for easy retrieval of student's information (name, address, id number, academic and financial records and application/admission status) because of the university policy. Designer should collect them from the authority and maintain security issues strictly. A similar database will be created as to help the system developer to test for the new system.

2.7 Summary

Our system will be the best solution to solve the problem mentioned above as it will provide easy online application, so that students can apply from home or anywhere else via internet. The online system will also provide quick and reliable registration process hence reducing the load of work done by the staff and saving time for students who apply. This chapter assessed the user's views about the current system and their expectations from the new system. The next chapter is about the system software requirements.

Chapter 3

Technologies and Resources Analysis

3.1 Introduction

We discussed with user requirements in the 2nd chapter. But here we're gonna discuss about our required technologies and what kind of resources we'll use and implement for our system. Moreover you should identify our system problems cause then we can have chosen our required tools for our application.

3.2 Functional Components

Functional components are main components which are needed to solve the whole system. But our system depends on only software and database management system. Now we're gonna show some details of them as follows:

3.2.1 Software Management

- i. We will make our application software approachable so that anyone can access from any operating system.
- ii. We will make our system software capable of retrieving data from the database.
- iii. We will make our system software capable of inserting data properly in the database.
- iv. We will make our system software capable of modifying/updating data in the database.
- v. We will make our system software capable of deleting data as we need in the database.
- vi. We will make our system software convenient of interacting in any platform.
- vii. We will make our system software able to interact with online payment system.

3.2.2 Database Management

- i. The database system will have to be updated version.
- ii. The database what we'll use should be convenient for our system.
- iii. The database system will be user friendly for our system.
- iv. The database system will approve users to store, modify stored data and delete data.
- v. The database system will approve users to search.

3.3 Designer's Analysis

Application design is a vital part for a system. So to make a system looking flamboyant, a well designer's performance is more important. As a result, designers need to analyze the system's design. People will use a system when it is usable and looking gorgeous than others. As a result its appearance totally depends on a well designer. So a designer should analyze around system's design.

3.4 System Solution

Every university has a website for their all activities. From that website all students, teachers, staffs and other employees take their necessary information. So a dorm management system is also needed for students to take their dorm related all services.

3.5 The System Model

We will show our detailed system model to the next chapters. Actually to show the system and user requirements we need taking help of UML diagram. UML diagram helps to understand how a system will work, how they are connected with each other, how a part of system will work and so on. By following a system model e.g. UML diagram, it becomes too easier to develop a system.

3.6 Technologies Used

To make our whole system we will use some technology such as ASP.NET, SQL server, HTML, CSS, JavaScript, Bootstrap). Here some benefits to use these technologies are given bellows:

- i. Famous languages
- ii. Easy to understand
- iii. Developing platform convenient
- iv. Writing code is easy
- v. IDE cheap

ASP.NET

ASP.NET is an open-source server-side web application framework designed for web development to produce dynamic web pages. It was developed by Microsoft to allow programmers to build dynamic web sites, web applications and web services.

MYSQL

MYSQL is an open source relational database management system. It is based on the structure query language (Sun Microsystems, Inc., 2009), it is consistent fast performance, high reliability and ease of use.

JAVASCRIPT

It is a scripting language used to enable programmatic access to objects within other applications. It is primarily used in the form of client-side JavaScript for the development of dynamic website.

HYPERTEXT TRANSFER PROTOCOL (HTTP)

Is an application-level protocol for distributed, collaborative, hypermedia information system? Its use for retrieving inter-linked resources led to the establishment of the World Wide Web. (Hypertext Transfer Protocol, 2009).

HTML

Hypertext Markup Language (HTML) is the standard markup language for creating web pages and web applications. With Cascading Style Sheets (CSS) and JavaScript, it forms a triad of cornerstone technologies for the World Wide Web. Web browsers receive HTML documents from a web server or from local storage and render them into multimedia web pages. HTML describes the structure of a web page semantically and originally included cues for the appearance of the document.

CSS

Cascading Style Sheets (CSS) is a style sheet language used for describing the presentation of a document written in a markup language. Although most often used to set the visual style of web pages and user interfaces written in HTML and XHTML, the language can be applied to any XML document, including plain XML, SVG and XUL, and is applicable to rendering in speech, or on other media. Along with HTML and JavaScript, CSS is a cornerstone technology used by most websites to create visually engaging webpage, user interfaces for web applications, and user interfaces for many mobile applications.

BOOTSTRAP

Bootstrap is a free and open-source front-end web framework for designing websites and web applications. It contains HTML- and CSS-based design templates for typography, forms, buttons, navigation and other interface components, as well as optional JavaScript extensions. Unlike many web frameworks, it concerns itself with front-end development only.

3.7 SOFTWARE *QUALITY ASSURANCE*

There are many ways to test a system such as usability testing, paper prototyping, reliability testing, input output testing etc.

In the usability testing we can check our system by implementing on users. Here we will provide it to various users to test it. As a result users will use it simultaneously.

Software **Reliability** is the probability of failure-free software operation for a specified period of time in a specified environment. In the reliability testing we can give same types of input several times and check the outputs whether it comes correctly.

In the paper prototyping part, we can draw some figure before writing a code. So developers can perceive what they have to do or what users want is wrong or right.

3.8 Summary

Finally in this chapter, we see that the system we're going to make will be succeeded if user requirements are satisfied. To fulfill all the requirements we need to make proper design, managing database, using technologies, at last testing our system.

Chapter 4

Object Oriented Analysis

4.1 Introduction

At the last chapter, major user interface was described. We have discussed how user interacts with the system. In this chapter, each and every object will be found out and discussed and documented. Some of attributes and methods of objects will also be described.

4.2 Data Dictionary

There will be a strong collection of objects of different types. There will be various type of attributes and values of data at collected objects which is known as Data Dictionary.

4.2.1 Student Object

Student Object is the main object of Object Collection. There will be different types of student's information at student object. There will be one record for each student of the dorm.

Object Name	Description	Data Type	Example
Student ID	Identity given by University Authority	Integer	123456
Title	Student's name title	Varchar (20)	Mr., Ms. ,Md.
Name	Student's name	Varchar (20)	Fahim Islam
Surname	Student's surname	Varchar (20)	Akash
Gender	Student's gender	Varchar (20)	Male/Female
Date Of Birth	Student's birth date	Date	13-04-1994
Room Number	Student's Room number	Varchar (20)	131/A
Room Status	Student's staying status	Varchar (20)	Yes/No
Mail ID	Email id	Varchar (50)	akashuh@gmail.com
Address	Student's address	Varchar (50)	Dhamrai,Dhaka
Phone Number	Student's Contact No.	Number	01837189***
Department	Student's faculty	Varchar (50)	CSE,Physics
Session	Admitted year	Varchar (20)	2012-2013

Table 4.2.1 Student Object of the system

4.2.2 Administrator Object

This object contains administrator's information and list of hall authority.

List of Hall authority:

Name	Designation	DATA TYPE
Md. Fazlul Karim	Hall Provost	Varchar(50)
Md. Rahim Khan	Hall Officer	Varchar(50)
Md. Kader Khan	Assistant Hall Officer	Varchar(50)
Md. Saddam Hossain	Account Officer	Varchar(50)

Table 4.2.2.1 List of Hall Authority

Administrator panel is selected by hall Authority. There is many information needed from admin panel which are admin object.

Name	Description	DATA TYPE	Example
Admin ID	User id of an admin	Varchar(50)	admin
Admin Password	Password for admin	Varchar(50)	*****
Admin Name	Name of administrators	Varchar(50)	Rahim,Karim etc.
Mobile Phone	Contact number of admin panel	Varchar(50)	017878*****

Table 4.2.2.2 Admin Object of the system

4.2.3 Room Object

Room object contains information of allotted student's room number and the status of staying at the dorm.

Name	Description	DATA TYPE	Example
Room ID	Room number	INTEGER	131/A,128/A
Room Type	Single/double-bed room	VARCHAR (50)	1/2/4 beds
Block	In which block	VARCHAR (10)	A/B Block
Payment per room	Payment info	INTEGER	20-300 tk per room
Room Status	Full? Yes or No?	VARCHAR (10)	Yes/NO
Student Amount	Number of students staying at each room	INTEGER	2/4 students at one room

Table 4.2.3 Room Object collection

4.2.4 Payment Object

Payment information of the hall students for staying at hall is preserved at Payment system of our entire system. There are some objects related to hall payment or others financial issues.

Name	Description	DATA TYPE	Example
Payment ID	Transaction ID	INTEGER	12341
Student ID	Student's identity who paid	INTEGER	001,010
Amount	Total amount of payment	INTEGER	300 TK
Balance	Remaining balance	INTEGER	100 TK
Date	Transaction time	Date	08-02-2018
Receipt	Receipt of payment	VARCHAR(50)	Balance sheet
Reference No.	Reference of transaction	VARCHAR(50)	123ab

Table 4.2.4 Payment Object

4.3 Database Design

In database, we have used data dictionary to fix the object and its' Data Type. From the data dictionary, we get the attributes of the student database, admin database, room database and payment database. We have used SQL language to create database table. Here, we are showing some database table to design the database.

The following table shows the attributes of student shortly:

ID	Name	Password	Address	Department	Phone	Session
010	Akib	Akib1234	Dhamrai	CSE	0171717187	2012-13
110	Rasel	Ras123	Dhaka	Physics	0189181871	2011-12
130	Rayhan	Ray234	Faridpur	Mathematics	0101932832	2013-14
123	Sabab	Sab1234	Uttara	CSE	0183083081	2012-13

Table 4.3.1 STUDENT Table

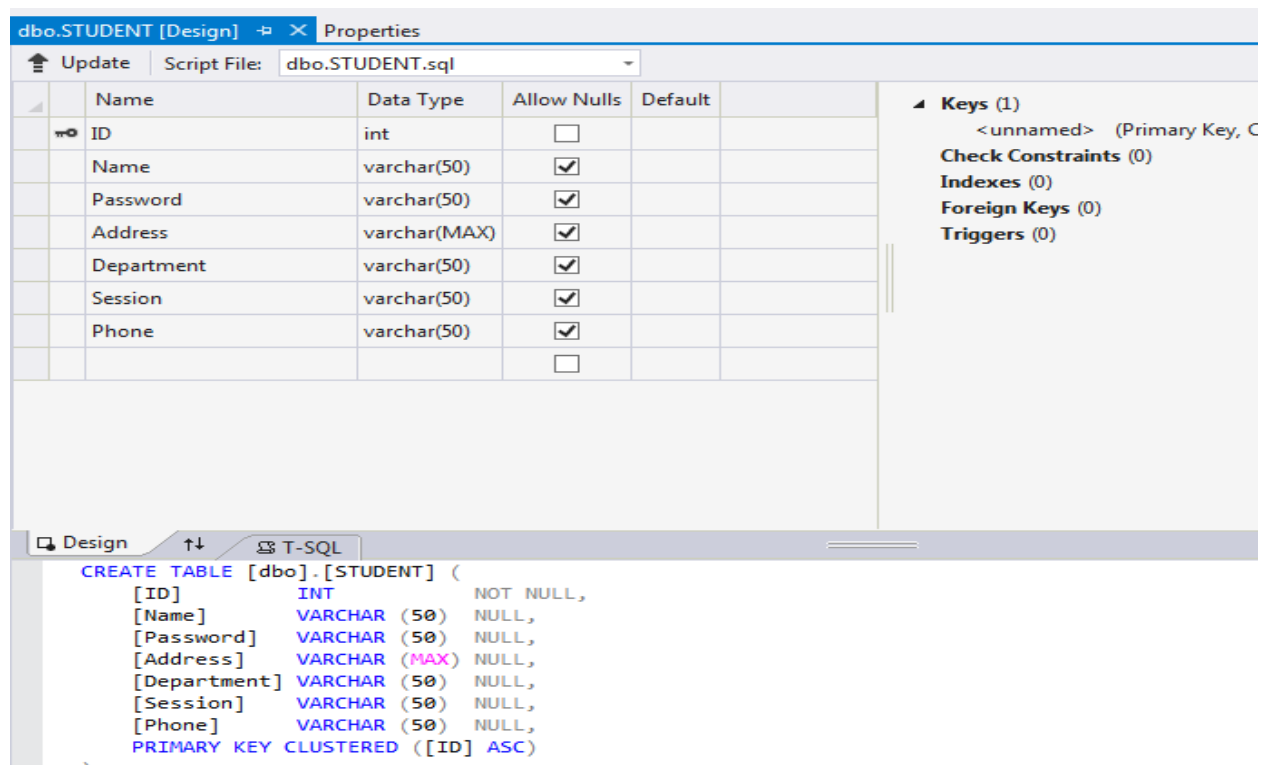


Figure 4.3.1 STUDENT Table Creation

ID	Name	Password	Address	Department	Session	Phone
21	Akash	akkas	Dhamrai	CSE	2012-2013	01774647673
23	Rasel	rasel	dhaka	cse	2012-2013	018273764747
31	Sabab	sabab	Tongi	CSE	2012-2013	01716033198
36	Nuran	nura	tongi	CSE	2012-2013	019934455
39	Zilani	zilani	Gawair	CSE	2012-2013	0137836764
40	Alamin	al40	Pabna	CSE	2014-15	0108313977
42	Ullash	1234	B. Baria	Physics	2014-15	0172827382
45	Saddam	saadam	Pabna	CSE	2012-2013	089378478
46	Bellah	4622	Noakhali	Mathematics	2015-16	01738193278
47	Protick	protick	tangail	CSE	2012-2013	018376476
134	Zahidul	zah2	Dhaka	CSE	2012-13	01893948249
135	Mokarrom	moka	dhaka	URP	2012-2013	01763535344

Figure 4.3.2 Values of STUDENT Table

The following table shows the attributes of Admin shortly:

Admin ID	Admin Name	Admin Password	Contact No
1	Obaydur Rahman Sir	Qwerty12345	01832737370
2	Akash Zabed	Asdfg098765	01725353463
3	Somnath Somu	Zxcvb456789	01521499784

Table 4.3.2 Admin Table

The following table shows the attributes of Room shortly:

Room Id	Room Type	Block	Student Amont	Status
138/A	2 beds	A block	2	Full
101/B	4 beds	B block	4	3
131/B	1 bed	B block	1	Empty
239/A	2 beds	A block	2	1
123/A	2 beds	A block	2	Empty
128/B	2 beds	B block	2	Full

Table 4.3.3 Room Table

The following table shows the attributes of payment shortly:

Payment Id	Paid Amount	Due Amount	Date	Receipt
175.101.47608	40	180	12.09.17	St010.docx
175.101.14245	80	120	12.10.17	St101.docx
172.101.25267	120	220	12.11.17	St123.docx
171.101.25267	120	210	13.12.17	St124.docx
175.101.25267	100	250	25.12.17	St124.docx

Table 4.3.2 Payment Table

The following table shows the relational database named Room allocation using Room Table and STUDENT Table:

Student ID	Student Name	Room Number
010	Akib	131/A
101	Akash	134/B
123	Somu	145/B
125	Saddam	125/A

Table 4.3.3 Room Allocation Table

Here, we are showing an E-R diagram to show the relationship among the database table. We have used relational database system.

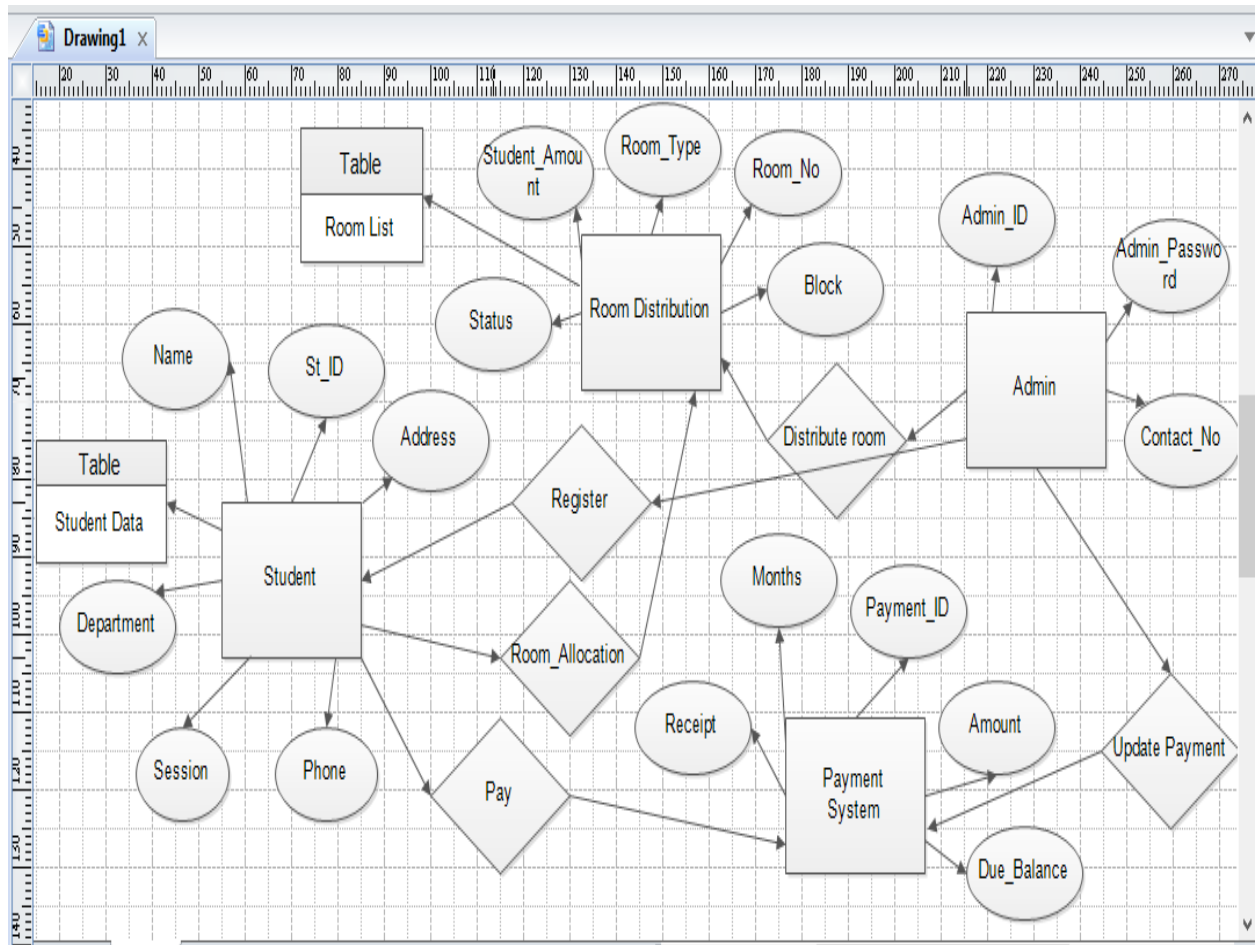


Figure 4.3 E-R Diagram showing relation database

4.4 Class Diagram

Class diagram is a diagram where relationship of classes and objects are defined clearly.

Attributes and objects of classes are also shown in the diagram. Here, in our class diagram admin and student class are connected where admin manages student's information, payment class & room distribution class is also maintained by admin class. The administrators manages transaction of payments and records them updating student's information.

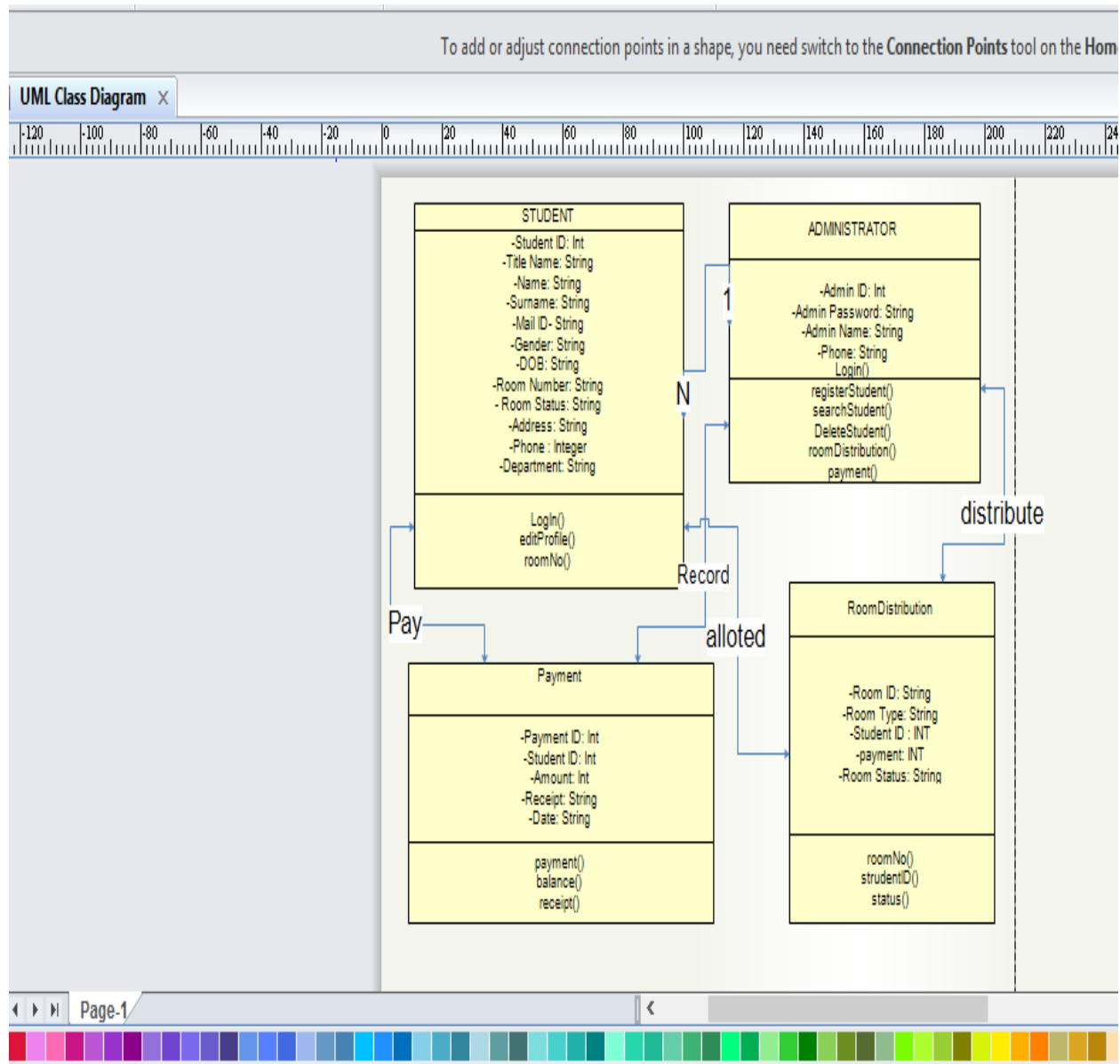


Figure 4.4 Class Diagram

4.5 Summary

In this chapter, we have learnt class and objects of the entire system. We learnt about data dictionary where attributes and data objects are documented. The Class diagram demonstrates the relationship between objects and operations of attributes. We have learnt about database table of some attributes and values that we have stored at database. From the E-R diagram, relation database table system is clarified and documented.

Chapter 5

Object Oriented Design

5.1 Introduction

In the 4th chapter, we discussed with OOA and how each object connected with each other and how they work etc. In this chapter, we are going to discuss about the UML (Unified Modeling Diagram) diagram such as Use case diagram, Sequence diagram, DFD, State diagram. Also we will discuss with pseudo code and database design of our system. In OOD we could come to know about the attributes of the objects and their class.

5.2 UML Diagram

In software engineering sector, by using UML diagram we can visualize an application program by using various diagrams. This term has come out from the work of Grady Booch, James Rumbaugh, Ivar Jacobson, and the Rational Software Corporation to be used for OOD. But in software engineering projects, UML has been extended to complete the vast area. Lately, Object Management Group supports the UML for modelling software development environment.

Types of UML Diagrams:

- i. Structural UML diagrams
 - Object Diagram
 - Package Diagram
 - Deployment Diagram
 - Component Diagram
 - Composite Structure Diagram
 - Class Diagram
- ii. Behavioral UML diagrams
 - State Diagram
 - Sequence Diagram
 - Use case Diagram
 - Timing Diagram
 - Interaction overview Diagram
 - Activity Diagram

5.2.1 Use Case Diagram

In our system, how the user interfaces behaves that is shown in this portion. The student, admin and can log in to the system. The students can pay for dorm seat monthly, submit their application form, examination forms, and request for dorm services. The admin can process any forms, and donate for dorm services and management. Staffs will receive payment, view details of old/new students, room distribution, and so on. The following use case diagram shows the activities of the system shortly:

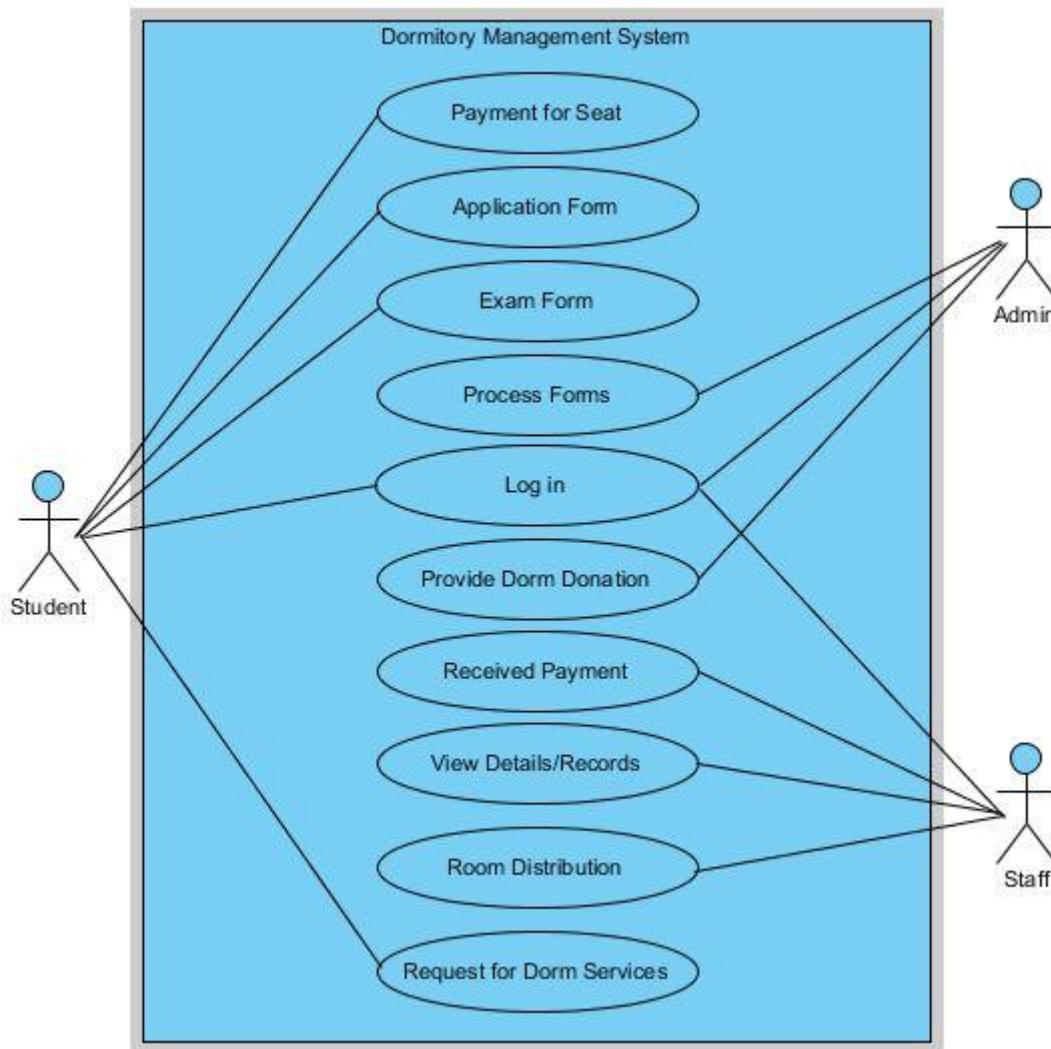


Figure 5.2.1 Use case diagram

5.2.2 Sequence Diagram

The sequence diagram of our system represents the sequential activities of actors of our system. Suppose the student apply for a sign in application form, in return he gets a form. Students pay to the staffs, then the staffs send their info to the system. The staffs and admin can update the database system. The staffs also allocate the room and admin controls the staffs.

The following sequence diagram shows the activities of the system shortly:

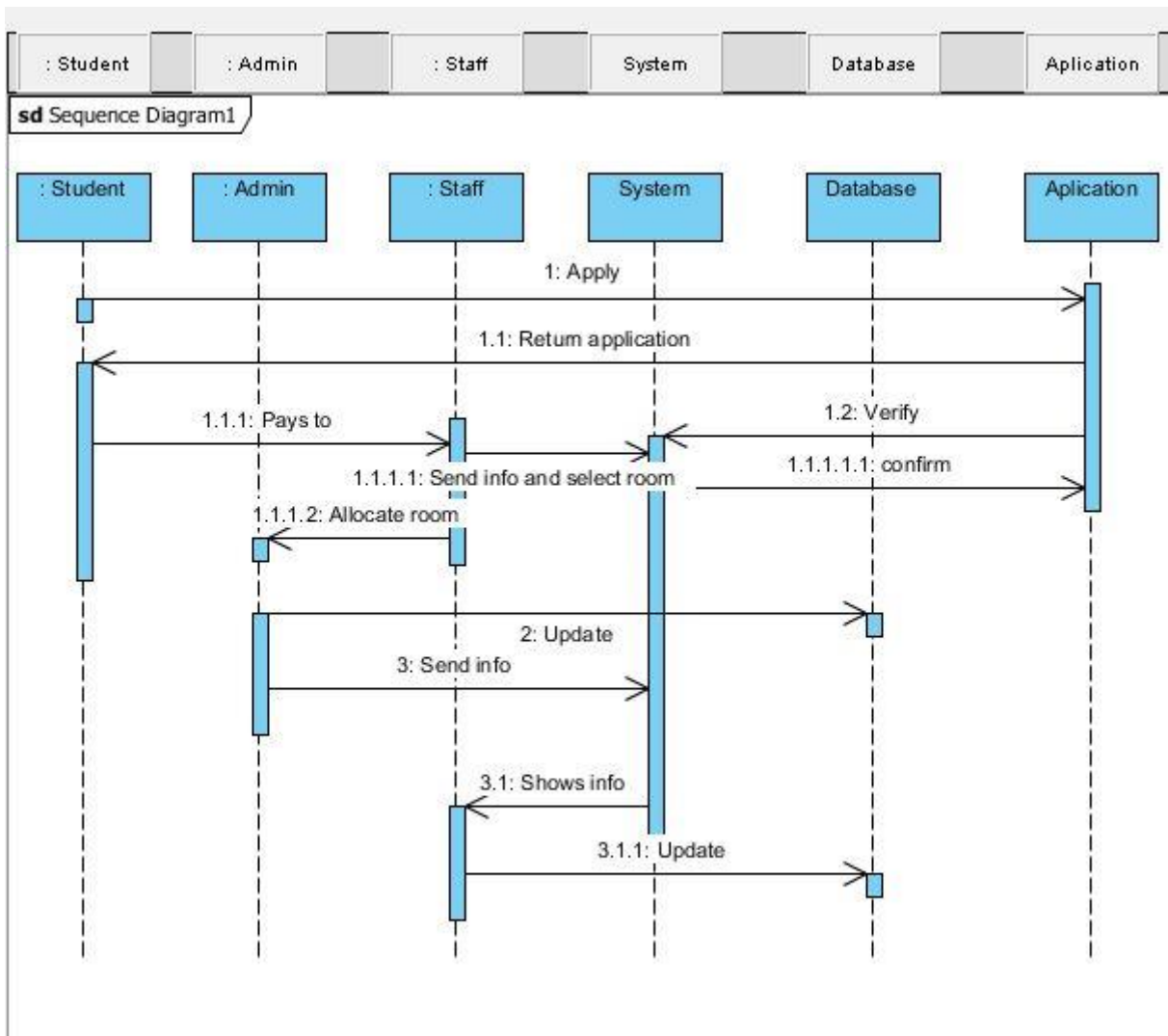


Figure 5.2.2 Sequence Diagram

5.2.3 State Diagram

In our system, there is a login option for students, admin, and staffs. They input their username & password. Suppose for student, if password or username is invalid, then he cannot apply for exam application. If login verification is valid, then he can apply and pay for form. But if he does not pay, then his application will be rejected. If he requests for a room/dorm service, then he could get it. The following state diagram shows the activities of the system shortly:

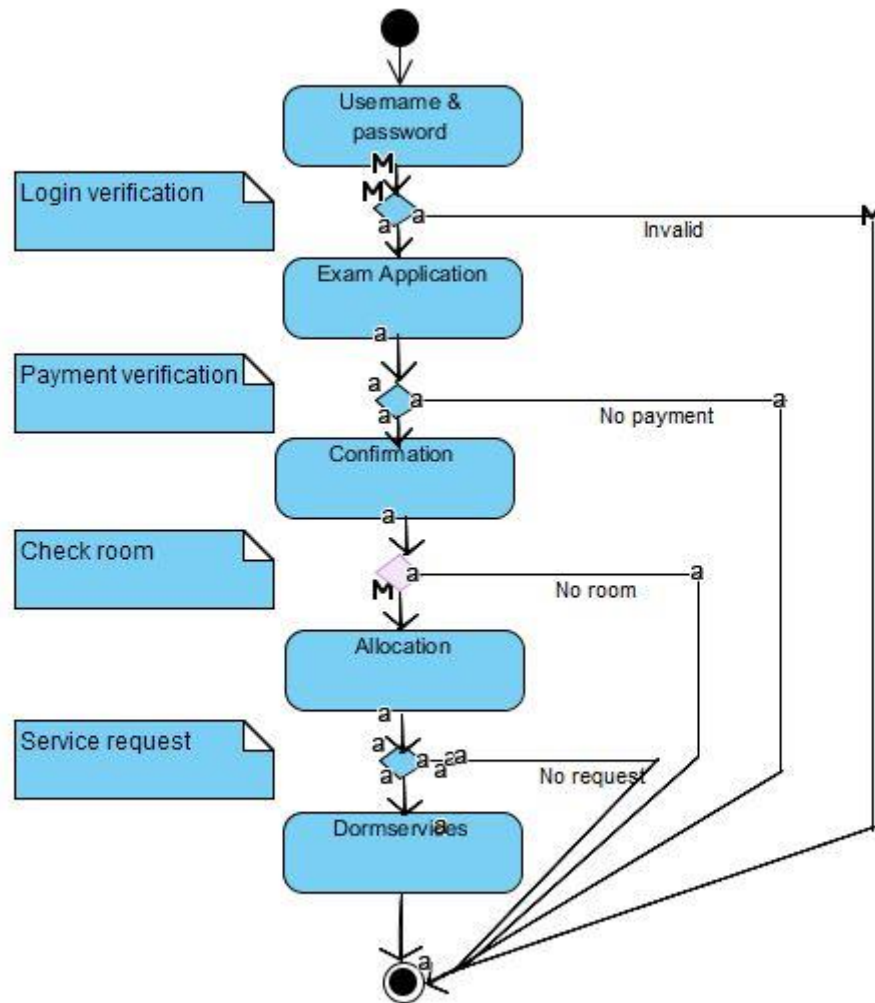


Figure 5.2.3 State diagram

5.3 Pseudo Code

Here, we are showing a simple pseudo code used for login page:

LOGIN PAGE

Take ID and PASSWORD in login page.

```
IF pressed "LogIn" button then {  
    Search users in database  
    IF user is not found  
        THEN prints "User not found" take LOGIN again  
    ELSE IF username or password correct  
        IF user = Student  
            THEN load Application Page  
        ELSE IF user=Admin  
            THEN loads payment page  
}
```

5.4 Summary

In this chapter we actually showed UML diagram with pseudo code implementation. UML diagrams help to understand an algorithm and pseudo helps us to write a program. These diagrams and pseudo code actually help us to write an application program. In the next chapter, we will discuss about code implementation and documentation of our system.

Chapter 6

System Architecture Design

6.1 Introduction

System Architecture can be described with user interfaces which are designed with some webpage using HTML, CSS techniques. Here, in this chapter we will try to discuss design phases of major User Interfaces. It will describe how the website works with interfacing users and admin activity. Also some images of some interfaces are included to understand the system how the user interacts with different works.

6.2 UI Design

User interfaces are basic design steps of making a web-based system. Here, we are trying to discuss some major UI design.

6.2.1 Login Page

At first there is a Default Page which is redirected as a Home Page. There is a Login option at the top right corner. There are two types of login option. The login page helps the users to login as a Student and as an Administrator who manages the students and dorm activities.

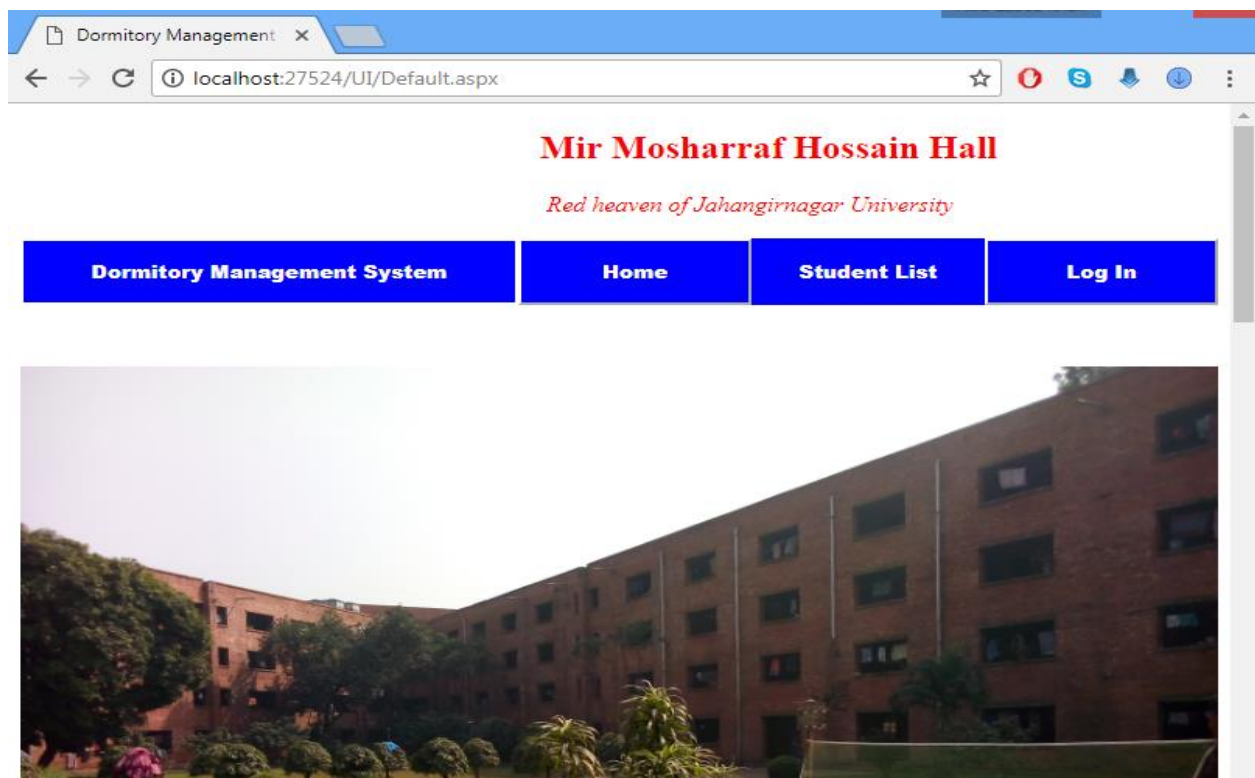


Figure 6.2.1.1 Home Page of Dormitory Management System

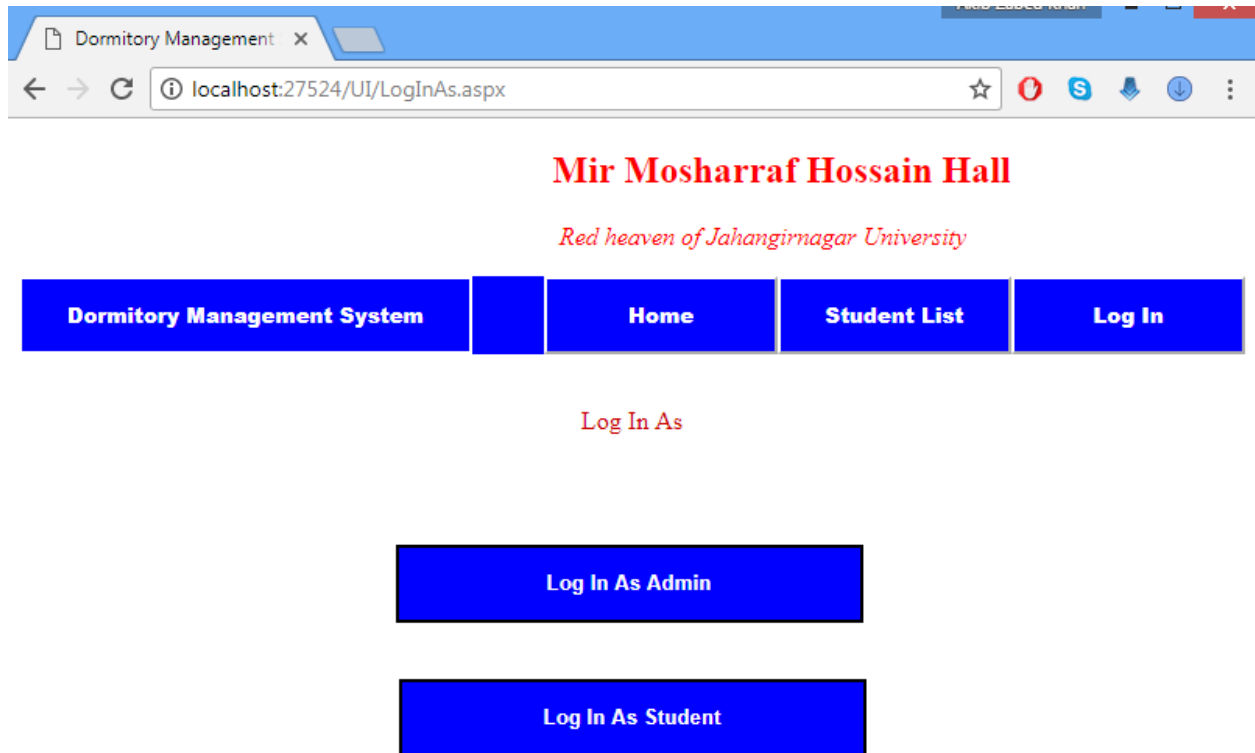


Figure 6.2.1.2 Log In Page of Dormitory Management System

6.2.1.1 Admin Login

Login as Admin button will redirect the webpage to Admin Login Page. There is a username and password option for login as an admin to go to Admin Activity.

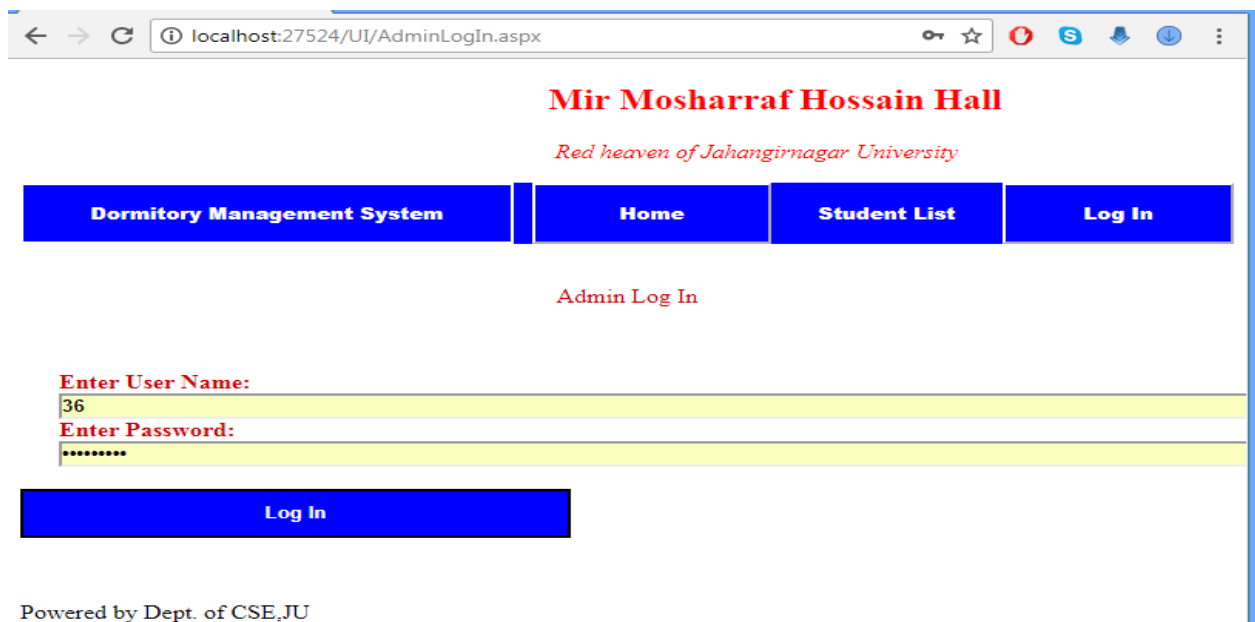


Figure 6.2.1.3 Admin Log In Page of Dormitory Management System

6.2.1.2 User Login

LogInAs Student button will redirect the webpage to Student Login Page. There is an unique User ID and password for each student to login as an user to go to Student Activity.

At Login page there is a Home button for default page and there is a Student List button where the information of Student are found easily. There is a database connection with Student List where all the student info data are stored after registration completion or the documented data which is given by University Authority.

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Red heaven of Jahangirnagar University

Dormitory Management System | **Home** | **Student List** | **Log In**

Student Log In

Enter User Id:
36

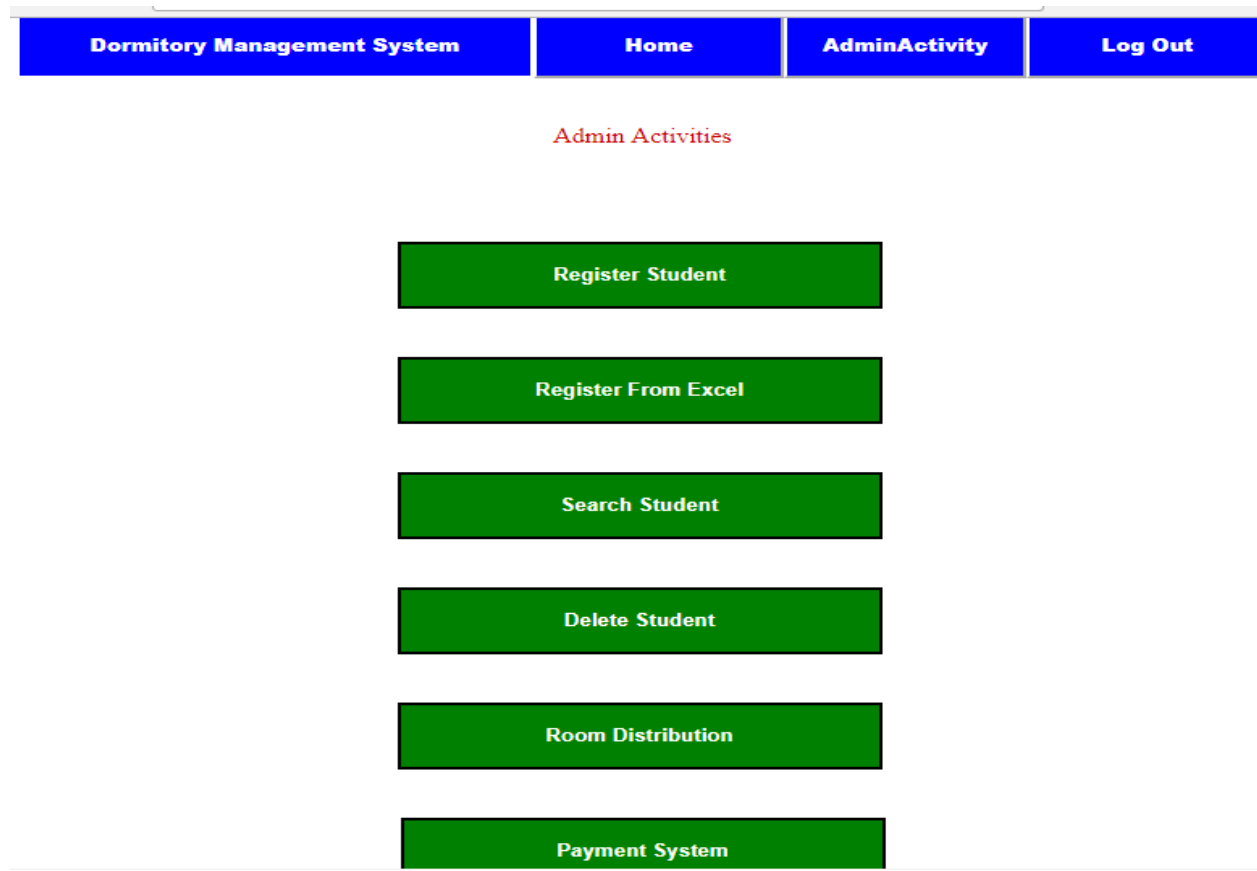
Enter Password:

Log In

Figure 6.2.1.4 Student Log In Page of Dormitory Management System

6.2.2 Admin Activity Page

There are several admin activities. Administrators are the manager and main authority of the system. They are given supreme power to do any change at information and distributing room and payment system is also handled by admin panel. Admin activity page contains several button of activities like Register Student, Register From Excel, Search Student, Delete Student, Room Distribution & Payment System.



6.2.2 Admin Activity Page of Dormitory Management System

6.2.2.1 Register Student

Registering a student with some important and valid information is the first responsibility of Admin Panel. A CSV file or Excel file is given by University authority which contains information data of students. Admin panel has the responsibility to take all the data directly into the STUDENT database. The information data can be given one by one at Register Page. The required information are: ID, Name, Password, Address, Room Number, Status of staying at hall, Phone number.

Contact No.: 0171217****
 Email: mmh_hall@gmail.com

Dormitory Management System	AdminActivity	Log Out
------------------------------------	----------------------	----------------

Register Student

ID:

Name:

Password:

Address:

Department:

Session(Insert Session as 2012-2013)

Phone Number:

Register

Figure 6.2.2.1 Register Student page of the system

6.2.2.2 Search Student

This page contains searching facilities of student's information based on student's name and room no. We can find easily any student's data from the database by searching key information.

Contact No.: 0171217****
 Email: mmh_hall@gmail.com

Dormitory Management System	Admin	Log Out
------------------------------------	--------------	----------------

Search Student

Search According To:

Search Value:

Search

Figure 6.2.2.2 Search Student page of the system

6.2.2.3 Delete Student

After the migration of a student, the student is no longer belongs to this dorm. So, student's date should be deleted. That's why there is delete option where after giving student's ID number, his/her all information will be deleted from the database.

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Red heaven of Jahangirnagar University
Contact No.: 0171217****
Email: mmh_hall@gmail.com

Dormitory Management System | **AdminActivity** | **Log Out**

Delete Student

Enter The ID To Be Deleted:

Delete

Figure 6.2.2.3 Delete Student page of the system

6.2.2.4 Room Distribution

Each and every student should have been given a room number at the dorm. Administrator panel and hall authority should manage it carefully. Admin should ensure a room number to all current students. Free rooms should be given to new students who are allotted to the dorm. Student's ID from Student Table is allocated an available room number seeing the status of room list.

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Red heaven of Jahangirnagar University
Contact No.: 0171217****
Email: mmh_hall@gmail.com

Dormitory Management System | **Home** | **Room List** | **Admin Activity**

Room List

Room No: 177/A StudentID: 21 **Allocate**

Room Number	Room Type	Block	Student Amount	Status
138/A	Double	A	2	Full
137/A	Double	A	2	Full
111/A	Single	A	1	Full
128/A	Double	A	2	Full
138/B	Single	B	1	Full
139/B	Triple	B	3	Full
131/A	Double	A	2	Full
122/B	Single	B	1	Full
145/B	Triple	B	3	Full
156/A	Double	A	2	Full
167/B	Double	B	2	Empty
177/A	Triple	A	3	1

Figure 6.2.2.4 Room Distribution page of the system

After room allocation there will be a room allocation table available with Student ID, Student Name and Room Number.

Room Allocation

Student ID	Name	Room Number
31	Sabab	137/A
39	Zilani	137/A
23	Rasel	128/A
36	Nuran	128/A
21	Akash	138/A
45	Saddam	138/A
47	Protick	111/A
134	Zahidul	138/B
135	Mokarrom	139/B
3456	hgdhghg	139/B
345	Shohidul	139/B
455	Afjal	131/A
40	Alamin	122/B
42	Ullash	131/A
1234	AKib	145/B
2345	Sohel	145/B
4567	Saad	156/A
46	Bellah	145/B
234	Aksh	156/A
4836	Sibra	177/A

Figure 6.2.2.5 Room Allocation table at room distribution page

6.2.2.5 Payment System

Hall payment of all the student should be maintain carefully. It can be online or physical payment system, but after payment or any transaction the payment information should be updated. We can use mobile banking system or credit card payment system for monthly hall payment or other money transaction issues. This system is completely monitored and handled by administrator panel. Here, admin can update student's payment by months from starting session of student and show the due balance till now date. After 5/6 years, student's payment will be cleared by paying the total due amounts of a student.

Dormitory Management System | **Home** | **Payment List** | **Admin Activity**

Payment List

Enter The Student ID to Watch the Payment Status:

Search For Payment Details

Pay For Next Months. Enter Student ID:

Make Payment

Name: Akash
Department: CSE
Session: 2012-2013
Phone: 01774647673
Total Amount: 1280/=
Paid Taka: 560/=
Payment Cleared Till: April, 2015
Due Amount: 720/=
Due Months: 36 month/months

Figure 6.2.2.6 Searching Payment of any Student

After making payment for some months, due amount will be updated. It will be visible after searching again with the Student ID.

Dormitory Management System | **Home** | **Payment List** | **Admin Activity**

Payment List

Enter The Student ID to Watch the Payment Status:

Search For Payment Details

Pay For Next Months. Enter Student ID:

Make Payment

Successfully Paid TK. 80 for ID: 21

Figure 6.2.2.7 Making Payment of any Student

6.2.3 Student Activity Page

Students are the major users of the system. Student login page verify student's ID and password before log into the system. After login Student's activity can be accessible. Student can do several activities like Profile creation and update profile. Search other student's information to communicate with other students.

Mir Mosharraf Hossain Hall
Red heaven of Jahangirnagar University
Contact No.: 0171217****
Email: mmh_hall@gmail.com

Dormitory Management System	Student Activities	Akash	Log Out
-----------------------------	---------------------------	-------	---------

Student Activities

Search Other Students

Change Password

Payment Info

Figure 6.2.3 Student Activity page of the system

6.2.3.1 Student Profile

Clicking at Profile name, student can access at Profile page. There are several text box for seeing profile information. User can't edit his ID, Name, Department, Address, Phone number and Session and other information. Student's info update is only possible by administrator panel.

Dormitory Management System	Student Activities	Akash	Log Out
-----------------------------	---------------------------	-------	---------

Student Profile

ID: 21

Name: Akash

Department: CSE

Address: Dhamrai

Phone Number: 01774647673

Session: 2012-2013

Figure 6.2.3.1 Student Profile page of the system

6.2.3.2 Search Student by Student

Student can search other student's information to make communication with his friends or seniors or juniors. Student can search by room number and student's name to find other student's information. It will also help students to know about room status of others if that student stays at hall or the room is free now. Thus he can apply for that room and give booking.

The screenshot shows the 'Search Student' page. At the top, there is a header with the text 'Mir Mosharraf Hossain Hall' in red, followed by 'Red heaven of Jahangirnagar University' in red. To the right, contact information is listed: 'Contact No.: 0171217****' and 'Email: mmh_hall@gmail.com'. Below the header is a navigation bar with four blue buttons: 'Dormitory Management System', 'Student Activity', 'Akash', and 'Log Out'. The main content area has the title 'Search Student' in red. Below this, there is a section titled 'Search According To:' with a dropdown menu currently showing 'Name'. Below the dropdown is a text input field labeled 'Search Value:'. At the bottom of this section is a blue button labeled 'Search'.

Figure 6.2.3.2 Search student by student page

6.2.3.3 Change Password

Student can change password by giving current password. This facility is given to registered students who have a user identity and has a student profile of his own.

The screenshot shows the 'Change Password' page. At the top, there is a navigation bar with four blue buttons: 'Dormitory Management System', 'Student Activities', 'Akash', and 'Log Out'. The main content area has the title 'Change Password' in blue. Below this, there is a section titled 'Current Password:' with a text input field. Below that is a section titled 'New Password:' with a text input field. At the bottom of this section is a blue button labeled 'Change'.

Figure 6.2.3.3 Change password page of Student Activities

6.2.3.4 Payment Information

Student's payment information can be seen by student. Student can see his/his friend's due payment info by searching with Student ID.

Dormitory Management System

Home

Payment Info

Student Activity

Payment Info

Enter The Student ID to Watch the Payment Status: **Search For Payment Details**

Name: Alamin
Department: CSE
Session: 2014-15
Phone: 0108313977
Total Amount: 780/=
Paid Taka: 160/=
Payment Cleared Till: August, 2015
Due Amount: 620/=
Due Months: 31 month/months

Powered by Dept. of CSE, JU

Figure 6.2.3.4 Payment info page of Student Activities

6.2.4 Student List

Student list is visible to the administrator panel which button is at the Home Page. After clicking Student List button, it will redirect to Student List page. There will be a student list available which are stored at the database of the system. Student's information like ID, Name, Address, Status, Room Number and Phone Number is visible at Student list.

Mir Mosharraf Hossain Hall
Red heaven of Jahangirnagar University

Dormitory Management System

Home

Student List

Log In

Student List

ID	Name	Address	Department	Session	Phone
21	Akash	Dhamrai	CSE	2012-2013	01774647673
23	Rasel	dhaka	cse	2012-2013	018273764747
31	Sabab	Tongi	CSE	2012-2013	01716033198
36	Nuran	tongi	CSE	2012-2013	019934455
39	Zilani	Gawair	CSE	2012-2013	0137836764
40	Alamin	Pabna	CSE	2014-15	0108313977
42	Ullash	B. Baria	Physics	2014-15	0172827382
45	Saddam	Pabna	CSE	2012-2013	089378478
46	Bellah	Noakhali	Mathematics	2015-16	01738193278
47	Protick	tangail	CSE	2012-2013	018376476
134	Zahidul	Dhaka	CSE	2012-13	01893948249

Figure 6.2.4 Student List page of the system

6.3 How the Users interact with the system

There are two types of users actually. The Web Application is mostly helpful for the administrator panel who are selected from the hall authority. Admin is the main user and students are the other users who interact with the system. The interface allows the users to input login username and password which must be authenticated before access is granted and inform user that he has successfully logged in. For wrong input of username and password, access is denied.

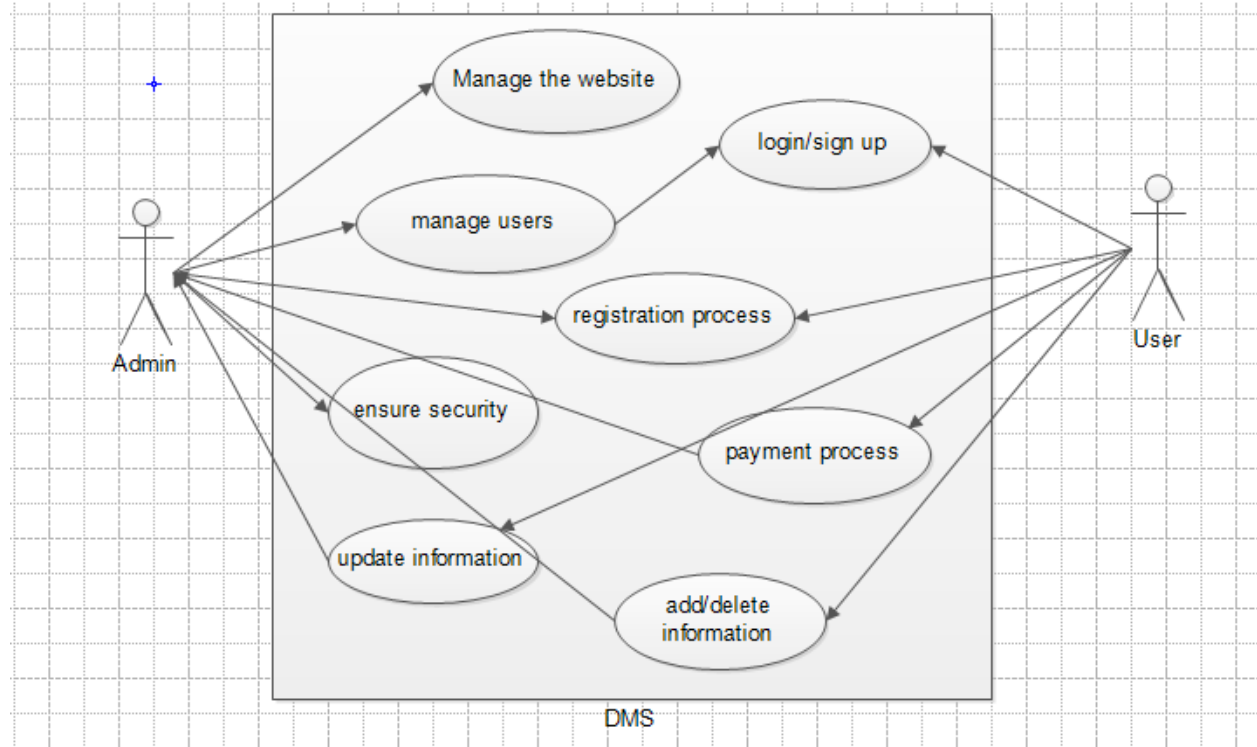


Figure 6.3 Use Case Diagram of functionality of user interface

6.4 Admin Module and User Module

Administrator Module:

- Payment system: Student's payment of hall charge is monitored by administrator panel using web portal to connect with students.
- Managing users: Administrator panel is responsible for managing users information and updating, deleting and adding their information.
- Room distribution: room distribution of students is managed by administrator panel.
- Provides services to the users updating the information in website.
- Ensure security to the users and control total website and web application with leading and managing skills and intelligence.

User Module:

User can access our web portal providing authentic documentation or his/her information of allotment and staying at hall.

- User will be provided an access notification by admin panel as a certified student of the hall.
- He/she can sign in using username and password and stay connected with the system.
- User can update his/her information about staying at hall.
- His/her information will be secured by administrator panel.
- Users can communicate with the administrators via internet with PC or laptops or other electronic devices.

6.5 Summary

This chapter described the user interfaces. The login page, Admin Activity page, Student Activity page and other pages' functionalities were illustrated. Use Case diagram is used to show the interaction between users and admin of with the system. The next chapter will discuss the objects needed to implement the system.

Chapter 7

Implementation and Documentation

7.1 Introduction

At the last chapter, the data types of objects and object oriented design are described briefly. There are several UML diagrams which are helpful for implementation phase. In this chapter, we will try to document important code and sketching over all system view showing all activities. In code, for each web form file, we will try to give classes code using C Sharp language. And there will be a SQL connection to store and retrieve information at database according to user requirements.

7.2 System Operations:

The following sketch describes system operations of users with the system of all activities. For every user operations are described sequentially what occurs first. The number of the operation will be useful at code documentation.

The code documentation is provided according to the type of the user. For example: Login code is necessary for all types of users (admin, user), payment code for student, room distribution for students.

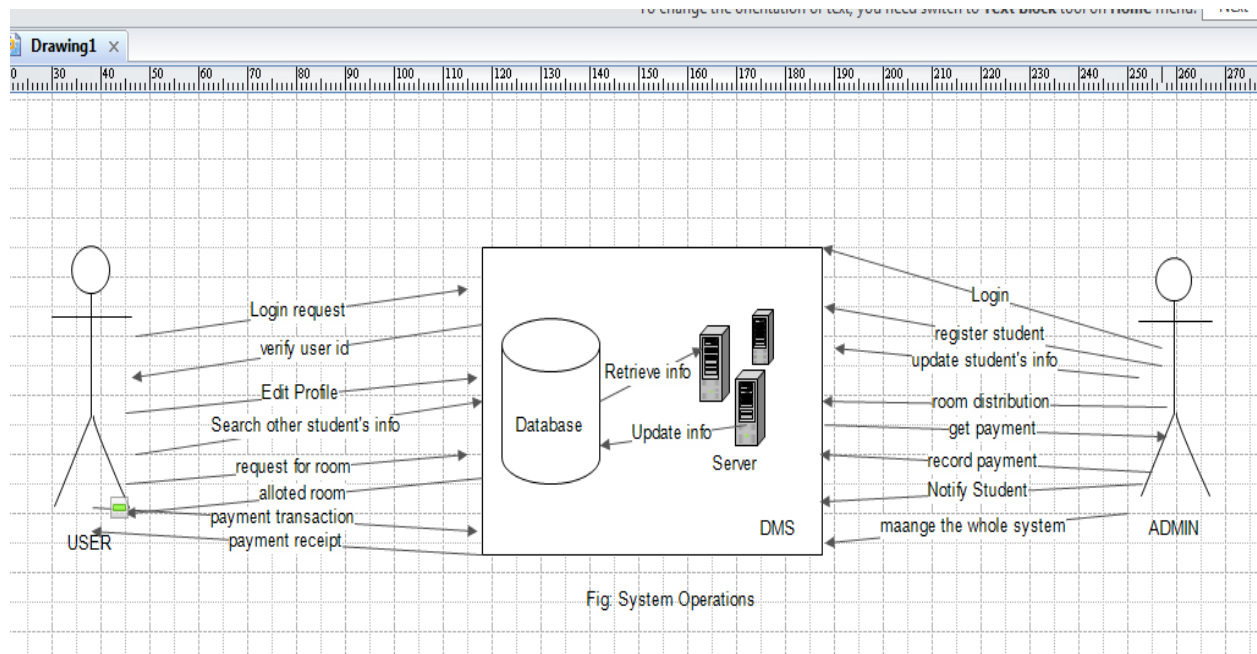


Figure 7.2 System operations of users

7.3 Login Code Documentation

*** This code is used to create login page to log onto the website as a administrator or a user.***

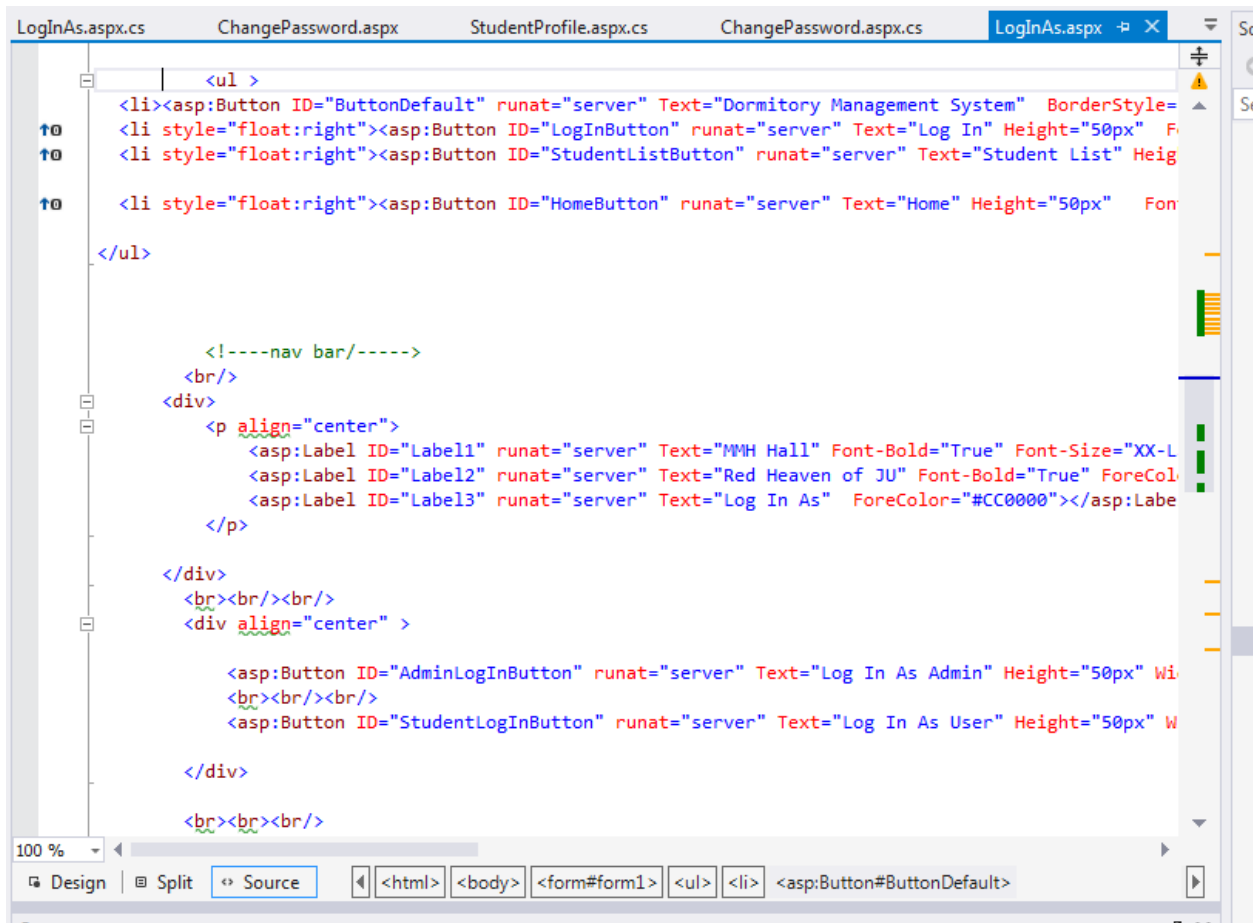
LoginAs.aspx

- Default.aspx is used to redirect to the home page.
- LogInAs.aspx is used to redirect to this Login page.
- AdminLogIn.aspx is used to redirect to Admin login page to go to AdminActivity.aspx.
- StudentLogIn.aspx is used to redirect to Student login page to go to user's activity.
- StudentList.aspx will redirect to Student's total list.

Button

Creation:

F



```
<ul>
<li><asp:Button ID="ButtonDefault" runat="server" Text="Dormitory Management System" BorderStyle=
<li style="float:right"><asp:Button ID="LogInButton" runat="server" Text="Log In" Height="50px" F
<li style="float:right"><asp:Button ID="StudentListButton" runat="server" Text="Student List" Heig
<li style="float:right"><asp:Button ID="HomeButton" runat="server" Text="Home" Height="50px" Fon
</ul>

<!--nav bar!-->
<br/>
<div>
<p align="center">
<asp:Label ID="Label1" runat="server" Text="MMH Hall" Font-Bold="True" Font-Size="XX-L
<asp:Label ID="Label2" runat="server" Text="Red Heaven of JU" Font-Bold="True" ForeCol
<asp:Label ID="Label3" runat="server" Text="Log In As" ForeColor="#CC0000"></asp:Labe
</p>
</div>
<br><br><br>
<div align="center">
<asp:Button ID="AdminLogInButton" runat="server" Text="Log In As Admin" Height="50px" Wi
<br><br><br>
<asp:Button ID="StudentLogInButton" runat="server" Text="Log In As User" Height="50px" W
</div>
<br><br><br>
```

Figure 7.3.1 login page button creation

LogInAs.aspx.cs

```
public partial class LogInAs : System.Web.UI.Page
{
    protected void Page_Load(object sender, EventArgs e)
    {
        if (Session["Admin"] != null)
        {
            Response.Redirect("AdminActivity.aspx");
        }
        if (Session["Student"] != null)
        {
            Response.Redirect("StudentActivity.aspx");
        }
    }

    protected void HomeButton_Click(object sender, EventArgs e)
    {
        Response.Redirect("Default.aspx");
    }

    protected void LogInButton_Click(object sender, EventArgs e)
    {
        Response.Redirect("LogInAs.aspx");
    }

    protected void AdminLogInButton_Click(object sender, EventArgs
e)
    {
        Response.Redirect("AdminLogIn.aspx");
    }

    protected void StudentListButton_Click(object sender,
EventArgs e)
    {
        Response.Redirect("StudentList.aspx");
    }

    protected void StudentLogInButton_Click(object sender,
EventArgs e)
    {
        Response.Redirect("StudentLogIn.aspx");
    }
}
```

7.4 Activity Code Documentation

*Admin Activity Class: AdminActivity.aspx.cs

```
public partial class AdminActivity : System.Web.UI.Page
{
    protected void Page_Load(object sender, EventArgs e)
    {
        if (Session["Admin"] == null)
        {
            Response.Redirect("AdminLogIn.aspx");
        }
    }

    protected void HomeButton_Click(object sender, EventArgs e)
    {
        Response.Redirect("Default.aspx");
    }

    protected void AdminActivityButton_Click(object sender, EventArgs e)
    {
        Response.Redirect("AdminActivity.aspx");
    }

    protected void LogOutButton_Click(object sender, EventArgs e)
    {
        Session["Admin"] = null;
        Response.Redirect("AdminLogIn.aspx");
    }

    protected void RegisterAccountButton_Click(object sender, EventArgs e)
    {
        Response.Redirect("RegisterStudent.aspx");
    }

    protected void DeleteStudentButton_Click(object sender, EventArgs e)
    {
        Response.Redirect("DeleteStudent.aspx");
    }

    protected void SearchStudentButton_Click(object sender, EventArgs e)
    {
        Response.Redirect("SearchStudent.aspx");
    }

    protected void RoomDistributionButton_Click(object sender, EventArgs e)
    {
        Response.Redirect("RoomDistribution.aspx");
    }

    protected void PaymentSystemButton_Click(object sender, EventArgs e)
    {
        Response.Redirect("PaymentSystem.aspx");
    }
}
```

Student Activity Class documentation: StudentActivity.aspx.cs

```
public partial class StudentActivity : System.Web.UI.Page
{
    StudentManager manager = new StudentManager();
    protected void Page_Load(object sender, EventArgs e)
    {
        if (Session["Student"] == null)
        {
            Response.Redirect("StudentLogIn.aspx");
        }

        ProfileButton.Text = manager.ProfileName();
    }

    protected void ButtonDefault_Click(object sender, EventArgs e)
    {
        Response.Redirect("Default.aspx");
    }

    protected void StudentActivityButton_Click(object sender, EventArgs e)
    {
        Response.Redirect("StudentActivity.aspx");
    }

    protected void ProfileButton_Click(object sender, EventArgs e)
    {
        Response.Redirect("StudentProfile.aspx");
    }

    protected void LogOutButton_Click(object sender, EventArgs e)
    {
        Session["Student"] = null;
        Response.Redirect("StudentLogIn.aspx");
    }

    protected void SerachOtherStudentButton_Click(object sender, EventArgs e)
    {
        Response.Redirect("SearchStudentByStudent.aspx");
    }

    protected void ChangePasswordButton_Click(object sender, EventArgs e)
    {
        Response.Redirect("ChangePassword.aspx");
    }
}
}
```

Profile Creation, Editing profile, changing password and searching other students is the main activity of a student.

7.5 Student Info Documentation

Student information is documented and stored at database by using StudentGateWay.cs Class. Here, we are showing some part of StudentGateWay connecting with database:

```
public class StudentGateWay
{
    public string connectionString;

    public StudentGateWay()
    {
        connectionString = @"Data Source=(localdb)\Projects;Initial
Catalog=Dormitory_Management_SystemDB;Integrated Security=True;Connect
Timeout=30;Encrypt=False;TrustServerCertificate=False";
    }
    public int AddStudent(Student studentObject)
    {
        SqlConnection connection = new SqlConnection(connectionString);

        try
        {
            string query = "INSERT INTO STUDENT VALUES(@ID,
@Name,@Password,@Address,@room_no,@status, @Phone)";

            SqlCommand command = new SqlCommand(query, connection);
            command.Parameters.Clear();
            command.Parameters.Add("ID", SqlDbType.Int);
            command.Parameters["ID"].Value = studentObject.ID;

            command.Parameters.Add("Name", SqlDbType.VarChar);
            command.Parameters["Name"].Value = studentObject.Name;

            command.Parameters.Add("Password", SqlDbType.VarChar);
            command.Parameters["Password"].Value = studentObject.Password;

            command.Parameters.Add("Address", SqlDbType.VarChar);
            command.Parameters["Address"].Value = studentObject.Address;

            command.Parameters.Add("room_no", SqlDbType.VarChar);
            command.Parameters["room_no"].Value = studentObject.room_no;

            command.Parameters.Add("status", SqlDbType.VarChar);
            command.Parameters["status"].Value = studentObject.status;

            command.Parameters.Add("Phone", SqlDbType.VarChar);
            command.Parameters["Phone"].Value = studentObject.Phone;
            connection.Open();
            int rowAffected = command.ExecuteNonQuery();
            connection.Close();
            return rowAffected;
        }
        catch (Exception)
        {
            return 0;
        }
    }
}
```

7.6 Database connection

Creating Database Table:

dbo.STUDENT

```
CREATE TABLE [dbo].[STUDENT] (  
    [ID] INT NOT NULL,  
    [Name] VARCHAR (50) NULL,  
    [Password] VARCHAR (50) NULL,  
    [Address] VARCHAR (MAX) NULL,  
    [room_no] VARCHAR (50) NULL,  
    [status] VARCHAR (50) NULL,  
    [Phone] VARCHAR (50) NULL,  
    PRIMARY KEY CLUSTERED ([ID] ASC)  
);
```

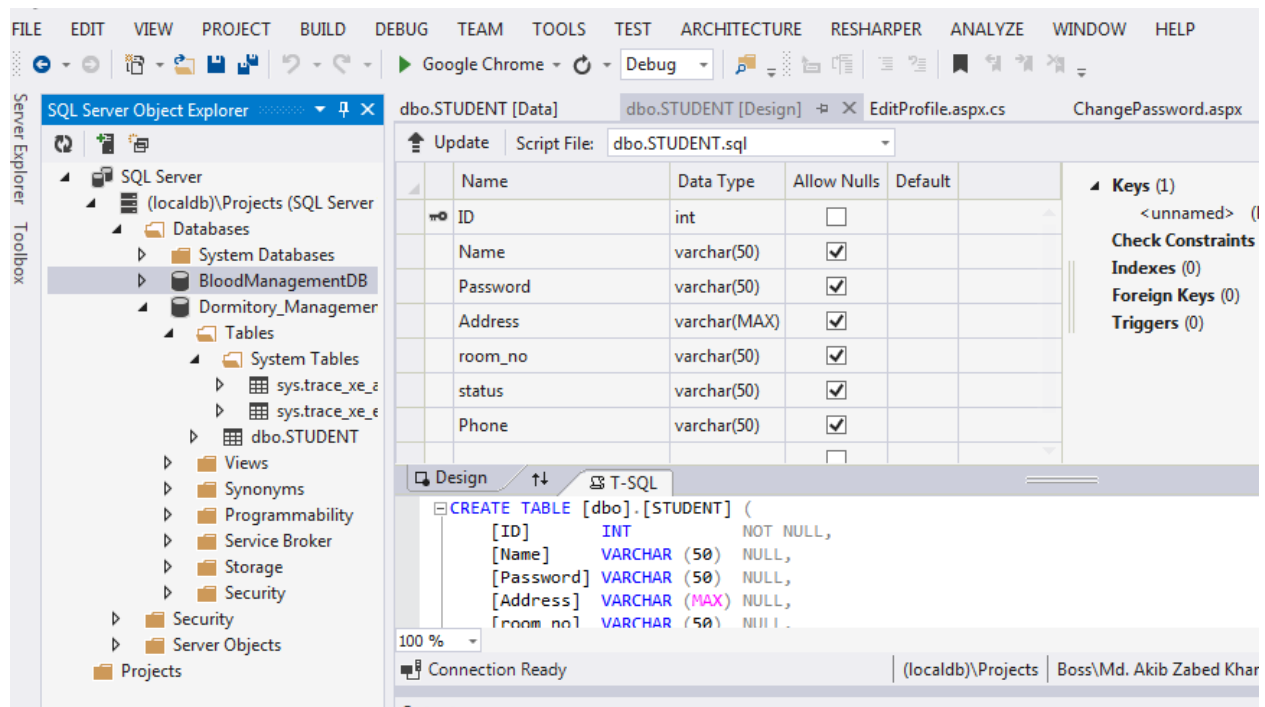


Figure 7.6 Database Table Creation

7.7 Summary

This chapter provided code documentation. We can learn that we have used ASP.NET Framework. Classes are created using C# language. We have used Microsoft Visual Studio 2012 as IDE for the implementation phase.

Chapter 8

Result and Discussion

8.1 Final Result

Finally after implementation phase we have found the final result which is the main objective to create a web portal for Dormitory Management System. The project is finally built using ASP.Net Framework. Here we are showing the Default Home Page of our web portal.

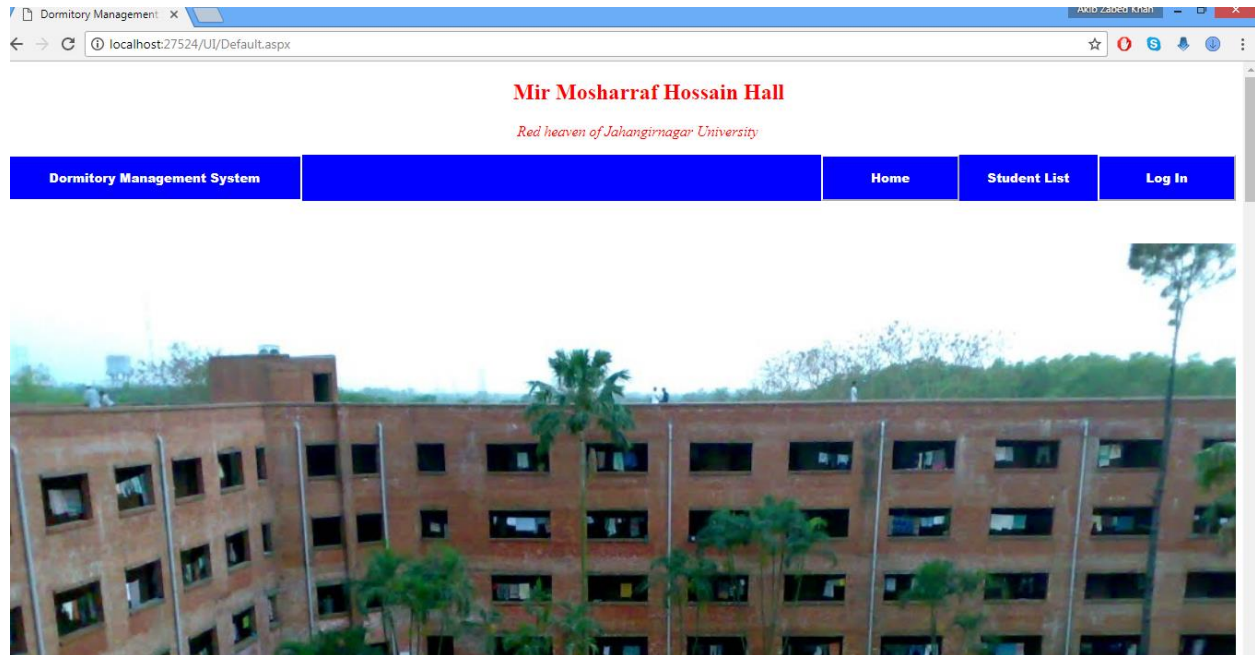


Figure 8.1 Home page of Dormitory Management System

8.2 Discussion

Developing a web portal was our main goal. Using Object Oriented Analysis and Object Oriented Design, finally we develop a web portal named Dormitory Management System which is usable at any dormitory using the database collecting student information from the hall authority. Administrator is given supreme power to manage the web portal.

Chapter 9

Conclusion

9.1 Usability of the system

The main usability of our system is the versatile property of our system. This system has been made to use in any dormitory management system of a school/college/university. As our system is web based, so it is easy to use for a students. Recently internet technology has been increasing day by day. So a high performance dormitory management system is important to improve the work efficiency of university/school/college. Our system will provide a convenient service. As our system is used as the web based platform, so administrators can control it from anywhere they want. Actually our system is very simple to understand. Any fresher can easily perceive it how it works.

9.2 Problem faced

To make this system, we have faced some problems. Firstly, our dormitory office uses all the performance of the students in notebooks. So we cannot combine all the operation in our system. There are some lacks of operations which need to control as before. As we have used ASP.NET technology, so it becomes something slow due to its server to load. We want to add an online transaction option in our system such connected with Bkash, DBBL, SureCash etc. But we have just added a bank transaction system. A dormitory is connected with several functions. But we just worked with students vs dormitory related works. So a student cannot take all the services of his dorm by our system.

9.3 Future plan with the project

At first we just want our system will have been used in our country. Then in future if it is convenient to use by the users, we will try to make it as a versatile system. And the problems we have faced, in future we have planned to solve this problems. We have a well-planned idea about it. Cause it is so important to build a dorm management system for every educational system. So in future digital world, everyone wants to be smart enough, so by using internet we will be using our system, and taking all the facilities from our home.

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Appendices

Student's Questionnaire

My name is Karim, I am a student at Jahangirnagar University doing Computer Sciences. I am currently carrying out an academic project "Dormitory Management System" which intends to solve problems related to students' room booking. I would wish to collect information from you through this questionnaire.

Please fill this questionnaire in the space provided.

1. Respondent details

Undergraduate Postgraduate

Course : _____

Year of study : _____

Sex : _____

Residence (outside or inside?) : _____

2. How do you rate the current booking system for students' residence?

Very efficient

Efficient

Undecided

Inefficient

Very inefficient

3. What difficulties do you observe on the current residence booking system?

4. In the new computerized system of booking, what facilities do you wish to be included?

Staff Questionnaire

My name is Rahim, a staff of Jahangirnagar University. I am currently carrying out an academic project “Dormitory Management System” which intends to solve problems related to students’ residence management. I would wish to collect information from you through this questionnaire.

Please fill this questionnaire in the space provided.

1. Respondent details

Department: _____

Position : _____

Duties : _____

2. How do you rate the current students’ residence management system?

Very efficient

Efficient

Undecided

Inefficient

Very inefficient

3. What difficulties do you observe in this system?

4. In the new computerized Dormitory management system, what facilities do you wish to be included?
