VISVESVARAYA TECHNOLOGICAL UNIVERSITY

Jnana Sangama, Belagavi – 590 014

Web Technology Mini Project Report On

"HOSTEL MANAGEMENT SYSTEM"

Submitted in Partial fulfillment of the Requirements for the VII Semester of the Degree of

Bachelor of Engineering

In

Computer Science & Engineering

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CERTIFICATE

Certified that the Web Technology Mini Project Work titled **'Hostel Management System'** has been carried out by **Mr. Raunak Choudhary** (**4MW17CS064)** who is the bonafide student of Shri Madhwa Vadiraja Institute of Technology and Management, in partial fulfillment for the award of **Bachelor of Engineering** in Computer Science and Engineering of Visvesvaraya Technological University, Belagavi during the year 2020-21. This Web Technology Mini Project Report has been approved as it satisfies the academic requirements with respect to the project work guidelines prescribed for the said Degree.

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Acknowledgement

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ABSTRACT

As the name specifies “HOSTEL MANAGEMENT SYSTEM” is a software developed for managing various activities in the hostel. For the past few years, the number of educational institutions is increasing rapidly. Thereby the number of hostels is also increasing for the accommodation of the students studying in the institution. And hence there is a lot of strain on the person who are running the hostel and software’s are not usually used in this context. This particular project deals with the problems on managing a hostel and avoids the problems which occur when carried manually. We have made an attempt to build a software for our institution for managing its own hostels activities and management which on later can be used for other institutions if required.

Identification of the drawbacks of the existing system leads to the designing of computerized system that will be compatible to the existing system with the system which is more user friendly and more GUI oriented. We can improve the efficiency of the system, thus overcome the drawbacks of the existing system:

- Less human error
- Strength and strain of manual labor can be reduced
- High security
- Data redundancy can be avoided to some extent
- Data consistency
- Easy to handle
- Easy data updating
- Easy record keeping
- Backup data can be easily generated

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Chapter 1

INTRODUCTION

1.1 Problem definition

We have got 3 hostels in our institution, which consist of two boy's hostel and one girl's hostel. We have divided all three hostels on basis of various floors. Student of every year of study has been allocated to a particular floor of the hostel. Students can accordingly request hostel manager of respective floor of that hostel to allocate him/her a room. All these hostels at present are managed manually by the Admin. The admin can appoint or remove the hostel managers who will have the duty to allocate and vacate the rooms. The Registration form verification to the different data processing is done manually.

Thus, there are a lot of repetitions which can be easily avoided. And hence there is a lot of strain on the person who are running the hostel and software's are not usually used in this context. This particular project deals with the problems on managing a hostel and avoids the problems which occur when carried manually.

Identification of the drawbacks of the existing system leads to the designing of computerized system that will be compatible to the existing system with the system which is more user friendly and more GUI oriented. We can improve the efficiency of the system, thus overcome the drawbacks of the existing system.

1.2 Student Panel

1.2.1 Student Login

1.2.1.1 Home

1. This consist of the different sections like showing the details of the different hostels, filling application form, reporting any complain to hostel manager, etc.
2. It contains a link to our official college web-site.
3. It allows the different users/students to access the registration forms.
4. Student can also view the messages received from Hostel Manager on its dashboard and contact back to hostel manager, if anything is asked in convenient way.

1.2.1.2 Registration/Application Form

This section provides an online application form to the students which can be filled by them, and a copy of the filled page can be taken in the printed form. This is later submitted to the Hostel authorities which can be verified by them before allotting them to the respective hostels.

1.2.1.3 Contact Hostel Manager

This section contains of form through which student can fill details and also file a complaint or send any important message to respective hostel manager.

1.2.1.4 Messages Received

This section contains of messages received from respective hostel manager. Student can view these messages and update himself with all the activities around hostel. Student can also again reply back to respective hostel manager, if anything is asked in convenient way.

1.2.1.5 My Profile

This section contains of information of the student/user. Also, this section provides information to student about the room allocated to him/her along with the information of Hostel Manager and Admin. This information will allow student to approach them for any kind of emergency or problem.

1.3 Hostel Manager Panel

1.3.1 Home

The Hostel Manager can:
1. Allot different students to the different rooms.
2. Vacate the students for the hostels or rooms.
3. Control the status of the fee payment.
4. Edit the details of the students & modify the student records.

1.3.2 Allotment of the Rooms

There will be pre-defined criteria for the admission to the hostels. He checks the attested application forms of the students obtained from the internet and verify it with the student database. If the students are found eligible then they are allotted to the hostel.

1.3.3 Vacating the rooms

As the student's course is over, they will vacate their rooms. So, it is required for the hostel manager to remove their records from the database tables. This section includes the option for the room vacation and the deletion of the particular record from the database.

1.3.4 My Profile

This section contains of information of the hostel manager. Also, this section includes the information of admin. From this section he can also view messages sent by students and admin.

1.4 Admin Panel

1.4.1 Home

The Admin can:
1. Allot different hostel managers to the different hostels.
2. Remove the hostel managers for the hostels or rooms.
3. See status of Room Allotment of all hostels.
4. Contact any warden and send any circular which is to be circulate among students.

1.4.2 Appoint Hostel Managers

There will be also a pre-defined criterion for the appointing the hostel managers to the hostels. He verifies all information of hostel manager and appoint them to the various hostels.

1.4.3 Remove Hostel Managers

If any Hostel Manager want to leave and Admin has the duty to remove him/her as hostel manager and approve the application to leave the job. He also removes respective hostel manager's details from database.

1.4.4 My Profile

This section contains of information of the admin. From this section he can also send important circulars which is to be circulate among students to hostel managers.

Chapter 2

REQUIREMENT ANALYSIS

2.1 Hardware Configuration

1. Processor: Intel® CoreTM i5-64 bit
2. Processor Speed: 1.6 GHz
3. RAM Size: 8GB DDR3
4. Cache Memory: 2MB
5. Color Monitor: 1024 * 768 Resolution

2.2 Software Configuration

1. OS : Microsoft Windows 10
2. PHP Triad (PHP, MySQL, Apache and PhpMyAdmin)
3. Notepad++

Chapter 3

SOFTWARE REQUIREMENT SPECIFICATION

3.1 Software Features

3.1.1 PHP TRIAD

PHP Triad installs a complete working PHP/MySQL server environment on Windows platforms (9x/NT/10). Installs PHP, MySQL, Apache, and PhpMyAdmin.

3.1.1.1 PHP

PHP is a scripting language originally designed for producing dynamic web pages. It has evolved to include a command line interface capability and can be used in standalone graphical applications. PHP is free software released under the PHP License; however, it is incompatible with the GNU General Public License (GPL), due to restrictions on the usage of the term *PHP*. It is a widely-used general-purpose scripting language that is especially suited for web development and can be embedded into HTML. It generally runs on a web server, taking PHP code as its input and creating web pages as output. It can be deployed on most web servers and on almost every operating system and platform free of charge.

3.1.1.1.1 Data types

PHP stores whole numbers in a platform-dependent range. This range is typically that of 32-bit signed integers. Unsigned integers are converted to signed values in certain situations. Integer variables can be assigned using decimal (positive and negative), octal, and hexadecimal notations. Floating point numbers are also stored in a platform-specific range. PHP has a native Boolean type that is similar to the native Boolean types in Java and C++. The null data type represents a variable that has no value.

3.1.1.1.2 Functions

PHP has hundreds of base functions and thousands more from extensions. These functions are well documented on the PHP site, but unfortunately, the built-in library has a wide variety of naming conventions and inconsistencies. PHP currently has no functions for thread programming.

3.1.1.1.3 Objects

Basic object-oriented programming functionality was added in PHP 3. In the new approach, objects are referenced by handle, and not by value. PHP 5 introduced private and protected member variables and methods, along with abstract classes and final classes as well as abstract methods and final methods. It also introduced a standard way of declaring constructors and destructors, similar to that of other object-oriented languages such as C++, and a standard exception handling model.

3.1.1.1.4 Resources

PHP includes free and opensource libraries with the core build. PHP is a fundamentally Internet aware system with modules built in for accessing FTP servers, many database servers, embedded SQL libraries such as embedded PostgreSQL, MySQL and SQLite, LDAP servers, and others.

3.1.1.2 MYSQL

MySQL is a multithreaded, multi-user SQL database management system(DBMS). The basic program runs as a server providing multi-user access to a number of databases. MySQL is a database. The data in MySQL is stored in database objects called tables. A table is a collections of related data entries and it consists of columns and rows. Databases are useful when storing information categorically.

3.1.1.3 phpMyAdmin

phpMyAdmin is an opensource tool written in PHP intended to handle the administration of MySQL over the World Wide Web. phpMyAdmin supports a wide range of operations with MySQL. Currently it can create and drop databases, create/drop/alter tables, delete/edit/add fields, execute any SQL statement, manage users and permissions, and manage keys on fields. while you still have the ability to directly execute any SQL statement. phpMyAdmin can manage a whole MySQL server (needs a super-user) as well as a single database.

3.1.1.4 Apache Web Server

Often referred to as simply *Apache*, a public-domain opensource Web server developed by a loosely knit group of programmers. The first version of Apache, based on the NCSA httpd Web server, was developed in 1995.

Core development of the Apache Web server is performed by a group of about 20 volunteer programmers, called the *Apache Group*. However, because the source code is freely available, anyone can adapt the server for specific needs, and there is a large public library of Apache add-ons. In many respects, development of Apache is similar to development of the Linux operating system.

3.1.2 Notepad++

Notepad++ is a text and source code editor for use with Microsoft Windows. It supports tabbed editing, which allows working with multiple open files in a single window. The project's name comes from the C increment operator. Notepad++ is distributed as free software.

Notepad++ is a source code editor. It features syntax highlighting, code folding and limited autocompletion for programming, scripting, and mark up languages, but not intelligent code completion or syntax checking. As such, it may properly highlight code written in a supported schema, but whether the syntax is internally sound or compliable, cannot be verified.

Chapter 4

ANALYSIS AND DESIGN

4.1 System Analysis

4.1.1 Existing System

For the past few years, the number of educational institutions is increasing rapidly. Thereby the number of hostels is also increasing for the accommodation of the students studying in this institution. And hence there is a lot of strain on the person who are running the hostel and software's are not usually used in this context. This particular project deals with the problems on managing a hostel and avoids the problems which occur when carried manually.
Identification of the drawbacks of the existing system leads to the designing of computerized system that will be compatible to the existing system with the system which is more user friendly and more GUI oriented. We can improve the efficiency of the system, thus overcome the following drawbacks of the existing system:

- More human error.
- Low security and Data redundancy.
- Difficult to handle and update data.
- Record keeping is difficult.
- Backup data can be easily generated.

4.2 System Design

4.2.1 Input Design

A process of converting user originated inputs to a computer-based format. Input design is an important part of development process since inaccurate input data are the most common cause of errors in data processing. Erroneous entries can be controlled by input design. It consists of developing specifications and procedures for entering data into a system and must be in simple format. The goal of input data design is to make data entry as easy, logical and free from errors as possible. In input data design, we design the source document that capture the data and then select the media used to enter them into the computer. There are two major approaches for entering data in to the computer. They are :

- Menus
- Dialog Boxes

4.2.1.1 Menus

A menu is a selection list that simplifies computer data access or entry. Instead of remembering what to enter, the user chooses from a list of options. A menu limits a user choice of response but reduce the chances for error in data entry.

4.2.1.2 Dialog Boxes

Dialog boxes are windows and these windows are mainly popup, which appear in response to certain conditions that occur when a program is run. It allows the display of bitmaps and pictures. It can have various controls like buttons, text boxes, list boxes and combo boxes. Using these controls, we can make a 'dialog' with the program.

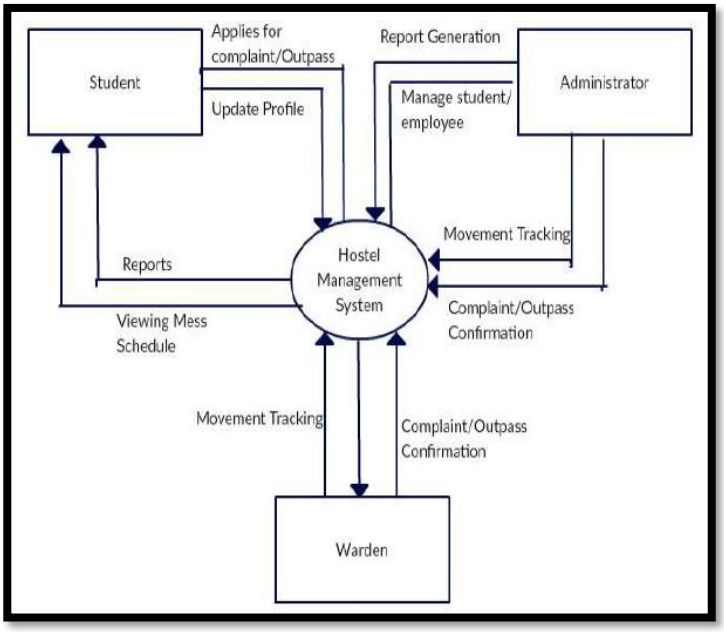
4.2.2 Process Design

Process design plays an important role in project development. In order to understand the working procedure, process design is necessary. Data Flow Diagram and System Flow chart are the tools used for process design.

System Flow Chart is a graphical representation of the system showing the overall flow of control in processing at the job level; specifies what activities must be done to convert from a physical to logical model.

Data Flow Diagram is the logical representation of the data flow of the project. The DFD is drawn using various symbols. It has a source and a destination. The process is represented using circles and source and destination are represented using squares. The data flow is represented using arrows. One reader can easily get the idea about the project through Data Flow Diagram.

4.2.2.1 Data Flow Diagram



4.2.3 Database Design

The data in the system has to be stored and retrieved from database. A database is a collection of interrelated data stored with minimum redundancy to serve many users quickly and efficiently. The general objective is to make database access easy, quick, inexpensive and flexible for the user. Relationships are established between the data items and unnecessary data items are removed. Normalization is done to get an internal consistency of data and to

have minimum redundancy and maximum stability. This ensures minimizing data storage required, minimizing chances of data inconsistencies and optimizing for updates.

4.2.4 Output Design

Designing computer output should proceed in an organized, well throughout manner; the right output element is designed so that people will find the system whether or executed. When we design an output, we must identify the specific output that is needed to meet the system. The usefulness of the new system is evaluated on the basis of their output.

Once the output requirements are determined, the system designer can decide what to include in the system and how to structure it so that they require output can be produced. For the proposed software, it is necessary that the output reports be compatible in format with the existing reports. The output must be concerned to the overall performance and the system's working, as it should. It consists of developing specifications and procedures for data preparation, those steps necessary to put the inputs and the desired output, i.e., maximum user friendly. Proper messages and appropriate directions can control errors committed by users.

The output design is the key to the success of any system. Output is the key between the user and the sensor. The output must be concerned to the system's working, as it should.

Output design consists of displaying specifications and procedures as data presentation. User never left with the confusion as to what is happening without appropriate error and acknowledges message being received. Even an unknown person can operate the system without knowing anything about the system.

Chapter 5

IMPLEMENTATION

Implementation is the stage in the project where the theoretical design is turned into a working system and is giving confidence on the new system for the users that it will work efficiently and effectively. It involves careful planning, investigation of the current system and its constraints on implementation, design of methods to achieve the changeover, an evaluation of change over methods. Apart from planning major task of preparing the implementation are education and training of users. The implementation process begins with preparing a plan for the implementation of the system. According to this plan, the activities are to be carried out, discussions made regarding the equipment and resources and the additional equipment has to be acquired to implement the new system. In network backup system no additional resources are needed.

Implementation is the final and the most important phase. The most critical stage in achieving a successful new system is giving the users confidence that the new system will work and be effective. The system can be implemented only after thorough testing is done and if it is found to be working according to the specification. This method also offers the greatest security since the old system can take over if the errors are found or inability to handle certain type of transactions while using the new system.

5.1 User Training

After the system is implemented successfully, training of the user is one of the most important subtasks of the developer. For this purpose, user manuals are prepared and handled over to the user to operate the developed system. Thus, the users are trained to operate the developed system. Both the hardware and software securities are made to run the developed systems successfully in future. In order to put new application system into use, the following activities were taken care of:

- Preparation of user and system documentation
- Conducting user training with demo and hands on
- Test run for some period to ensure smooth switching over the system

The users are trained to use the newly developed functions. User manuals describing the procedures for using the functions listed on menu are circulated to all the users. It is confirmed that the system is implemented up to users need and expectations.

5.2 Security and Maintenance

Maintenance involves the software industry captive, typing up system resources .It means restoring something to its original condition. Maintenance follows conversion to the extent that changes are necessary to maintain satisfactory operations relative to changes in the user's environment. Maintenance often includes minor enhancements or corrections to problems that surface in the system's operation. Maintenance is also done based on fixing the problems reported, changing the interface with other software or hardware enhancing the software.

Any system developed should be secured and protected against possible hazards. Security measures are provided to prevent unauthorized access of the database at various levels. An uninterrupted power supply should be so that the power failure or voltage fluctuations will not erase the data in the files. Password protection and simple procedures to prevent the unauthorized access are provided to the users .The system allows the user to enter the system only through proper user name and password.

5.3 Screenshots

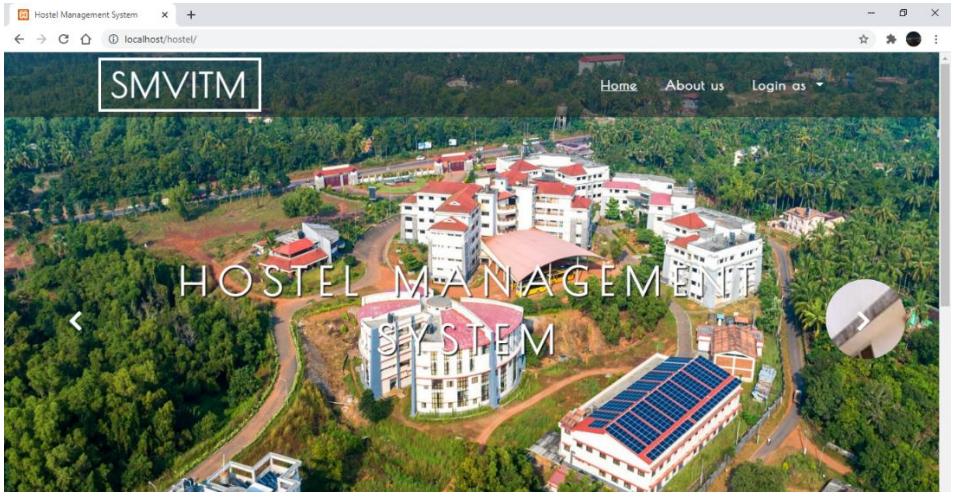


Fig 5.3.1: Home Page

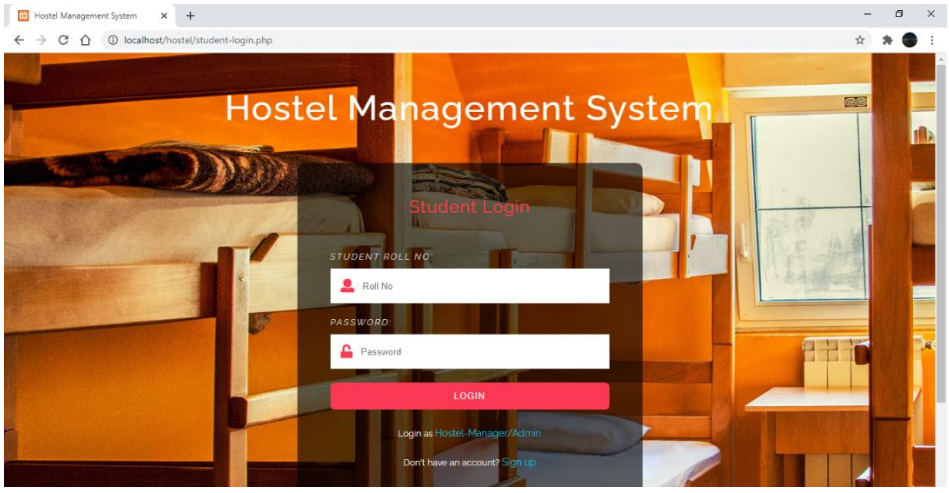


Fig 5.3.2: Student Login Page

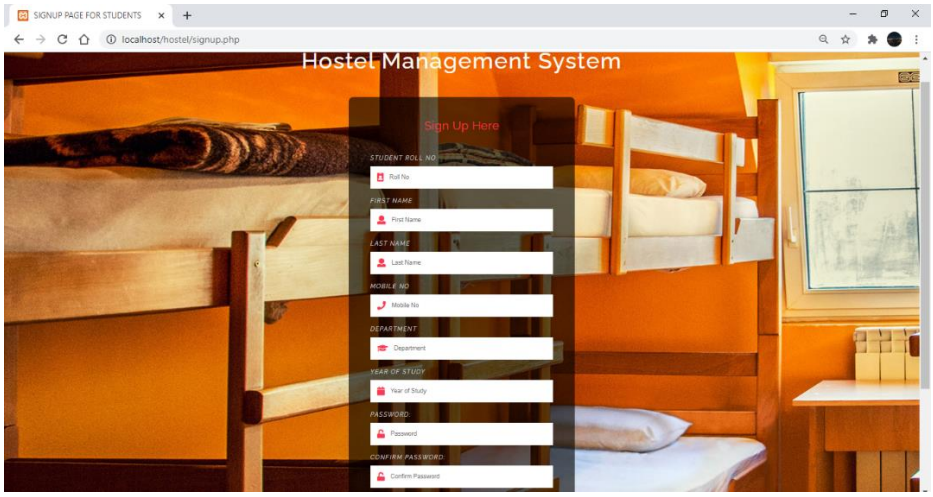


Fig 5.3.3: Student Signup Page

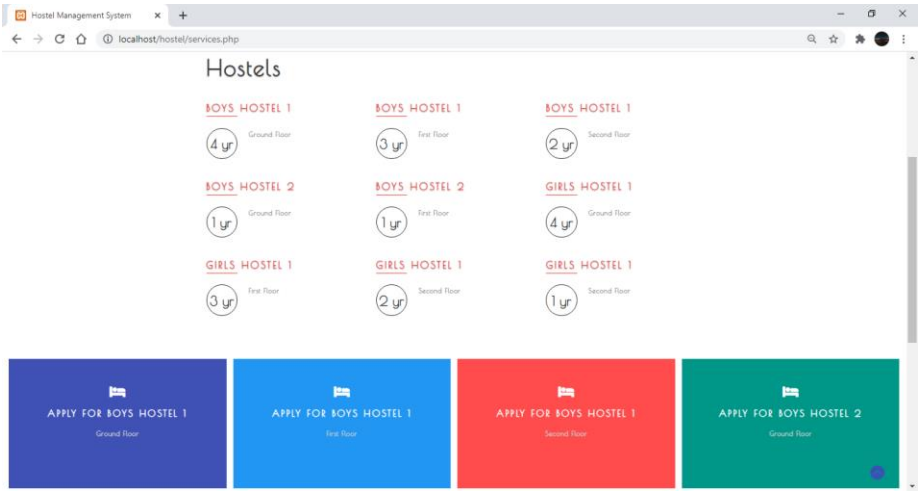


Fig 5.3.4: Hostel Services Page

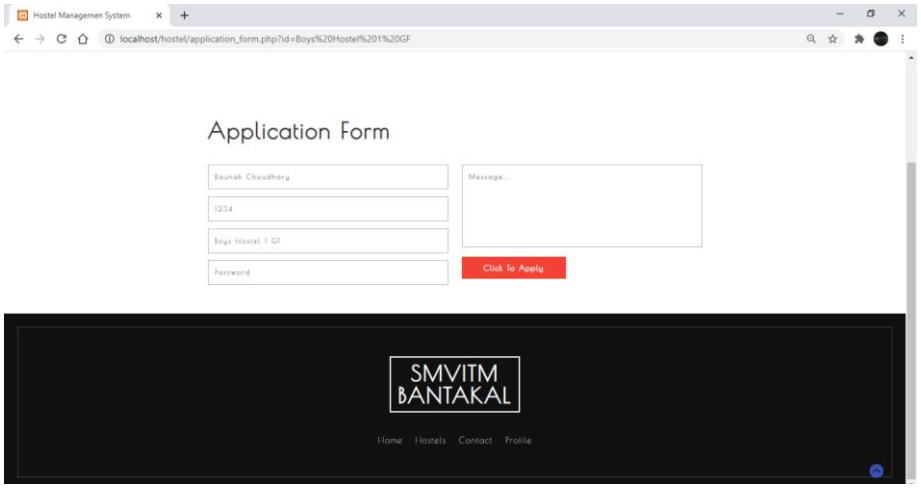


Fig 5.3.5: Application Form Page

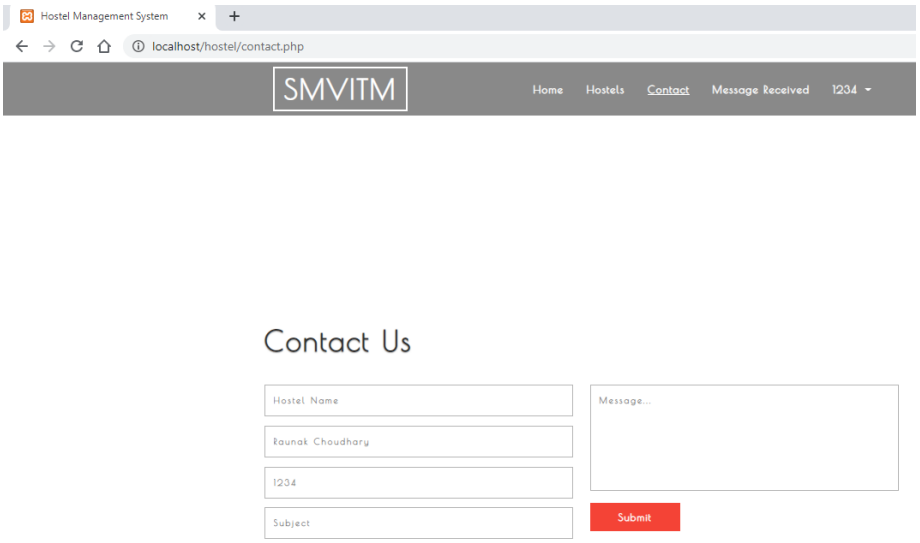


Fig 5.3.6: Contact Us Page for Students/ Hostel Manager/ Admin

Fig 5.3.7: My Profile Page for Student

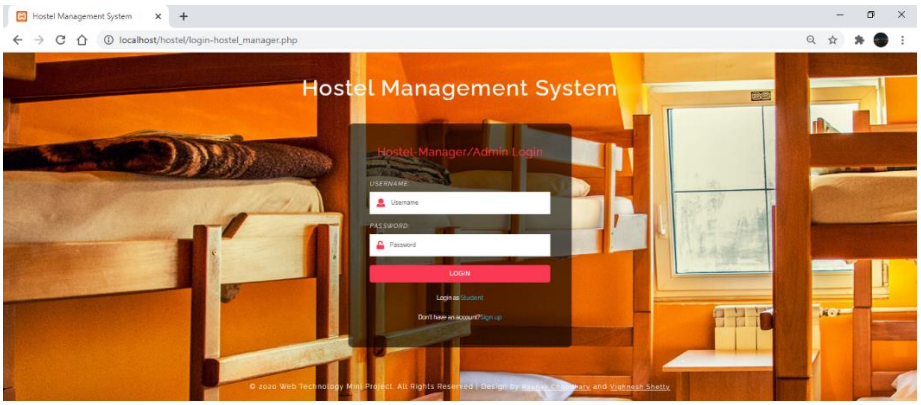


Fig 5.3.8: Hostel Manager/Admin Login Page

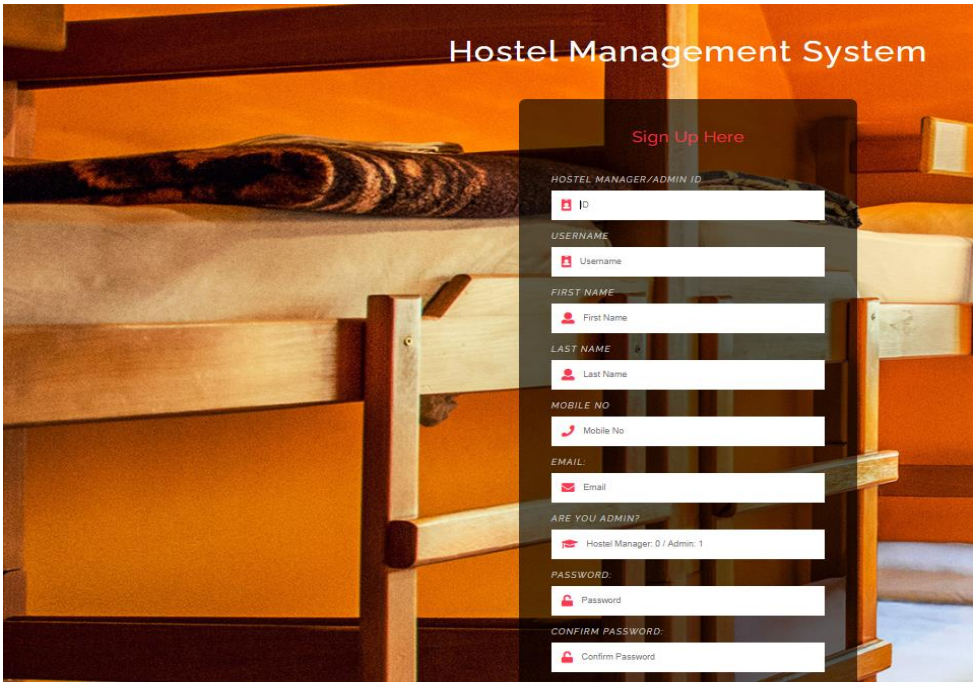


Fig 5.3.9: Admin Signup Page

Fig 5.3.10: Hostel Manager Incoming Messages Page

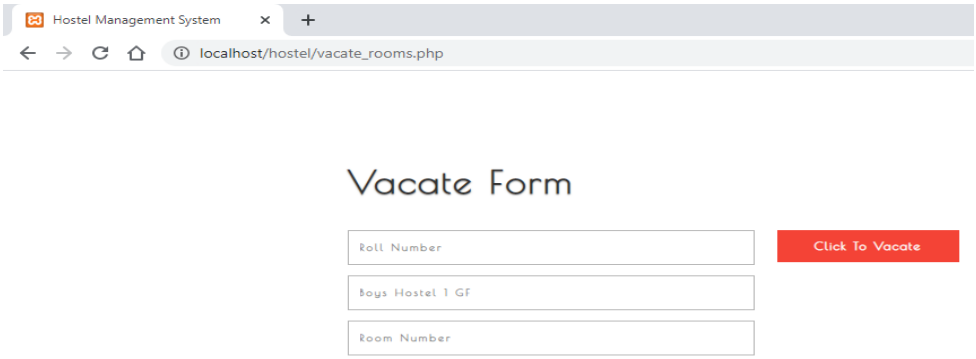


Fig 5.3.11: Vacate Room Form Page

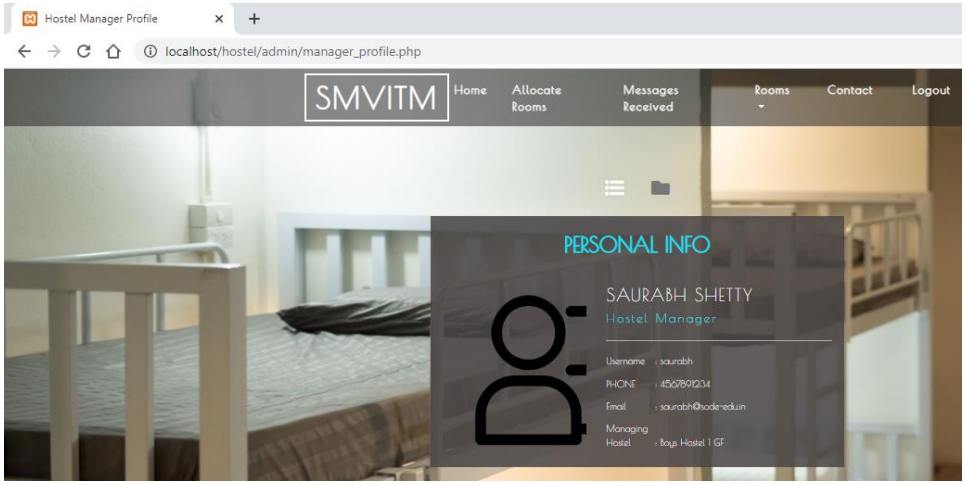


Fig 5.3.12: My Profile Page for Hostel Manager

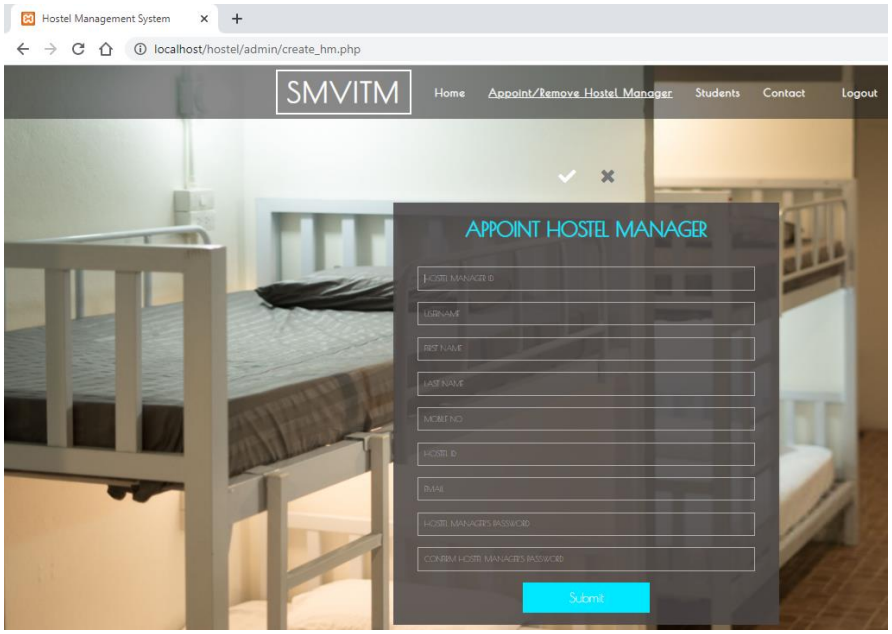


Fig 5.3.13: Page for Appoint/Removal of Hostel Manager by Admin

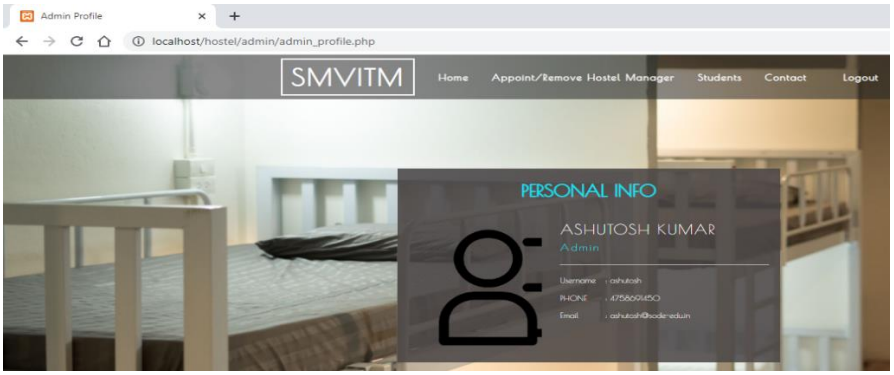


Fig 5.3.14: My Profile Page for Admin

Chapter 6

TESTING

System testing is the stage of implementation, which is aimed at ensuring that the system works accurately and efficiently before live operation commences. Testing is the process of executing the program with the intent of finding errors and missing operations and also a complete verification to determine whether the objectives are met and the user requirements are satisfied. The ultimate aim is quality assurance.

Tests are carried out and the results are compared with the expected document. In the case of erroneous results, debugging is done. Using detailed testing strategies, a test plan is carried out on each module. The various tests performed in "Network Backup System" are unit testing, integration testing and user acceptance testing.

6.1 Unit Testing

The software units in a system are modules and routines that are assembled and integrated to perform a specific function. Unit testing focuses first on modules, independently of one another, to locate errors. This enables, to detect errors in coding and logic that are contained within each module. This testing includes entering data and ascertaining if the value matches to the type and size supported by java. The various controls are tested to ensure that each performs its action as required.

6.2 Integration Testing

Data can be lost across any interface, one module can have an adverse effect on another, sub functions when combined, may not produce the desired major functions. Integration testing is a systematic testing to discover errors associated within the interface. The objective is to take unit tested modules and build a program structure. All the modules are combined and tested as a whole. Here the Server module and Client module options are integrated and tested. This testing provides the assurance that the application is well integrated functional unit with smooth transition of data.

6.3 User Acceptance Testing

User acceptance of a system is the key factor for the success of any system. The system under consideration is tested for user acceptance by constantly keeping in touch with the system users at time of developing and making changes whenever required.

Chapter 7

CONCLUSION AND FUTURE ENHANCEMENT

To conclude the description about the project : The project, developed using PHP and MySQL is based on the requirement specification of the user and the analysis of the existing system, with flexibility for future enhancement.

The hostel management software is designed for people who want to manage various activities in the hostel. For the past few years, the number of educational institutions is increasing rapidly. Thereby the number of hostels is also increasing for the accommodation of the students studying in this institution. And hence there is a lot of strain on the person who are running the hostel and software's are not usually used in this context. This particular project deals with the problems on managing a hostel and avoids the problems which occur when carried manually.

Identification of the drawbacks of the existing system leads to the designing of computerized system that will be compatible to the existing system with the system which is more user friendly and more GUI oriented.

7.1 Scope for Future Enhancements:

- In Future, Mess Schedule can be included for students.
- Hostel Schedule can be provided on the portal.
- Outgoing Passes can be generated for students.
- Online Secure Fee Payment for Hostels can be initiated on the portal.
- Hostel Day Celebration photos and event details can be shared on the portal.
- A user-friendly Chat Bot can be made available for the convenience of user.
- A Separate Login for Parents can be created which allow them to monitor the activities of their wards.