St Paul's University
A Final Year Project on
UNIVERSITY HOUSE RENTAL BOOKING SYSTEM

Under the Supervision of
Mr. Sam Karuga
Head Of Department Bachelor of Science in Computer Science

In Partial Fulfillment of the Requirement for the Bachelors in Degree in Computer Science

Submitted by
Maxwel Omwoyo
BSCLMR219221

December 7, 2022

Contents

CHAPTER 1

1 Title

1.1 Declaration

The completion of this project depended on the dedication I gave to myself. However, it would have not been possible without the kind support from the Head of Department Computer Science (Sam Karuga) and also assistance of many people and I am incredibly thankful to have achieved this during my lifetime project.
My sincere gratitude to Head of Department Bachelor of Science Computer Science, Mr. Sam Karuga who is the real actor behind the completion of this project as he has provided us with all the available resources needed both technically and non-technically and also educators of many fields in the IT sector and this has been a great experience to have some people being dedicated to your well-being.
I am grateful and blessed enough to receive consistent support from our friends and families and every IT students teaching staff who helped us to finish the project successfully. I would also like to extend my sincere gratitude to all the non-teaching staff that helped us timelessly.

2 Introduction

2.1 Background

University House Rental booking system is software management tool that is used by the university for students to book houses around the University area through the Students' Portal for students who did not manage to book University hostel when they are fully occupied.
Over the past years,hostel booking system has been the safest method for students to book their hostel as the university itself offers their students hostels to stay. The current trend also follows the same route but because these days so many student are admitted,there have been issues with those students bookings houses around the University areas and dues to this, there have been concerns to re-look on the matter of the rental booking system around the university

Hostel booking system has played an important role among the university students as students book the hostels on-line through the students' portal without necessarily being there and this is because students have the trust in University as they are sure in getting the hostels without being conned unlike some areas around the school and due to this, the University has now and again have more students booking the hostels each and every year thus others are left out due to lack of capacity of Hostels hence demanding them to look for another alternative.

2.2 Problem statement

In the University over the years, there have been been cases where many students loose their money by being conned to pay for a house while at home so that it can be booked and kept for him/her and when one does that, he/she ends up loosing the money together with the house that he/she was conned. This issue has been rampant among the first year students who have not yet known the university and also some continuing students who are not well conversant with the areas around the University. This has been an issue in all of the Universities countrywide for a very long time and it has caused an issue among so many Universities as to how it can be dealt with to reduce those cases.

2.3 Objectives

Due to the problem facing the Students, my project has the following objectives:
I will collect information from all random houses to get houses which can work with the university to accommodate their houses to students through advertising in the students' portal
I will build software that will be in the students' House Rental Booking portal for advertising vacant houses in areas around the school
I will test the project in the University system
I will deploy the project on a real-life basis for students to use
I will make the project flow much more effectively and swiftly

2.4 Justification

The University House Rental booking system is going to help the Students, Guardians of the students, The university itself and the Landlords of the houses which will be kept under the University's system.
Students are going to benefit through this system whereby they will be able to find houses of their own choice with ease without being conned to send money as it will be under the university's portal. This will also benefit them by saving their time because now it will not be necessary for them to travel all along searching for houses with which they wouldn't be sure if they can get one.
Guardians of the students will also benefit in one way or another as they will be sure of safety of their children because renting a house outside in a place one doesn't know can cause an alarm of insecurity. They will also benefit whereby they will be sure their money is sent to the rightful place and will book hostels without ease
The University itself will benefit as cases regarding students losing their money to people whom the don't know will reduce and thus the school will have a smooth time running the school without cases. The University can also benefit whereby they can easily reach out their students if any issue arises as they have records into which house the student is and this will create a good relationship with landlords.r
The Landlords will also benefit full-time as they will be having all-time clients because the University is a big Institution and also has a large number of students who are present in each and every guardian.

2.5 Scope

Good management of the project can lead to a successful project and a good relationship with the client.
This system is aimed at developing an online application for house booking around the school. This system can be used by end users (students)and administration to perform extensible tasks; and to book and reserve houses in an easy and secure manner.
The following facilities will be achieved by us:
The University House Rental booking system will help the University in easier management of their students as it will keep track of them both in school and outside the compound as it will have their records of the houses

they stay and this will help to easier monitoring of students.
The Landlords will benefit full-time also due to the continuous flow of tenants into their houses achieving good relations with their society at large.
The students will have an easier time booking their hostel hence reducing congestion in schools over the Hostel issues.
In addition to that, the project has made supplementary requirements like; Creating web page navigation so that the students can search for rooms, a sorting mechanism for houses in each place by name, by location, by the number of bedrooms, and by prices from lowest to highest. Module for a feedback university for the houses from the students has also been implemented.

2.6 Limitations

The House Rental booking system project is implemented for Students only. The University staff cannot have access to the system even though they are staying around the school as it will be in the Students' Portal.
There can be a rejection from some Houses around the school before partnering with the university as some Landlords dislike students living in their houses due to their own reasons.

CHAPTER 2

3 Literature Review

3.0.1 Theoretical review

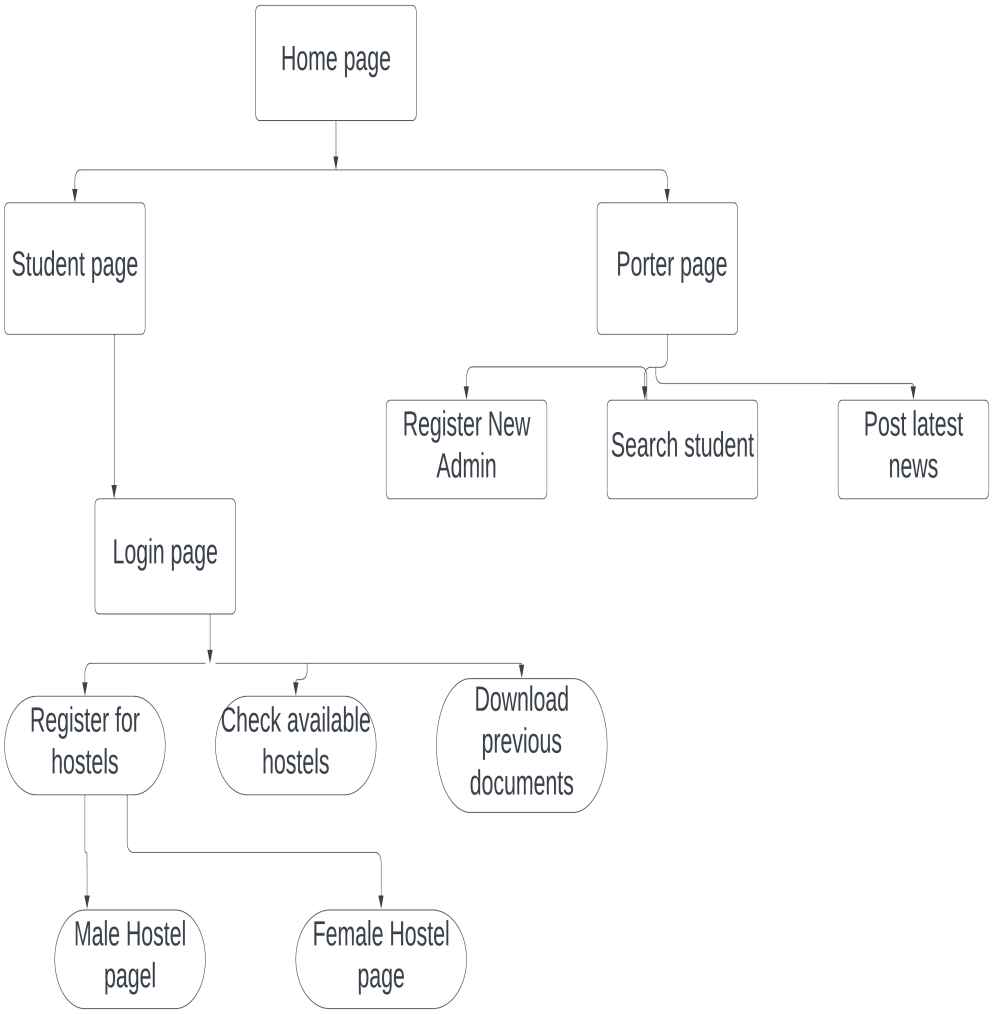
The University House Rental booking system is a web-enabled system application built for management of houses outsider the school through the students' portal. As a growing trend in the Information Technology sector, there has been an increase in the number of personnel in this field to solve these kind of issues. The house Rental booking system allows the users to login by their account, search for the houses available, book for a house then logout from the account.
In our Universities where the trend is still new and growing rapidly, As a university, they can use this house booking system for managing students who lack hostels as it will be easier for them to manage and keep track of

their students. In this changing time, there has been a huge requirement in the market and if you are not able to compete with this changing pace then it would be very difficult to manage the students. As demands are changing quickly and pace is needed to be matched, a good House booking management system can be a game changer.
The House Rental booking system aims to provide equal opportunities to all of the university students and thus workflow is not disturbed and students can focus on the school booking system rather than being in the school area.

3.0.2 Similar projects

There has been existing in the same field of House Rental and Hostel management. The systems are there to solve the problems highlighted in the problems of the manual system that was there before. The diagrams below show some of the projects done on the field of Rental and Hostel Management in various sectors or Institutions:

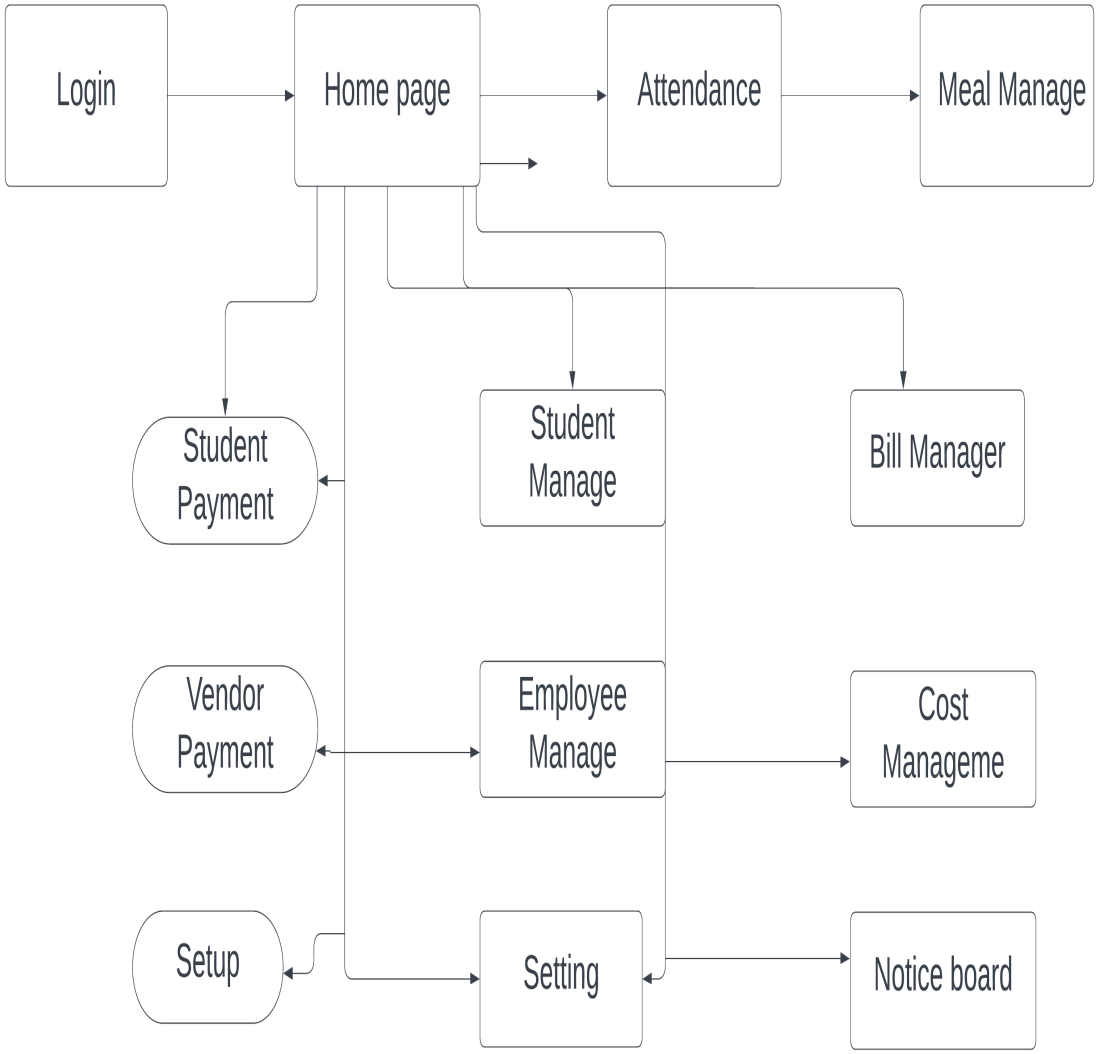
Data Flow Diagram



(Shoewu, Engr.Dr.Oluwagbemiga Braimah, Stephen Duduyemi, Olaniyi. (2016).Design and Implementation of Hostel Management Systthe em (HOMASY): LASU as Case Study.)

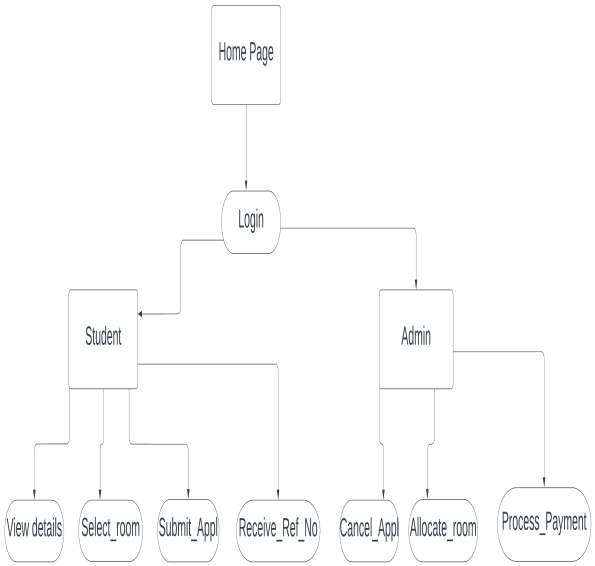
The above diagram shows a similar project of the hostel management system that was designed to provide a computerized process that is stress-free, reliable and quick through the use of PHP computer programming language and MySQL database application to both the students the staff in charge of the registration and hostel management

processes. HTML would be at the front-end and provide the graphical user interface that relates with the user, while the MySQL database will be at the back-end to handle the data storage process. The porter and student institutions officers will also be able to access and create student records with ease and regular update of student profile is enhanced when adopted.



(Islam, n.d.)
The above system is a system that was designed in favor of the hostel management which helps them to save the records of the students about

their rooms and other things. It helps them from the manual work from which it is very difficult to find the record of the students and the mess bills of the students, and the information of about the those ones who had left the hostel. All the hostels at present are managed manually by the hostel office 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.



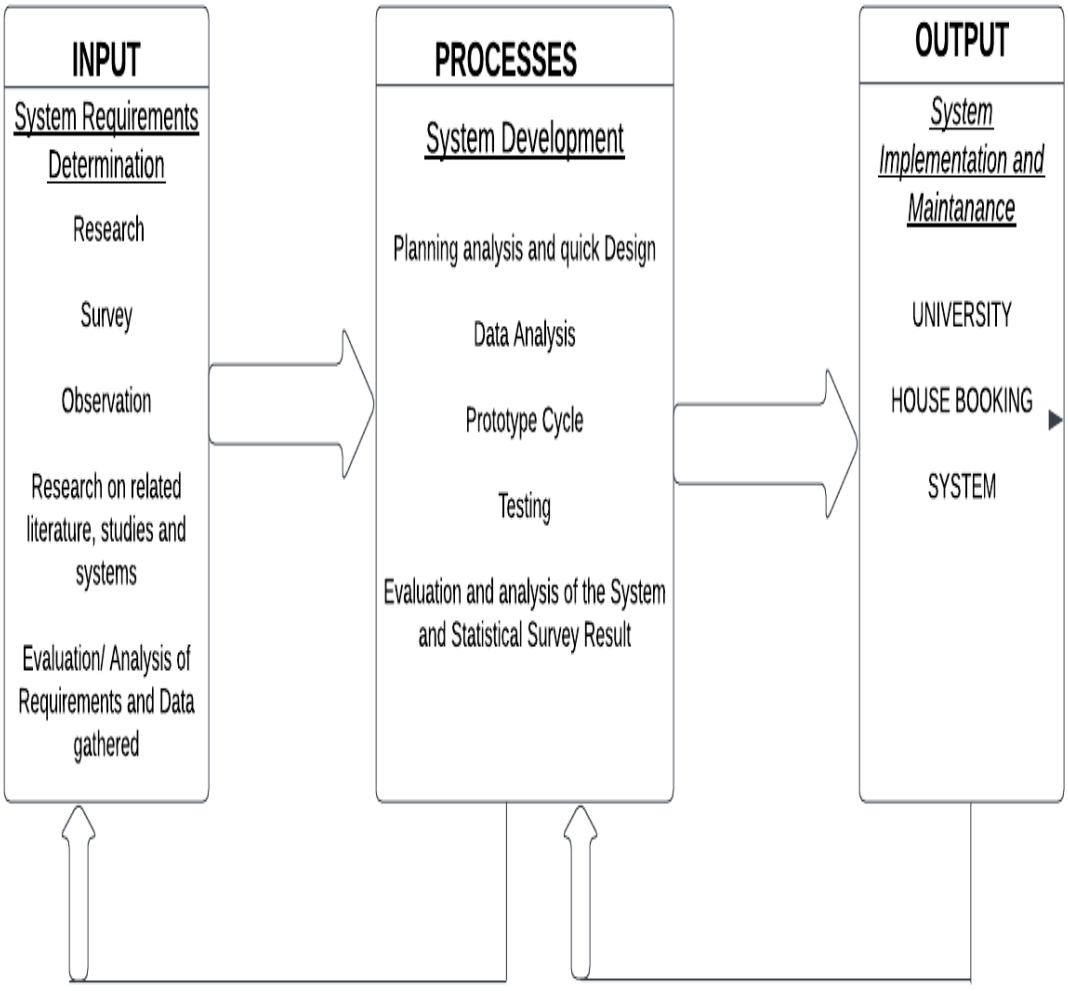
Data Flow Diagram

The diagram above is a Student Residence Management System that is developed to facilitate application for accommodation online and to help the staff to manage the different residence activities such as controlling booking, payments and room allocation. The Student Residence Management System will be able to notify and confirm all room allocations. Room allocation confirmations would be sent by email to students who were given accommodation.

3.0.3 Conceptual framework

The figure below shows the conceptual diagram of the study. It represents the model of study that follows the principle of input-process-output. The inputs are: Research, Survey, Observation, Research on related

literature,studies and systems, Evaluation of Requirements and data gathered.
The processes involved are: Planning, analysing and quick design, Data analysis, Prototype cycle, Testing, and Evaluation and analysis of the Systsem and statistical Survey Result.
The Output process is the University House Booking System. The diagram below represents all the three parts covered by my project:



CHAPTER 3

4 Methodology

4.1 Data

For the data collection and analysis of this project I did both an online and physical survey. I conducted an online survey as part of a research tool for data collection to collect data on the Students' thoughts regarding the system.
I also collected data from the google forms that I distributed to the students' and administration on their thoughts regarding the system.

4.2 Data Collection Tools

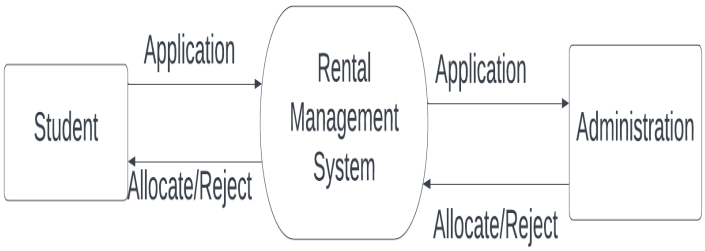
I prepared a google form to collect data where questions were asked with different individuals to gather information about them, their experience and their thoughts about the services given by the existing system. Questionnaires were delivered to the students and University staff and this was based on gender so as to get a diverse ideas on how each of them thought about the new system before implementation.
0

4.3 System Design

The system design of my software helps us to understand better how the system looks like and how each module works on its own.The system design is divided into three parts: Students' section, Administration section and Rental Management Process.
The figure below uses Data Flow Diagrams that show the logic representation of how my system is diagrammatically represented with each module:

4.3.1 Allotment Process

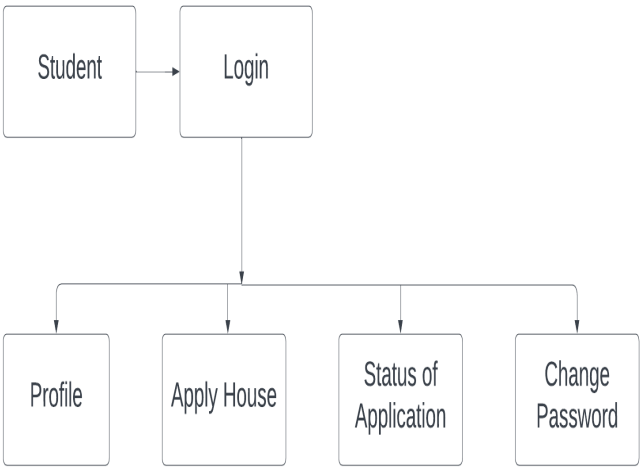
Context diagram for allotment process.



In the Context diagram above above, The student applies for a rental house and the student either gets allocated to a room or not.

4.3.2 Students' Module

Data Flow Diagram for Student Module:

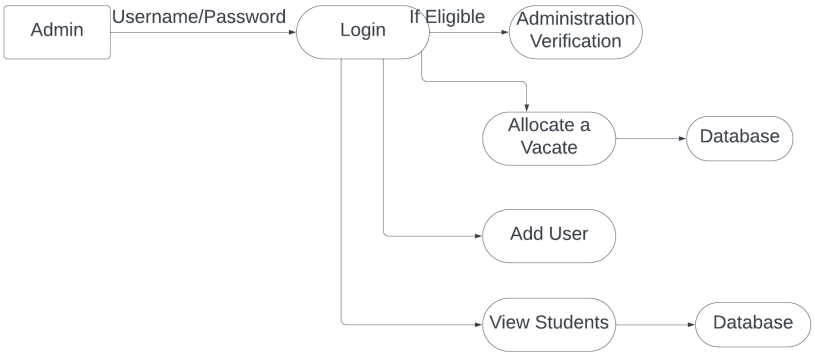


In this student section, it contain the following parts:
Login -In this, page one must have a Username and Password in order to access it.
Profile -This is where the students to view and update their profile.
Apply House -This is where the students will be able to apply for the house of their choice.
Status of Application -In this section, Students are able to view their application status of their house application.

Change Password -Students are able to change password.

4.3.3 Administration Module

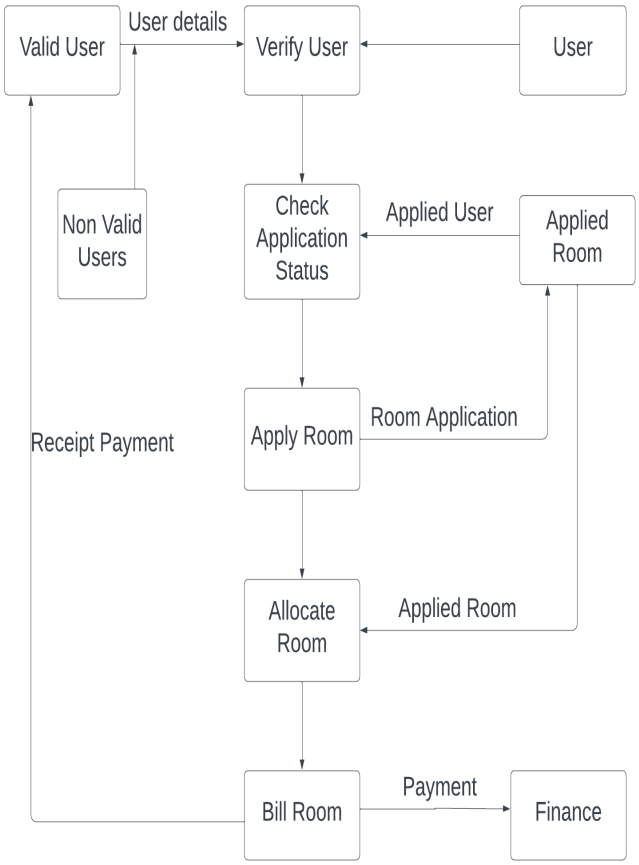
Data Flow Diagram for Administration Module:



Login -In this page, one must have a Username and Password in order to access it.
Add a user -Administrator can add a new user by assigning new username and passwords respectively.
View Students -Admin can view the students by viewing the which they are and the semester
Change Password -The admin can changer the password of his/her preference.
Application Verification -The administrator can be able to verify a valid student applicant and allocate her/him a vacant house

4.3.4 Rental Management Process

DFD of Rental Managamement process:



In the above system, it checks for a valid student user or administrator,it authenticates the username and passsword. If they don't match with the details i the database,the system runs an error message "Invalid username or password" but if the details match the details in the database, the system will check the Application status then retrieve the Student's Application details.

4.4 Implementation

The system is implemented using Apache web server, MySQL, and PHP. The administrator can access the backend through PhpMyAdmin console provided by the Apache server.

4.4.1 Database Implementation

The database in this system is designed using the MySQL database on the Apache server.Each of the tables inserted on the database is identified uniquely by a primary key. The entities shown have been entered into their repective relations.

TABLE: APPLICATIONS

COLUMN NAME	PRIMARY KEY	DATA TYPE	COMMENT
app_id	Yes	int(10)	Has a primary key that is AUTO_INCREMENT
stud_id	No	int(10)	Foreign key references the Students table
prefferedHouse	No	varchar(50)	Applicant chooses the number of rooms from a house he/she wants
assigned_room_id	No	int(20)	Foreign key references the rooms table
status	No	varchar(30)	Whether the applicant is assigned a room or not

TABLE: HOUSES

COLUMN NAME	PRIMARY KEY	DATA TYPE	COMMENT
house_id	Yes	int(10)	Has a primary key to identity the houses each uniquely
location	No	varchar(50)	Where the rental house is located
condition	No	varchar(50)	The house condition: whether is good or bad
type	No	varchar(50)	The type of house i.e. the number of rooms it has

TABLE: STUDENTS

COLUMN NAME	PRIMARY KEY	DATA TYPE	COMMENT
stud_id	Yes	int(10)	Has a primary key to identity the houses each uniquely
fName	No	varchar(50)	Where the rental house is located
lName	No	varchar(50)	The house condition: whether is good or bad
gender	No	varchar(50)	The type of house i.e. the number of rooms it has
phonenumber	No	int(10)	Students phone number
password	No	varchr(50)	Students password
status	No	varchar(20)	Applicaton status

TABLE: ADMIN

COLUMN NAME	PRIMARY KEY	DATA TYPE	COMMENT
admin_id	Yes	int(10)	Has a primary key to identity the admin id
username	No	varchar(50)	The username part
hashed_password	No	varchar(50)	The system uses passwords which are encrypted
admin	No	varchar(50)	The system checks to confirm whether the user is the admin

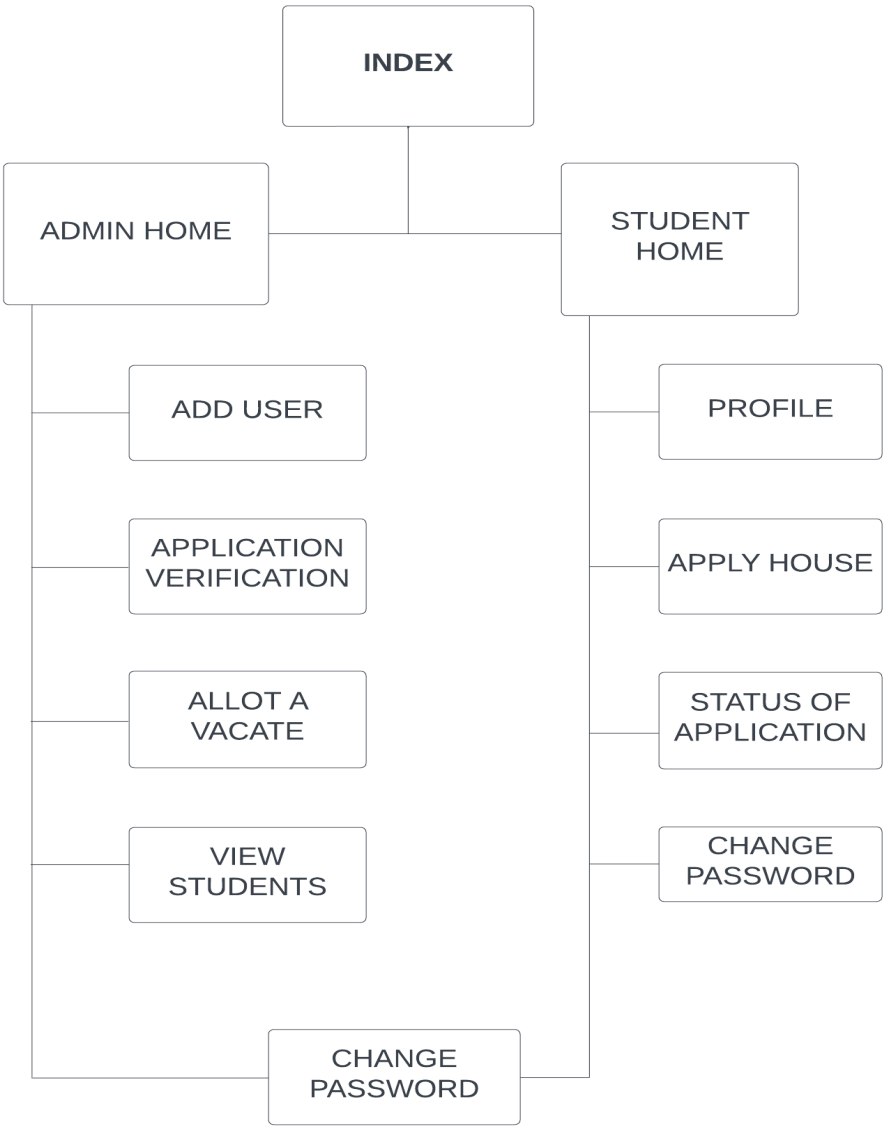
4.4.2 Web Interface

The web pages are created using html5 and php scripts. Php will also be used to create the session cookies which will enable login and logout processes.

4.4.3 Scripting

Php is used for server-side scripting.

4.4.4 Site Map


INDEX
ADMIN HOME
STUDENT HOME
ADD USER
APPLICATION VERIFICATION
ALLOT A VACATE
VIEW STUDENTS
CHANGE PASSWORD
PROFILE
APPLY HOUSE
STATUS OF APPLICATION
CHANGE PASSWORD

CHAPTER 4

5 References

Mr. A.Aswar, Mr. A.Ganesan, Dr. V.Kavitha, Mr. V.Karthicksabri PG Research Department of Computer Applications, on Hostel Automation system.

SSRG International Journal of Computer Science and Engineering (SSRG-IJCSE) – volume 3 Issue 4–April 2016 ISSN: 2348 – 8387 www.internationaljournalssrg.org

Development of an Automated Hostel Facility Management System Journal of Science and Engineering.

Whitten, Bentley, and Dittman. 2004. System Analysis and Design Methods (5th ed). McGraw-Hill: New York, NY.

Segun O. Olatinwo and et al. 2014. "Development of an Automated Hostel Facility Management System". Journal of Science and Engineering. 5 (1): 1-10.