



**SECJ2013-06 STRUKTUR DATA DAN ALGORITMA
(DATA STRUTURE AND ALGORITHM)**

**ASSIGNMENT 2: HOSTEL MANAGEMENT SYSTEM
(IMPLEMENTATION OF LINKED LIST)**

Group Name: Group 11

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Introduction

We are assigned to design a project of Hostel Management System. The aim of this project is to give student and staff a view of the hostel. This system is made in such a way that a minimum educated and simple computer knowledge so that any user can understand it. There basically two types of users who can use this system who are students and staff. Students can book hostel rooms whereas staff can view overall booking details of all students as well as conduct sorting.

Problem Statement and System Functionality

Typically, on the normal basis of hostel room booking, students are required to manually register themselves at the college office nearby. This manual system slows down the students' registration session and causes human errors to occur such as one's physical form may be displaced instead of storing it in a system. Another issue arouses when the staff have to view many forms at once which may lead to confusion and takes longer time to settle down.

Hence, our group have proposed a system that helps with the hostel management by implementing quick sort concept to sort the students' matric number and basic sequential search concept which identifies if the college desired is available in the system or not. We have also added a new concept to our system which is linked list that enable the user to obtain the student's details by only key-in the respective student's matric number. With the presence of our system, students may not need to queue a long line filling in the physical form.

Objectives

1. Provide centralized hostel management system.
2. Provide staff with an easier view of booking details done by students.
3. Prevent data loss by storing the students' booking details in the system.
4. Allow an efficient engagement from the students to navigate through the system while input necessary data for the hostel booking.

Assignment 1 Correction

1. Identify attributes and member functions suitable for each case. (10M)

When the code starts running, the prompt system will ask user whether he or she is a student or admin/staff.

Student

Once student is verified as a user and signed in, student will be displayed with a menu of function which are student registration and college room status.

a. Student Registration

When student choose this option, the function will allow the student to register for a college room. The program will begin by asking for student details such as **full name, matric number, gender, course, and college desired**. Then, the program will begin to ask student which **room they desire**. Finally, program will ask the check in and check out date and proceed to show the automated receipt where the amount of payment needed to be done and other details are shown.

b. College Room Status

This function will show the list of college available based on the **name, available rooms and rooms occupied**. Student can also register for the desired room but isn't given the option to choose their desired college.

Admin/Staff

Once staff is verified as a user and signed in, staff will be displayed with a menu of function which are **student registration, college room status and view student's booked room**.

a. Student Registration

Even though this option is shown to staff, this function cannot be used by them as it is only accessible through student login.

b. College Room Status

Even though this option is shown to staff, this function cannot be used by them as it is only accessible through student login.

c. View Student's Booked Room

This function uses display the details input by the students and allow the staff to perform a **quick sort** to arrange the **matric number** in **ascending order**.

Assignment 2

Note: New function is added to the system which display the respective student's details by key-in the matric number stored in the system. This new function is accessible by both staff and student.

Presentation contents:

1. Introduction
2. Objectives
3. Design of program
4. Demo of the program
5. Conclusion

Presentation video link: <https://youtu.be/tULFocnUAKg>

Conclusion

We hope that prototype proposed delivers the benefits to the students and staffs in various aspects. The prototype has proven to achieve the objectives mentioned before. Not only the staff can easily view the hostel booking details, but the students are also able to input their credentials efficiently and more secure. What makes this prototype unique is its' linked list function where staff and student can use the search feature to find information relating to college booking. Our newly added function benefits specially the students to double check if their credentials are saved to the system.