



Department of Computer and Communication Systems Engineering
Faculty of Engineering
Universiti Putra Malaysia
43400 UPM Serdang
Selangor

REPORT ON WEB AND DATABASE GROUP PROJECT
ROOM BOOKING SYSTEM

Course Name : ECC4207 - Web and Database
Semester : 1 (2022/2023)
Lecturer : Madam Siti Mariam binti Shafie@Musa
Group : 2

Team Members	Matric Number
Nur Haifa Julia binti Mohd Johaidi	202604
Nurul Aida binti Zairol Akmar	203732
Ain Syafiqah binti Zubir	202747
Tasnim Mahdiya	209488
Ammar Yusoff bin Faisal Ibrahim	203136

TABLE OF CONTENTS

1.0 EXECUTIVE SUMMARY	1
2.0 PROBLEM STATEMENT	1
3.0 PROJECT AIM AND OBJECTIVES	2
4.0 SCOPE AND LIMITATIONS	2
5.0 SOLUTIONS AND SIGNIFICANCE OF PROJECT	3
6.0 METHODOLOGY	4
6.1 WEBSITE	4
6.2 DATABASE	7
7.0 FINAL PRODUCT	11
8.0 DISCUSSIONS	18
9.0 CONCLUSION	18
10.0 REFERENCES	19
11.0 APPENDICES	19
APPENDIX A	19
APPENDIX B	19
12.0 INDIVIDUAL CONTRIBUTIONS	20

1.0 EXECUTIVE SUMMARY

In this project, a booking website under the Department of Computer and Communication Systems Engineering, University Putra Malaysia is developed by considering the requirements of the department. The aim of this project is to ease the booking process for any meeting rooms or halls in the department of CCSE since the conventional booking system is only done through a Google Calendar. Therefore, with this website, students and staff within the department may book their own rooms or halls through a more efficient platform. The booking website named as, ‘bookingcse’ is developed with the main features of user login, booking system, and an admin dashboard. Students or staff may login to the website and book their desired rooms or halls based on the availability of the rooms and halls. The rooms and halls available to be reserved are ranging from lecture rooms, lecture halls, Thinker Space, and faculty auditorium. The booking system requires users to input their details and booking information such as, person in charge of the booking and any extra facilities required for the booking. However, the booking made in the system can only be cancelled by the admin of the website in order to reduce the amount of dummy booking made by users and also to detect the irresponsible users. In brief, the booking system has successfully been developed and also connected to the mysql database that will store all the user information and the bookings made in the website.

2.0 PROBLEM STATEMENT

In line with the advancement of current technology, the manual process is being converted into a computer-based process and has evolved into one of the most famous businesses today. Booking activities has to be one of the major pieces of work, not only in business but also in governmental and academic institutions. The development of the booking system is due to the time constraint factor of the manual cumbersome process of regularly updating booking details [1]. Manual booking process could be tiresome and time-consuming since there is no proper and convenient system [1]. Users have to book facilities provided manually by a person or by a phone call. In academic institutions, the booking system is said to be crucial to book for classes, lectures, and events.

Department of Computer and Communication Systems Engineering, University Putra Malaysia offers a way of booking by a person or the official faculty website without a proper booking system site to book rooms or halls. The manual booking approach used by the staff and students is a troublesome method since it takes a long time to process because students or lecturers must go to the department office to request an open room from the staff. Verbally requested methods could as well be classified to be unprofessional. The alternative ways of booking to access the faculty's official website, however, make it difficult to search for rooms because the site does not specifically cater to bookings and does not offer straightforward booking features. Hence, in order to overcome these problems the team proposed the idea of developing a booking system website to ease the booking process and make it less of a hassle for the department staff and students with user-friendly and straightforward steps which require no assistance.

3.0 PROJECT AIM AND OBJECTIVES

The aim of this project is to be able to create a simple booking system that can ease the booking process of the staff and students. The objectives of this project is as below:

1. To create a room booking system for the Department of Computer and Communication System Engineering, University Putra Malaysia.
2. To create an admin dashboard system that can monitor and manage the user data.
3. To ease the booking process for the students and staff in Faculty Engineering.

4.0 SCOPE AND LIMITATIONS

This project focuses on optimising the booking system of the Department of Computer and Communication Systems Engineering, University Putra Malaysia. Initially, without a functional booking system site, the department offers a method of booking by a person or browsing the official faculty website to book rooms or halls without a specialised booking system and a straightforward function to it. Although this project can be further executed

with more rooms and halls for other departments as well, the team only focuses to ease the process of booking in the assigned department of the team study courses. To be able to add more features of that to the project, different staff expertise from each department is needed to be able to sort all the available rooms. In future, with the help of academic staff authorities, more interesting and useful features can be added to make this project even better.

5.0 SOLUTIONS AND SIGNIFICANCE OF PROJECT

In this project, a website was developed specifically for the purpose of handling the CCSE department's room booking system and the room booking system for students and faculty. Only the administrator has access to the admin page, where all website administration takes place. There will be a total of three pages shown, the first of which is the admin dashboard, which provides an overview of the website's state. The user management page allows the administrator to manage the users who may access the website. Finally, the booking list displays booking details and allows administrators to modify or specifically remove any of the rooms booked by users. Students and staff may see the room gallery and reserve the room of their choice. Moreover, students and staff may choose whichever room they wish to book, and the website will provide the available date and time.

The website is a game-changer for innovating the UPM engineering departments' room reservation process. Currently, the process of reserving a meeting or event space must be addressed physically and manually. As a result of using this website, the whole reservation procedure will be automated and integrated into a single system. With this website, the online reservation procedure will be quicker, more efficient, and more convenient for everyone.

6.0 METHODOLOGY

6.1 WEBSITE

The main template of the website comes from a free open source HTML, CSS and Bootstrap website template. The template downloaded from the open source is modified based on the project's need and design. Firstly, when the website is launched, it will land on the 'Index.php' page which is the homepage of the website. If a user would like to book a room, they will need to login or register into the website before they are able to book their rooms or halls. The flow of the process is as depicted in Figure 1.

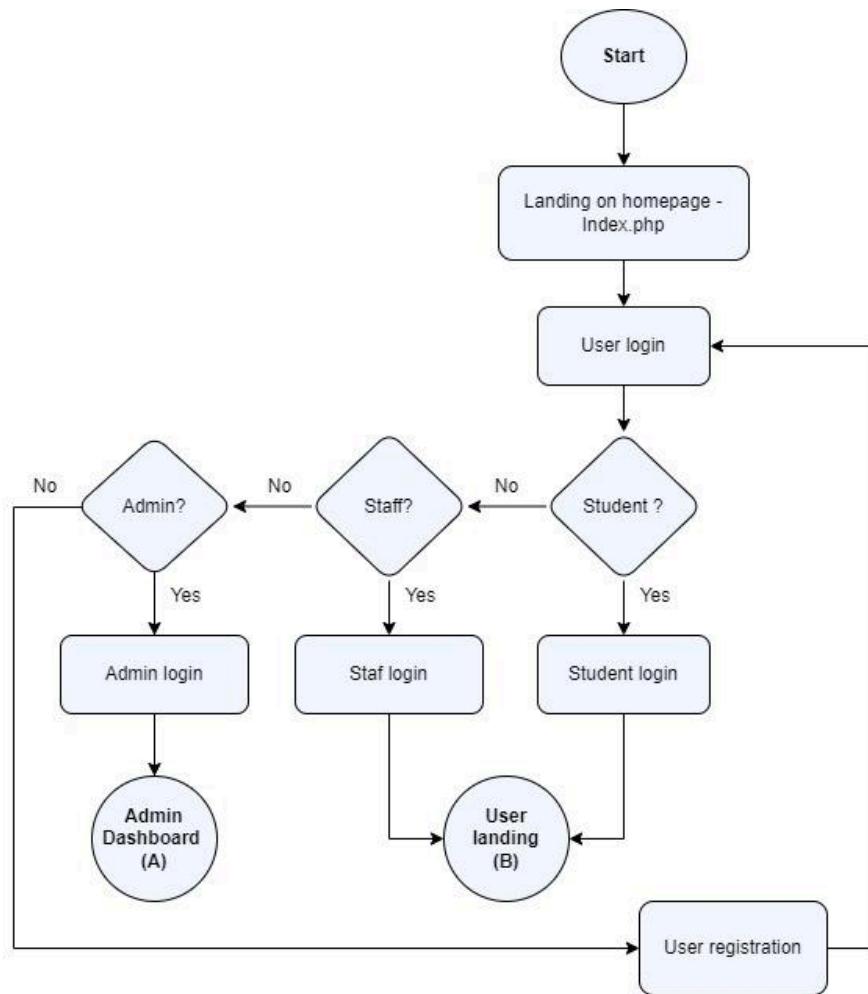


Figure 1: The general flowchart of the website

The website also comes with an admin dashboard page where the administrator may delete the bookings made by the registered users in the system. The deleted details will also be deleted in the database system that is connected to the website through phpMyAdmin mysql. The flow of the admin dashboard is as described below in Figure 2.

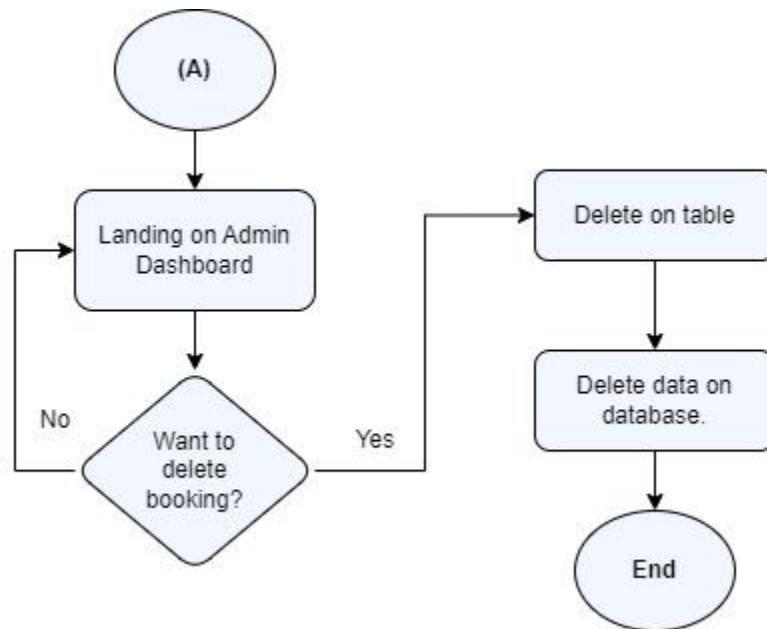


Figure 2: Admin dashboard flowchart

Next, when a registered user is logged in into the system, they will be able to book a room or hall they desire through the ‘Book a Room’ button in the landing page of the website. When the button is clicked, it will land on the ‘calender.php’ file which is a page that will be displaying the rooms availability on a calendar. Once the user selects the room and date, the user will be redirected to the booking form page where the user needs to fill in the booking information such as phone number, person in charge, time and any extra facilities needed for the venue.

Once the form is successfully submitted, the user will be redirected to the ‘donebooking.php’ page where it will display the booking is successfully made. The booking details made by the user will be posted to the website database concurrently. Any cancellations of the booking can only be made through the admin by contacting the administrator by calling the number provided in the website. This is done to reduce and detect the irresponsible behaviour of users in the website. The flow process of the booking system is depicted in the following Figure 3.

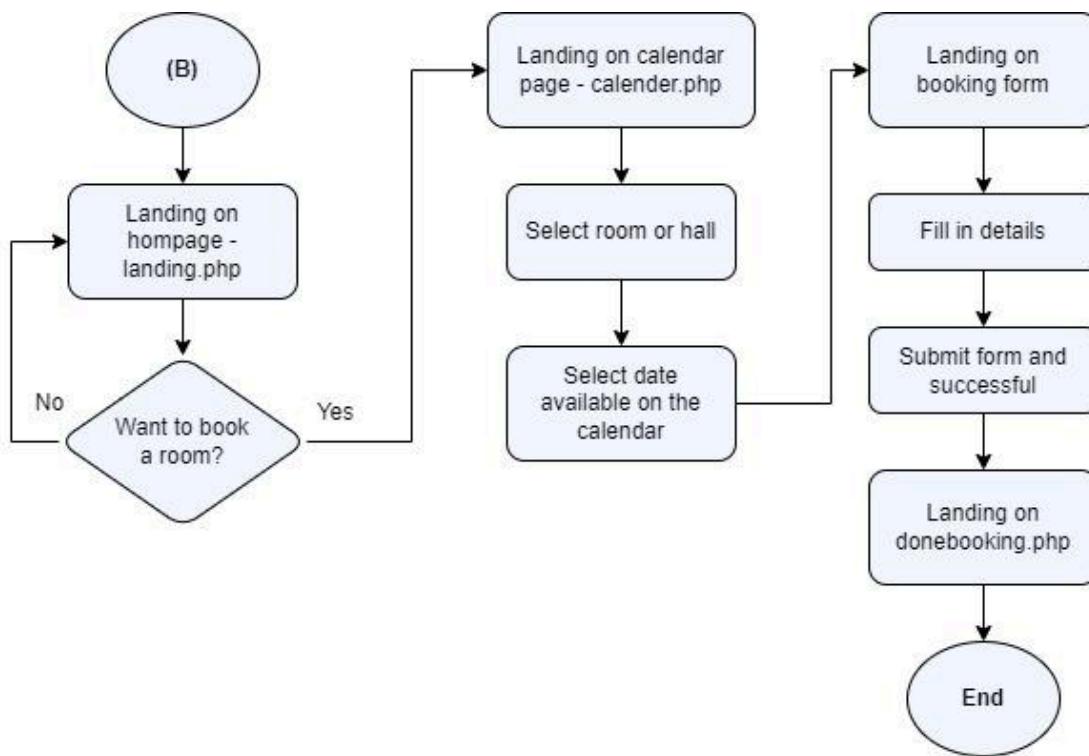


Figure 3: User login flowchart

6.2 DATABASE

In our project database, it has several tables: `accounts`, `admin`, `booking`, `bookings`, `login`, `staff`, `student`, and `user`. From these tables, I can create an ERD diagram that represents the relationships between these tables. The main relationships that can be inferred from the database are:

- A **user** has one **registerID** and one **typeID**
- A **user** has one **loginID**
- A **login** has one **loginID** and one **password**
- A **admin** has one **admin_id**, one **name**, one **email** and one **password**
- A **staff** has one **staff_id**, one **name**, one **email** and one **password**
- A **student** has one **matrix_id**, one **name**, one **email** and one **password**
- A **accounts** has one **accountID**, one **typeID**, one **registerID**, one **loginID** and one **bookingID**
- A **booking** has one **bookingID**, one **registerID**, one **fullName**, one **loginID**, one **yearStudy**, one **mobileNumber**, one **personIC**, one **roomType**, one **roomID**, one **bookingDate**, one **bookingTime** and one **roomFacilities**
- A **bookings** has one **id** and one **booking_date**

The sql database tables are inserted below:

```
CREATE TABLE `accounts` (
  `accountID` varchar(255) NOT NULL,
  `typeID` varchar(255) DEFAULT NULL,
  `registerID` int(40) DEFAULT NULL,
  `loginID` varchar(255) DEFAULT NULL,
  `bookingID` char(15) DEFAULT NULL
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4 COLLATE=utf8mb4_general_ci;
```

Figure 4: Account table (account details who has a booking)

```

CREATE TABLE `admin` (
    `admin_id` varchar(255) NOT NULL,
    `name` varchar(255) DEFAULT NULL,
    `email` varchar(255) DEFAULT NULL,
    `password` varchar(255) DEFAULT NULL
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4 COLLATE=utf8mb4_general_ci;

```

Figure 5: Admin table (admin register info)

```

CREATE TABLE `booking` (
    `bookingID` int(10) NOT NULL,
    `registerID` int(40) DEFAULT NULL,
    `fullName` varchar(255) DEFAULT NULL,
    `loginID` varchar(255) DEFAULT NULL,
    `yearStudy` varchar(255) DEFAULT NULL,
    `mobileNumber` char(15) DEFAULT NULL,
    `personIC` varchar(255) DEFAULT NULL,
    `roomType` varchar(255) DEFAULT NULL,
    `roomID` varchar(255) DEFAULT NULL,
    `bookingDate` date DEFAULT NULL,
    `bookingTime` time(6) DEFAULT NULL,
    `roomFacilities` varchar(255) DEFAULT NULL
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4 COLLATE=utf8mb4_general_ci;

```

Figure 6: Booking table (booking form info)

```

CREATE TABLE `bookings` (
    `id` int(11) NOT NULL,
    `booking_date` date DEFAULT NULL
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4 COLLATE=utf8mb4_general_ci;

```

Figure 7: bookings table (room_id and booking date info)

```

CREATE TABLE `login` (
    `loginID` varchar(255) NOT NULL,
    `password` varchar(255) DEFAULT NULL
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4 COLLATE=utf8mb4_general_ci;

```

Figure 8: login table (login for student, staff and admin)

```

CREATE TABLE `staff` (
    `staff_id` varchar(255) NOT NULL,
    `name` varchar(255) DEFAULT NULL,
    `email` varchar(255) DEFAULT NULL,
    `password` varchar(255) DEFAULT NULL
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4 COLLATE=utf8mb4_general_ci;

```

Figure 9: Staff table (staff registration info)

```

CREATE TABLE `student` (
    `matrix_id` varchar(255) NOT NULL,
    `name` varchar(255) DEFAULT NULL,
    `email` varchar(255) DEFAULT NULL,
    `password` varchar(255) DEFAULT NULL
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4 COLLATE=utf8mb4_general_ci;

```

Figure 10: student table (student registration info)

```

CREATE TABLE `user` (
    `registerID` int(40) NOT NULL,
    `typeID` varchar(255) NOT NULL,
    `userName` varchar(255) DEFAULT NULL,
    `userPass` varchar(255) DEFAULT NULL,
    `mobileNumber` char(15) DEFAULT NULL,
    `loginID` varchar(255) DEFAULT NULL
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4 COLLATE=utf8mb4_general_ci;

```

Figure 11: User table (all user info who have registered)

These relationships can be represented using a Crow's Foot ERD diagram as depicted in Figure 12 below, where the crow's foot notation is used to indicate the cardinality of the relationships between entities.

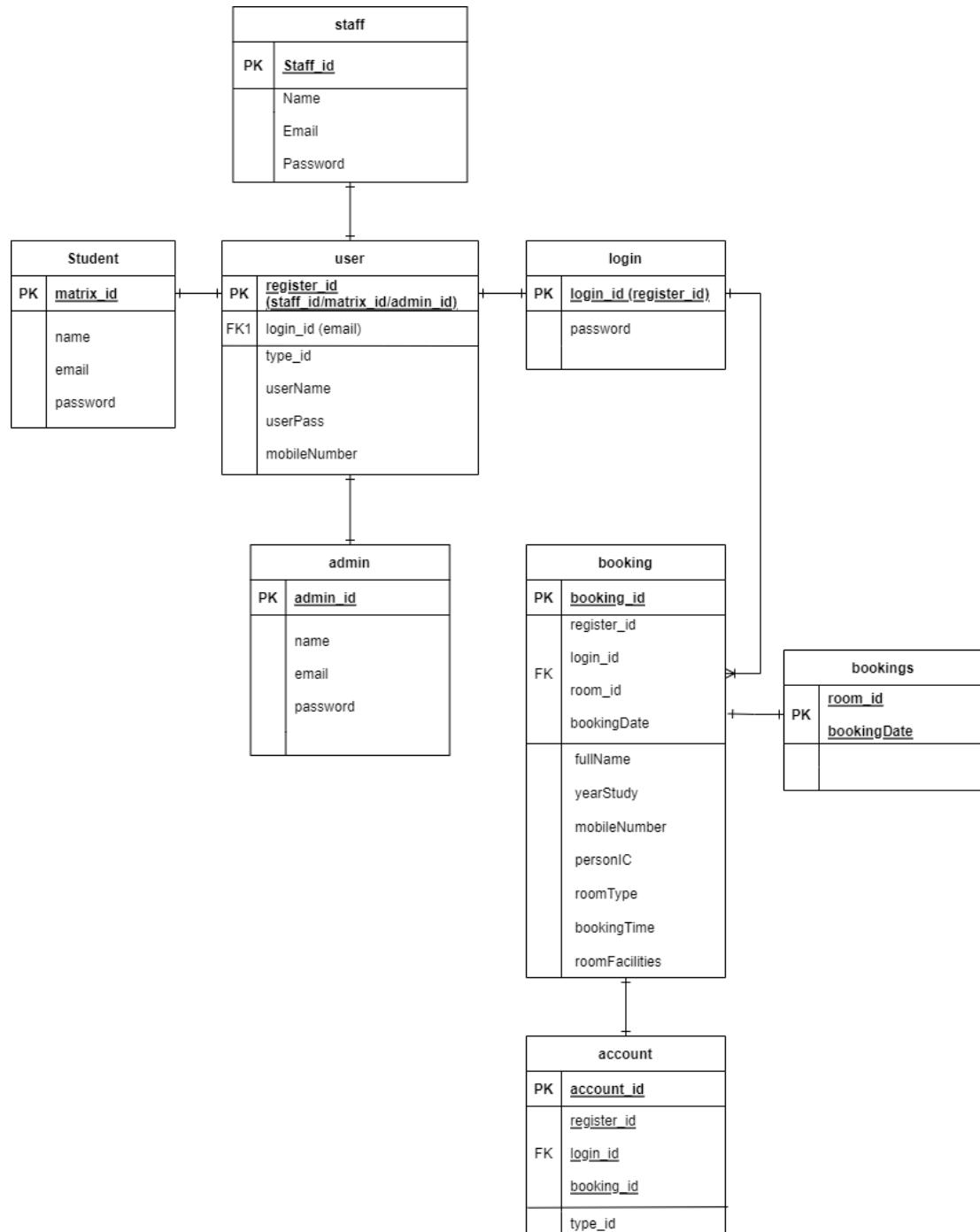
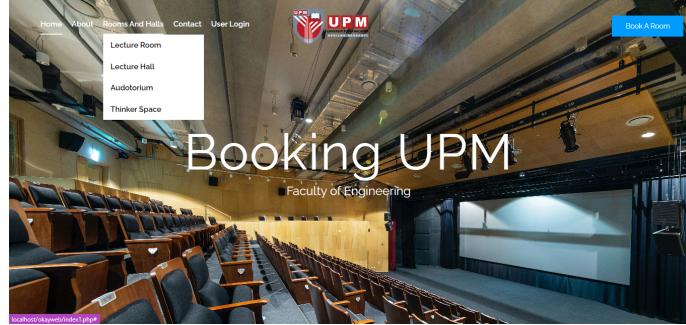


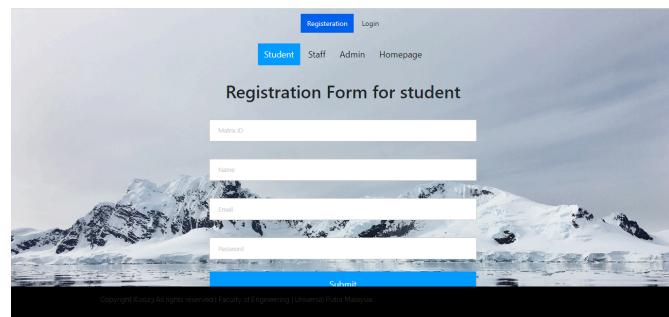
Figure 12: ERD diagram

7.0 FINAL PRODUCT

Table 1: Room Booking System Interface

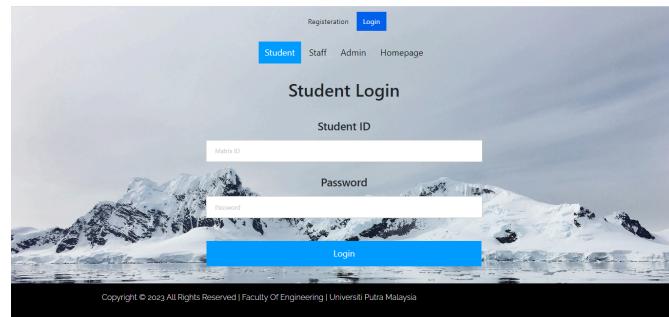
Homepage of Room Booking System	
Descriptions about the booking system	
List of Room	
Footers of Room Booking System	

Registration Page



The registration form for students features a background image of snow-capped mountains. It includes fields for Matric ID, Name, Email, and Password, along with a 'Submit' button. Navigation links for Student, Staff, Admin, and Homepage are at the top.

Login Page



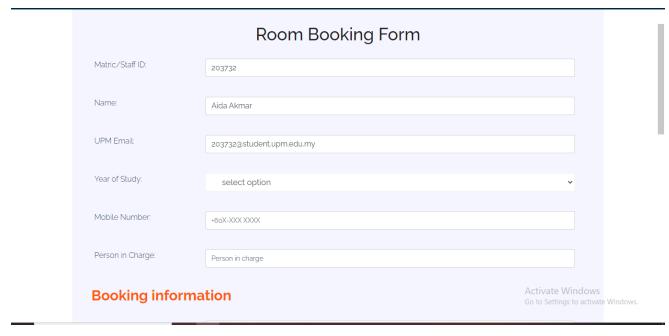
The login page has a similar design to the registration page, with a mountain background. It contains fields for Student ID and Password, and a 'Login' button. Navigation links for Registration, Login, Student, Staff, Admin, and Homepage are at the top.

Booking Page



This page shows a booking interface for a room. It includes dropdown menus for Room Type and Room, and a 'Submit' button. Below is a calendar for January 2023, showing a weekly grid where certain days are marked as booked. The UPM logo is at the top.

Booking Process

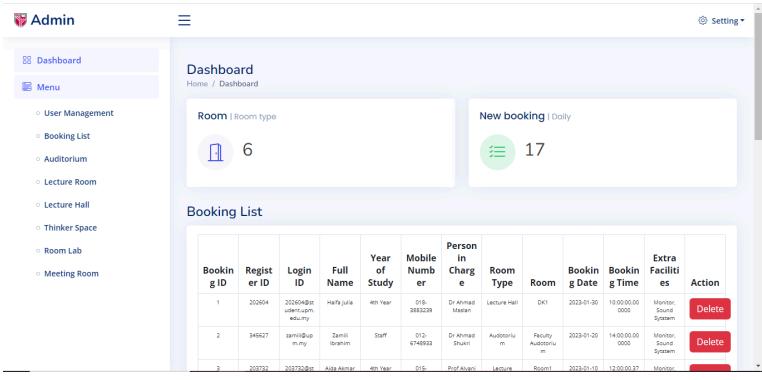
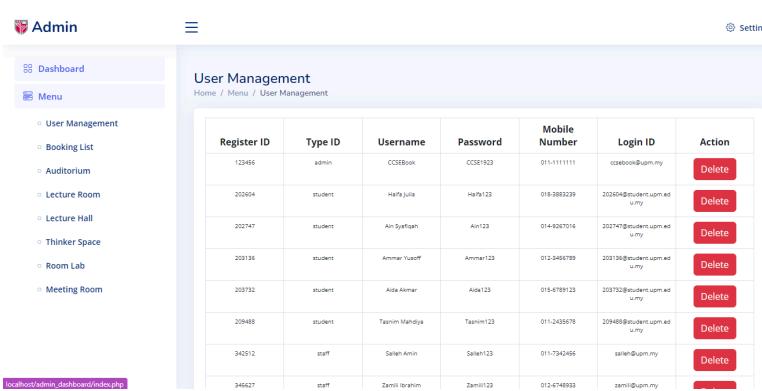
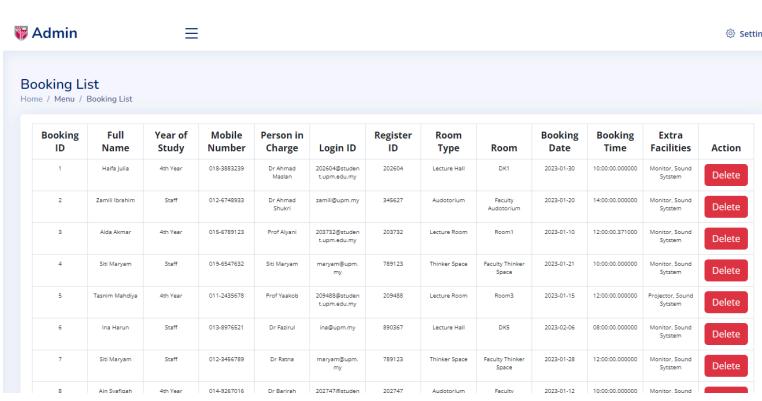
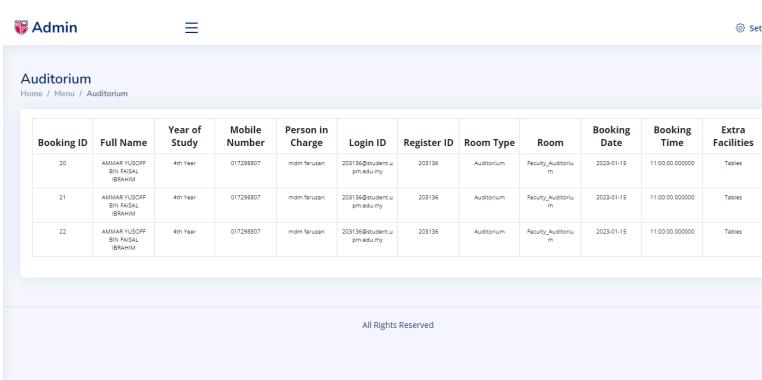


The booking form contains fields for Matric/Staff ID, Name, UPM Email, Year of Study, Mobile Number, and Person in Charge. A red 'Booking information' section is present. At the bottom right, there's a note about activating Windows.

	<p>Booking information</p> <p>Room Type: Lecture Room</p> <p>Room: Room 1</p> <p>Date: 26/01/2023</p> <p>Time table</p> <table border="1"> <thead> <tr> <th>time</th> <th>8:00</th> <th>9:00</th> <th>10:00</th> <th>11:00</th> <th>12:00</th> <th>13:00</th> <th>14:00</th> <th>15:00</th> <th>16:00</th> <th>17:00</th> <th>18:00</th> </tr> </thead> <tbody> <tr> <td>availability</td> <td></td> </tr> </tbody> </table> <p>Time: <input type="text" value="10:00"/></p> <p>Extra Facilities: <input type="checkbox"/> None <input type="checkbox"/> Chairs <input type="checkbox"/> Tables <input type="checkbox"/> Soundsystems/Mic <input type="checkbox"/> Projector Activate Windows Go to Settings to activate Windows.</p>	time	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	availability											
time	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00														
availability																									
Booking Approve	<p>Your booking have successfully been made!</p> <p>Thank you for your booking. Please contact us regarding any inquiries or cancellation.</p> <p>+0312345678</p> <p>Activate Windows</p>																								

Table 1 shows the interface of a Room Booking System that includes the homepage, booking page, login and registration page. If a user doesn't have an account, they will need to register first and then login to make a booking. Booking page will ask the type of room that the user wants to booked and a calendar that shows the availability. Next, it will direct the user to the booking process and if it is successful it will display as shown in Table 1.

Table 2: Admin Dashboard System Interface

<h3>Admin Dashboard</h3> 	
<h3>User Management</h3>	
<h3>Booking List</h3> 	
<h3>Auditorium</h3> 	

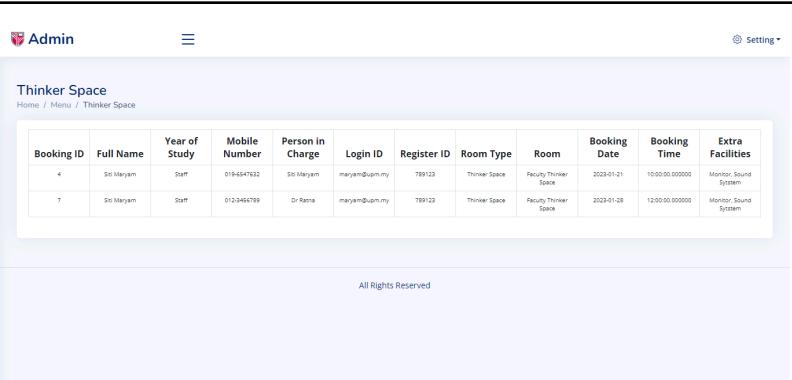
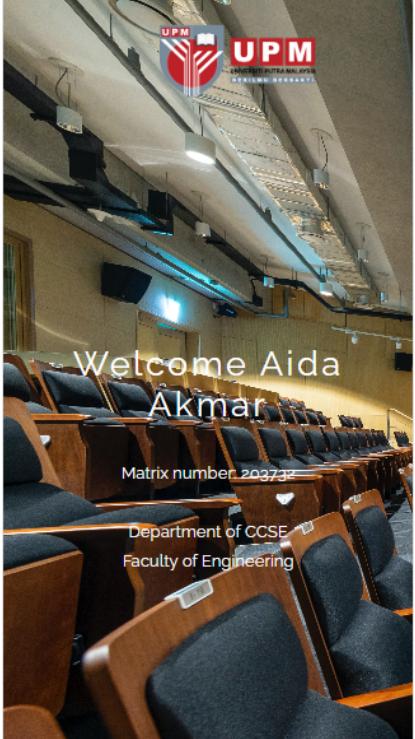
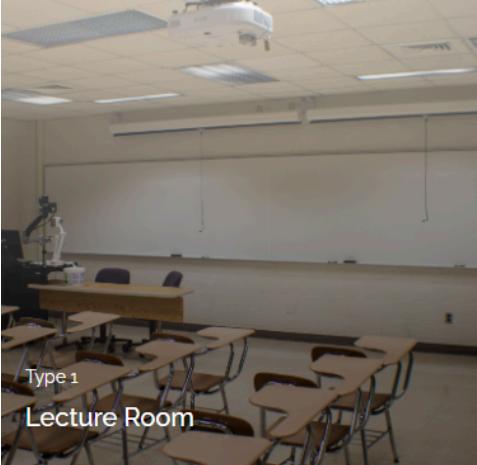
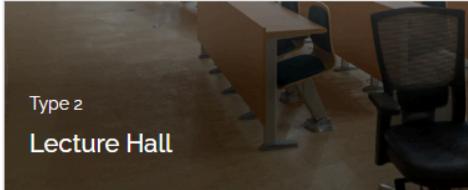
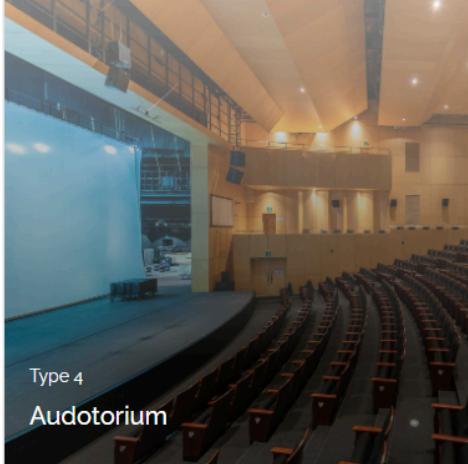
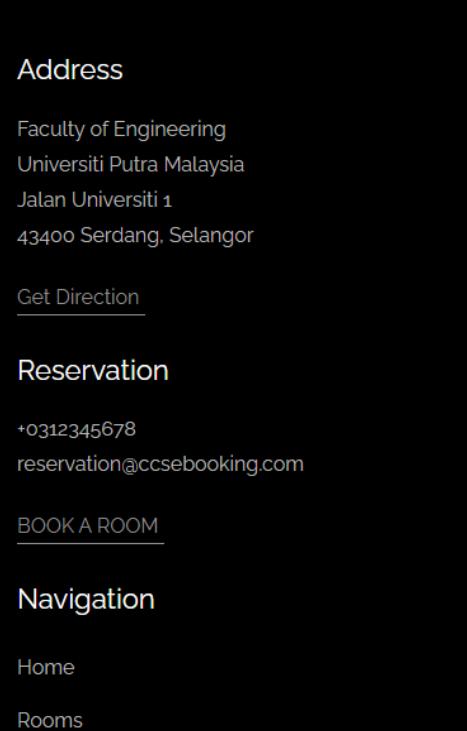
Lecture Room	 <p>The screenshot shows a table titled "Thinker Space" under the "Admin" section. The table lists two booking entries with columns for Booking ID, Full Name, Year of Study, Mobile Number, Person in Charge, Login ID, Register ID, Room Type, Room, Booking Date, Booking Time, and Extra Facilities. The extra facilities listed are Faculty Thinker Space and Monitor Sound System.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Booking ID</th> <th>Full Name</th> <th>Year of Study</th> <th>Mobile Number</th> <th>Person in Charge</th> <th>Login ID</th> <th>Register ID</th> <th>Room Type</th> <th>Room</th> <th>Booking Date</th> <th>Booking Time</th> <th>Extra Facilities</th> </tr> </thead> <tbody> <tr> <td>4</td> <td>Siti Maryam</td> <td>Staff</td> <td>018-6547632</td> <td>Siti Maryam</td> <td>maryam@upm.edu.my</td> <td>789123</td> <td>Thinker Space</td> <td>Faculty Thinker Space</td> <td>2023-01-21</td> <td>10:00:00.000000</td> <td>Monitor Sound System</td> </tr> <tr> <td>7</td> <td>Siti Maryam</td> <td>Staff</td> <td>012-3456789</td> <td>Dr Rama</td> <td>maryam@upm.edu.my</td> <td>789123</td> <td>Thinker Space</td> <td>Faculty Thinker Space</td> <td>2023-01-28</td> <td>12:00:00.000000</td> <td>Monitor Sound System</td> </tr> </tbody> </table>	Booking ID	Full Name	Year of Study	Mobile Number	Person in Charge	Login ID	Register ID	Room Type	Room	Booking Date	Booking Time	Extra Facilities	4	Siti Maryam	Staff	018-6547632	Siti Maryam	maryam@upm.edu.my	789123	Thinker Space	Faculty Thinker Space	2023-01-21	10:00:00.000000	Monitor Sound System	7	Siti Maryam	Staff	012-3456789	Dr Rama	maryam@upm.edu.my	789123	Thinker Space	Faculty Thinker Space	2023-01-28	12:00:00.000000	Monitor Sound System
Booking ID	Full Name	Year of Study	Mobile Number	Person in Charge	Login ID	Register ID	Room Type	Room	Booking Date	Booking Time	Extra Facilities																										
4	Siti Maryam	Staff	018-6547632	Siti Maryam	maryam@upm.edu.my	789123	Thinker Space	Faculty Thinker Space	2023-01-21	10:00:00.000000	Monitor Sound System																										
7	Siti Maryam	Staff	012-3456789	Dr Rama	maryam@upm.edu.my	789123	Thinker Space	Faculty Thinker Space	2023-01-28	12:00:00.000000	Monitor Sound System																										
Thinker Space																																					

Table 2 shows the interface of the Admin dashboard system where admin can monitor and manage the user data. In this system, the dashboard page will display the total number of rooms and the total number of bookings. Dashboard will also display the booking list that has a delete button where admin can remove the list. The menu part consists of user management that will display the list of users, and it also consists of the list of rooms that will display all users that have booked the room. On top of the dashboard have the setting button where the admin can sign out the account and it will direct to the homepage of the booking system.

Table 3: Responsive page of the system

<p>Booking System</p>	 <p>Welcome Aida Akmar Matrix number: 203732 Department of CCSE Faculty of Engineering</p>  <p>Type 1 Lecture Room</p>  <p>Type 2 Lecture Hall</p>  <p>Type 4 Auditorium</p>	<p>Featured Rooms and Halls</p> <p>Choose your Preferred Room or Hall</p>  <p>Address Faculty of Engineering Universiti Putra Malaysia Jalan Universiti 1 43400 Serdang, Selangor Get Direction</p> <p>Reservation +0312345678 reservation@ccsebooking.com</p> <p>BOOK A ROOM</p> <p>Navigation Home Rooms</p>
-----------------------	--	--

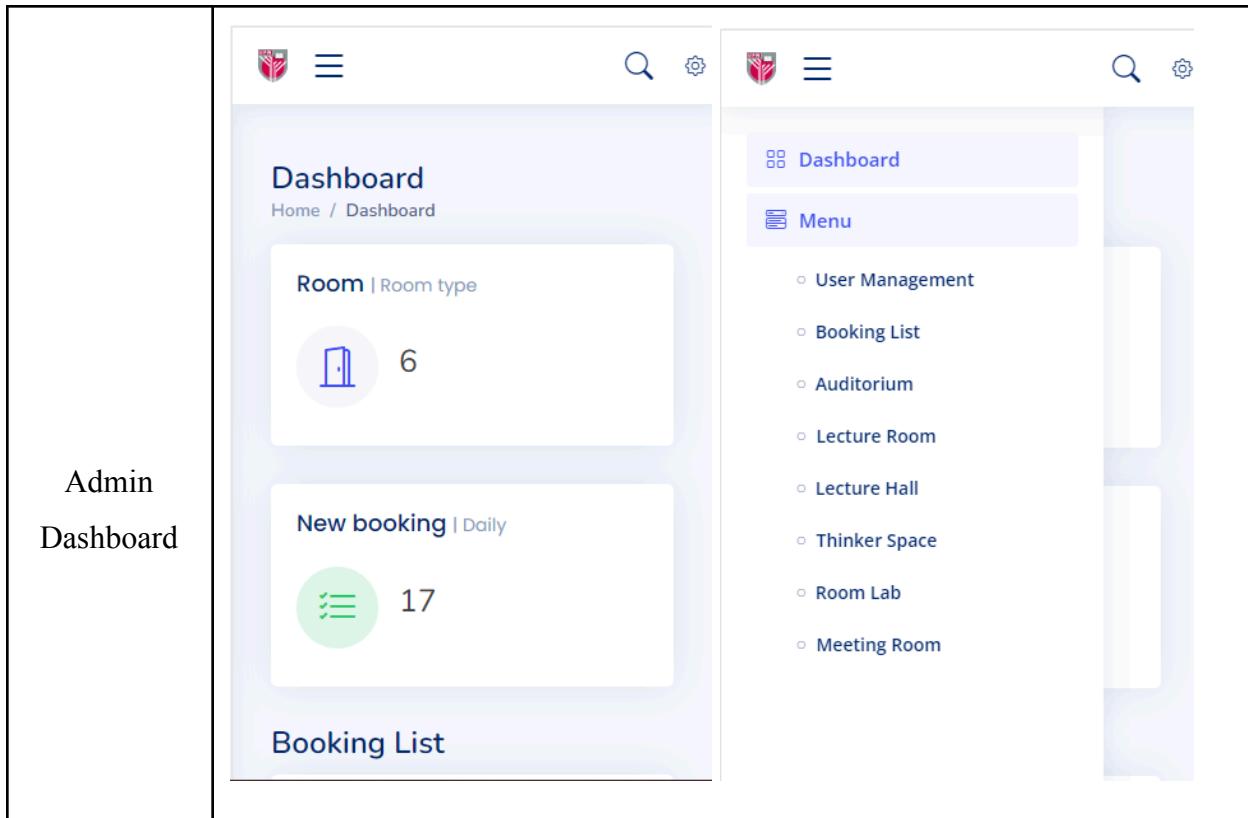


Table 3 shows the responsive page of the Room Booking System and Admin Dashboard system. Room booking systems have a flexible layout and images which can make it easier for the user to make a booking using their mobile phone. However, the admin dashboard might not be very suitable to use a mobile phone as the data is very large and it will compress it, thus the output will not be organized.

8.0 DISCUSSIONS

On our first try of using the 000Webhost database with the website, the website was working perfectly fine and it was fetching and posting data to and from the website respectively. However, due to the bug in 000Webhost, the database inside the 000Webhost is only connected to the website yet it is not fetching any data starting from the login page. The team has tried to use 3 different emails to host the website yet it still contains the same bug. Nonetheless, our ‘bookingccse.zip’ file works perfectly fine with the localhost database.

9.0 CONCLUSION

In conclusion, the website developed for the room booking system in this project for the CCSE department is a well-designed and functional tool that allows students, staff, and admin to easily view room details and availability, login, and make bookings. The website's integration with a database ensures that all information is accurate and up-to-date, making the booking process efficient and streamlined. Overall, this website project serves as a valuable resource for the department and faculty, providing a convenient and user-friendly way for members to reserve rooms for events and meetings.

10.0 REFERENCES

- [1] Commpic, "EECS2020 proceedings," *Faculty of Electrical Engineering V2*. [Online]. Available: <https://fke.utm.my/eecs2020-proceedings/>. [Accessed: 28-Jan-2023].

11.0 APPENDICES

APPENDIX A

Website link: <https://bookingccse.000webhostapp.com/>



QR code for our website

APPENDIX B

Link for website code (local host):

https://drive.google.com/file/d/1kfCmDi67KeTYrbEO9LbU26X8bGvd8yY2/view?usp=s_haring



QR code for our website code

12.0 INDIVIDUAL CONTRIBUTIONS

Members	Roles and Responsibilities
<p>Nur Haifa Julia binti Mohd Johaidi 202604</p> 	<ul style="list-style-type: none">• Leader• Responsible for whole design of the website• Responsible for integrating all parts of the website
<p>Nurul Aida binti Zairol Akmar 203732</p> 	<ul style="list-style-type: none">• Responsible for the design of admin dashboard of the website• Responsible of the backend function in admin dashboard
<p>Ain Syafiqah binti Zubir 202747</p> 	<ul style="list-style-type: none">• Responsible for design interface• Responsible for

<p>Ammar Yusoff bin Faisan Ibrahim 203136</p> 	<ul style="list-style-type: none"> ● Responsible for the backend of the website ● Responsible for the calendar page in the website
<p>Tasnim Mahdiya 209488</p> 	<ul style="list-style-type: none"> ● Responsible for booking form page ● Responsible for database