
Team Upfront

College Timetable

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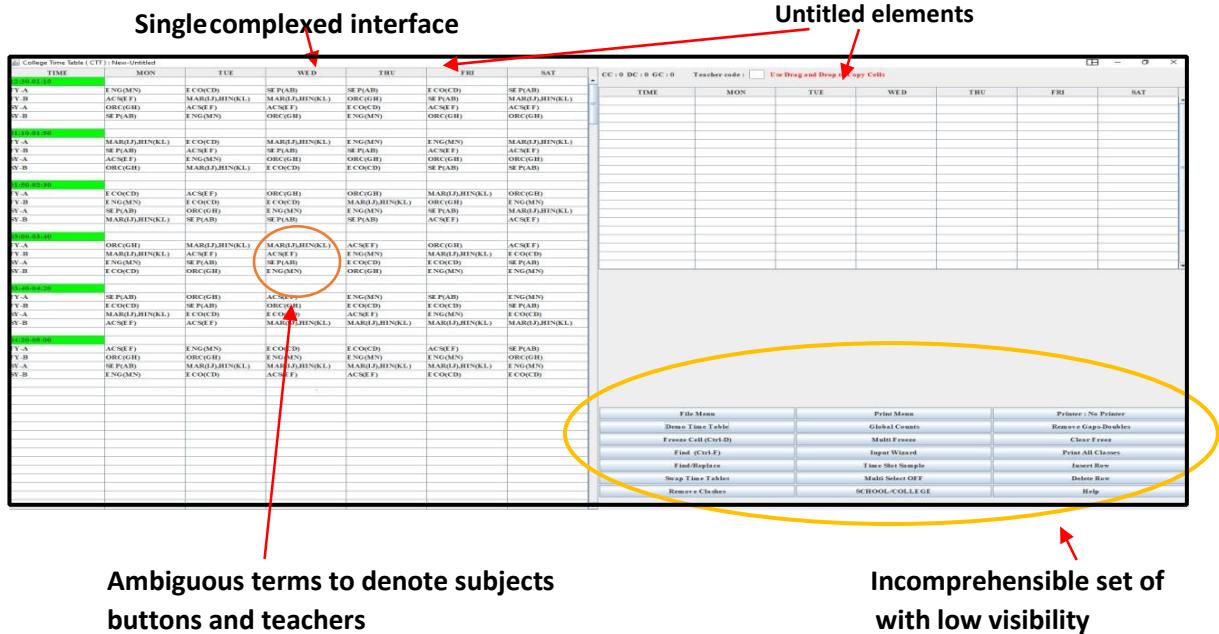
1. Introduction

The design of most of the current solutions to maintain timetables are quite complexed, thus hard to understand and use, which leads to poor user experience. Out of such timetable management applications, College Timetable is an application with one such user interface which any user would find it hard to use. As a resolution to this application, we have introduced a new set of user interfaces which now enables its users such as lecturers or teachers at a school or an educational institute to simply create, manage and maintain their weekly timetables.

This document fundamentally describes the design process, design choices and decisions that were made, complications encountered, and necessary measures taken and the milestones that were reached when implementing the user interfaces for the College Timetable application.

2. Background

2.1. Program Description



The program that will be developed is a college timetable application. It is devised for creating timetables according to their obligations for either a lecturer or an administrator, who will be managing the timetable generation for students in the college. It implements the functionalities of creating a personalised timetable for the lecturer, a batch of students or generating a report on the summarised data of a lecturer's work details according to one's weekly timeline. As researched by the team for convenient similar solutions, it was challenging to find an application that was easy to use, had decent performance and provided all functionalities required. After thorough research, solutions found were brought into a discussion which has issues in interfaces which tend to be boring and had cramped up the features for one user interface. Even though we found applications that summoned all the functionalities, it didn't fulfil all the needs of good interactive design as to posing issues in areas like low guidance on how the functionalities worked and complicated interfaces. An example of such an application is displayed below.

2.2. Design Purpose

A thoroughly defined solution has been brought up by the team to make an application for the issues posed in the existing solutions for timetable management. We have achieved to create a solution that is more user friendly, represents good usability, simple and that has excellent and attractive user interfaces while maintaining good user experience. We have addressed the user-friendliness and simplicity of our interfaces after a thorough walkthrough on various prototype designs to ensure the best possible format to make the system as simple as possible making it a pleasant work environment even for an obscure user. Furthermore, navigations and the structure of the interfaces have been refined throughout the system. Functionalities have been keenly divided into different interfaces making a user understand the functionalities performed by each section quickly. Buttons have been categorised according to their functionalities are placed in each interface as a coherent structure increasing their visibility, reducing its uncertainty. Icons have been used throughout all the interfaces to make them to make it more attractive and informative. The enhanced software delivers a theme-based design other than the monochrome type, which makes a user feel boring. A high workload has been utilised to make this application more useable, user-friendly, simple, elegant looking and provides a good user experience.

2.3. Team Members

Name	Student ID	Role
A.R.M. Shahan	20249485	<ul style="list-style-type: none">• Project manager• Psychologist
D.M.A.U. Dissanayake	20206150	<ul style="list-style-type: none">• Resource investigator• Specialist
M.R.R.L. Bandara	20249508	<ul style="list-style-type: none">• Usability Engineer• Evaluator
S.S.A. Rajapaksha	20222907	<ul style="list-style-type: none">• Graphic designer• Finisher
T.T. Jayawardena	20204617	<ul style="list-style-type: none">• Data analyst• Document controller

2.4. Contribution Table

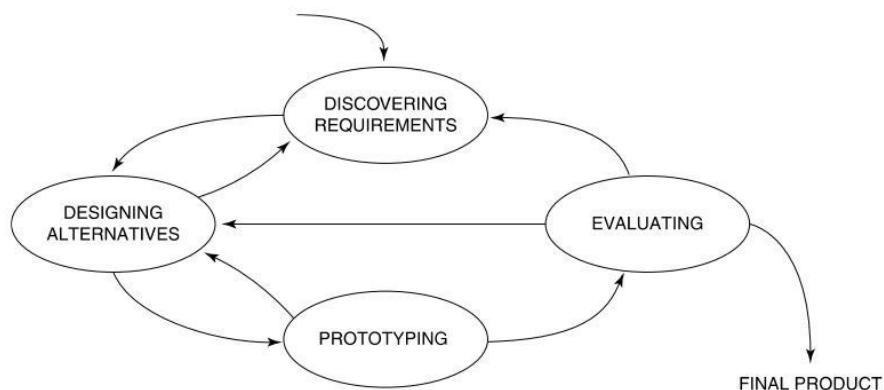
Name	Contribution
A.R.M. Shahan	<ul style="list-style-type: none">• Design process• User involvement• Target Demographic• Survey Result and Analysis• 4.3.1 – Persona (Paul)• User stories – (4,5,6)• Use Case Scenario and Diagram (7.1)• Hierarchical Task Analysis (8.1)• Prototypes (9.1)• Implementations (10.1)

D.M.A.U. Dissanayake	<ul style="list-style-type: none"> • Introduction • Competitor analysis • Problems Encountered • Conclusion • 4.3.2 – Persona (Zeneta) • User stories – (11,12,13) • Use Case Scenario and Diagram (7.2) • Hierarchical Task Analysis (8.2) • Prototypes (9.2) • Implementations (10.2)
M.R.R.L. Bandara	<ul style="list-style-type: none"> • Usability Goals • User Experience Goals • Functional Requirements • Non-Functional Requirements • 4.3.3 – Persona (Rogers) • User stories – (9,10) • Use Case Scenario and Diagram (7.3) • Hierarchical Task Analysis (8.3) • Prototypes (9.3) • Implementations (10.3)
S.S.A. Rajapaksha	<ul style="list-style-type: none"> • Evaluation • Meetings • Risk Management • Milestones • 4.3.4 – Persona (Ashley) • User stories – (7,8) • Use Case Scenario and Diagram (7.4) • Hierarchical Task Analysis (8.4) • Prototypes (9.4) • Implementations (10.4)
T.T. Jayawardena	<ul style="list-style-type: none"> • Program Description • Design Purpose • Team Members • Contribution Table • 4.3.5 – Persona (David) • User stories – (1,2,3) • Use Case Scenario and Diagram (7.5)

- Hierarchical Task Analysis (8.5)
- Prototypes (9.5)
- Implementations (10.5)

3. Design Process

Before starting to redesign the existing software, the designers considered the need for building an interactive product based on the user-centered approach. To develop 'College Timetable', the designers had to choose a process that provides the best support to fulfill interaction design goals. Below is the design life cycle model that the designers have decided to implement the 'College Timetable' which exemplifies a user-centered approach.



First, the problem statement was taken into discussion. The user experience of the old software is degrading and the structure of it is complex. So that it was decided to focus on why the changes are needed in the 'College Timetable'. Then the designers could plan design implementation according to the above process to improve the user experience with the functionality of the software. Next, the importance of designing alternatives and providing prototypes to record feedbacks from users was taken into consideration. The involvement of users throughout the development process is so important in quality-wise to improve the user experience because the users know what is good and what is bad in the old software according to their emotions and feelings as users are good at providing feedback. Therefore, designers had the necessary meetings with the client to discuss the implementation of the software and its design process. It is very convenient to achieve usability goals by this user-centered agile software development that focuses on interaction design.

3.1. User Involvement

To carry out the design process it was important to use a user-centric approach based on what the user thinks and their behavior while the implementation of the design process. So that designers can manage the expectation of the user in a short period which could improve the efficiency in developing the software. For the development of the ‘College Timetable’, it is necessary to involve users full time to evaluate design ideas to build the system. Users from different groups can provide different requirements and designers must focus on those different perspectives of user groups by involving them in the developing process with relevant time frames in the software development life cycle. With a constant number of inputs by the user, developers can record the feedbacks and alter necessary features in both front-end and back-end to support the functionality of the software as well.

The main user groups of the ‘College Timetable’ are lecturers and the administrative staff of a college. Designers could involve users from one college to support in developing the software. So that the designers could obtain proper thoughts and feedbacks from a real type of user of the system. By doing so the designers can enrich the user experience and usability they are the main focuses of redesigning the old software with supporting the functionality of it.

4. Requirement Elicitation

4.1. Target Demographic

There are 2 types of users in the new software which are lecturers and some of the high administration staff members. These user groups are found in every college and in most of the institutes to carry out academic activities. They operate the ‘College Timetable’ software to manage the timetables. Lecturers have few options compared to the Administration privileges. Admins of the system have access to manipulate the information about lecturers and lecture halls.

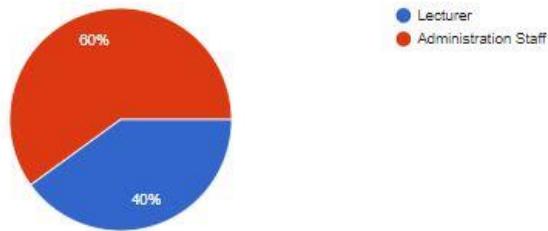
To gather requirements to improve the user experience with the system functionality, designers have decided to issue a questionnaire.

4.2. Survey Result and Analysis

Results are generated by Google Forms according the questionnaire in provided in the appendix.

What is your user type?

10 responses

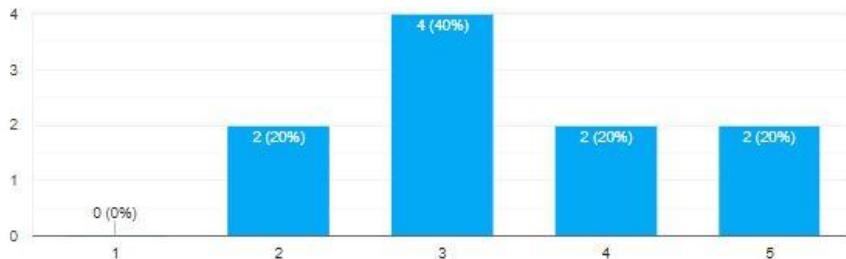


Question 1

This pie chart shows which type of user that has filled the questionnaire to collect data for requirements gathering. The largest proportion that 60% of the 10 respondents were Administration Staff whereas only 40% were lecturers. With this question, it is clear that most of the users are from the administration staff of a college.

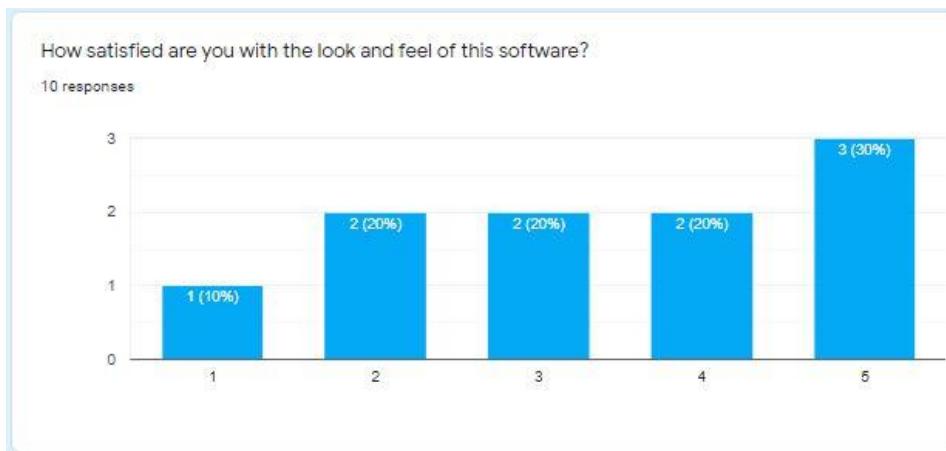
How satisfied are you with this software's ease of use?

10 responses



Question 2

The above line graph compares the software's ease of use according to 5 levels. Number 1 represents highly satisfied whereas number 5 represents the least satisfied. Overall, most of the users have less ease of use in using the old software whereas none of the users are highly satisfied software's ease of use. With this question, it is clear that the old software needed to be refined.



Question 3

The above line graph demonstrates the satisfaction level scales between 1 to 5 where 1 represents that the user is very satisfied and 5 represents less satisfied. As shown in the line graph, 7 out of 10 responders weren't much satisfied with the look and feel of the old software. They believe that look of the software has to be improved in an eye-catching way. That's why the designers have decided to bring in color gradients in the software's background.

What comes to your mind when thinking about this software?

10 responses

- It handled all my working periods correctly
- This is hard to use
- Good manageable
- It is very difficult to understand of what to do
- Less information about college facilities
- Unpleasant
- Complex to select the needed timetable
- No needed options
- Hideous

Question 4

The above list shows the answers provided by the responders answering to the cognitive impression when using the old software. They have responded negatively about the impression while using the software. By this question, designers have aimed to provide the users with less complex systems to interact.

Is there anything missing on this software?

10 responses

Features are okay but too complex

Can add a feature to manage lecturers

Do not have a functionality add lecture halls

Can not view lecture hall capacities

Login functionality

User login

Generate reports(time tables) functionality is missing

Pleasantness

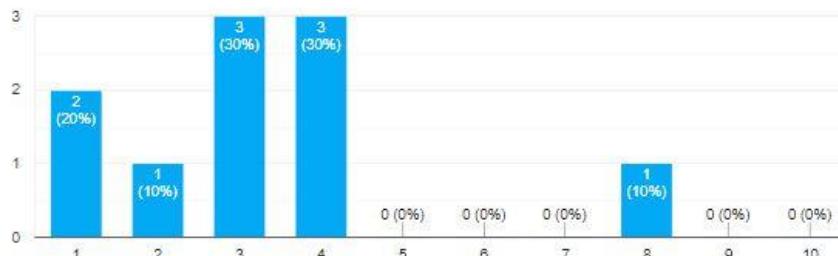
To block some admin privileges

Question 5

The above list of thoughts shows what are the missing functionality of the old system by the perspective of the user. They have suggested a lot of alternations have to be made in the old software. As designers, we have considered these so that we wouldn't miss the above-provided components in the refined system.

If review this software with a score out of 10, what score would you give us?

10 responses



Question 6

The above line graph shows the user rating of the old software for the College Timetable. 9 out of 10 users have responded with a score below 5. Therefore, the designers could assume that the old software had to change immediately.

Do you have any thoughts on how to improve this software?

10 responses

Make a simple interactive interface

Add a feature to manage lecturers and make a better ui design

Add functionality to add lecture halls

Add a page to view lecture hall details

Add a login functionality to derive the admins to have administration privileges

Add a login access as a lecturer

Add a method to get reports based on different filterations

Add some eye catchy interfaces

Restrict admin privileges to some users

Question 7

The last question of the questionnaire in data gathering asked the user for suggestions to improve the software. With this list, designers can add features according to user needs. In the user-centered approach, designers believe asking the user what user needs from the software are the main aim in requirement gathering.

4.3. Personas

4.3.1. Paul – Director of Administration

Persona

	Goal To manipulate and view the details of lecture halls	Motivations <ul style="list-style-type: none">User experienceSimplicityUser interfaces
Name: Paul Age: 48 Gender: Male Occupation: Director of Administration	Frustration <ul style="list-style-type: none">Problems with user interfaces.Less usability and user experience.Too much complexity.	Technical ability Having a knowledge in administration and computer skills
Daily routine He arrives to the college at 9.00 AM everyday. His daily routine is to check college operations in resource managing. He is providing his services to maintain the well being of college resources.		

4.3.2. Zaneta – Program Director (Teaching and Learning)

Persona

	Goal To create and maintain a time tables for a particular batch	Motivations <ul style="list-style-type: none">Simple and attractive user interfacesEasy to learnReduce manual documentations
Name: Zaneta Age: 40 Gender: Female Occupation: Program Director(Teaching & Learning)	Frustration <ul style="list-style-type: none">Complicated design of existing systemsWasting too much time on learning how to use the systemKeeping track of a large number timetables	Technical Ability Basic knowledge required to operate a computer system
Daily Routine Zaneta is the Program Director for teaching and learning whose responsible to plan the programs at the institute from start to completion. Out of many, she has to plan lectures for groups of students(batches) of the institute, document them and maintain.		

4.3.3. Rogers – Lecturer

Persona



Goal
To get a printout of report of a Lecture hall in order to check the free time slots

Motivations

- Conduct extra classes
- Easy to use system

Name: **Rogers**
Age: **38**
Gender: **Male**
Occupation: **Lecturer**

Frustration

- Requiring many input fields for refinement.
- Not straight forward in generating report
- Report preview not shown

Technical ability

Has a good knowledge in Information Technology

Daily routine

Rogers arrives at the college early in the morning in order to check the daily workload and organize the work to be done for the day. And he conducts the lectures and lead the lab sessions

4.3.4. Ashley - Lecturer

Persona



Goal
As a visiting lecturer, getting a time table makes more flexible with my weekly working period with lectures, lecture halls and time slots.

Motivations

- Confidence
- Accountability
- Vision and Purpose

Name: **Ashley**
Age: **32**
Gender: **Female**
Occupation: **Lecturer**

Frustration

- Difficult to recognise User interfaces.
- Hard to interact with functions.

Technical ability

Having proper knowledge of technical areas.

Daily Routine

Typically she arrives at the college at 8 AM in every day and beginning the day by check the time table for note down the lectures that have to conduct, lecture hall number and relevant batch.

4.3.5. David - Lecturer

Persona



Name: David	Goal To get a time table containing my weekly working time slots, lectures and lecture halls	Motivations <ul style="list-style-type: none">User experienceSimplicityUser interfaces
Age: 29	Frustration <ul style="list-style-type: none">Problems with available solutionsHard to use user interfaces.Too much complexity is hard to handle.	Technical ability Having a knowledge on Business Management
Gender: Male		
Occupation: Lecturer	Daily routine He arrives at the college by 8.30 AM every day. His daily routine is to check the time slots he has to deliver lectures, the relevant lecture halls, the subject and batch relevant for the timeslot before going for a lecture.	

5. Requirement Specification

The below mentioned requirements and goals were gathered before the implementation of the new College Timetable application. The entire set of goals and requirements were gathered with the involvement of the client.

5.1. Usability Goals

The previous application had many problems that a user could face while using the application.

The former application, the College Timetable app, does not have a proper, effective way of expressing its functionalities to the user. Consequently, the application tends to be more alien for an ordinary teacher or a lecturer. This is also because of the unfamiliar way of creating a timetable.

The problem can be overcome by building a more straightforward interface for timetable creation, by removing all the unnecessary tools and by contrasting the main feature, the

timetable creation extensively. This **will make the application more effective to use**, which will get the job done without a hassle.

When creating an application for Academic Staff, there can be personnel who do not understand much about the technical terms used in Information Technology. So the set of words used for this application should be less technical.

When a user opens the former CTT application, the first impressions of the main interface is stressful. The entire set of functionalities on the same single interface will lead to confusion inside the user's mind of knowing where and how to use the functions of the system. **The learnability of the previous system is very minimal.**

So by creating interfaces simple and naming them with familiar words to all users and by dividing the whole application into several interfaces (depending on the number of functionalities), can make the system more learnable for the users on their own without any user guide or a help section.

Making a timetable on the previous system is an arduous task due to the low learnability and high complexity of the interfaces. An immediate consequence of an application being hard to operate is high inefficiency. An ordinary first-time user of the application cannot do a task without spending much time on learning and understanding the application. Inefficiency ruins all the hard work done to build this application.

The solution for this is making the new application more user-friendly to use. And by achieving the previous usability goal, the learnability, the system **can be made more efficient** even for a first timer using the system.

The former app consists of all the tools that are sufficient to deliver timetables for a specific user. Nevertheless, it lacks the interaction feasibility for the visual components. So, the probability of occurring errors by the users due to the hard-to-learn interface is very high. These errors can be rectified by informing the user accurately the position where the error originated; yet this is not handled by the previous system.

Error correction can be done by giving necessary feedback for the user at the place of mistake.

5.2. User Experience Goals

The team, along with the support of the client did an extensive use of the previous college Timetable application to which of the undesirable and desirable user experience goals it covers. After this analysis the team came up with points to make the new system to feature a better user experience.

Frustrating --> Satisfying

Some of the features provided by the current system can lead to many human errors and mistakes. But the interfaces do not provide a way of undoing the mistakes or reviewing the work before a critical task. This can be very frustrating for a user who has made a huge

timetable on the system and when suddenly it disappears. To rectify this issue, use of confirmations, previews and clearing options are vital in the application. If the application responds well to the user interactions and correct user errors it would give a satisfying experience to the user.

Boring --> Motivating

When a user open the current college timetable application, it is very difficult to figure out what should be done next, this is mainly due to the boring and less motivating User interfaces design used throughout the application. A user feels like stopping there at the first interface and closing the application without doing anything in it. This should be converted to a motivating application where the users feel like going to the next step, this can be achieved by separating the components of the application into a number of User Interfaces. So by providing a step by step approach to the system, it will be less boring and will motivate a user to do the task until a user goal is achieved.

Annoying --> Entertaining

Because of the very basic User interface design, the current application gets annoying at some instances. This is mainly due to the buttons used on the bottom right corner of the application. When the resolution of the screen is less than 1920 x 1080, or when the application is scaled down to a smaller size, the buttons on the left bottom corner overlaps the table on the right. A user might consider this to be a very annoying bug on the system. The simple way to overcome this problem is by using a fixed size for the app at all times. This will let the user get more focused to the main task rather than a glitch on the system and get entertained by the features provided by the new system.

No flow --> Experiencing Flow

The current College Timetable app has only one main interface. In this interface all of the tools have been shown. Without a proper guide, a user may not know how to proceed forward with the systems functionalities until a printout of a timetable taken or until a report is saved on the user's computer. Without a flow in the interfaces, it will be a bad experience for the user. For this a proper flow should be created starting from the first interface to the last interface of the system.

Unpleasant --> pleasant

The use of dull, light shaded colours without a proper contrasting in important tools makes the interfaces of the system look very unpleasant to a user. And the buttons used are very basic buttons that look a decade old comparing to the interfaces that exist currently in the standalone application world. To provide a pleasant experience to the user, the system to be implemented should contain all elements with modern looking edges along with an elegant and consistent colour scheme.

5.3. Functional Requirements

After several discussions with the client, the team came up with the functional requirements of the application interfaces. All these requirements were listed out after finding the strengths and weaknesses of the previous College Timetable application. Few of the functionalities which were available on the previous application have been too included in the new application's interfaces

1. User Login / Signup interface

Access control is vital for all applications; this is to prevent unauthorized parties accessing the components which are allowed to be accessed only by a predefined set of users. The prior application, College Timetable application, which has been used to develop the current application, did not have a method of controlling the access.

To control the access, the client required the following set of functionalities

- a. Two types of users, Admin and Academic Personnel, should be able to access the system.
- b. Should display a standard Login interface for all the Users as the initial step of the application. Admins and Academic Personnel should not see a difference in the login interface. The application should distinguish between the two types of users only by the email address entered for login.
- c. Implementation of a Sign-Up interface for Academic personnel where they can indicate the Name, Position, Contact Number, Gender and Email, and get registered to the system.
- d. If an invalid email address or an invalid contact number is entered, it should be showed clearly on the interface and made clear to the user

2. Admin panel for management

Details of Lecturers and Lecture Halls can change with time. It is essential to implement a method of adding, updating, or removing those details. So a separate interface for the Admin Panel is required.

- a. A user interface should be designed for the admin panel, which will show the navigation options to the Admin of the system to go to either Lecturer Management or Lecture hall management.
- b. Both Management interfaces should contain the options to add new entries, update, or remove a currently existing Lecturers or Lecture halls.

3. Home Interface

A Home interface for the application is a requirement, as discussed by the team. This home interfaces should show the main functionalities of the system to provide enhanced visibility to the user.

A consistent sidebar should be displayed on every user interface so that the users can navigate easily from interface to interface

4. Timetable Management

One of the main functionalities that the users should be able to use is the timetable management. Required functionalities of timetable management are;

- a. Viewing the timetable corresponding to the lecturer
- b. Adding, Updating, and Deleting timetables.
- c. A 'Clear' icon to clear off all the data written on the timetable.
- d. There should be two separate interfaces to view and to edit timetables
- e. A quick search function to search the timetable for a specific user

5. Reports Generation

A user should be able to generate a report of a lecture hall, batch or a lecturer. When an extra class or a class swap is to be done, the report generation is essential to know the free timeslots and free lecture halls

- a. The main interface should contain a text field to enter the user ID, if the User ID is unknown, the user should go to the ID listing and find the ID and enter it on the text field
- b. The interface should contain an area to show for which ID has been selected at the moment. (As a confirmation before generating reports)
- c. A preview of the report to be generated should be displayed
- d. It should be able to print or save the report as PDF

6. Listing all the IDs

- a. All the IDs of Lecturers, Lecture Halls and Batches should be listed on table in a separate user interface

5.4. Non-Functional Requirements

Consistency should be retained

This application is a single application for a individual task, which is managing the timetables. So, having consistency throughout the application is essential. Some points which will make the application consistent are mentioned below

- ❖ Colour consistency across the entire application to make it look more like a single application
- ❖ The sidebar should be consistent for all the Academic personnel.
- ❖ For consistent navigation, links to all the components of the interfaces should be present in one interface.

Performance of the interfaces

- ❖ Any element of the user interfaces should not keep loading for more than 1 second
- ❖ The application should always run at 1280 X 720 resolution.
- ❖ Should not include any unnecessary animation which will make the application lag
- ❖ The total size of the application should be less than 100MB
- ❖ The app should be compatible with all operating systems running a java virtual machine
- ❖ The number of Lecturers, Lecture Halls, and Timetables added should be limited according to the College's corresponding counts.
- ❖ The interface should not be personalized as per individual needs and should have a standard interface for all users.

Security

Security considerations for the interface will only be on the access control user interface and admin panel interfaces.

- In the access control interface, when the password is entered, it should not be displayed in cleartext. It should be made hidden by using black dots as characters.
- Admin panel interfaces should not be accessible by the Academic personnel

Achieving usability goals

This requirement is basically to achieve all the usability goals mention earlier in the document

6. User Stories

1. As an administrator, I want to add details of a lecturer so that it can be utilized for other functionalities in the system.
2. As an administrator, I want to update details of a lecturer so that the system is kept updated eliminating falls details.
3. As an administrator, I want to delete details of a lecturer so that unnecessary details are removed from the system.
4. As a Director of Administration, I want to add or edit details of new or existing lecture halls so that every detail of lecture hall is stored in the system.

5. As a program manager of Teaching and Learning, I want to know the capacities of a lecture hall so that I can create a timetable.
6. As Administrator, I want to delete a detail of a lecture hall so that destructed lecture hall details are removed from the system.
7. As an Administrator, I want to edit the time slots for the lecturers who absent for their lectures and replace another lecturer for the absent lecture catalogue.
8. As an Administrator, I want to change the time slots for each lecture and add additional lecturer to the lecture hall.
9. As a Lecturer, I want to generate a report of my weekly timetable, so that I can check the free time slots to hold extra sessions
10. As a Lecturer, I want to generate a report of a lecture hall, so that I can find the most suitable hall to conduct extra sessions.
11. As the program director, I need to create timetables, so that I can manage the programs at the institute easily.
12. As the program director I need to update the contents of a particular timetable, so that I can make any changes as necessary.
13. As the program director I want to delete a timetable, so that I can remove any timetable that is not needed.

7. Use Cases

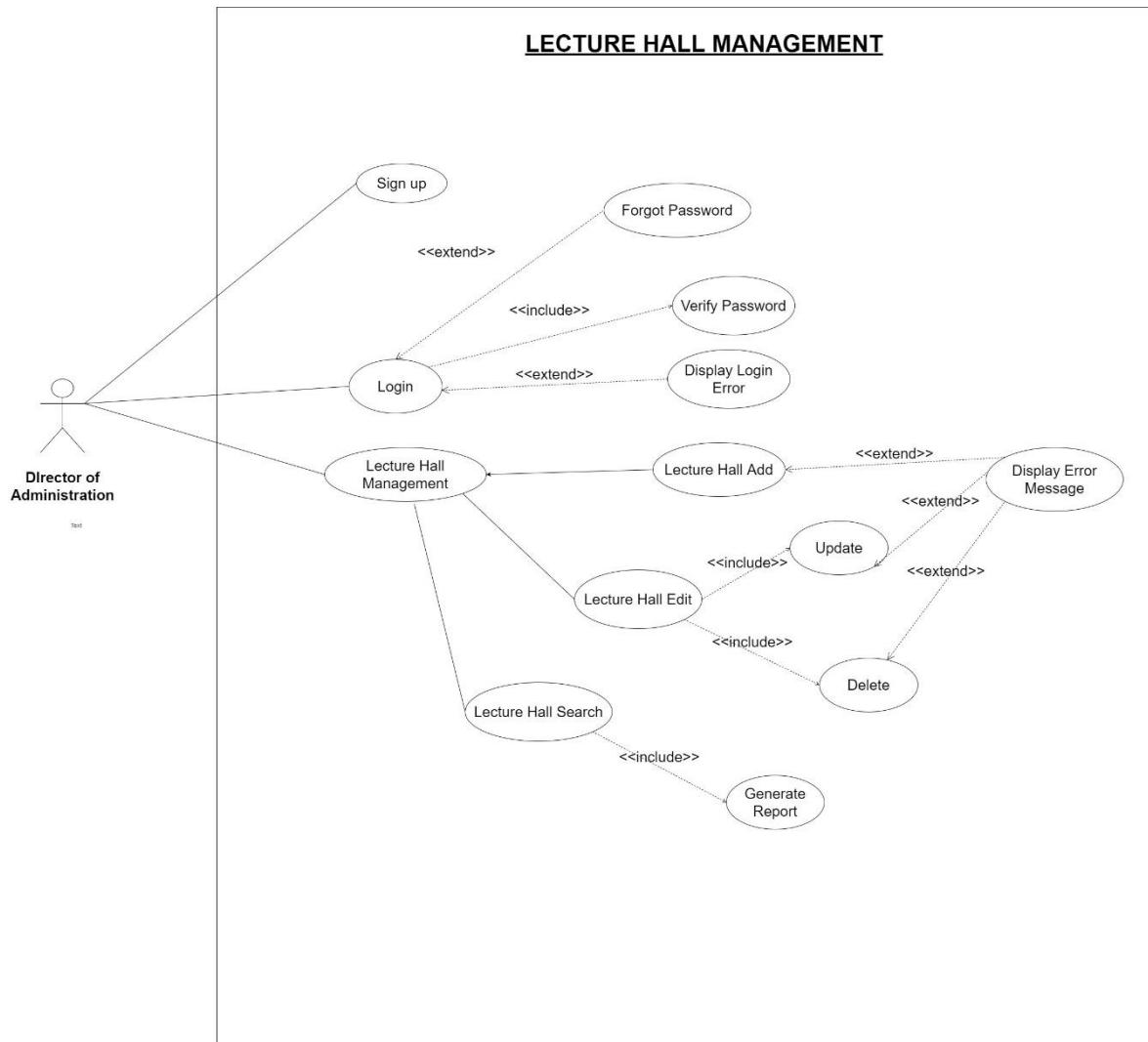
7.1. Lecture Hall Management

7.1.1. Use case scenario

Use case ID:	CTT_06
Use case name:	Lecture Hall Management
Pre-condition:	1. User should be logged in to the application
Primary actor:	Director of Administration
Main success scenario:	<ol style="list-style-type: none"> 1. User clicks the Lecture Hall Management in menu bar on the homepage. 2. System displays the Lecture Hall Management Interface. 3. User fills the details of new lecture hall.

	<p>4. User clicks save button.</p> <p>5. System displays a success message.</p> <p>6. User clicks 'Ok'.</p> <p>7. System clears the content in the text fields allowing user to enter another details of a lecture hall.</p>
Extensions:	<p>3a User clicks the 'Edit Hall' tab</p> <p>3a.1 System displays the edit lecture hall interface.</p> <p>3a.2 User enters the lecture hall name and click on the search button.</p> <p>3a.3 System displays the details of the lecture hall.</p> <p>3a.4 User alters necessary details of the searched lecture hall.</p> <p>3a.5 User clicks update button.</p> <p>3a.6 System displays a success message.</p> <p>3a.7 User clicks 'Ok'.</p> <p>3a.8 System clears the content in the text fields.</p> <p>3b User clicks the 'Search Hall' tab</p> <p>3b.1 System displays the search lecture hall interface.</p> <p>3b.2 User enters the lecture hall name, select filter options and clicks on the search button</p> <p>3b.3 System displays the details of all filtered results</p> <p>3b.4 User clicks on generate report button.</p>
	<p>3c. Administrator clicks logout tab.</p> <p>3c.1 System displays login page.</p> <p>3d Administrator clicks home tab.</p> <p>3d.1 System displays home page</p>

7.1.2. Use case diagram



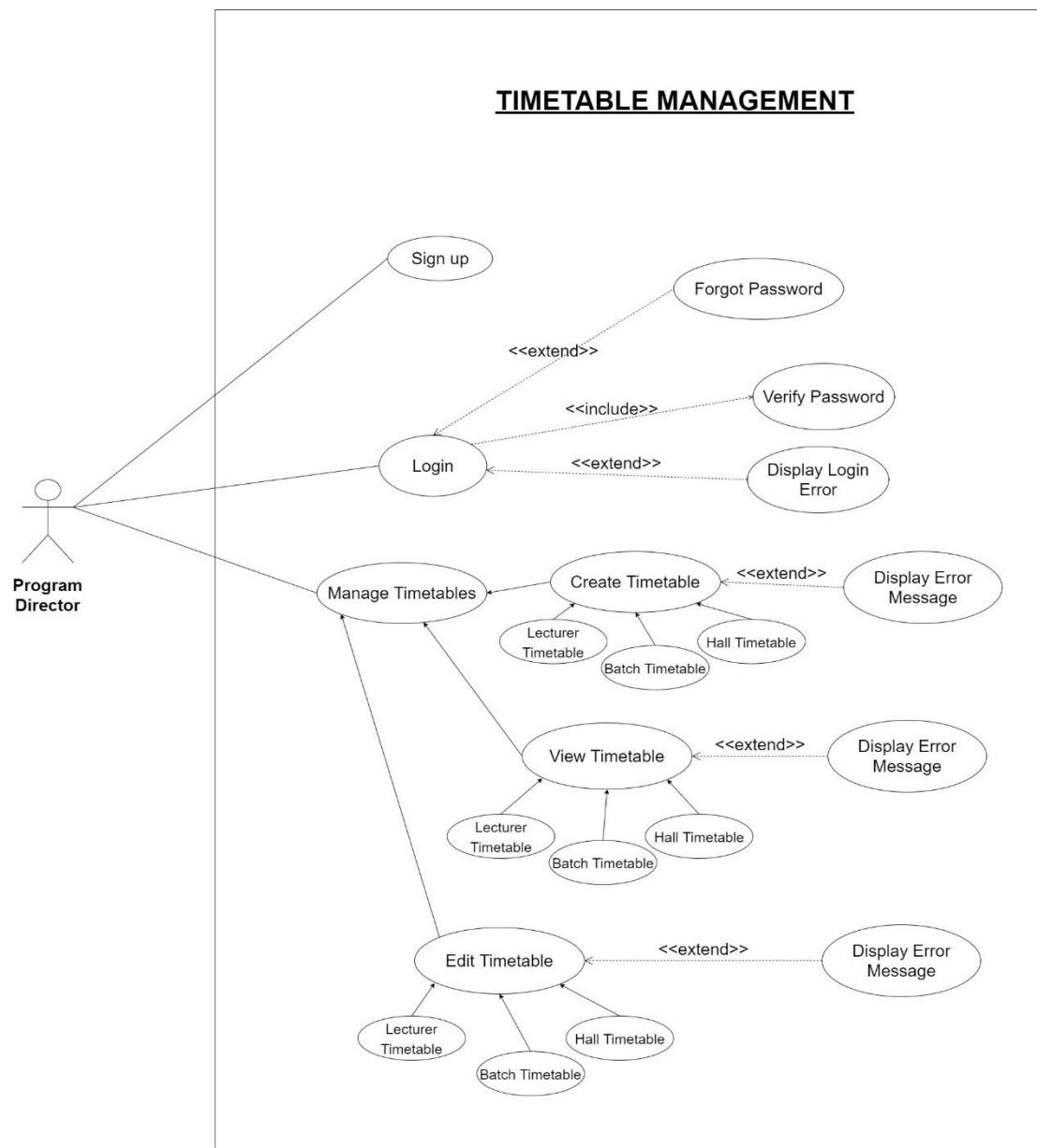
7.2. Timetable Management

7.2.1. Use case scenario

Use Case ID	CTT_07	
Use Case Name	Create a timetable for a batch	
Summary	User logs into the system and navigates to create a timetable for a batch	
Priority	5	
Preconditions	User must be logged into the system	
Postconditions	User has successfully created a timetable and a message appears to indicate the success of the event.	
Primary Actor(s)	Program Director	
Trigger	User has chosen to create a timetable for a particular batch	
Main Scenario	Step	Action
	1	Application displays the login page
	2	User logs into the system at the login page by providing the email and the password
	3	Application displays the Homepage.
	4	At the homepage, user selects the Create Timetable option
	5	User is directed to the Create Timetable page
	6	User selects the type of the timetable (i.e., Lecturer, Batch or Lecture Hall) from the dropdown.
	7	After selecting the type of timetable as Batch, user specifies the batch ID
	8	User enters the time slots, lectures, names of the respective lecturers and the location (lecture hall) and saves the timetable
	9	System displays a completion message
Extensions	Step	Branching Action
	2a	System notifies the user that the entered email or password or both are invalid
	6a	User selects Logout 6.a.1 User is directed to the login page
	6b	User selects home tab 6.b.1 User is landed at the homepage

	9a	In case some system error occurs when saving the timetable, the user shall be notified with an error message
	9b	User shall be notified if there already exists a timetable for the specified batch
Open Issues	1	Should each input on the timetable cells be validated?

7.2.2. Use case diagram



7.3. Report Generation and Find ID list

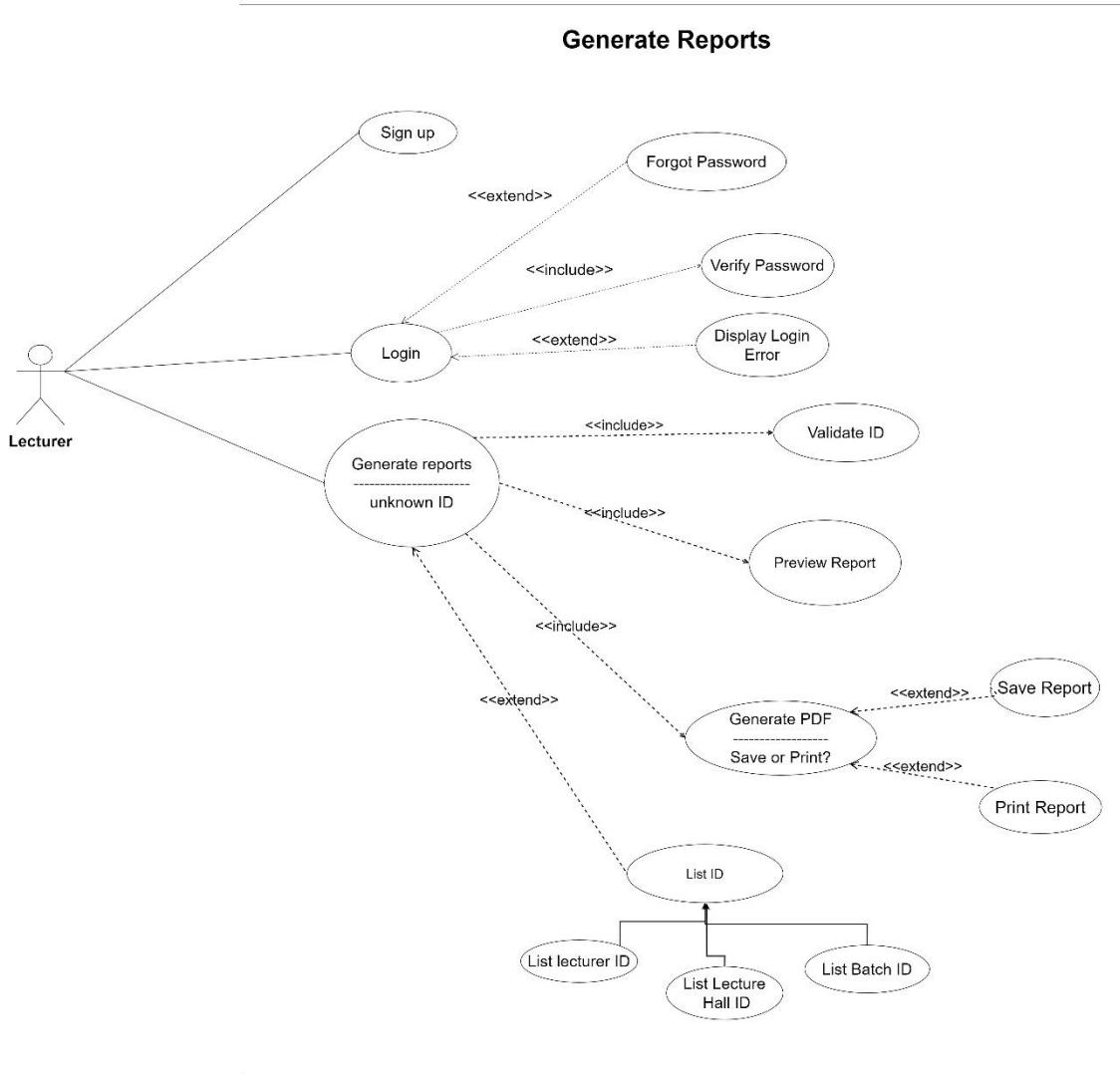
7.3.1. Report Generation

7.3.1.1. Use Case Scenario

Use case ID:	08
Use case name:	Generate Reports
Pre-condition:	1. User logged in to the system
Primary actor:	Academic Staff Person (mentioned as user)
Main success scenario:	<ol style="list-style-type: none">1. User clicks the generate report tab on the homepage2. System displays the Generate Report interface3. User selects the 'For Lecturer' in the drop-down4. User enters the Lecturer ID and clicks select5. System displays the user's required to report in one line of a sentence before generating reports, for visual confirmation6. User clicks Generate7. System displays a preview of the report8. User clicks save9. User generates a pdf prompts a save dialog box
Extensions:	<ol style="list-style-type: none">1a. User clicks the generate report tab on the sidebar3a. User selects the 'For Lecture Hall' in the drop-down3b. User selects the 'For Batch' in the drop-down

	<p>4a. User clicks the question mark button</p> <p>4a.1. The system generates the list of Lecturers and IDs</p> <p>4a.1.1. User copies the Lecturer ID to text field in generate report and clicks select</p> <p>4a.2. System generates the list of Lecture Halls and IDs</p> <p>4a.2.1. User copies the Lecture Hall ID to text field in generate report and clicks select</p> <p>4a.3. System generates the list of Batches and IDs</p> <p>4a.3.1. User copies the Batch ID to text field in generate report and clicks select</p> <p>5a. System displays an error for invalid ID</p> <p>5a.1. User repeats steps from 3 to 5</p> <p>5a. 2. User closes the program</p> <p>8a. user clicks Print</p> <p>9a. System prints the report</p>
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7.3.2. Use Case diagram

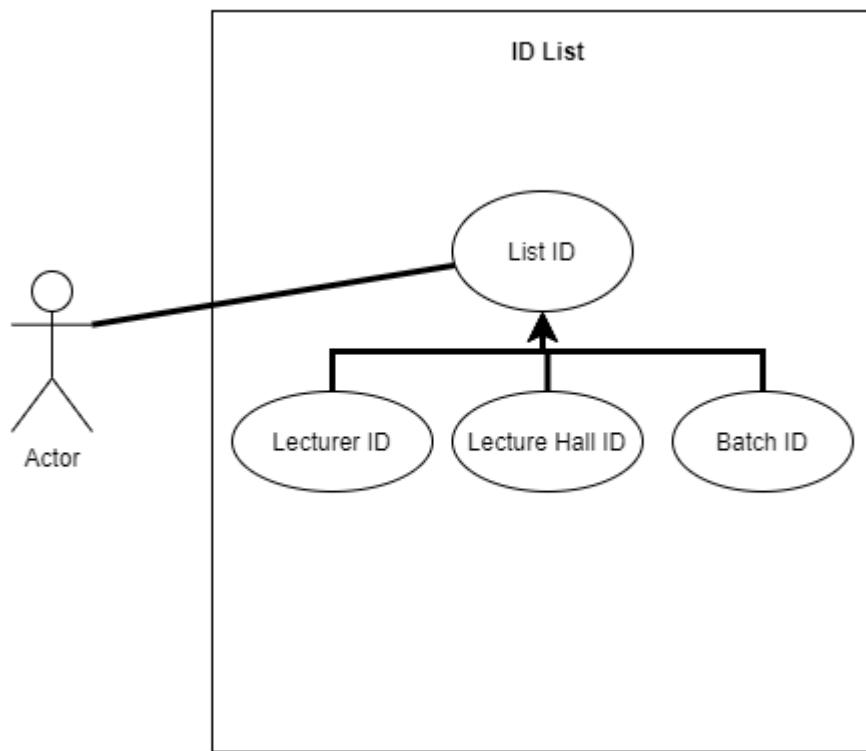


7.3.3. Find ID List

7.3.3.1. Use Case Scenario

Use case ID	
Use Case Name	List All IDs
Preconditions	<ol style="list-style-type: none">1. User landed on Timetable Management Interfaces or on Report Generation interface
Primary Actor	Academic Personnel
Main Success Scenario	<ol style="list-style-type: none">1. User Selects the category as Lecturer to list all the IDs2. System generates the List of IDs along with the description for the lecturers3. User Copies the ID and closes the window
Extensions	<ol style="list-style-type: none">1a. User selects the category as Lecture Hall1b. User selects the category as Batch

7.3.3.2. Use Case Diagram



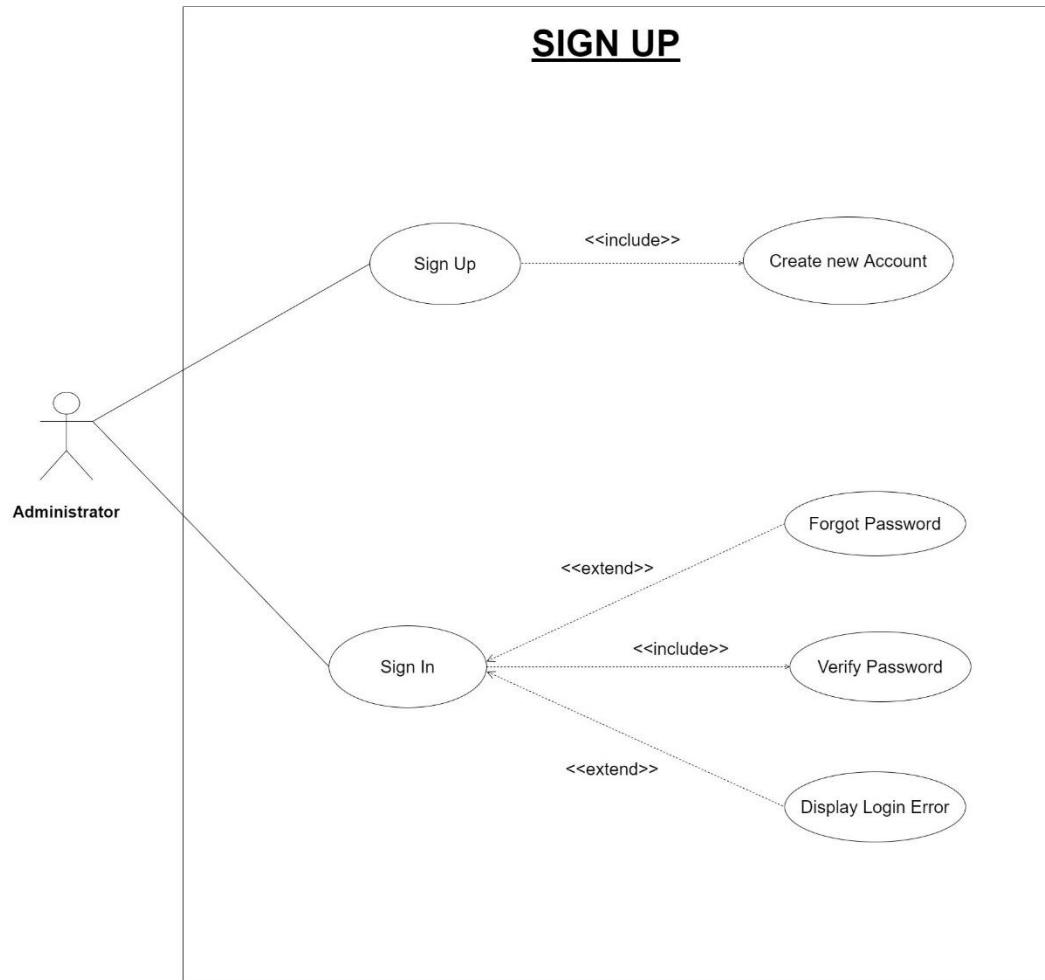
7.4. Landing pages

7.4.1. Signup

7.4.1.1. Use case scenario

Use case ID:	CTT_01
Use case name:	Sign Up
Pre-condition:	The user must be a current employee.
Primary Actor(s):	Administrator, Director of Administration, Program Manager, Lecturer
Main success scenario:	<ol style="list-style-type: none">1. Open the Application.2. The system displays the Sign-Up UI.3. User fills the displayed fields.4. The system validates the user data.5. The system displays a success message "Account created successfully".6. User clicks ok.
Extensions:	<ol style="list-style-type: none">1. If the data field is empty alert message displays "Field is empty".2. If passwords aren't same, alert message displays "Passwords do not match".

7.4.1.2. Use case diagram

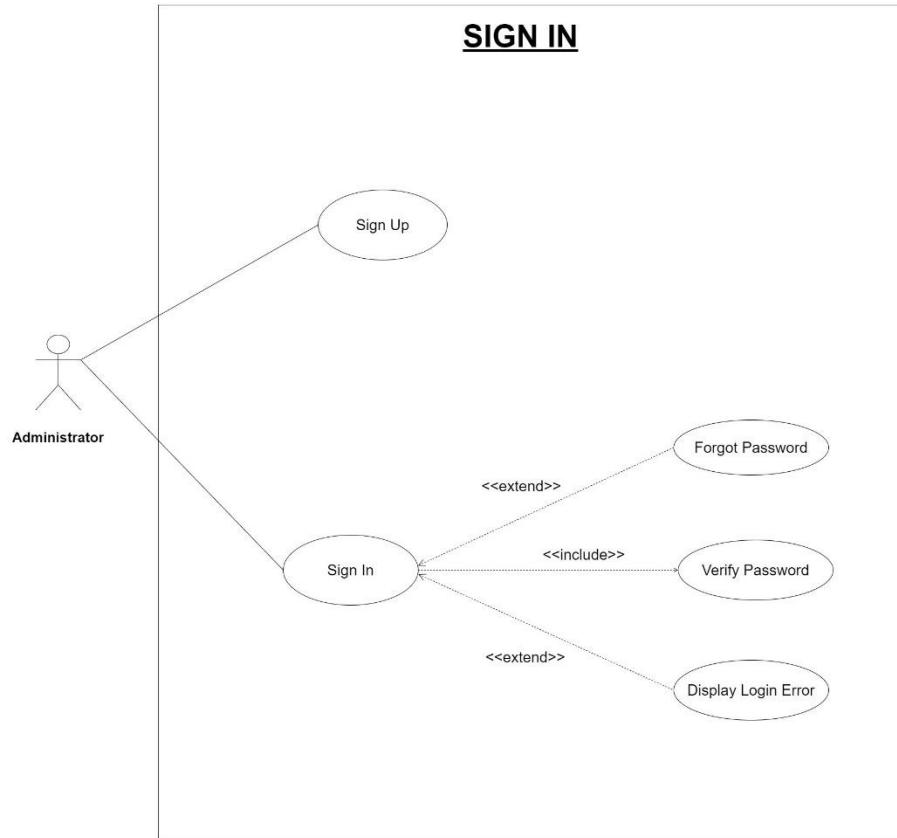


7.4.2. Sign In

7.4.2.1. Use case scenario

Use case ID:	CTT_02
Use case name:	Sign In
Pre-condition:	The user must be a registered user.
Primary actor(s):	Administrator, Director of Administration, Program Manager, Lecturer
Main success scenario:	<ol style="list-style-type: none">1. Open the Application.2. The system displays the Sign In UI.3. User fills the displayed fields.4. The system validates the user data.
Extensions:	<ol style="list-style-type: none">1. If the data field is empty alert message displays "Email or password is incorrect".2. If passwords or Email is incorrect, alert message displays "Email or password is incorrect".

7.4.2.2. Use case diagram



7.4.3. Home Page

7.4.3.1. Use case scenario

Use case ID:	CTT_03
Use case name:	Home Page Management
Pre-condition:	The user must be signed in the system.
Primary actor:	Lecturer
Main success scenario:	<ol style="list-style-type: none">1. Open the Application.2. The system displays the Sign In UI.3. User fills the displayed fields.4. The system validates the user data.5. The system refers the user to the home page.
Extensions:	<ol style="list-style-type: none">1. If the data field is empty alert message displays "Email or password is incorrect".2. If passwords or Email is incorrect, alert message displays "Email or password is incorrect".

7.4.3.2. Use case diagram



7.4.4. Admin Home Page

7.4.4.1. Use case scenario

Use case ID:	CTT_04
Use case name:	Admin Home Page Management
Pre-condition:	The user must be signed in the system.
Primary actor(s):	Administrator, Director of Administration, Program Manager
Main success scenario:	<ol style="list-style-type: none">1. Open the Application.2. The system displays the Sign In UI.3. User fills the displayed fields.4. The system validates the user data.5. The system refers the user to the admin home page.
Extensions:	<ol style="list-style-type: none">1. If the data field is empty alert message displays "Email or password is incorrect".2. If passwords or Email is incorrect, alert message displays "Email or password is incorrect".

7.4.4.2. Use case diagram



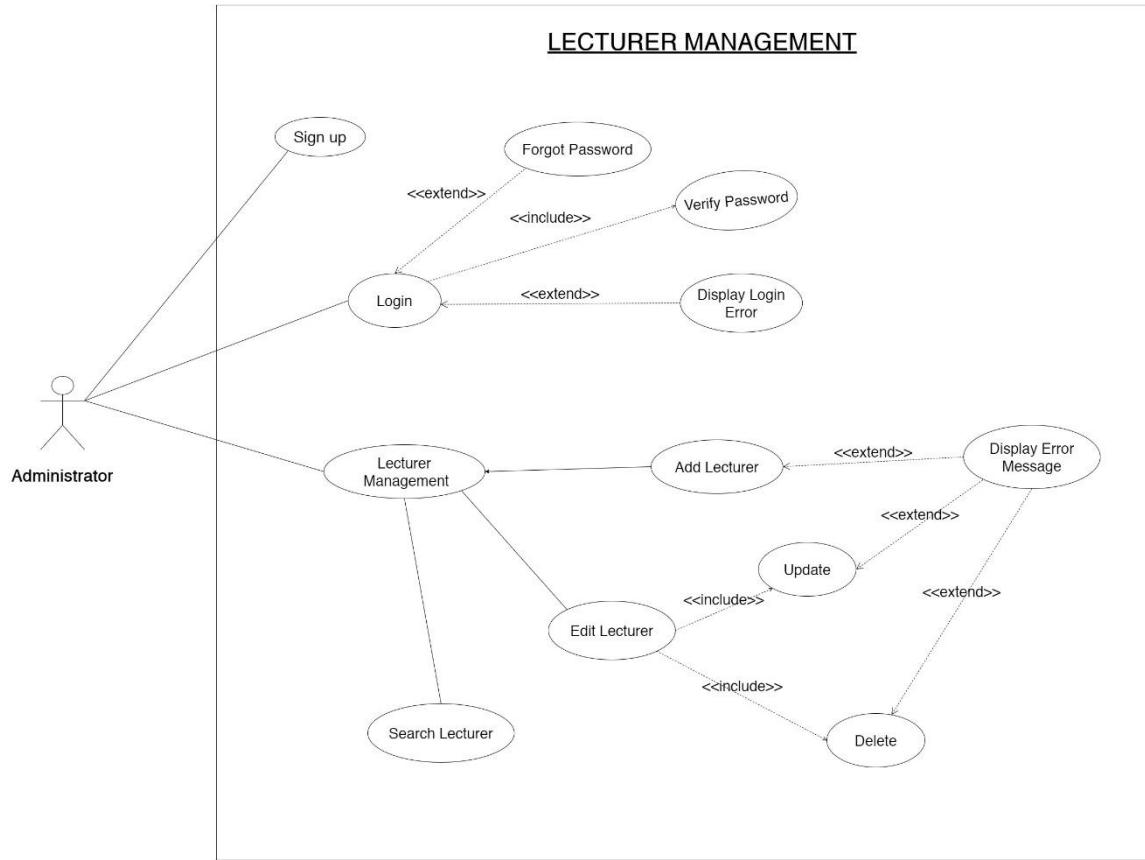
7.5. Lecturer Management

7.5.1. Use case scenario

Use case ID:	CTT_05
Use case name:	Lecturer management
Pre-condition:	1. Should be logged into the system as an administrator.
Primary actor:	Administrator
Main success scenario:	<ol style="list-style-type: none">1. Administrator clicks on the lecturer management menu in the available menu bar at the home page.2. System will prompt the add lecturer page.3. Administrator fills the relevant fields available in the page.4. Administrator clicks save.5. System displays success message.6. Administrator clicks ok.7. System clears content in the text fields and lets user enter details of another lecturer
Extensions:	<p>3a. Administrator clicks search lecturer tab.</p> <p>3a.1 System prompts the lecturer details table.</p> <p>3a.2 Administrator enters the lecturer name in the search box and click on the search button.</p> <p>3a.3 System prompts the filtered results in the table.</p> <p>3a.2a Administrator selects the required filter from the combo boxes.</p> <p>3a.2a.1 System prompts the filtered results in the table.</p> <p>3b. Administrator clicks edit tab.</p> <p>3b.1 System prompts the edit lecturer page.</p> <p>3b.2 Administrator enters the lecturer ID and click on search button.</p> <p>3b.3 System prompts the details of the lecturer with the searched lecturer ID.</p>

	<p>3b.4 Administrator makes changes to the details of the lecturer as required and clicks update button.</p> <p>3b.1.4a Administrator clicks delete button.</p> <p>3b.1.4a.1 System displays success message and clears the data in the fields.</p> <p>3b.1.4a.1.a System prompts error message</p> <p>3c. Administrator clicks logout tab.</p> <p>3c.1 System displays login page.</p> <p>3d. Administrator clicks home tab.</p> <p>3d.1 System displays home page</p> <p>5a. System prompts error message</p>
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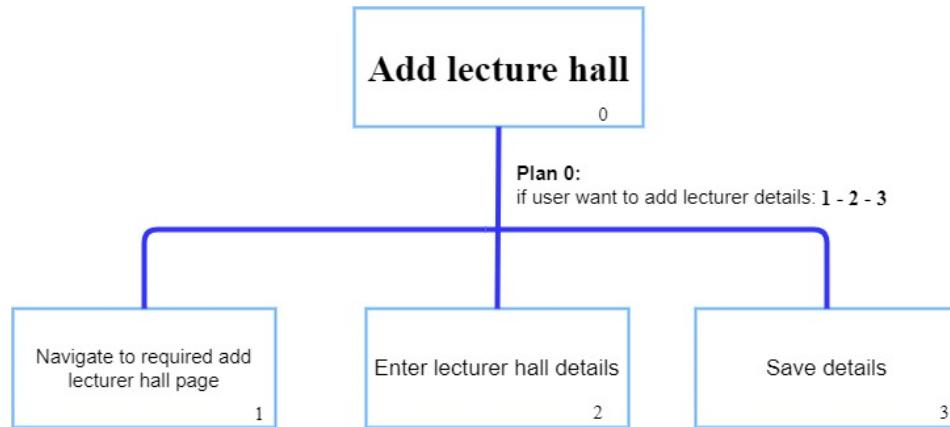
7.5.2. Use case diagram



8. Hierarchical Task Analysis

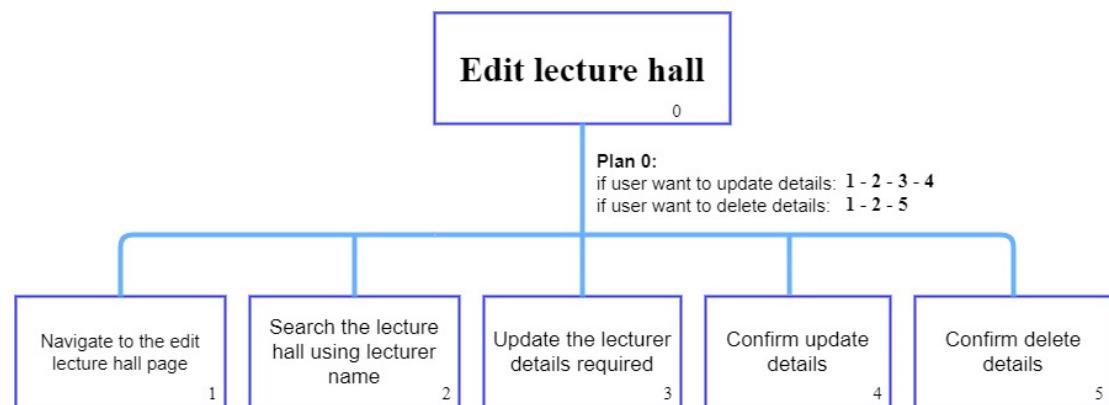
8.1. Lecture Hall Management

8.1.1. Add Lecture Hall



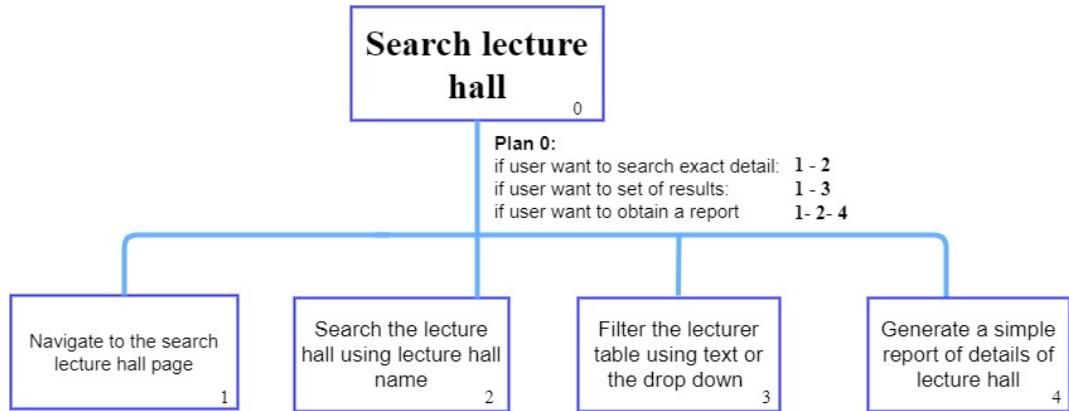
As the initial operation of the lecture hall management functionality, user can add details to the system by navigating to add lecturer user interface and enter necessary details in the required input fields. Then user must press 'Save' button to complete the process.

8.1.2. Edit Lecture Hall



The user can either edit existing details of lecture halls or delete a record of lecture halls by this edit lecture hall functionality. First, the user must navigate to the edit lecture hall user interface. Then user must enter the lecture hall ID in the provided search area to update or delete the searching lecture hall details. If the user wants to update a record, the user must edit the loaded details in the relevant text area and press the 'Update' button and confirm. If the user wants to delete a record, the user must press 'Delete' button after searching the needed record of lecture hall.

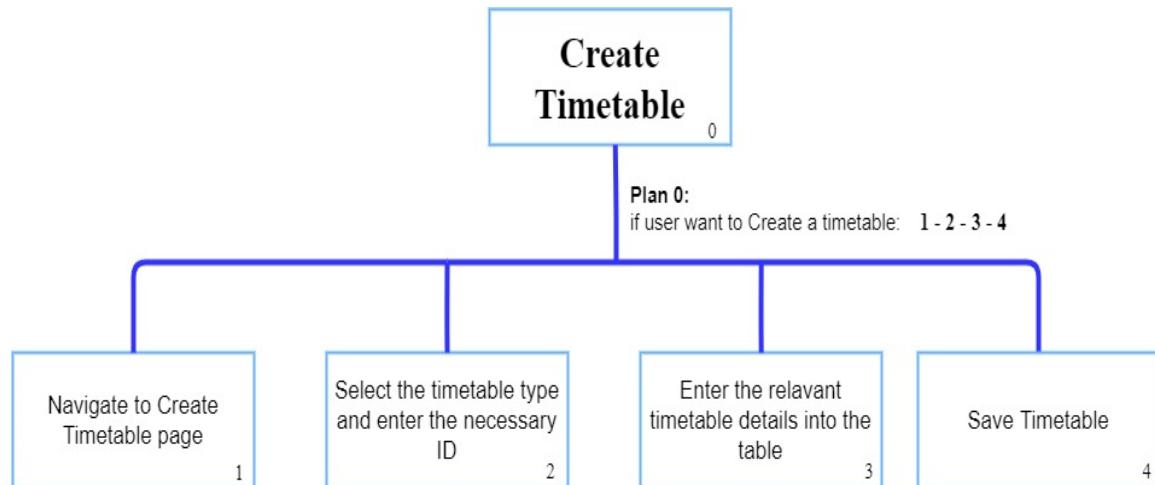
8.1.3. Search Lecture Hall



From this functionality, the user can search for exact lecture halls by lecture hall number and obtain the results of all lecture halls matches that number in every building. Otherwise the user can filter and obtain set of results by the building and capacity filter options. Furthermore, if a user wants to obtain a report about searched or filtered results, the user can press the 'Report' button and

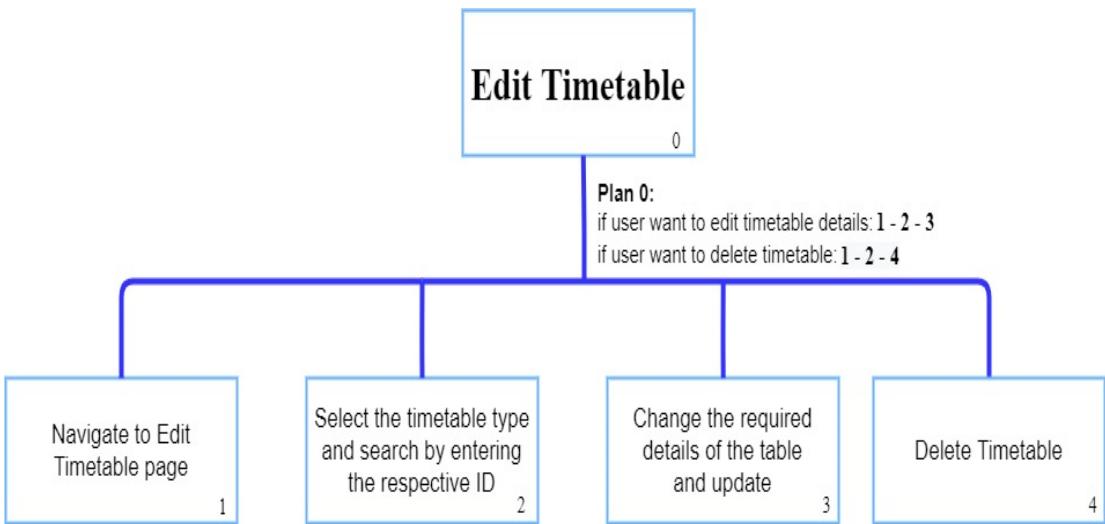
8.2. Timetable Management

8.2.1. Create Timetable



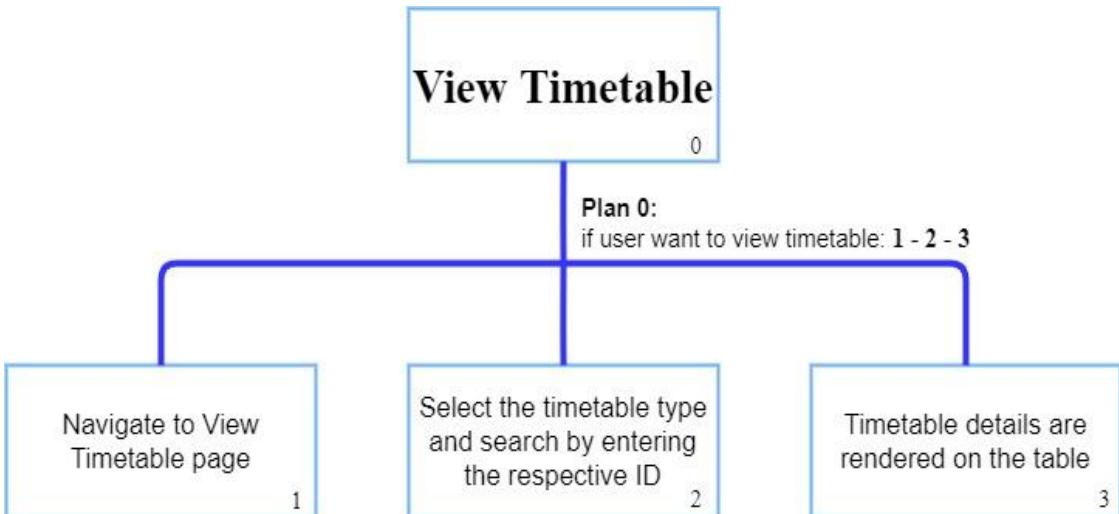
When creating a timetable user will follow the above-mentioned flow of actions. First, the user shall navigate to the Create Timetable window. Then the User must select the type of the timetable and specify an identifier for the timetable to be created. The identifier shall be a lecturer id, a hall id or a batch id. Once entered them properly, the timetable contents shall be entered by the user. Then by clicking on the "Save" button, the contents shall be saved.

8.2.2. Edit Timetable



To update timetable contents or to permanently delete a timetable, first, the users need to navigate to the “Edit Timetable” page. There onwards, the user is expected to enter the type of the timetable to be selected/searched and to specify the id of the timetable that was given when creating the timetable. Once the timetable has been loaded, the user can either make changes as necessary or delete the timetable.

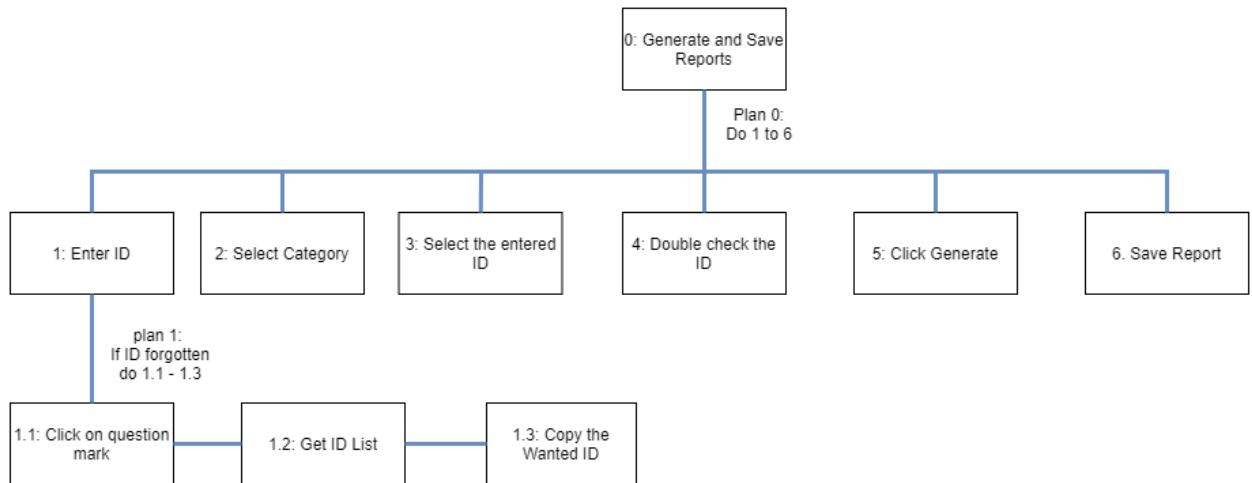
8.2.3. View Timetable



If the user wishes to view a timetable, the user should first navigate to the “View Timetable” page and specify the required timetable to be view by selecting the type of the timetable and entering the corresponding timetable id. After that, once clicked on the “Search” button, the timetable shall be loaded to the screen.

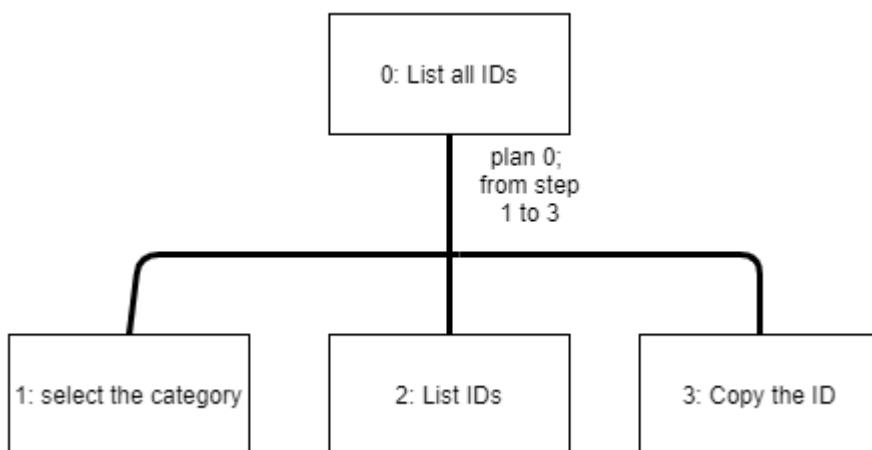
8.3. Report generation and Find ID list

8.3.1. Report Generation



This hierarchical diagram gives a high-level explanation about how the reports are generated by the system. The above diagram focuses on the scenario where the user saves the report generated. The Plan 0 is the set of main steps to achieve the final goal of getting as saving the report. Plan 1 is the set of sub steps to be done if the ID of a Lecturer, Lecture Hall or a Batch is forgotten.

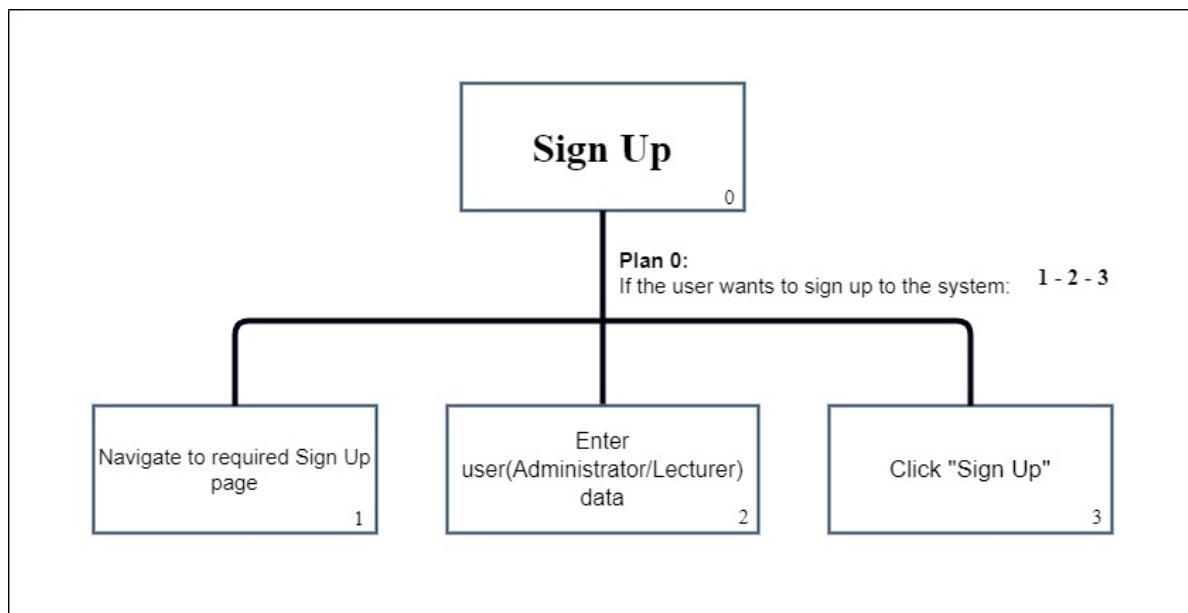
8.3.2 Find ID List



Simple steps to achieve the goal of listing the Identification codes of a required category can be done as shown in the plan0 of the above hierarchical diagram. After selecting the category (Lecturer, Lecture Hall or Batch), the list will be shown to the user. Then user will copy the ID to paste in the place required.

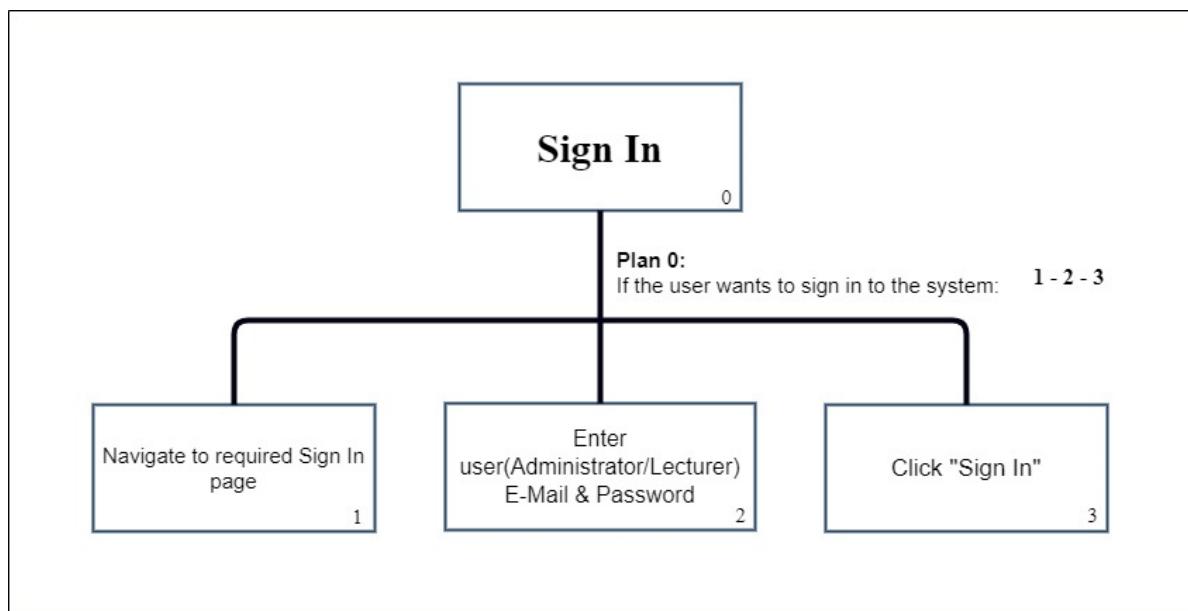
8.4. Landing pages

8.4.1. Sign Up



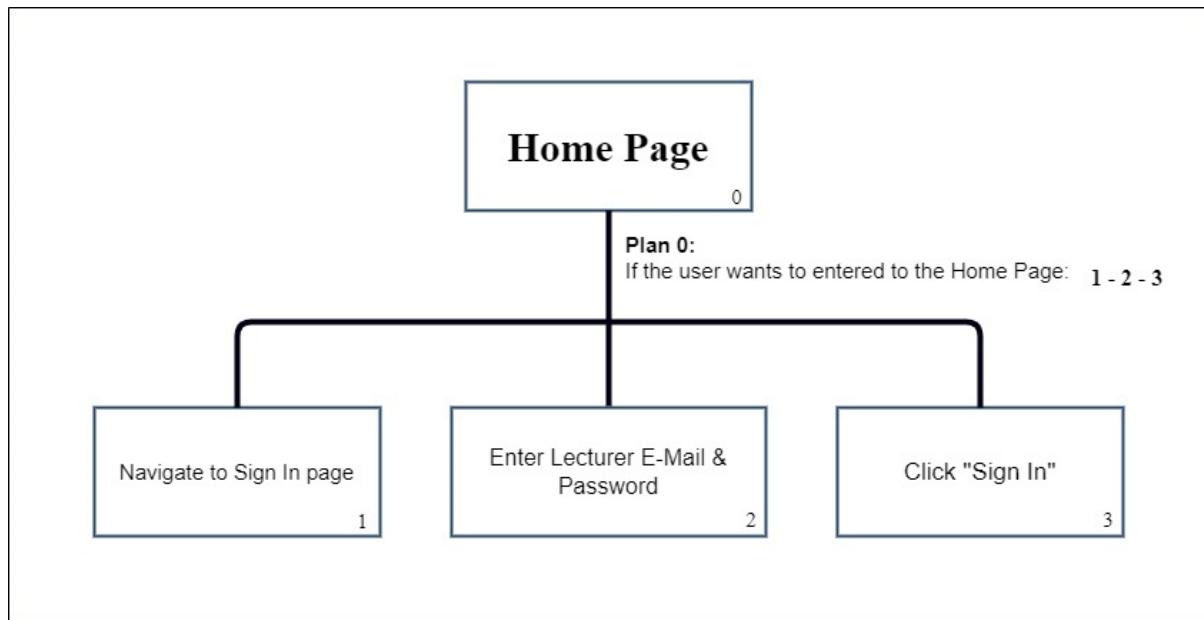
The signup functionality displays the hierarchical analysis of the functionality to register the new user to the system. To sign up to the system the user must navigate to the signup page, then enter the user data to relevant fields and click the "Sign Up" button to register to the system.

8.4.2. Sign In



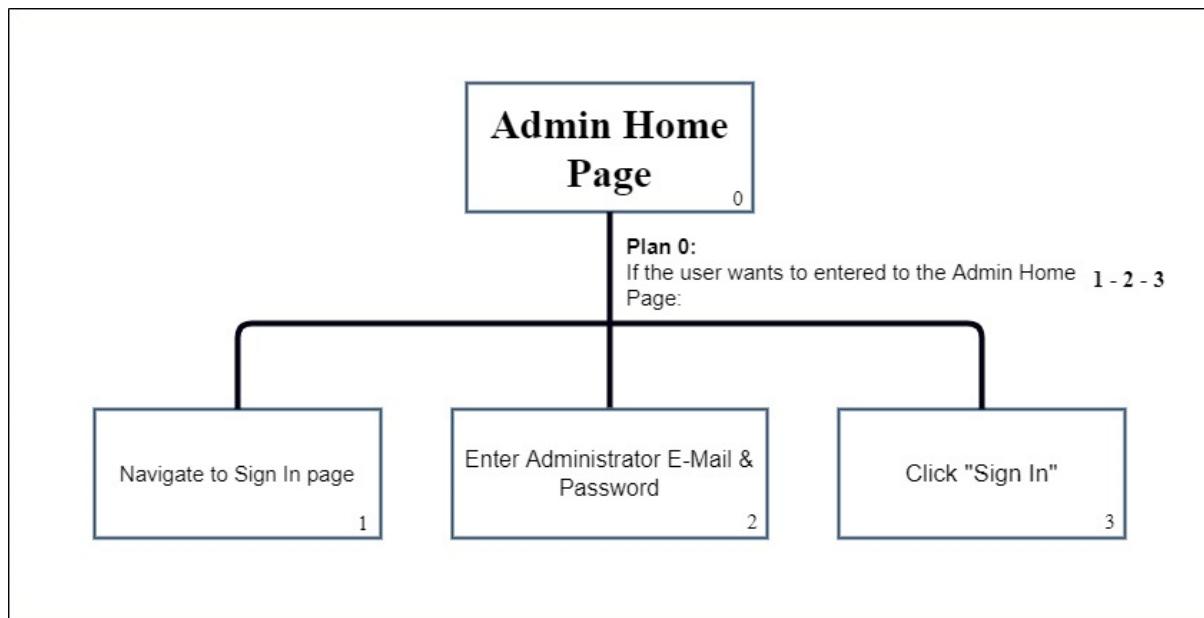
The sign in functionality displays the hierarchical analysis of the functionality to enter the user to the system. To sign into the system the user must navigate to the sign in page, then enter the user data to relevant fields and click the "Sign In" button to enter to the system.

8.4.3. Home page



The home page functionality displays the hierarchical analysis of the functionality to enter the user to the home page. To enter to the home page the user must navigate to the sign in page, then enter the user data to relevant fields and click the "Sign In" button to enter to the home page.

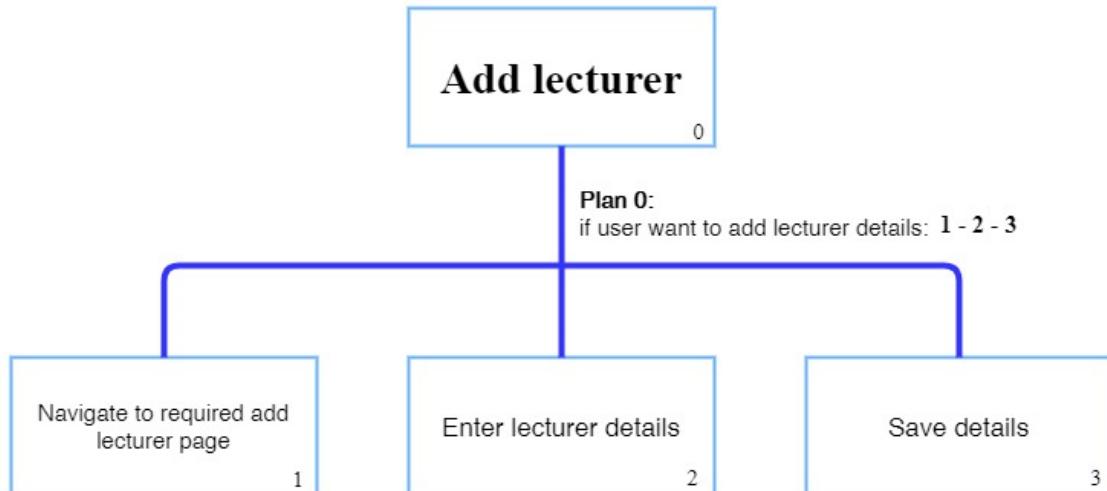
8.4.4. Admin Home page



The admin home page functionality displays the hierarchical analysis of the functionality to enter the admin to the admin home page. To enter to the admin home page the user must navigate to the sign in page, then enter the administrator's data to relevant fields and click the "Sign In" button to enter to the admin home page.

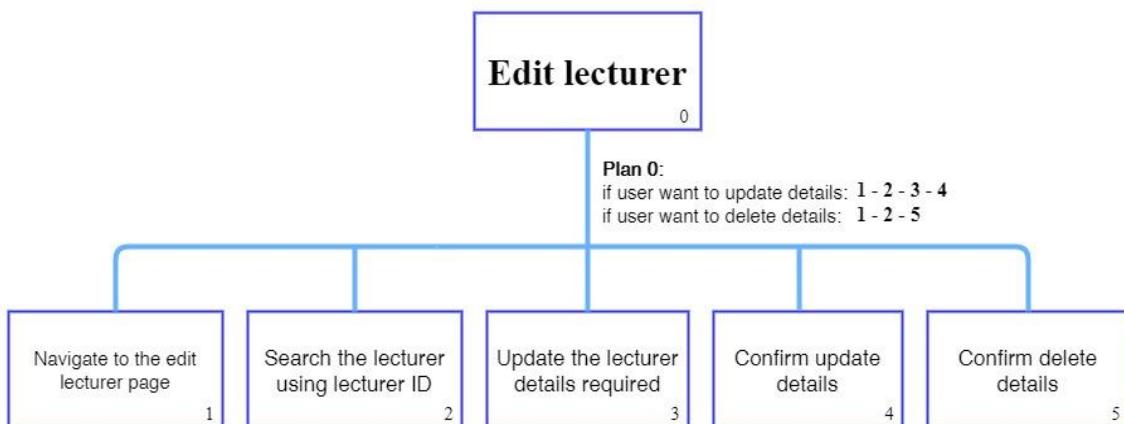
8.5. Lecturer Management

8.5.1. Add lecturer



The add lecturer functionality showcases the hierarchical analysis of the functionality to add details of a lecturer to the system. To add a lecturer, the user must first navigate to the add lecturer page, who then can add the relevant data required in the fields of the presented interface. Then through the action of clicking the save button details can be saved to the system.

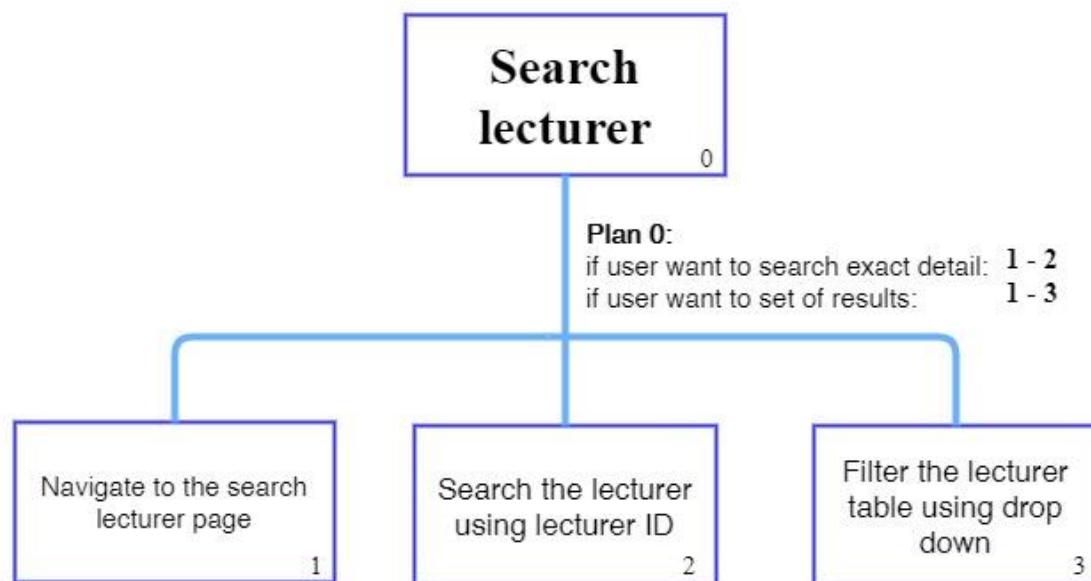
8.5.2. Edit Lecturer



Through the edit lecturer functionality, a user can either update details of a lecturer or delete details of a lecturer. The user must navigate to the edit lecturer page first. Afterwards, the user can enter the lecture ID and search the relevant lecturer. If the user

wants to update the details of the lecturer, he/she can edit the required data loaded and click on update to update the details. However, if user wants to delete the after the data has been loaded after searching for the lecturer by the ID the user can click delete to delete the lecturer details.

8.5.3. Search Lecturer



After a user navigates to the search lecturer page a user can either search a specific lecturer or filter a batch of lecturers according to a certain category. If the user requires to search for the details of a lecturer, he/she can enter the first name of the lecturer and click search where the results will be displayed in the table. And if the user requires to filter a batch of lecturers, he/she can filter them by the available categories in the interface, which will prompt the filtered result in the table.

9. Prototypes

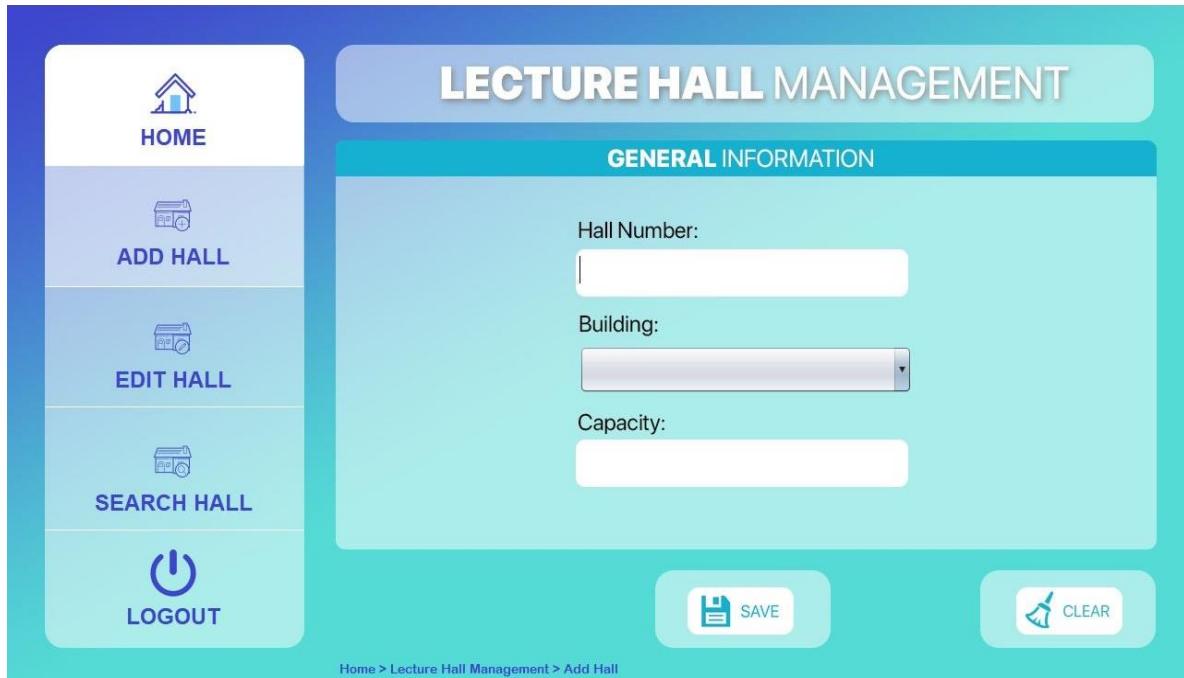
9.1. A.R.M. Shahan - (20249485)

9.1.1. Add lecture hall

Low-fidelity Prototype

The prototype consists of two main sections. On the left is a vertical sidebar with five buttons: 'HOME', 'ADD HALL', 'EDIT HALL', 'SEARCH HALL', and 'LOGOUT'. The 'ADD HALL' button is highlighted with a light blue background. On the right is the main content area. At the top, it says 'Lecturer Hall Management'. Below that is a section titled 'General information'. Inside this section are three input fields with labels: 'Name:' followed by an input box, 'Building:' followed by an input box, and 'Capacity:' followed by an input box. At the bottom of the main area are two buttons: 'SAVE' on the left and 'CLEAR' on the right.

High-fidelity Prototype



Description

When an administrative staff member needs to add a lecture hall into the system, he or she can use this interface by navigating through the menu bar. This user interface is the initial interface for the lecture hall management functionality which is designed according to the client requirements using Human-Computer Interface concepts. Every component in this user interface is independent with each other that the basic operation of each icon, label, dropdown, text box, frame, and the button is clear to the user. This user interface is designed in an eye-catching manner that users wouldn't feel dull while operating it. As this user interface provides the service of adding lecture halls, the general information of a lecture hall can be added to the system one at a time. Only users of the high administration staff have access to this interface while users with less technical skills can operate the system without any prior knowledge and this interface is easy to learn because of its simplicity. As designers, we have destined to enrich user experience in all sorts of ways making this interface enjoyable and helpful to use.

9.1.2. Edit lecture hall

Low-fidelity Prototype

The low-fidelity prototype is a wireframe representation of the application's user interface. It features a vertical navigation menu on the left with five items: HOME, ADD HALL, EDIT HALL (which is highlighted in blue), SEARCH HALL, and LOGOUT. To the right of the menu is the main content area, which has a title "Lecturer Hall Management". Below the title is a search bar with a placeholder "Hall :" and a "SEARCH" button. The main form contains three input fields: "Name:" with an associated input box, "Building:" with an input box, and "Capacity:" with an input box. At the bottom right of the form are two buttons: "UPDATE" and "DELETE".

High-fidelity Prototype

The high-fidelity prototype is a detailed visual design of the application's user interface. It follows a similar structure to the low-fidelity prototype. The left sidebar includes icons for each menu item: a house for HOME, a building with a plus sign for ADD HALL, a building with a pencil for EDIT HALL (also highlighted in blue), a building with a magnifying glass for SEARCH HALL, and a power button for LOGOUT. The main content area has a title "LECTURE HALL MANAGEMENT". It includes a search bar with a placeholder "Hall ID:" and a "SEARCH" button. Below the search bar are three input fields: "Hall Number:" with an input box, "Building:" with an input box, and "Capacity:" with an input box. At the bottom right are two buttons: "UPDATE" with a circular arrow icon and "DELETE" with a trash can icon. A footer at the bottom of the page shows the breadcrumb navigation: "Home > Lecture Hall Management > Edit Hall".

Description

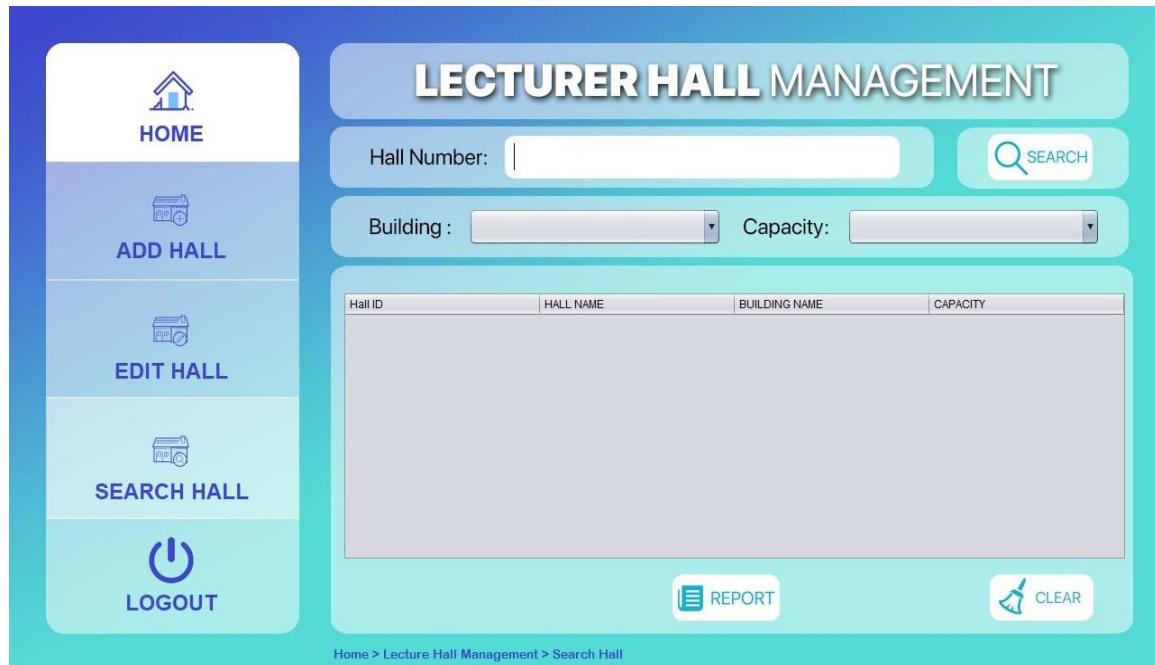
This interface outlines what should be done when an administration staff member wants to edit or delete details of a lecture hall that is already in the system. Same as the text boxes in the add lecture hall interface, the details are loaded into text boxes in this interface when the desired lecture hall id is entered in the search text box and the user press search button. The structure of this interface is intuitive that the user can carry out the edit functionality safely without effecting the other lecture hall details. As same in the other lecture hall management interfaces, icons help the user to understand what the purpose of the buttons and the navigation tabs are. This interface is motivating to the user to edit details as the user can be wrong sometimes in entering details. As simple it can get, edit lecture hall interface provides high usability and user experience goals.

9.1.3. Search lecture hall

Low-fidelity Prototype

The low-fidelity prototype is a wireframe representation of the 'Lecturer Hall Management' application. It features a vertical sidebar on the left with a light blue background containing five buttons: 'HOME', 'ADD HALL', 'EDIT HALL', 'SEARCH HALL' (which is highlighted in light blue), and 'LOGOUT'. To the right of the sidebar is the main content area with a white background. The main title 'Lecturer Hall Management' is centered at the top. Below the title are three input fields: 'Hall Name :' with a text input box, 'Building:' with a text input box, and 'Capacity:' with a text input box. To the right of the 'Capacity:' field is a 'SEARCH' button. Below these input fields is a table with three columns: 'Hall Name', 'Building', and 'Capacity'. There are seven rows in the table, each consisting of a thin horizontal line. At the bottom of the main area are two buttons: 'REPORT' on the left and 'CLEAR' on the right.

High-fidelity Prototype



Description

After prompting into the lecture hall add interface, the user must click on the 'Hall Search' icon or the label to search details for a lecture hall. This user interface lets the user filter multiple results according to some options in the buildings and capacities of the lecture halls. With the dropdowns provided to the above-mentioned filter options, administration staff members can effectively obtain the results that they want to know. Those details ordered by lecture hall numbers are shown inside a well-structured table. It is managed to give results effectively and efficiently to the user as the usability of the interfaces must be good. The user is more engaged in using this interface as it easily filters the results. This interface provides quick feedbacks as the user is more entertained while operating the interfaces. Further assisting the users, they can also generate a report of the table according to those results filtering options. By these mentioned multiple options provided to the user, designers fulfill usability and user experience goals.

9.2. D.M.A.U. Dissanayake – (20206150)

9.2.1. Create Timetable

Low-fidelity Prototype

HOME	<h1>Create Time Table</h1>					
CREATE TIME TABLE	Save by Lecturer		ID:			
	Time Slot	Monday	Tuesday	Wednesday	Thursday	Friday
LOGOUT	<input type="button" value="Save"/> <input type="button" value="Clear"/>					

High-fidelity Prototype

 HOME

 CREATE TIME TABLE

 LOGOUT

CREATE TIME TABLE

Save by Lecturer

ID :

Time Slots	Monday	Tuesday	Wednesday	Thursday	Friday

 SAVE  CLEAR

Description

Out of the three interfaces that have been designed to enable the users of the College Timetable application to manage timetables, Create Timetable is the interface through which a user can create a timetable from scratch. It is mainly intended for roles such as high administration staff members and lecturers of a particular educational institute, who are responsible for planning the lecture sessions to be conducted and producing timetables as necessary. Same as rest of the user interfaces of the system, the combination of attractive background colors, usage of distinctive icons which are visually attractive and informative, and the cohesive structure of the UI where all the related elements are placed more logically are the key factors that cause this user interface to be pleasing. To be more specific, appropriate icons have been used to indicate the provided features such as using an icon of a paper on a pencil to indicate that it allows creating a timetable. In terms of its usability, the simple set of steps that a user must follow when creating a timetable allows this to be easier to learn, increasing the memorability of carrying out the task. When considering the safety that has been provided, every time the user proceeds to some critical activities such as clearing the entered details to the timetable, a confirmation dialog is appeared to ensure that it occurs with the user's prior consent. Considering all these aspects that a user is facilitated with, they could simply specify the id of a lecturer, lecture hall, or a batch of students and create a timetable that provides a better level of satisfaction.

9.2.2. Edit Timetable

Low-fidelity Prototype

The low-fidelity prototype for the 'Edit Time Table' interface consists of two main sections: a vertical sidebar on the left and a main content area on the right.

Vertical Sidebar (Left):

- HOME**: A standard link.
- VIEW TIME TABLE**: A standard link.
- EDIT TIME TABLE**: This button is highlighted with a light blue background, indicating it is the active or selected option.
- GENERATE REPORTS**: A standard link.
- LOGOUT**: A standard link.

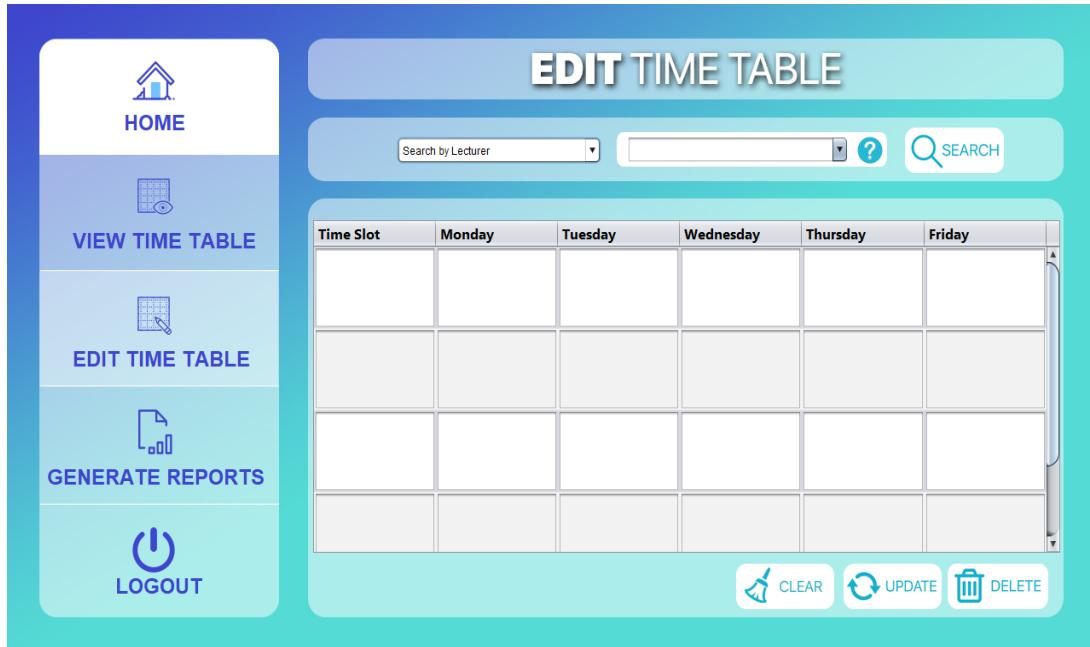
Main Content Area (Right):

Edit Time Table

Search by Lecturer

Time Slot	Monday	Tuesday	Wednesday	Thursday	Friday

High-fidelity Prototype

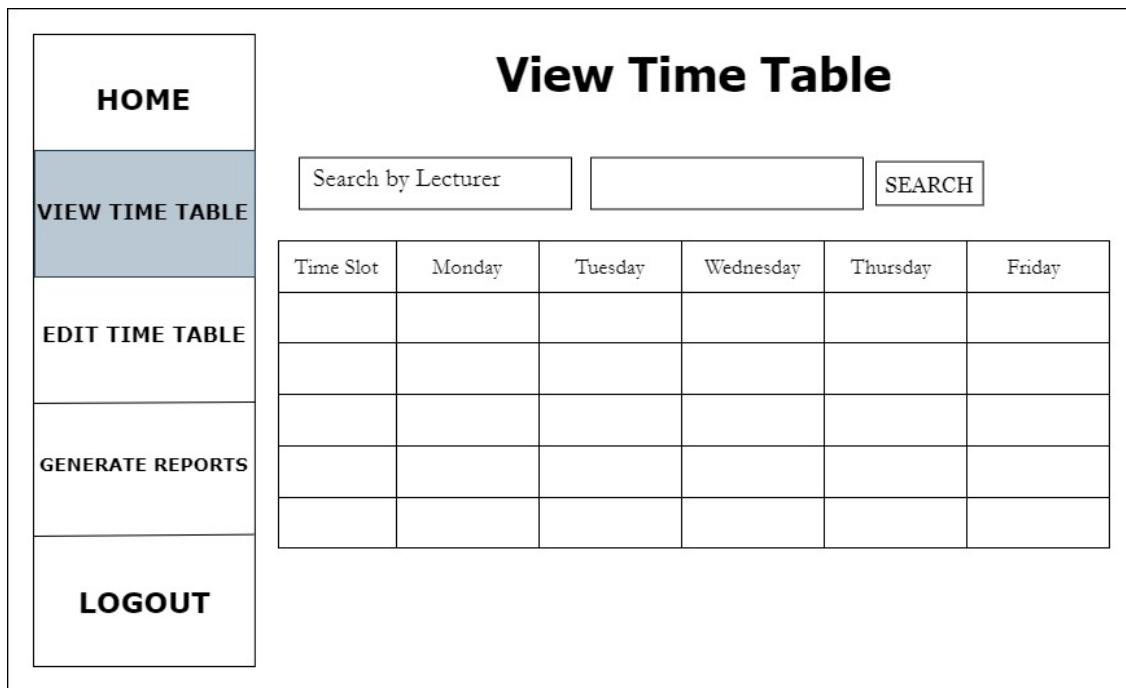


Description

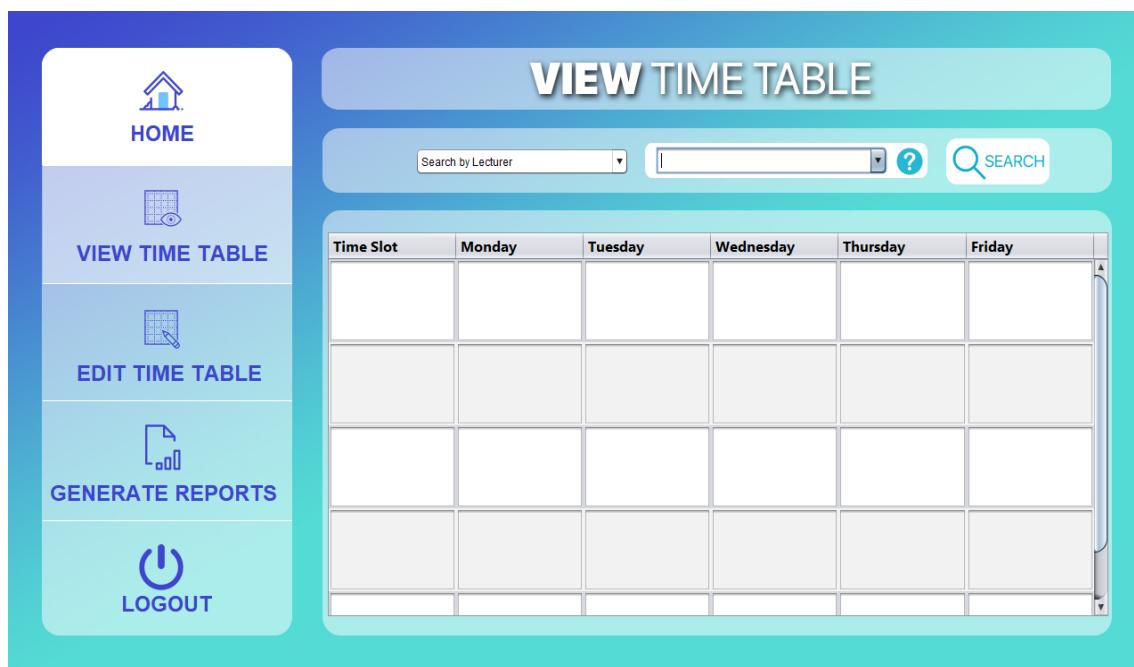
Edit Timetable is the interface that allows users to make revisions to an existing timetable that they've already created or permanently remove the timetable from the system. When making changes to a timetable, they can easily load a timetable to the empty grid on the screen by specifying the type of the timetable (i.e., lecturer, lecture hall, a batch of students) and the respective ID. To retrieve required inputs, a regular dropdown to specify the type and a dropdown into which the user can enter the ID as a keyboard input which auto-completes, have been placed appropriately. With the usage of suitable colors, icons, and elements, the consistent look and feel are maintained throughout this interface engendering the user to feel more comfortable and familiar. The panel at the left of the screen provides the buttons to easily navigate through the application while the rest of the compartments are allocated for the timetable and the required elements to manipulate it. Avoiding the learning burden, a user with prior knowledge on operating the Create Timetable interface, will not find any difficulty at this UI since it conforms to the same layout of elements. Measures such as confirmation dialogs have been placed to ensure the safety of proceeding critical tasks such as clearing or deleting timetables.

9.2.3. View Timetable

Low-fidelity Prototype



High-fidelity Prototype



Description

Users with the intention of having a quick view of an existing timetable can make use of this user interface. Since this only allows the timetable to be viewed, the contents are un-editable. Complying to the similar design that is of Create Timetable and Edit Timetable interfaces, it preserves the appealing look and feels that is consistent all through the application. An icon with a “?” symbol has been placed next to the search field which initiates a popup menu containing a list of lecturer ids, lecture hall ids, and batch ids to be used in case the user requires to know the timetable id (i.e., lecturer id, lecturer hall id or batch id) before performing the search action. Once again, the left panel of buttons with effective icons and labels to support them provides quick navigations to other components of the system easily.

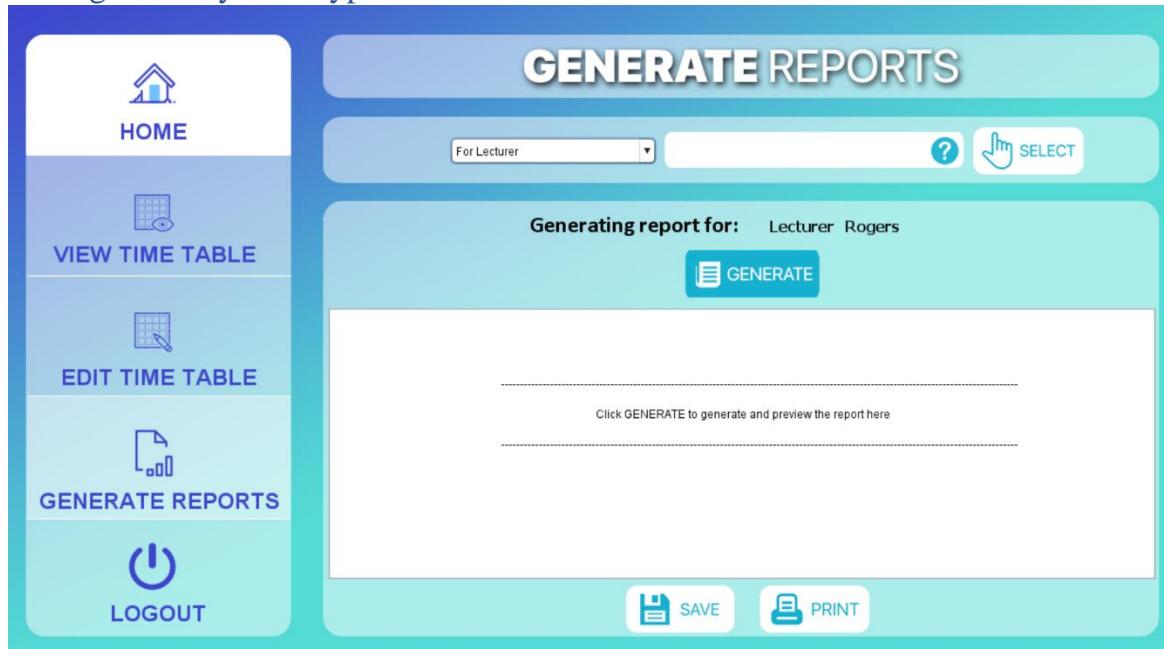
9.3. M.R.R.L. Bandara – (20249508)

9.3.1. Report Generation

Low-fidelity Prototype

The low-fidelity prototype is a wireframe representation of a user interface. It features a vertical sidebar on the left with five buttons: 'HOME', 'VIEW TIMETABLE', 'EDIT TIMETABLE', 'GENERATE REPORTS' (which is highlighted in grey), and 'LOGOUT'. To the right of the sidebar is a main content area. At the top of the main area is a large button labeled 'GENERATE REPORTS'. Below this is a search bar with a dropdown menu set to 'For Lecturer' and a value 'L2034', a question mark icon, and a 'SELECT' button. Underneath the search bar is a sub-panel with the text 'GENERATING REPORT FOR : Lecturer Rogers' and a 'Generate' button. At the bottom of the main content area are two buttons: 'SAVE' and 'PRINT'.

High-fidelity Prototype



Description

The interface for Generate Reports function of the system exhibits simplicity throughout that specific function. When a user arrives at this interface the first impression of simplicity makes the user motivated to proceed forward with the functionality. Due to the implementation of familiar and responsive elements, the interface is easily learnable even by a new user, hence unnecessary to provide a user guide. As a double-checking mechanism is used before the report's generation, tendency of occurring a human error is reduced. All these factors provides the user an efficient functionality through generate reports interface

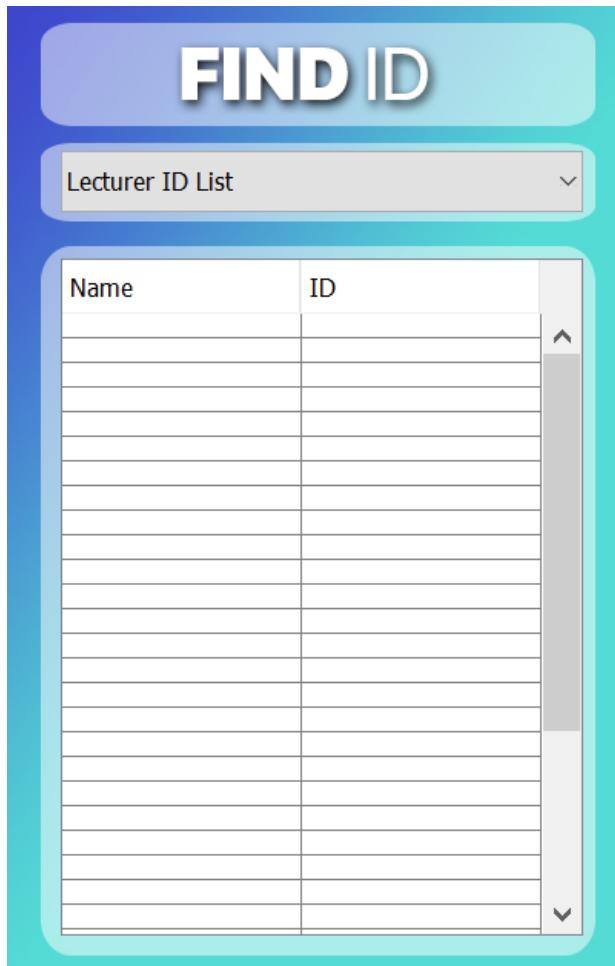
9.3.2. Find ID List

Low-fidelity Prototype

The low-fidelity prototype is a rectangular form divided into three horizontal sections. The top section contains a rounded rectangle labeled "FIND ID". Below it is another rounded rectangle containing the text "Lecturer ID List" followed by a downward-pointing arrow. The bottom section is a table with two columns: "Desc" and "ID". There are eight rows in the table, each consisting of a thin horizontal line for the "Desc" column and a slightly thicker horizontal line for the "ID" column.

Desc	ID

High-fidelity Prototype



Description

When the above interface pop-up when the user clicks the '?' mark on Report Generation, Edit timetable or View Time Table interfaces, user will experience a familiar interface with no complex features to get distracted. The above interface can be considered as an understandable and a common component as it does not require to provide any kind of support to learn the system. This interface is highly effective as it gets the task accomplished without a hassle due to its simplicity.

9.4. S.S.A. Rajapaksha - (20222907)

9.4.1. Sign Up

Low-fidelity Prototype

COLLEGE TIME TABLE



Full Name:

E-Mail:

Password:

Re-Password:

 SIGN UP

High-fidelity Prototype

COLLEGE TIME TABLE



Full Name:

E-Mail:

Password:

Re-Password:

 SIGN UP

Description

This user interface can be used to enroll the administrators and lecturers and provide access to each other to utilize the system functions according to their personal facts. The above-mentioned interface developed by expecting to perform better user encounter with the system, so all the components are defining very well. For a user, no matter is it administrator or lecturer both parties can interact with this interface without prior knowledge or pre-defined guidelines. For providing a better user experience this interface makes more convenient and user-friendly. This interface is enhanced by implementing textboxes and password field and all the elements are well defined to make the interface more attractive to the user and increase the understandability of the interfaces. As the base of the application, implementing eye-catching background color and using attractive icon buttons are important facts that cause this user interface to be more pleasant. Hand cursor icon displays for before clicking on the "Signup" button of the interface; thus it will get users direct attention before signing up to the system. Further, this interface is precisely developed to collect fundamental user data which that want to create a new user account.

9.4.2. Sign In

Low-fidelity Prototype

COLLEGE TIME TABLE

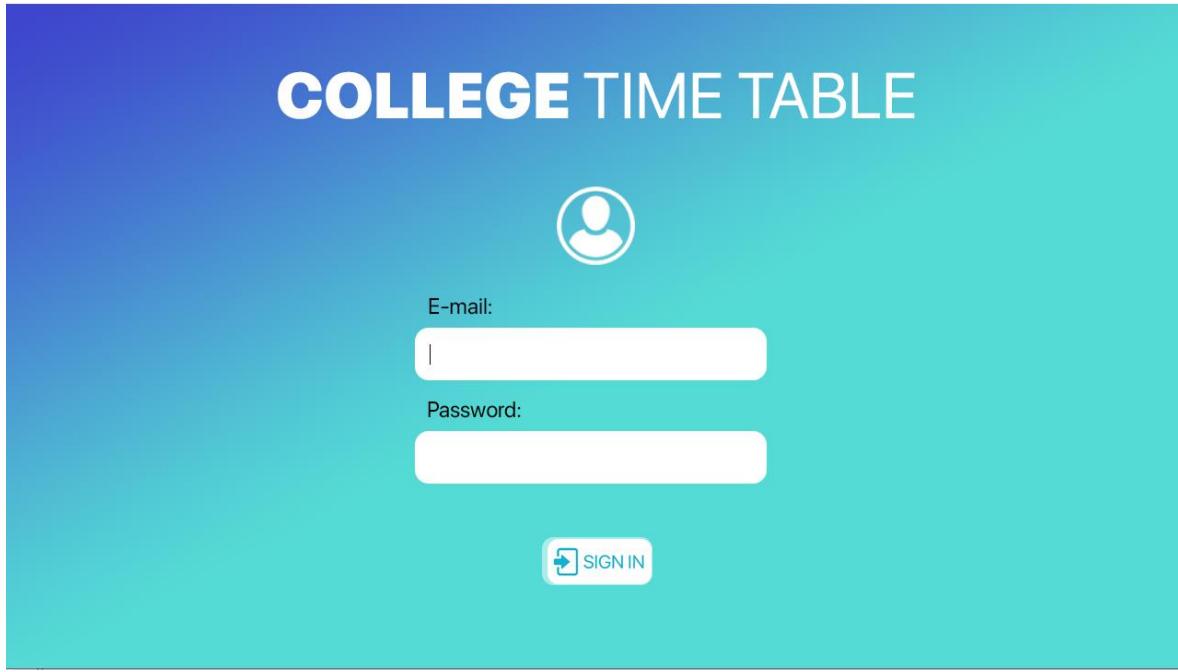


E-Mail:

Password:



High-fidelity Prototype

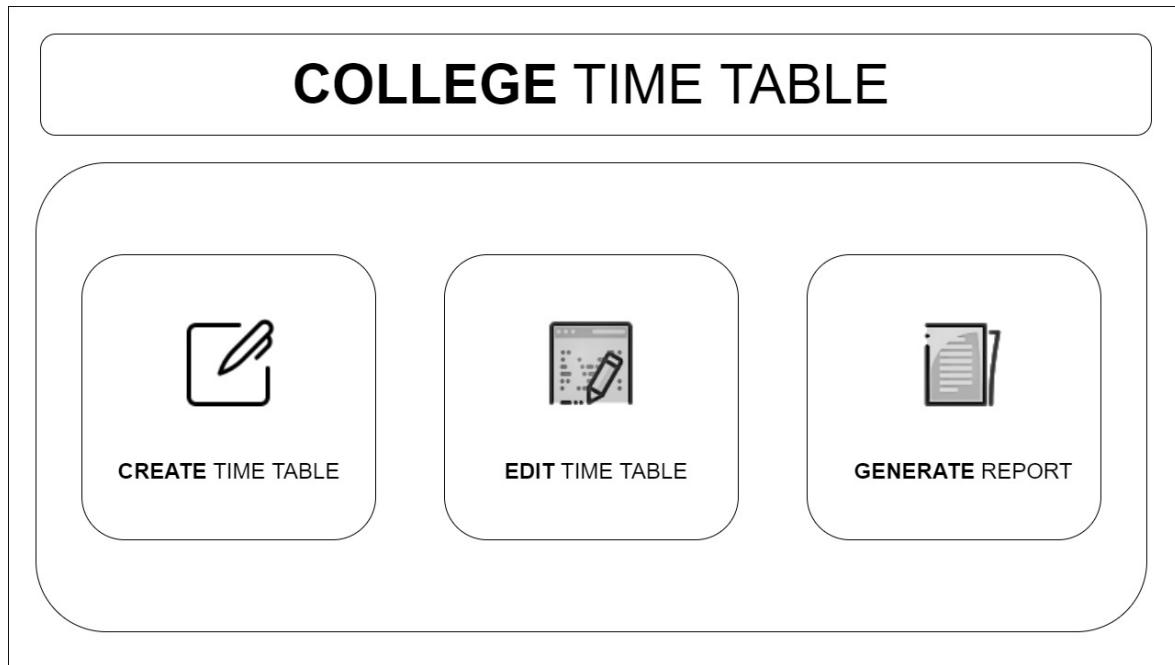


Description

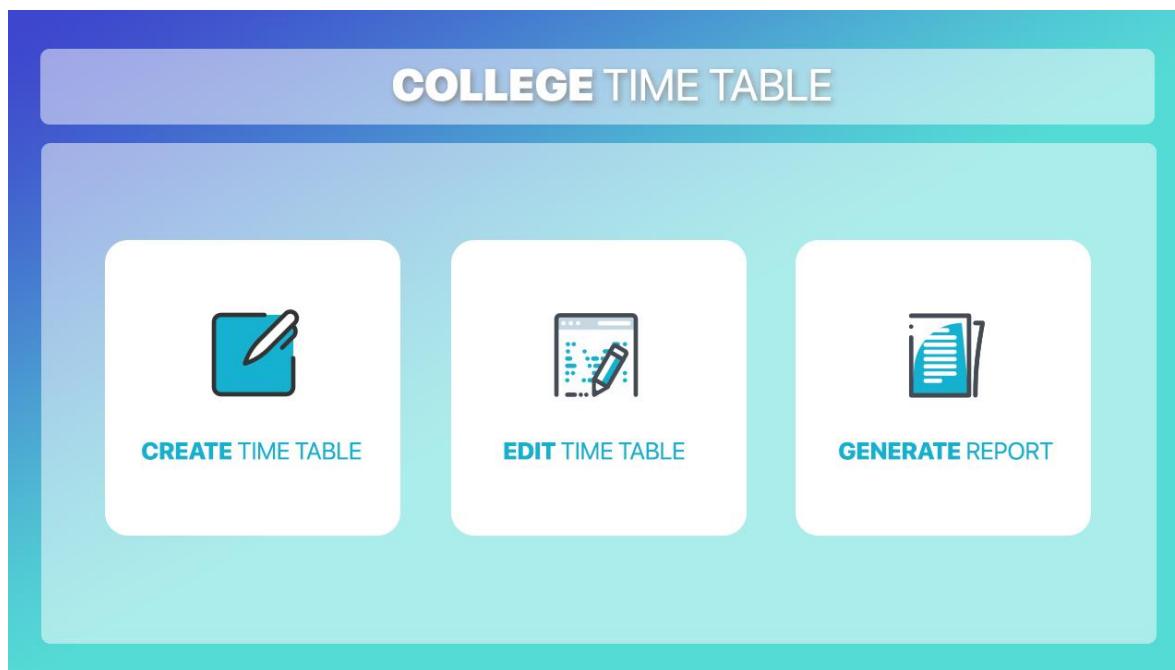
If it is a new user or current user both must get access to the system through sign in interfaces, thus the system provides the relevant components to do their works accurately. Through this interface, it provides better privacy for each user, because of everyone who utilize this application is the most important characters in the college. For a user, no matter is it administrator or lecturer both parties can interact with this interface without prior knowledge or pre-defined guidelines. The above-mentioned interface is the main component between the administrator and the lecturer which refer each user to related home pages. For providing a better user experience this interface makes more convenient and user-friendly. Hand cursor icon displays for before clicking on the Sign In button of the interface, thus it will get users direct attention before sign into the system. This interface is enhanced by implementing textboxes and password field and all the elements are well defined to make the interface more attractive to the user and increase the understandability of the interfaces.

9.4.3. Home Page

Low-fidelity Prototype



High-fidelity Prototype

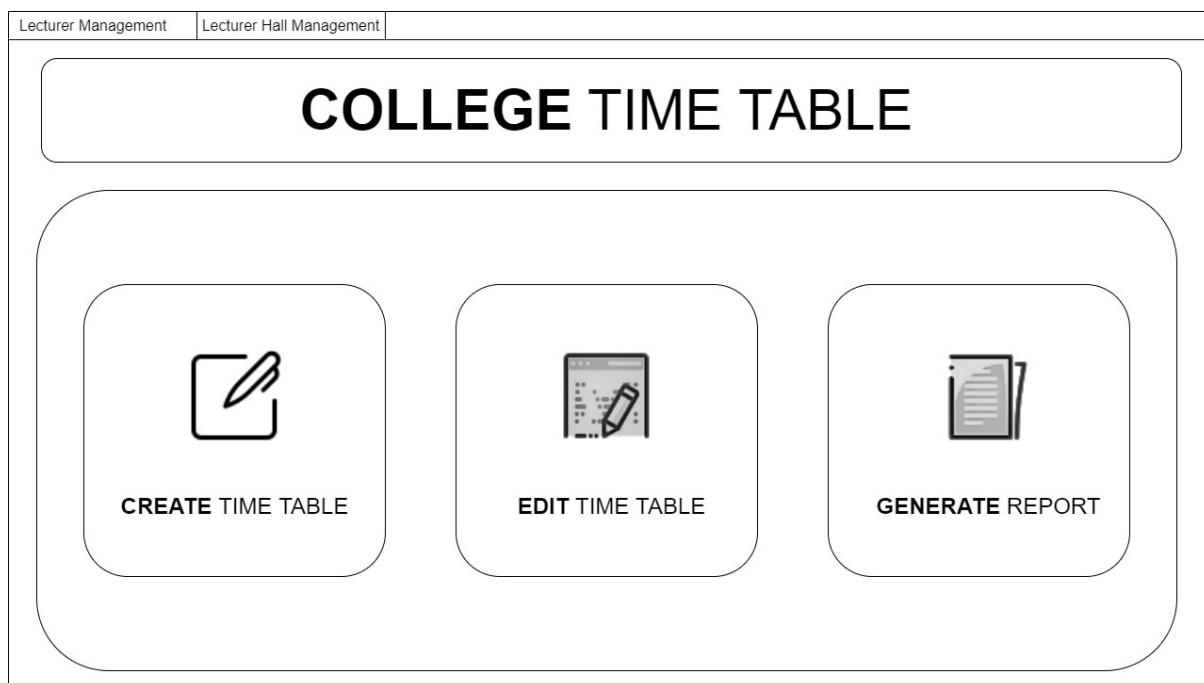


Description

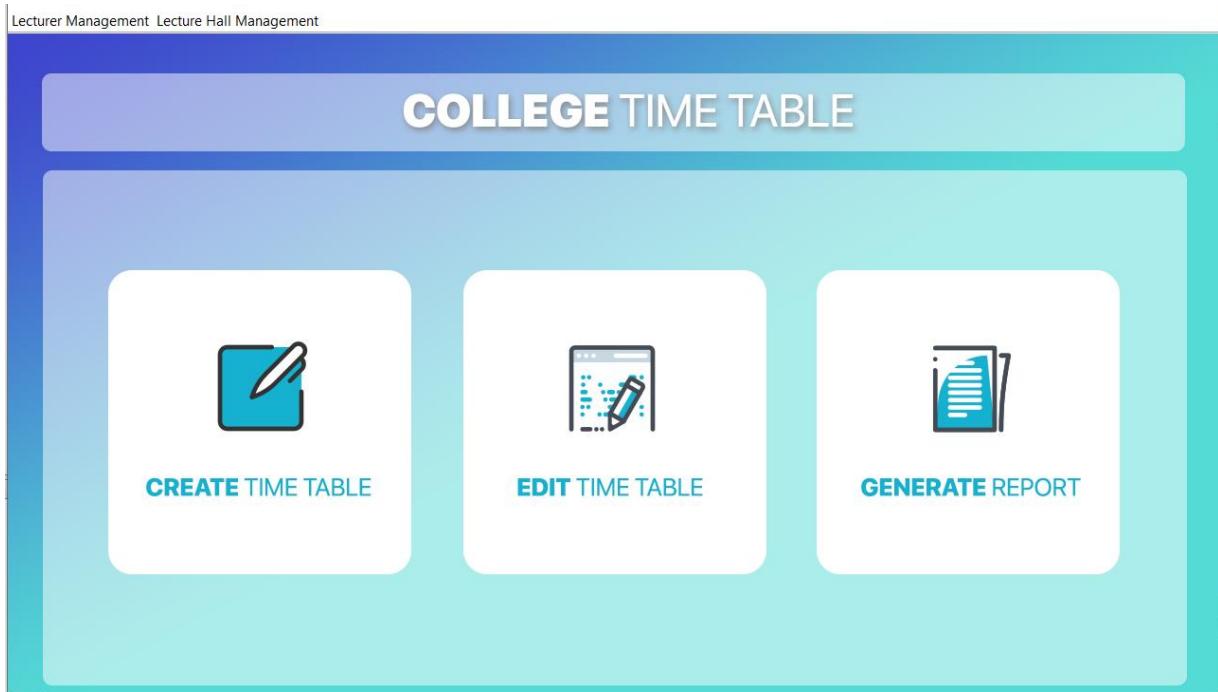
All the lecturers can interact with this interface and this works as the starting point of application. This interface is the main milestones before any user wants to do their activities through the application. The earlier mentioned interface is used to facilitate navigation to other pages on the system. Create timetable, edit timetable and generate report are the main functionalities provided by this interface and all of them are simply defined and easy to interact. This interface is designed by buttons with suitable icons to make the interface more attractive. Hand cursor icon displays for before clicking all the button of the interface, thus it will get users direct attention before clicking some event. For a lecturer can communicate with this interface without prior knowledge or pre-defined guidelines.

9.4.4. Admin Home Page

Low-fidelity Prototype



High-fidelity Prototype



Description

Only the administrator can interact with this interface and current interface works as the starting point of application. Admin home page only specific to administrator because there are two more functionalities only interact with the administrator. This interface is the main milestones before any user wants to do their activities through the application. The earlier mentioned interface is used to facilitate navigation to other pages on the system. This interface is designed by buttons with suitable icons and using the menu bar to display another couple of specific functionalities to make the interface more charming. Create timetable, edit timetable and generate report are the main functionalities provided by this interface and all of them are clearly defined and easy to communicate. Hand cursor icon displays for before clicking all the button of the interface, thus it will get users direct attention before clicking some event. For a lecturer can communicate with this interface without prior knowledge or pre-defined guidelines.

9.5. T.T Jayawardena - (20204617)

9.5.1. Add lecturer

Low-fidelity Prototype

HOME	<h3>Lecturer Management</h3>		
ADD LECTURER	Lecturer ID: <input type="text"/>		
SEARCH LECTURER	First name: <input type="text"/>		
EDIT LECTURER	Last name: <input type="text"/>		
LOGOUT	Contact number: <input type="text"/>		
	Gender:	Position:	
	<input type="radio"/> Male <input type="radio"/> Female	<input type="text" value="Lecturer"/> ▽	
	Email: <input type="text"/>		
	CLEAR SAVE		

High-fidelity Prototype

The image shows a high-fidelity prototype of a web-based lecturer management system. On the left, there is a vertical sidebar with icons and labels: HOME (house icon), ADD LECTURER (person plus icon), SEARCH LECTURER (person search icon), EDIT LECTURER (person edit icon), and LOGOUT (power off icon). The main area is titled "LECTURER MANAGEMENT". It is divided into two sections: "PERSONAL INFORMATION" and "GENERAL INFORMATION". The "PERSONAL INFORMATION" section contains fields for "Lecturer ID" (text input), "First name" (text input), "Last name" (text input), and "Gender" (radio buttons for Male and Female). The "GENERAL INFORMATION" section contains fields for "Contact number" (text input), "Email" (text input), and "Position" (dropdown menu set to "Lecturer"). At the bottom right are "SAVE" and "CLEAR" buttons.

Description

This user interface depicts the interface that an administrator tends to use to add lecturer details to the system so that they can be utilised to be used throughout the system. The above-mentioned user interface is precisely developed to meet the expectations of a comprehensive user interface design. It was developed to showcase an attractive user interface which the administrator can use without prior knowledge. Further refinements were made to the interface to make it look beautiful and to make it more convenient and user friendly by grouping the interface into well-managed sections. Through this interface, an administrator can use it to register a lecturer for the system by adding the requirements requested in the fields. Dropdown boxes, radio buttons and icons have been utilised in the interfaces to make the interfaces more attractive, usable and informative. This interface is enhanced by laying all the elements of the interface are keenly addressed and made visible even for a vision-impaired user. Moreover, the interface was improved to provide excellent user experience as to provide real time feedback to the functions operated by the user.

9.5.2. Edit lecturer

Low-fidelity Prototype

HOME	<h2>Lecturer Management</h2>	
ADD LECTURER	Lecturer ID:	<input type="text"/> SEARCH
SEARCH LECTURER	First name:	<input type="text"/>
EDIT LECTURER	Last name:	<input type="text"/>
LOGOUT	Gender:	Position:
	<input type="radio"/> Male <input type="radio"/> Female	<input type="text" value="Lecturer"/> ▽
	Contact number:	<input type="text"/>
	Email:	<input type="text"/>
		DELETE

High-fidelity Prototype

The image shows a high-fidelity prototype of a web-based lecturer management system. The interface is divided into several sections:

- Left Sidebar:** A vertical sidebar with a blue gradient background containing five items: "HOME" (with a house icon), "ADD LECTURER" (with a person plus icon), "SEARCH LECTURER" (with a magnifying glass icon), "EDIT LECTURER" (with a person edit icon), and "LOGOUT" (with a power button icon).
- Header:** A large header at the top center reads "LECTURER MANAGEMENT" in bold capital letters.
- Search Function:** Below the header is a search bar labeled "Lecturer ID:" followed by a "SEARCH" button with a magnifying glass icon.
- Input Fields:** There are four main input fields arranged in a grid:
 - First name: An input field with a placeholder box.
 - Contact number: An input field with a placeholder box.
 - Last name: An input field with a placeholder box.
 - Email: An input field with a placeholder box.
- Gender Selection:** A section labeled "Gender:" with two radio buttons: "Male" (selected) and "Female".
- Position Selection:** A section labeled "Position:" with a dropdown menu showing "Lecturer".
- Action Buttons:** At the bottom right are two buttons: "UPDATE" with a circular arrow icon and "DELETE" with a trash bin icon.

At the very bottom of the page, there is a small navigation bar: "Home > Lecturer management > Edit Lecturer".

Description

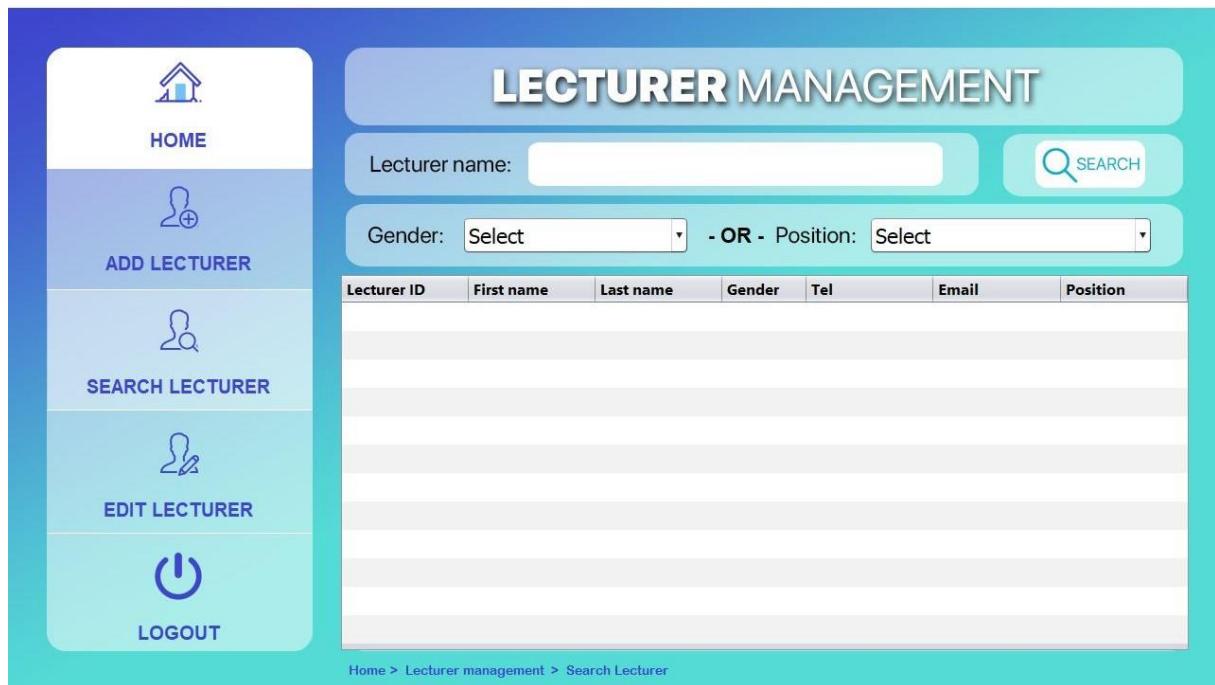
This user interface describes the design to edit the lecturer details that were previously entered by the administrator. Icons, dropdowns and radio buttons have been utilised to make the interface more informative and usable. The interface has been structured thoroughly into apparent and manageable groups to make the improve the usability of the interface. A high effort has been put into refining the user interfaces to make them look more attractive and easily usable for even an obscure user. This user interface prompts an attractive interface while maintaining good usability and user friendliness and managing to provide the administrator the facility to edit details of a lecturer or delete details a certain lecturer who no longer utilises the functionality of the system. Also, the interface was improved to provide excellent user experience as to provide real time feedback to the functions operated by the user.

9.5.3. Search lecturer

Low-fidelity Prototype

		Lecturer Management																																																						
HOME		Lecturer ID: <input type="text"/> SEARCH																																																						
ADD LECTURER		Gender: <input type="button" value="Select ▽"/>		Position: <input type="button" value="Select ▽"/>																																																				
SEARCH LECTURER		<table border="1"><thead><tr><th>Lecture ID</th><th>First name</th><th>Last name</th><th>Gender</th><th>Tel.</th><th>Email</th><th>Position</th></tr></thead><tbody><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr></tbody></table>						Lecture ID	First name	Last name	Gender	Tel.	Email	Position																																										
Lecture ID	First name	Last name	Gender	Tel.	Email	Position																																																		
EDIT LECTURER																																																								
LOGOUT																																																								

High-fidelity Prototype



Description

The above-shown interface showcases the interface that can be utilised by an administrator to search for the details of a batch of lecturers or on an individual lecturer. The interface is divided into grouped sectors containing different functions for each group. A thorough organisation is undergone to make the interface well structured into different functionalities. Moreover, attractiveness and usability are also broadened by the featured icons, table and the well-defined drop-down boxes. A well-structured table is utilised in this interface to showcase the lecturer details of the searched lecturer or all lecturers. The user interface is well labelled manipulating the user for more natural interaction with the interface to perform the required functionalities. The look and the feel of the interface have been refined through the attractive user interface designs that are used in designing the above interface. Furthermore, the interface was improved to provide excellent user experience as to provide real time feedback to the functions operated by the user.

10. Implementations

10.1. A.R.M. Shahan - (20249485)

10.1.1. Add Lecture Hall

The screenshot shows a user interface for 'LECTURE HALL MANAGEMENT'. On the left is a vertical navigation bar with icons and labels: HOME (house icon), ADD HALL (building icon), EDIT HALL (document icon), SEARCH HALL (magnifying glass icon), and LOGOUT (power button icon). The main area has a teal header 'LECTURE HALL MANAGEMENT'. Below it is a 'GENERAL INFORMATION' section with three input fields: 'Hall Number' containing '301', 'Building' with a dropdown menu set to 'Business', and 'Capacity' containing '120'. At the bottom are two buttons: 'SAVE' with a disk icon and 'CLEAR' with a trash bin icon. A small note 'Press to Clear' is next to the CLEAR button. Breadcrumbs at the bottom indicate the path: Home > Lecture Hall Management > Add Hall.

Implementation Discussion

In this user interface, users are provided with several components to interact with the system. The left vertical navigation bar is common to all 3 user interfaces that support users to navigate through the lecture hall management interface. Each tab with relevant labels and icons that represent the user interface that the user currently resides in is highlighted with more opacity in this navigation tab. Each user interface contains breadcrumbs indication the path of the interface. Including this UI, all 3 interfaces contain a heading mentioning the main function which is lecture hall management.

This add lecture hall interface provides 2 textboxes and a dropdown for the user to enter the details of a new lecture hall to add those details to the system. Each text box requires specific pre-defined validation so that only valid data is added to the system. The text boxes cannot be kept empty and the dropdown which specifies the building the new lecture hall is in must be selected. These input fields are aligned properly, and they get validated sequentially. When the user enters invalid data to the input fields, proper error messages are prompted. For example, in the text box for capacity, the input data is restricted to enter a number between 0 to 1000, or otherwise, an error message will be shown to the user. A success message will be shown only if the user enters valid data to all input fields. To carry out the operations, users are provided with the 'Save' button. The values entered the

system by the user are sent to the database when the user clicks the 'Save' button. Button gives a quick feedback to the user when user about to press it by changing its colour. The success message will be shown to the user otherwise an error message will be shown as mentioned above. Furthermore, there is a 'Clear' button that helps the user to clear all values in the input fields.

User Involvement

After navigating into the add lecture hall user interface, the users of the 'College Timetable' can insert details of a new lecture hall. The 2 text boxes and the dropdown provided to the user to enter must be filled sequentially and not be kept empty. Then the user must press the 'Save' button in order to enter the details to the system. The user is asked to confirm before inserting the details to the system. When the user about to press every button in the user interface, tooltips are shown to support the user informing about what the button's purpose. If the user decides to continue adding details, he or she can clear the text fields by pressing the 'Clear' button. Users must interact with the dialog boxes indicating warnings or Input validations when necessary. Furthermore, if the users need to navigate to other user interfaces in the lecture hall management functionality, they can select the preferred icon or label provided in the navigation tab. After using the system, when the user decides to leave the system, the user can press the 'Logout' button.

Test Cases

TC01 - Verify that the user is asked to press the 'Confirm' button after pressing the 'Save' button prior to inserting the lecture hall details into the database.

TC02 - Verify that the user entered details are valid.

TC03 - Verify that the newly adding lecture hall is not exist in the database

TC04 - Verify that the input fields are aligned vertically.

Test Case ID	Test Case scenario	Steps	Test Data	Expected Results	Actual Results	Pass/Fail
TC05	Add a lecture hall with valid data	1. Navigate to Add Lecture Hall page	Hall Number = 505 Building = Computing Capacity = 100	Alert "Inserted Successfully"	Alert "Inserted Successfully"	Pass

		2. Fill the details as required 3. Press save				
TC06	Add a lecture hall with invalid data	1. Navigate to Add Lecture Hall page 2. Fill the details as required 3. Press save	Hall Number = 505 Building = Computing Capacity = 10000	Alert "Please Enter a Valid Capacity"	Alert "Please Enter a Valid Capacity"	Pass
TC07	Clear the text in the text fields	1. Press the clear button	Press the Clear button	Text boxes get cleared and the dropdown set to null	Text boxes get cleared and the dropdown set to null	Pass
TC08	Navigate to another page	1. Press the Home button	Press Home button	Prompts home page	Prompts home page	Pass

10.1.2. Edit Lecture Hall

The screenshot shows the 'LECTURE HALL MANAGEMENT' application. On the left is a vertical navigation menu with icons and labels: HOME (house icon), ADD HALL (building icon), EDIT HALL (building icon), SEARCH HALL (magnifying glass icon), and LOGOUT (power button icon). The main area is titled 'LECTURE HALL MANAGEMENT'. It contains a search bar with 'Hall ID: C501' and a 'SEARCH' button. Below the search bar are four text input fields: 'Hall Number:' (501), 'Building:' (Computing), 'Capacity:' (450), and 'Hall ID:' (C501). At the bottom are three buttons: 'UPDATE' (refresh icon), 'DELETE' (trash bin icon), and a small button labeled 'Press to Update'.

Implementation Discussion

By this user interface the user can edit details of a lecture hall that already exist in the database. The details are loaded to the relevant text boxes by the hall ID that has been entered into the search text box. The lecture hall ID is made with the first letter of the building name and the hall number. This user interface consists of 4 textboxes and 3 buttons to carry out the update and delete functionality. After the user enters the hall ID, the user obtains the details of the needed lecture hall by clicking the 'Search' button. Then the details are loaded into the relevant text fields. The user can change those details, but they must also be validated to meet the valid data criteria. Otherwise relevant error messages are shown into the user. The details are updated after the user clicks the 'Update' button. Users can not change the hall number as it is used for the primary key. Therefore, that textbox will be blocked and just display the hall number to the user. Furthermore, when the user needs to remove the detail of a lecture hall, the user must search for that lecture hall by entering the lecture hall ID. Then automatically the details will be loaded to the text fields for the user to see. When the user clicks the 'Delete' button a confirmation message will be shown to the user to make the system more reliable. After pressing 'Yes', the details of that lecture hall will be deleted from the system.

User Involvement

Users navigate to this interface for the purpose of manipulating already existing details of the lecture halls. They must enter the hall ID in the search text area to obtain the data into the given text boxes by the designers. Tool tips are shown to the user when user drags the mouse to the components inside this user interface. After pressing the 'Search' button, the details will be loaded to the system only if the searched hall ID exists in the table. Otherwise, an error message is shown to the user. When a user successfully able to load details of one lecture hall details. Either he or she can edit to update the details or delete the record of the lecture hall by pressing the 'Update' and 'Delete' buttons respectively. The user is asked to confirm in order to complete these two operations by prompting dialog boxes. Tooltips are shown to the user when user drags the mouse to perform on click action on above mentioned buttons. As same as in other user interfaces, the user must interact with dialog boxes prompts when invalid data has been entered to update in the system or when updating data failed to the system. The user is asked to confirm the delete confirmation dialog as designers believe it is a good design practice. To navigate to the other user interfaces the user must press the icons or labels in the left navigation bar.

Test Cases

TC09 - Verify that the user is asked to press the 'Confirm' button after pressing the 'Update' button prior to updating the lecture hall details into the database.

TC10 - Verify that the user updating data is valid.

TC11 - Verify that the search input field and 'Search' button are aligned horizontally.

Test Case ID	Test Case scenario	Steps	Test Data	Expected Results	Actual Results	Pass/Fail
TC12	Search a lecture hall with existing Hall ID to update/delete	1. Navigate to Add Lecture Hall page 2. Navigate to Edit Lecture Hall page 3. Enter Lecture Hall ID 4. Press Search	Hall ID = C502	Fields filled with relevant data	Fields filled with relevant data	Pass

TC13	Search a lecture hall with a non-existing Hall ID to update/delete	1. Navigate to Add Lecture Hall page 2. Navigate to Edit Lecture Hall page 3. Enter Lecture Hall ID 4. Press search	Hall ID = C1001	Alert "Lecture Hall Not Found."	Alert "Lecture Hall Not Found."	Pass
TC14	Update a lecture hall with valid data	1. Navigate to Add Lecture Hall page 2. Navigate to Edit Lecture Hall page 3. Enter Lecturer Hall ID 4. Update required data 5. Press Update	Hall Number = 502 Building = Computing Capacity = 300	Alert "Updated successfully"	Alert "Updated successfully"	Pass
TC15	Update a lecture hall with invalid data	1. Navigate to Add Lecture Hall page 2. Navigate to Edit Lecture Hall page 3. Enter Lecture Hall ID 4. Update required data 5. Press Update	Hall Number = 502 Building = Computing Capacity = 1200	Alert "Please Enter a Valid Capacity"	Alert "Please Enter a Valid Capacity"	Pass
TC16	Delete lecturer with valid data	1. Navigate to Add Lecturer page	Hall ID = C502	Alert "Deleted Successfully"	Alert "Deleted Successfully"	Pass

		2. Navigate to Delete Lecture Hall page 3. Enter Lecture Hall ID 4. Press Delete				
TC17	Navigate to another page	1. Navigate to Add Lecture Hall page 2. Press Logout button	Click Logout button	Logout and prompts to the login page	Logout and prompts to the login page	Pass

10.1.3. Search Lecture Hall

The screenshot displays the 'LECTURER HALL MANAGEMENT' application. On the left, a vertical sidebar menu includes 'HOME', 'ADD HALL', 'EDIT HALL', 'SEARCH HALL', and 'LOGOUT'. The main area is titled 'LECTURER HALL MANAGEMENT' and contains search fields for 'Hall Number' (set to 401) and 'Building' (set to a dropdown value), along with a 'Capacity' field. A 'SEARCH' button with a magnifying glass icon is present. Below these fields is a table showing search results:

Hall ID	HALL NAME	BUILDING NAME	CAPACITY
C401	401	Computing	20
B401	401	Business	150

At the bottom of the main area are 'REPORT' and 'CLEAR' buttons. The footer indicates the user is at 'Home > Lecture Hall Management > Search Hall'.

Implementation Discussion

This user interface is highly cohesive and contains many different components. Most of the interface's covered by a table component that is used to retrieve details of lecture halls which are already in the database. The table consists of 4 columns: Hall ID, Hall Number, Building Name, and Capacity to compare and with other lecture halls in every building in the college. The retrieved data according to the user's filtrations are ordered

by the hall number. To obtain the search results by filtration options, the user must choose an element in either building or capacity dropdowns. As soon as the user selects an element in the dropdown, the results are processed and shown to the user without any delay. These 2 dropdowns are aligned in the same level and aligned vertically with table component as well as marking consistency within the user interface. As same in the lecture edit hall interface, there is a search text box and a 'Search' button to obtain details of a lecture hall directly. With the option of printing details by the 'Report' generation button, users are determined to search a lecture hall directly and obtain the results. Finally, there is a Clear button provided in this interface to clear the text in the search text field. Each button inverses its colour when user about to press it.

As same in the other lecture hall management interfaces, there is the navigation panel to the left of this user interface. Designers are destined to protect the consistency throughout the lecture hall management functionality interfaces.

User Involvement

This user interface is only for data viewing purposes for the user. The data can be loaded into the table provided in this interface by 2 options. One way of loading details to the interface is by entering the hall number to obtain results with the same hall number. Another way is to select result filtering options for building and capacity ranges by the 2 dropdowns. When the user has decided to obtain a report for the loaded results in the table, the user can press the 'Report' button and if the user presses the clear button the text in the search text field and the table will be cleared. Furthermore, the user can navigate to the other user interfaces in the lecture hall management functionality by the left navigation bar.

Test Cases

TC18 - Verify that the result table is visible after user entering the Search Lecture Hall user interface.

TC19 - Verify that the results are filtered automatically when user change the elements in the dropdowns.

TC20 - Verify that the print options are prompting after user press the 'Report' button.

Test Case ID	Test Case scenario	Steps	Test Data	Expected Results	Actual Results	Pass/Fail
TC21	Search Lecture Hall/Halls with the Hall Number	1. Navigate to Add Lecturer page 2. Navigate to Search Lecture Hall page 3. Enter Lecture Hall Number 4. Press Search	Hall Number = 411	Filters database and displaying the lecture halls with hall number 411 in each building	Filters database and displaying the lecture halls with hall number 411 in each building	Pass
TC22	Search Lecture Hall/Halls with non-existing lecturer first name	1. Navigate to Add Lecture Hall page 2. Navigate to Search Lecture Hall page 3. Enter Lecturer Hall Number 4. Press Search	Hall Number = 1001	Filters database and display and empty table.	Filters database and display and empty table.	Pass
TC23	Filter the results by Building type	1. Navigate to Add Lecture Hall page 2. Navigate to Search Lecture Hall page 3. Select relevant building from the dropdown	Building = Computing	Filters database displaying results of all Computing building lecture halls with selected element in the capacity dropdown.	Filters database displaying results of all Computing building lecture halls with selected element in the capacity dropdown.	Pass
TC24	Filter results by Capacity range.	1. Navigate to Add Lecture Hall page 2. Navigate to Search Lecture Hall page	Capacity Range = 151-200	Filters database displaying results of capacity of lecture halls ranging from 151 to 200	Filters database displaying results of capacity of lecture halls ranging from 151 to 200	Pass

		3. Select relevant capacity range from the dropdown		with selected element in the building dropdown.	with selected element in the building dropdown.	
TC25	Navigate to another page	1. Navigate to Add Lecture Hall page 2. Press Add Lecture Hall icon or label.	Press Add Lecture Hall icon or label.	Prompt Add Lecture Hall page.	Prompt Add Lecture Hall page	Pass

Common Test Cases in all user interfaces of the Lecture Hall Management Functionality are shown in below.

TC26 - Verify that the all fonts are related to the same font family.

TC27 - Verify that every character in each component is same in font size.

TC28 - Verify that every user interface's backgrounds are consistent with the same gradient colours.

TC29 - Verify that the icons used in every user interface are consistent in illustrations perspective and they are in same alignment as other interfaces.

TC30 - Verify that the labels used to describe the icons are located below the icons.

TC31 - Verify that the all the dialog boxes are prompt in the same alignment.

TC32 - Verify that the all the text boxes in each user interface are initially empty.

TC33 - Verify that every button in each user interface are aligned properly with the other components and they are in the same size.

TC34 – Verify that every tool tip is showing when user moves the mouse to each component.

TC34 – Verify that every button hovers when user moves the mouse on top of each button.

10.2. D.M.A.U. Dissanayake - (20206150)

10.2.1. Create Timetable

The screenshot shows a user interface for creating a timetable. On the left, there's a vertical sidebar with three buttons: 'HOME' (with a house icon), 'CREATE TIME TABLE' (with a pencil icon), and 'LOGOUT' (with a power button icon). The main area is titled 'CREATE TIME TABLE'. It has dropdown menus for 'Save by Lecturer' and 'ID'. Below is a table with six columns representing days of the week: Monday, Tuesday, Wednesday, Thursday, Friday, and Saturday. The table has four rows representing time slots: 8.30 - 10.30, 10.30 - 12.30, 12.30 - 1.30, and 1.30 - 3.30. Each cell in the table contains the text 'Human Computer Interface Dr. Antoni Liang B502'. At the bottom right are 'SAVE' and 'CLEAR' buttons.

Time Slots	Monday	Tuesday	Wednesday	Thursday	Friday
8.30 - 10.30	Human Computer Interface Dr. Antoni Liang B502				
10.30 - 12.30	Human Computer Interface Dr. Antoni Liang B502				
12.30 - 1.30	Human Computer Interface Dr. Antoni Liang B502				
1.30 - 3.30	Human Computer Interface Dr. Antoni Liang B502				

Implementation Discussion

The final GUI implementation for Create Timetable consist of a dropdown to specify the type of timetable (i.e., lecturer, lecture hall and batch) to be created, a field to enter the identification for the timetable, a table to enter the details of the timetable, a button to clear the table contents and finally a button to save the produced timetable. The designated field to enter the id is a dropdown menu which is populated depending on the selected type of time table (specified earlier), ensures that a user does not enter an id which has not been entered to the system through the administrator, therefore not available to be used within the system. At the dropdown which is at the same time is enabled for text inputs, a user can enter the id through the keyboard which is automatically being completed. A warning message shall be generated in case a user fails to specify the identifier before saving the timetable. In case a timetable has already been created for the specified id and is available to be used, an error message is displayed to notify the user. When the user clicks on the clear button, to guarantee that the action is caused by the user consciously, a confirmation dialog is initiated. When the timetable is saved successfully, once again the system notifies the completion.

User Involvement

To involve the users to interact with this GUI, input controls such as dropdown menus and text fields have been implemented through which the system obtains the type and the identifier of the required timetable. The allocated field to enter the identifier for the timetable is a combination of a text field and a dropdown that expects the user to enter the value through a keyboard which is then autocompleted by the system. Several types of informational components have been utilized to provide feedback and communicate with the user. Whenever the user invokes delete or clear actions, systems wait for the user's permission to pursue by launching a warning message box through which the user provides the confirmation. In case of user's negligence to provide the identifier for the timetable or when a timetable is created with an already existing timetable identifier, the system displays an error message through a message box to inform the user about the error. Tooltips have been used to provide instructions to the user on how to interact with certain elements of the screen.

Test Cases

Test Case ID	Test Case Scenario	Steps	Test Data	Expected Results	Actual Results	Pass/Fail
TC-01	Verify that clicking on “Save” button creates the timetable successful.	1.Navigate to the “Create Timetable” page 2.Select the timetable type and identifier 3. Fill in the timetable data 4.Click the “Save” button	Selected as “Save by Lecturer” and the lecturer ID is specified. Entering sample timetable contents.	A message box should be indicated saying “Successfully saved”	A message box should be indicated saying “Successfully saved”	Pass
TC-02	Clicking on “Save” having the ID field empty	1.Navigate to the “Create Timetable” page 2.Select the timetable type and identifier 3. Fill in the timetable data	Selected as “Save by Lecturer” and the lecturer ID is not specified. Entering sample timetable contents.	A warning message should be indicated asking “Please enter an ID for the timetable: Lecturer ID/ Batch ID/ Hall ID”	A warning message should be indicated asking “Please enter an ID for the timetable: Lecturer ID/ Batch ID/ Hall ID”	Pass

		4.Click the “Save” button				
TC-03	Clicking on “Clear” button to clear table contents	1.Navigate to the “Create Timetable” page 2. Fill in the timetable data 3.Click on “Clear” button.	Entering sample timetable contents.	A confirmation message asking, “ Do you wish to continue? ” should be indicated. When pressed “Yes” Contents of the table should be cleared.	A confirmation message asking, “ Do you wish to continue? ” should be indicated. When pressed “Yes” Contents of the table should be cleared.	Pass
TC-04	Verify that typing the first letter inside the id dropdown list, skips to the first item that begins with the specified letter (Type Ahead).	1.Navigate to the “Create Timetable” page 2. Select the timetable type 3.Enter the first letter of the id that the timetable should be saved as.	Select “Save by Lecturer”. Enter “L10” to the identifier dropdown list.	The values of the dropdown list should skip to “L10”	The values of the dropdown list should skip to “L10”	Pass
TC-05	Verify that the focus is set to a selected cell on the timetable.	1.Navigate to the “Create Timetable” page 2.Select a cell on the timetable	None	The selected cell should be highlighted with light blue color.	The selected cell should be highlighted with light blue color.	Pass
TC-06	Verify that double clicking on a selected cell allows the editor to be activated.	1.Navigate to the “Create Timetable” page 2.Select a cell on the timetable and	None	The editor should be activated, and a cursor should be blinked	The editor should be activated, and a cursor should be blinked	Pass

		double click on it.		inside the cell.	inside the cell.	
TC-07	Verify that scrolling moves the table content up and down.	1.Navigate to the “Create Timetable” page 2. Scroll up and down through the empty table	None	The table should scroll up and down leaving the table headers and its content intact.	The table should scroll up and down leaving the table headers and its content intact.	Pass

10.2.2. Edit Timetable

Time Slot	Monday	Tuesday	Wednesday	Thursday	Friday
8.30 - 10.30	Human Computer Interface Dr. Antoni Liang B502				
10.30 - 12.30	Human Computer Interface Dr. Antoni Liang B502				
12.30 - 1.30	Human Computer Interface Dr. Antoni Liang B502				
1.30 - 3.30	Human Computer Interface Dr. Antoni Liang B502				

CLEAR
 UPDATE
 DELETE

Implementation Discussion

The final GUI implementation for “Edit Timetable” has been fabricated following the same color scheme that has been applied throughout the system and preserving the consistency that has been maintained throughout the interfaces to manage timetables, which as a result causes the GUI to be intuitive. Fundamentally, the interface has been organized as sections that contain navigations at the left, and the rest to support its utmost functionality which is to make changes to an already existing timetable. The compartment at the left

which contains the navigations provides a contextualized set of icons along with labels to easily identify and utilize to move around the system. To be specific it has mainly provided navigations to “Home”, “View Timetable”, “Generate Reports”, and “Logout” from the system. When it comes to updating a timetable, equivalent to the “Create Timetable” window, a dropdown menu to specify the type of the timetable and a typeahead dropdown to easily state the required timetable has been provided. An empty table has been placed to load the selected timetable, which then can be updated as per the user’s necessity. A “Clear” button to easily clear the contents, an “Update” button to save the updated contents and a “Delete” button to permanently delete a timetable have been extended.

User Involvement

When we consider the interaction between the user and the system, dropdowns, typeahead dropdowns, and buttons has been assigned to obtain the user inputs. The user is expected to select the type of the timetable via the dropdown by initiating a click on it while the timetable identifier is expected to be picked out of the dropdown by clicking or as a keyboard input which easily filters the identifiers. At a situation such as clicking on the search button or update button without having specified the identifier, will provide feedback to the user through a friendly warning in a message box while an attempt to clear the contents of the table will generate a confirmation dialog which requires the users’ agreement to proceed. Tooltips have been used to provide instructions to the user on how to interact with certain elements of the screen.

Test Cases

Test Case ID	Test Case Scenario	Steps	Test Data	Expected Results	Actual Results	Pass /Fail
TC-08	Verify that clicking on “Update” timetable having specified the type and identifier updates the timetable.	1.Navigate to the “Edit Timetable” page 2.Select the timetable type and specify the identifier 3.Click on “Search” button to load the timetable. 4.Update the timetable as necessary 5.Click the “Update” button	Selected as “Search by Lecturer” and the lecturer ID is specified as “L1”. Updating the content of the timetable as required.	A message box should be indicated saying “ Updated Successfully ”	A message box should be indicated saying “ Updated Successfully ”	Pass

TC-09	Verify that clicking on “Update” timetable having specified the type but not the identifier generates an appropriate warning message	1.Navigate to the “Edit Timetable” page 2.Select the timetable type specify the identifier 3.Click on “Search” button to load the timetable. 4.Update the timetable as necessary 5.Clear the identifier at the search field. 6.Click the “Update” button	Selected as “Search by Lecturer” and the lecturer ID is not specified. Updating the content of the timetable as required.	A warning message should be indicated asking “Please enter an ID for the timetable: Lecturer ID/ Batch ID/ Hall ID”	A warning message should be indicated asking “Please enter an ID for the timetable: Lecturer ID/ Batch ID/ Hall ID”	Pass
TC-10	Clicking on “Clear” button to clear table contents	1.Navigate to the “Edit Timetable” page 2.Select the timetable type specify the identifier 3.Click on “Search” button to load the timetable. 4.Click on “Clear” button	Selected as “Search by Lecturer” and the lecturer ID is specified as “L1”.	A confirmation message asking, “ Do you wish to continue? ” should be indicated. When pressed “Yes” Contents of the table should be cleared.	A confirmation message asking, “ Do you wish to continue? ” should be indicated. When pressed “Yes” Contents of the table should be cleared.	Pass
TC-11	Clicking on “Delete” button to delete a timetable	1.Navigate to the “Edit Timetable” page 2.Select the timetable type specify the identifier 3.Click on “Search” button to load the timetable.	Selected as “Search by Lecturer” and the lecturer ID is specified as “L1”.	A confirmation message asking, “ Do you wish to continue? ” should be indicated. When pressed “Yes” Contents of the table	A confirmation message asking, “ Do you wish to continue? ” should be indicated. When pressed “Yes” Contents of the table	Pass

		4.Click on “Delete” button		Contents of the table should be cleared.	should be cleared.	
TC-12	Verify that typing the first letter inside the id dropdown list, skips to the first item that begins with the specified letter (Type Ahead).	1.Navigate to the “Edit Timetable” page 2. Select the timetable type 3.Enter the first letter timetable id.	Select “Save by Lecturer”. Enter “L10” to the identifier dropdown list.	The values of the dropdown list should skip to “L10”	The values of the dropdown list should skip to “L10”	Pass
TC-13	Verify that the focus is set to a selected cell on the timetable.	1.Navigate to the “Edit Timetable” page 2.Select the timetable type specify the identifier 3.Click on “Search” button to load the timetable. 4.Select a cell on the timetable	Selected as “Search by Lecturer” and the lecturer ID is specified as “L1”.	The selected cell should be highlighted with light blue color.	The selected cell should be highlighted with light blue color.	Pass
TC-14	Verify that double clicking on a selected cell allows the editor to be activated.	1.Navigate to the “Edit Timetable” page 2.Select the timetable type specify the identifier 3.Click on “Search” button to load the timetable. 4.Select a cell on the timetable and double click on it.	Selected as “Search by Lecturer” and the lecturer ID is specified as “L1”.	The editor should be activated, and a cursor should be blinked inside the cell.	The editor should be activated, and a cursor should be blinked inside the cell.	Pass
TC-15	Verify that scrolling moves the table content up and down.	1.Navigate to the “Edit Timetable” page 2.Select the timetable type	Selected as “Search by Lecturer” and the lecturer ID	The table should scroll up and down leaving the	The table should scroll up and down leaving the	Pass

		specify the identifier 3. Click on “Search” button to load the timetable. 4. Scroll up and down through the empty table	is specified as “L1”.	table headers and its content intact.	table headers and its content intact.	
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10.2.3. View Timetable

Time Slot	Monday	Tuesday	Wednesday	Thursday	Friday
8.30 - 10.30	Human Computer Interface Dr. Antoni Liang B502				
10.30 - 12.30	Human Computer Interface Dr. Antoni Liang B502				
12.30 - 1.30	Human Computer Interface Dr. Antoni Liang B502				
1.30 - 3.30	Human Computer Interface Dr. Antoni Liang B502				
3.30 - 5.30	Human Computer				

Implementation Discussion

Residing in the same level as “Edit Timetable”, final GUI implementation of “View Timetable” serves its sole purpose of enabling the user to view a selected timetable. Continuing the design standards and layouts followed at the previous UIs, a left vertical panel has been allocated to provide quick navigations. A dropdown to select the type of the timetable, and a typeahead dropdown to specify the identifier of the timetable that must be loaded, and a table into which the data should be loaded has been provided as usual similar to the rest of UIs to handle timetables to leverage familiarity. But the table that has been provided to view the timetable, does not allow its content to be edited.

User Involvement

At this GUI, the user is only expected to specify the type of timetable and the respective identifier to the allocated fields and click on the “Search” button which then will load the timetable to the table that has been provided. In case the user clicks on the “Search” button, having neglected to specify a timetable id, the system shall generate a warning message and notify the user. Since the user is not expected to perform any actions on the content of a timetable, any input controls have not been provided. When a user clicks on a particular cell of the loaded timetable, the systems set the focus accordingly to indicate the selected cell. Tooltips have been used to provide instructions to the user on how to interact with certain elements of the screen.

Test Cases

Test Case ID	Test Case Scenario	Steps	Test Data	Expected Results	Actual Results	Pass /Fail
TC-16	Verify that clicking on the “Search” button without specifying the identifier, generates a warning	1.Navigate to the “View Timetable” page 2.Select the timetable type without specifying the identifier 3.Click the “Search” button	Selected as “Search by Lecturer” and the lecturer ID is not specified.	A warning message box should be indicated saying “Please enter a timetable id to the search field: Lecturer ID/ Batch ID/ Hall ID”	A warning message box should be indicated saying “Please enter a timetable id to the search field: Lecturer ID/ Batch ID/ Hall ID”	Pass
TC-17	Verify that clicking on the “Search” button having specified both type and identifier loads the timetable to the empty table.	1.Navigate to the “View Timetable” page 2.Select the timetable type and specify the identifier 3.Click the “Search” button	Selected as “Search by Lecturer” and the lecturer ID is specified as “L1”	Timetable contents should be loaded to the empty table and should be visible.	Timetable contents should be loaded to the empty table and should be visible.	Pass

TC-18	Verify that the focus is set to a selected cell on the timetable.	<p>1. Navigate to the “View Timetable” page</p> <p>2. Select the timetable type and specify the identifier</p> <p>3. Click the “Search” button</p> <p>4. Once the timetable is loaded, select a cell.</p>	Selected as “Search by Lecturer” and the lecturer ID is specified as “L1”	The selected cell should be highlighted with light blue color.	The selected cell should be highlighted with light blue color.	Pass
TC-19	Verify that scrolling moves the table content up and down.	<p>1. Navigate to the “View Timetable” page</p> <p>2. Select the timetable type and specify the identifier</p> <p>3. Click the “Search” button</p> <p>4. Once the timetable is loaded, scroll up and down.</p>	Select “Search by Lecturer”. Enter “L1” to the identifier dropdown list.	The table should scroll up and down leaving the table headers and its content intact.	The table should scroll up and down leaving the table headers and its content intact.	Pass
TC-20	Verify that typing the first letter inside the id dropdown list, skips to the first item that begins with the	<p>1. Navigate to the “View Timetable” page</p> <p>2. Select the timetable type</p> <p>3. Enter the first letter of</p>	Select “Save by Lecturer”. Enter “L10” to the identifier dropdown list.	The values of the dropdown list should skip to “L10”	The values of the dropdown list should skip to “L10”	Pass

	specified letter (Type Ahead).	the timetable id.				
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In addition to the above-mentioned test cases, the following test cases were utilized to ensure the proper positioning and sizing of the GUI elements, consistent color schemes, use of text, etc. throughout the timetable management specific UIs.

- TC-21:** Verify that all the windows contain the correct titles in bold letters.
- TC-22:** Verify that the type selection dropdown and the typeahead dropdown to specify the identifier are both aligned properly.
- TC-23:** Verify that the table size, row heights, and column widths are optimal.
- TC-24:** Verify that the table headers are in bold text and that the most suitable text size has been used.
- TC-25:** Verify that the optimal font type and size have been occupied to illustrate the table contents.
- TC-26:** Verify that the content of each cell is rendered in multiple lines.
- TC-27:** Verify that the cell editor allows the cursor to move down a particular cell when pressed “Enter”.
- TC-28:** Verify that the size and the color scheme of buttons are optimal and is intuitive throughout the interface and whether the positioning and alignments are in order.
- TC-29:** Verify that the color combination is inherent all through the interfaces.
- TC-30:** Verify that the correct icon and label has been used to design the buttons of the navigation panel.
- TC-31:** Verify that all the navigations provided at the navigation panel are functioning and are directing to the corresponding windows accurately.
- TC-32:** Verify that the current window is indicated at the navigation panel by having the corresponding button highlighted.

10.3. M.R.R.L. Bandara - (20249508)

10.3.1. Generate Reports



Implementation discussion

The implementation of generate reports interface consists of many sub parts. Firstly, the background and the sidebar is implemented to retain the consistency of the application. An ID selection area has been implemented using a dropdown box which will include the areas that a report can be generated for, an editable text box which gets the ID inserted by the user, a '?' marked clickable icon which takes the user to the list of IDs corresponding to the name of Lecturer, Lecture hall and Batch and a clickable select button to select the ID entered on the text box. Here when an ID is entered in an invalid format an error will be prompted to the user.

To double check the ID selected, a text label area has been implemented for further confirmation before generating reports. A highlighted clickable button to generate reports has been implemented to indicate it as critical task. When the button is click and if the ID is not in the system, an error will be shown when there is no entry in the database regarding the entered ID. A text area has been implemented to preview the report after querying from the database. Two clickable buttons, Save, and Print have been implemented in order to either save the report to the local drive or print the report directly as a hard copy.

User Involvement

Users who are coming to generate reports part of the system are expected to go in a specific path. When users land on the Generate reports interface, it is expected that the users first select the category of the entity for a report to be generated, thereafter, enter the ID on the textbox. If the user has forgotten the ID, the Find List is to be used by clicking the question mark. Then it is expected that the user clicks the ‘Select’ button which will ready the system to generate a report for the specific entity. Then after inspecting the confirmation text “Generating reports For:...”, user clicks the ‘Generate’ button to generate the ID specific report and preview it on the textbox. Finally, it is expected that the user clicks either ‘Save’ or ‘Print’ buttons or the both consecutively to save the report to local drive or to take a print directly.

Test Case

Test Case ID	Test Case Scenario	Steps	Test Data	Expected Results	Actual Results	Pass/Fail
TC-01	Generate a report with a valid ID	1.Navigate to Report Generation page 2.Select Lecturer 3.Enter ID 4.Press select and then generate	Lecturer ID= L0001	Alert “Preview Report”	Alert “Preview Report”	Pass
TC-02	Generate a report with a valid ID	1.Navigate to Report Generation page 2.Select Lecturer 3.Enter ID 4.Press select and then generate	Lecturer ID= L0002	Alert “Preview Report”	Alert “Preview Report”	Pass
TC-03	Generate a report	1.Navigate to Report	Lecturer ID=	Alert “Preview”	Alert “Preview”	Pass

	with a valid ID	Generation page 2.Select Lecturer 3.Enter ID 4.Press select and then generate	L0003	Report"	Report"	
TC-04	Save Report	1.Generate Report 2.Click Save	Report data for L0001	Saved as PDF	Saved as PDF	Pass
TC-05	Save Report	1.Generate Report 2.Click Save	Report data for L0002	Saved as PDF	Saved as PDF	Pass
TC-06	Print Report	1.Generate Report 2.Click Print	Report data for L0001	Print options opened	Print options opened	Pass
TC-06	Print Report	1.Generate Report 2.Click Print	Report data for L0002	Print options opened	Print options opened	Pass

10.3.2. Find ID List



Implementation Discussion

The implementation of ID list interface is made simple for high efficiency. This includes a dropdown box with category to select (Lecturer, Lecture Hall or Batch). A table to display all the ids available in the system according to the category. The background has been made similar to the other interfaces to retain the consistency of the program.

User involvement

A user who opens the Find ID interface is expected to click on the dropdown menu and select the category of ID. Thereafter it is expected that the user copies the required ID and keeps it in the clipboard to use in another interface.

Test Cases

Test Case ID	Test Case Scenario	Steps	Test Data	Expected Results	Actual Results	Pass/Fail
TC-01	List all the Lecturers	1.Select Lecturer ID list in the dropdown	Dropdown selected data	List all Lecturer IDs	Listed All lecturer IDs	Pass
TC-02	List all the Lecture Halls	1.Select Lecture Hall ID list in the dropdown	Dropdown selected data	List all Lecture Hall IDs	Listed All lecture Hall IDs	Pass
TC-03	List all the Batch IDs	1.Select Batch ID list in the dropdown	Dropdown selected data	List all Batch IDs	Listed All the Batches IDs	Pass

10.4. S.S.A. Rajapaksha - (20222907)

10.4.1. Sign Up

COLLEGE TIME TABLE

Full Name: Bradd Thompson

E-Mail: ThompsonB@gmail.com

Enter the E-mail

Password: *****

Re-Password: *****

SIGN UP

Implementation Discussion

The Administrator and the lecturer are the main two type of actors who used this application. Before utilizing the application, everyone must register to the system through signup interface. When signing up there are four data fields to fill for each user. The full name, email address, password and re-password are the data field that displayed in the signup interface. For any sort of actor when signing up, the system will validate all data fields and the user answers, hence the system displays some message alerts according to the data validation like as "Name field is empty", "Password do not match" etc. One Email address is valid for only one user account, so cannot use the same Email address more than one user account. If somebody entering the incorrect user details according to the system, it will validate user data and display an error message, thus the user cannot go forward. Therefore, the user will not be able to make mistakes. All these system validations inserted to the system backend as properly. After all these steps done correctly, the system will be displaying the message "Account created successfully" to the user. Then the user gets access to the sign in interface.

User Involvement

Sign up is the initial interface that the new user is interacting. In the current interface, the user must full-fill the four data fields underneath system validation. After filling all data fields, the user must click the "Sign Up" button. If all the entries are correctly filled user can go forward otherwise the system will generate alert messages for incorrect data types. Thus, the user must re-correct all the errors if the user wants to move to the next interface. When signing up function done the system displays the message "Account create successfully". Hand cursor icon displays for before clicking on the "Signup" button of the interface, thus it will get users direct attention before signing up to the system. "Enter the Full Name", "Enter the E-mail", "Enter the Password" and "Confirm the password" are the tooltips that shown by the system, thus it makes the user more comfortable with the interface.

Test Cases

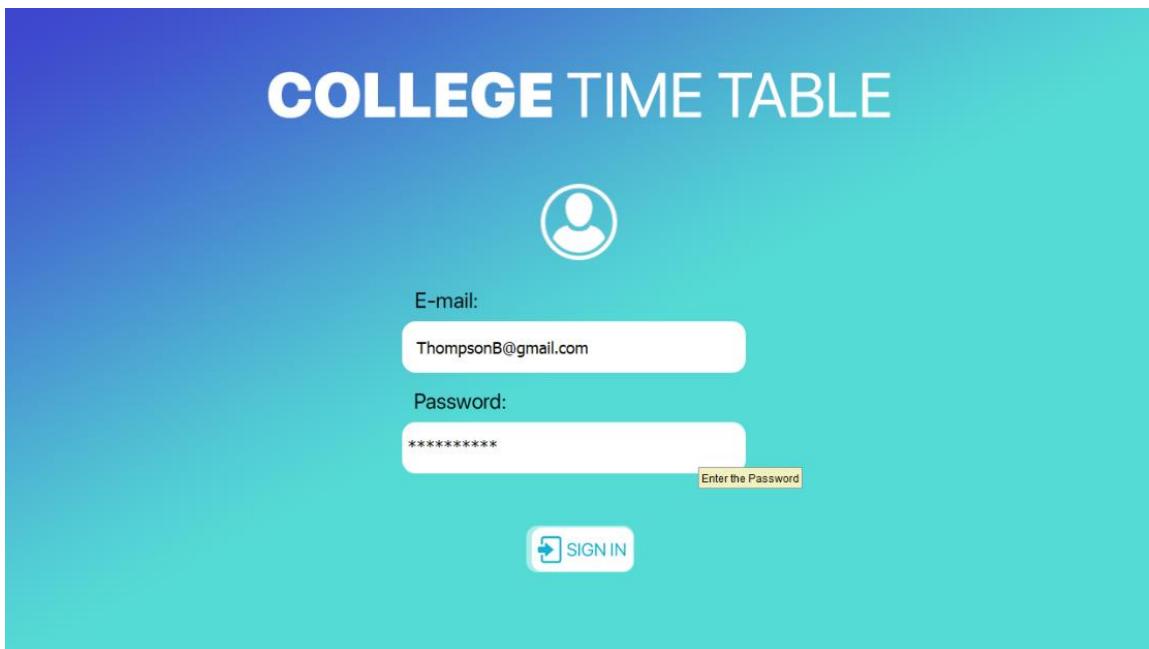
Test Case ID	Test Scenario	Test Steps	Test Data	Expected Results	Actual Results	Pass /Fail
TC01	Create an account with valid lecturer data.	1. Navigate to Sign up 2. Fill the Full name	1. Full name = "Anthony Ellis" 2. Email = AnthonyEll92@gmail.com	Display some successful message.	Message Alert" Account Create Successfully"	Pass

		3. Fill the Email 4. Fill the password 5. Fill the Re-password 6. Click "Sign up"	3. Password=***** 4. Re-password =*****			
TC02	Create an account with valid Admin data.	1. Navigate to Sign up 2. Fill the Full name 3. Fill the Email 4. Fill the password 5. Fill the Re-password 6. Click "Sign up"	1. Full name = "Kevin McTavish" 2. Email = Admin@ctt.com 3. Password=***** 4. Re-password =*****	Display some successful message.	Message Alert" Account Create Successfully"	Pass
TC03	Create an account with different password s.	1. Navigate to Sign up 2. Fill the Full name 3. Fill the Email 4. Fill the password 5. Fill the Re-password 6. Click "Sign up"	1. Full name = "Kevin McTavish" 2. Email = valid@abc.com 3. Password=Ctt@123 4. Re-password = 123@Ctt	Display some error message about password.	Message Alert "Password do not match"	Pass
TC04	Create an account with invalid Email.	1. Navigate to Sign up 2. Fill the Full name 3. Fill the Email 4. Fill the password	1. Full name = "Tom Bandit" 2. Email = invalid@abc Password=***** 4. Re-password =*****	Display some error message about Email.	Message Alert "Email is not valid"	Pass

		5. Fill the Re-password 6. Click "Sign up"				
TC05	Click "sign up" button without complete Full Name field.	1. Navigate to Sign up 2. Leave the empty field 3. Fill the Email 4. Fill the password 5. Fill the Re-password 6. Click "Sign up"	1. Full name = 2. Email = AnthonyEll92@gmail.com 3. Password=***** 4. Re-password =*****	Display some error message about Full name.	Message Alert "Name field is empty!"	Pass
TC06	Click "sign up" button without complete Email field.	1. Navigate to Sign up 2. Fill the Full name 3. Leave the empty field 4. Fill the password 5. Fill the Re-password 6. Click "Sign up"	1. Full name = "Eric Boldwin" 2. Email = 3. Password=***** 4. Re-password =*****	Display some error message about Email.	Message Alert "Email field is empty!"	Pass
TC07	Click "sign up" button without complete Password Field.	1. Navigate to Sign up 2. Fill the Full name 3. Fill the Email 4. Leave the empty field 5. Fill the Re-password 6. Click "Sign up"	1. Full name = "Bren Sims" 2. Email = BrenS90@mail.com 3. Password=***** 4. Re-password =*****	Display some error message about Password.	Message Alert "Password field is empty!"	Pass
TC08	Click "sign up" button without	1. Navigate to Sign up	1. Full name = "Charles Martin"	Display some error message	Message Alert "Re-Password field is empty!"	Pass

	complete Re-Password Field.	2. Fill the Full name 3. Fill the Email 4. Fill the password 5. Leave the empty field 6. Click "Sign up"	2. Email = MartinC@gmail.com 3. Password=***** 4. Re-password =	about Re-Password.		
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10.4.2. Sign In



Implementation Discussion

Before users entering the home page the basic validation is done by the sign in interface. The user's email address and password are the main two data fields shown by this interface. For any sort of actor when signing in, the system will validate all data fields and the user answers. If there any issue with email or password system will generate the alert message "Email or password is incorrect". Therefore, the user will not be able to make

mistakes. After sign in function, the system provides a home page that belongs to the user and the admin.

User Involvement

Current users and newly signed-up users are using the sign in interface to be entered to the system. In this interface, the user must full-fill the two data fields underneath system validation. Same as the previous interface, if the user correctly fills the data fields then the user can go forward. Otherwise, the user must reenter the registered data correctly. Hand cursor icon displays for before clicking on the "Sign In" button of the interface, thus it will get users direct attention before signing up to the system. "Enter the E-mail" and "Enter the Password" are the couple of tooltips that shown by the Sign In interface and it makes the user interact more comfortable with the interface.

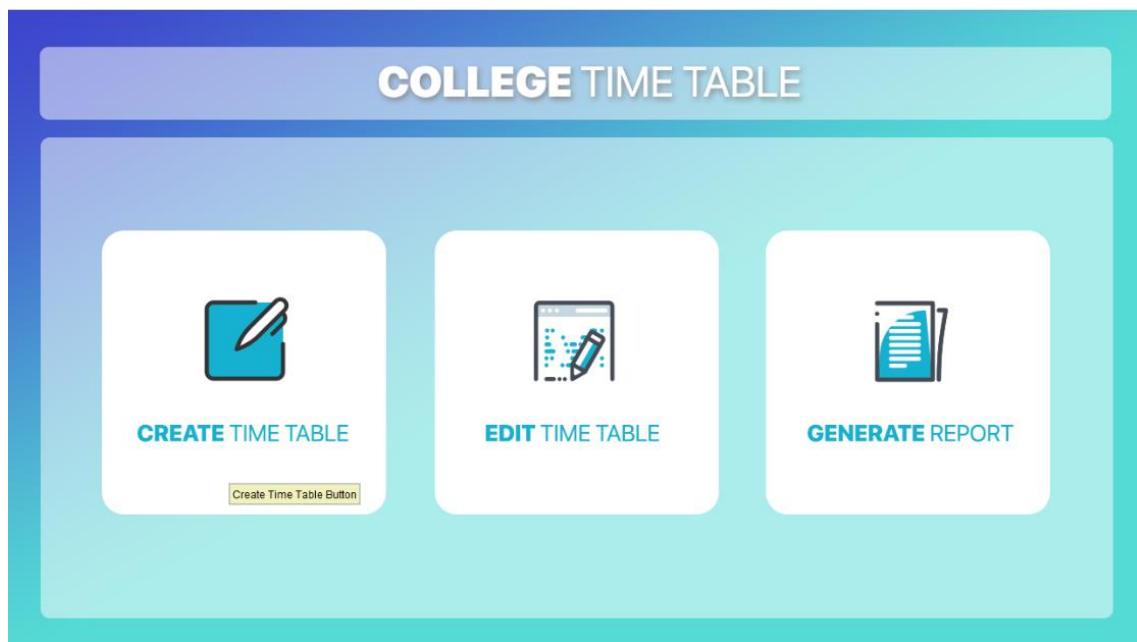
Test Cases

Test Case ID	Test Scenario	Test Steps	Test Data	Expected Results	Actual Results	Pass /Fail
TC09	Sign In with valid lecturer data.	1. Navigate to Sign In 2. Fill the Email 3. Fill the password 4. Click "Sign In"	1. Email = AnthonyEll92@gmail.com 2. Password=*****	Navigate to the Home Page.	Navigate to the Home Page.	Pass
TC10	Sign In with valid Admin data.	1. Navigate to Sign In 2. Fill the Email 3. Fill the password 4. Click "Sign In"	1. Email = Admin@ctt.com 2. Password=*****	Navigate to the Admin Home Page.	Navigate to the Admin Home Page.	Pass
TC11	Enter invalid Email & any password	1. Navigate to Sign In 2. Fill the Email	1. Email = invalid@abc.	Display some error message.	Display alert message "The Email	Pass

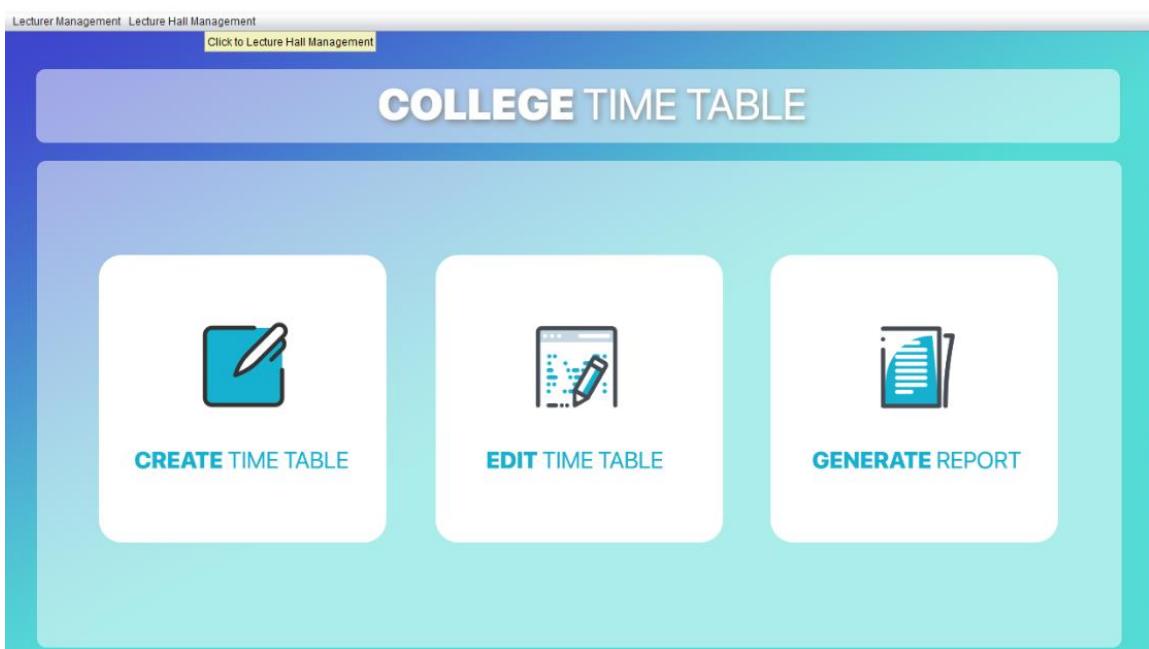
	and click sign in button.	3. Fill the password 4. Click “Sign In”	2. Password=*****		or password is incorrect”.	
TC12	Enter valid Email & invalid password and click sign in button.	1. Navigate to Sign In 2. Fill the Email 3. Fill the password 4. Click “Sign In”	1. Email = valid01@abc.com 2. Password=*****	Display some error message.	Display alert message “The Email or password is incorrect”.	Pass

10.4.3. Home Page & Admin Home Page

i. Home Page



II. Admin Home Page



Implementation Discussion

The system provides the separate home pages for administrators and lecturers. Create timetable, edit timetable and generate report are the main three functionalities provided by the home page. These three functionalities are related to both administrators and lecturers. But lecturer management and lecture hall management only be visible to the administrators, so that after the system validate the administrator's email and password on the sign in interface they are directly navigated to the Admin home page.

User Involvement

Home Page and Admin home page interfaces are also the same but main differences among them are two functionalities only can handle by the administrators.

Home Page: The home page is designed by implementing an eye-catching background color and using attractive icon buttons. Thus, the user can involve with this interface and do their work easily. Hand cursor icon displays for before clicking on the "Create timetable", "Edit Timetable" and "Generate Report" buttons of the Home Page, thus it will get users direct attention before clicking these buttons. "Create timetable button", "Edit Timetable button" and "Generate Report button" are the tooltips that are shown by the interface.

Admin Home Page: The admin home page interface design is the same as a home page interface but there is a menu bar to implement a couple of specific things to the administrator. Hand cursor icon displays for before clicking on the "Click to Lecturer Management", "Click to Lecture Hall Management", "Create time table", "Edit Time Table" and "Generate Report" buttons and menu bar of the Admin Home Page, thus it will get

users direct attention before clicking these buttons. "Click to Lecturer Management", "Click to Lecture Hall Management", "Create timetable button", "Edit Timetable button" and "Generate Report button" are the tooltips that are shown by the Admin Home Page.

Test Cases

I. Home Page

Test Case ID	Test Scenario	Test Steps	Test Data	Expected Results	Actual Results	Pass/Fail
TC12	Sign in with valid lecturer data and click each button to enter to the related pages.	1. Click the "CREATE TIME TABLE". 2. Click the "EDIT TIME TABLE". 3. Click the "GENERATE REPORT"	1. Email = AnthonyEII92@gmail.com 2. Password= ***** Sign in with this email and password, then entered to the Home Page.	1. Navigate to the Create Time Table page. 2. Navigate to the Edit Time Table page. 3. Navigate to the Generate Report page.	1. Navigate to the Create Time Table page. 2. Navigate to the Edit Time Table page. 3. Navigate to the Generate Report page.	Pass

II. Admin Home Page

Test Case ID	Test Scenario	Test Steps	Test Data	Expected Results	Actual Results	Pass/Fail
TC14	Sign in with valid administrator data and click each button to enter to the related pages.	1. Click the "CREATE TIME TABLE". 2. Click the "EDIT TIME TABLE". 3. Click the "GENERATE REPORT"	1. Email = Admin@ctt.com 2. Password= ***** Sign in with this email and password, then entered	1. Navigate to the Create Time Table page. 2. Navigate to the Edit Time Table page.	1. Navigate to the Create Time Table page. 2. Navigate to the Edit Time Table page.	Pass

		<p>4. Click the “Lecturer Management”</p> <p>5. Click the “Lecture Hall Management”</p>	<p>to the Admin Home Page.</p>	<p>3. Navigate to the Generate Report page.</p> <p>4. Navigate to the Lecturer Management</p> <p>5. Navigate to the Lecture Hall Management.</p>	<p>3. Navigate to the Generate Report page.</p> <p>4. Navigate to the Lecturer Management</p> <p>5. Navigate to the Lecture Hall Management.</p>	
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Common test cases:

TC15: Regular font type

TC16: Consistent font size

TC17: Consistent colors for all interfaces

TC18: Consistent types of icons

TC19: Validations

TC20: Text field size and positioning

TC21: Password field size and positioning

TC22: Button size, positioning and colors

TC23: Error message positioning and format consistent

10.5. T.T Jayawardena - (20204617)

10.5.1. Add lecturer

The screenshot shows the 'LECTURER MANAGEMENT' application interface. On the left, a vertical sidebar menu includes 'HOME', 'ADD LECTURER' (selected), 'SEARCH LECTURER', 'EDIT LECTURER', and 'LOGOUT'. The main content area is titled 'LECTURER MANAGEMENT' and is divided into two sections: 'PERSONAL INFORMATION' and 'GENERAL INFORMATION'. In the 'PERSONAL INFORMATION' section, fields include 'Lecturer ID' (L11), 'First name' (Hugo), 'Last name' (Boss), and 'Gender' (Male selected). In the 'GENERAL INFORMATION' section, fields include 'Contact number' (0714523689), 'Email' (hboss@yahoo.com), and 'Position' (Dean). At the bottom right are 'SAVE' and 'CLEAR' buttons.

Implementation Discussion

In the add lecturer user interface, we have deployed two clickable buttons named "Save" and "Clear." The save button implemented grants the functionality for the user to save details of a lecturer while the clear button clears all the data in all the text fields. Validations have been implemented, such as empty field validation such that when a user leaves a field empty and attempts to click save, an error message will be exhibited. Moreover, validations are provided for the lecturer ID field where an error message will be prompted if the entered lecturer ID is not in the correct format or if the entered lecturer ID already exists as the lecturer ID is a unique attribute. After a successful saving of the entered lecturer details, a success message will be presented to the user. In contrast, in a failure in saving details, an error message with the appropriate error will be shown to the user.

Furthermore, the length of the number is limited to 10 digits. If the number is less than ten or more than ten numbers, an error message will be displayed so that users will not accidentally save a phone number with an incorrect format. Email format has also been validated so that entering an out of format emails will trigger an error message which will pop up if the user tends to save the data with an incorrect email format. Radio buttons are validated as to such that both the options cannot be selected, only letting the user choose one option so that incorrect results being entered is reduced.

User Involvement

When a user enters the add lecturer page a user has several ways to interact with the system. A user can interact with the system through clicking buttons, filling up text boxes, dropdown buttons, radio buttons and popups. Once entered to the add lecturer interface a user can interact with it by loading the relevant text fields with the required data. Then the user can interact with the radio buttons to feed the data required by the radio buttons option. Also, the user can interact with the dropdown button to select the associated answer for the field required. Moreover, the user is left with buttons to interact with the system, where interacting with the save button can trigger the save function to save the details of the lecturer which will then prompt a message box with either a success or error message which the user can interact to dismiss the message. Also, the user can interact with the clear button to clear out all the data which are filled in the text fields. Besides, the user has the ability to interact with the navigation panel to move around in the software, which will prompt the relevant page which the user tends to navigate through the clickable navigation panel icons and labels. Tooltips have been used as navigational help for user as hovering over a text fields, buttons, icons and all UI components displays the tooltip on how to work with the relevant component.

Test Cases

1. TC01: Radio buttons size and positioning

Test Case ID	Test Case scenario	Steps	Test Data	Expected Results	Actual Results	Pass/Fail
TC02	Add lecturer with valid data	1. Navigate to Add Lecturer page 2. Fill the details as required 3. Click save	Lecturer ID = L11 First name = John Last name = Napolean Gender = Male Contact number = 0771234567 Email = jnap@hotmail.com Position = Lecturer	Alert "Successfully saved"	Alert "Successfully saved"	Pass
TC03	Add lecturer with invalid data	1. Navigate to Add Lecturer page 2. Fill the details as required 3. Click save	Lecturer ID = 11 First name = John Last name = Napolean Gender = Male Contact number = 0771234567 Email = jnap@hotmail.com	Alert "Please use format L1"	Alert "Please use format L1"	Pass

			Position = Lecturer			
TC04	Navigate to another page	1. Navigate to Add Lecturer page 2. Click Home button	Click home button	Prompt home page	Prompt home page	Pass

10.5.2. Edit lecturer

The screenshot displays the 'LECTURER MANAGEMENT' application interface. On the left, a vertical sidebar menu includes icons for HOME, ADD LECTURER, SEARCH LECTURER, EDIT LECTURER, and LOGOUT. The main content area is titled 'LECTURER MANAGEMENT'. It features a search bar with 'Lecturer ID: L1' and a 'SEARCH' button. Below the search bar, there are two columns of input fields: 'First name: John' and 'Contact number: 0771234567'; 'Last name: Smith' and 'Email: jsmith@gmail.com'; 'Gender: Male' (radio button selected) and 'Female' (radio button); and 'Position: Lecturer' (dropdown menu). At the bottom right of the main area are 'UPDATE' and 'DELETE' buttons, with a note 'Click to update the details of the lecturer' positioned between them. The footer of the page shows the navigation path: Home > Lecturer management > Edit Lecturer.

Implementation Discussion

The edit lecturer page is implemented with three buttons labelled search, update and delete. The search button utilises the functionality to search a lecturer from the entered lecturer ID while the update button implements the functionality to update the changed details of the lecturer and delete button acts to delete a selected user. Validations have been implemented, such as empty field validation such that when a user leaves a field empty and attempts to click search/update, an error message will be exhibited. Moreover, validations are provided for the lecturer ID field where an error message will be prompted if the entered lecturer ID is not in the correct format or if the entered lecturer ID does not exist. Furthermore, the length of the number is limited to 10 digits. If the number is less than ten or more than ten numbers, an error message will be displayed so that users will

not accidentally save a phone number with an incorrect format. Email format has also been validated so that entering an out of format emails will trigger an error message which will pop up if the user tends to save the data with an incorrect email format. Radio buttons are validated as to such that both the options cannot be selected, only letting the user choose one option so that incorrect results being entered is reduced. After a successful updating of the updated lecturer details, a success message will be presented to the user. In contrast, in a failure in updating details, an error message with the appropriate error will be shown to the user. A similar mechanism is followed for the delete button which will prompt a success message if the user is successfully deleted else an error message will be prompted.

User Involvement

After a user enters the edit lecturer page, it implements different mechanisms for the user to interact. Interaction can be done with the system through clicking buttons, filling up text boxes, dropdown buttons, radio buttons and popups. A user can interact with it by typing the required lecture ID of the user which he/she wants to update/delete. Then the user can interact with the radio buttons to feed the data required by the radio buttons option. Also, the user can interact with the dropdown button to select the associated answer for the field required or can interact with the relevant text fields to be updated. Moreover, the user is left with buttons to interact with the system, where interacting with the update button can trigger the update function which updates the existing details of the lecturer and will then prompt a message box with either a success or error message which the user can interact to dismiss the message. Also, the user can interact with the delete button to delete the user which he/she has searched. Besides, the user can interact with the navigation panel to move around in the software, which will prompt the relevant page which the user tends to navigate through the clickable navigation panel icons and labels. Tooltips have been used as navigational help for user as hovering over a text fields, buttons, icons and all UI components displays the tooltip on how to work with the relevant component.

Test Cases

1. TC05: Radio buttons size and positioning

Test Case ID	Test Case scenario	Steps	Test Data	Expected Results	Actual Results	Pass/Fail
TC06	Search a lecturer with existing lecturer ID to update/delete	1. Navigate to Add Lecturer page	Lecturer ID = L11	Fields filled with relevant data	Fields filled with relevant data	Pass

		2. Navigate to Edit lecturer page 3. Enter lecturer ID 4. Click search				
TC07	Search a lecturer with a non-existing lecturer ID to update/delete	1. Navigate to Add Lecturer page 2. Navigate to Edit lecturer page 3. Enter lecturer ID 4. Click search	Lecturer ID = L111	Alert "No record found. Please re-check the lecturer ID"	Alert "No record found. Please re-check the lecturer ID"	Pass
TC08	Update lecturer with valid data	1. Navigate to Add Lecturer page 2. Navigate to Edit lecturer page 3. Enter lecturer ID 4. Update required data 5. Click update	Lecturer ID = L1 First name = John Last name = Napolean Gender = Male Contact number = 0771234567 Email = jnap@hotmail.com Position = Senior Lecturer	Alert "Updated successfully"	Alert "Updated successfully"	Pass
TC09	Update lecturer with invalid data	1. Navigate to Add Lecturer page 2. Navigate to Edit lecturer page 3. Enter lecturer ID 4. Update required data 5. Click update	Lecturer ID = L1 First name = John Last name = Napolean Gender = Male Contact number = 0771234567 Email = jnaphotmail.com Position = Senior Lecturer	Alert "Please enter a valid email"	Alert "Please enter a valid email"	Pass
TC10				Alert	Alert	Pass

	Delete lecturer with valid data	1. Navigate to Add Lecturer page 2. Navigate to Edit lecturer page 3. Enter lecturer ID 4. Click delete	Lecturer ID = L1	“Successfully deleted”	“Successfully deleted”	
TC11	Navigate to another page	1. Navigate to Add Lecturer page 2. Click Logout button	Click Logout button	Logout and prompt login page	Logout and prompt login page	Pass

10.5.3. Search lecturer

LECTURER MANAGEMENT

LECTURERID	FNAME	LNAME	GENDER	CONTACTNUM	EMAIL	POSITION
L1	John	Smith	Male	0771234567	jsmith@gmail.com	Lecturer
L2	Harris	Jackle	Male	0711234567	harrisj@yahoo.com	Assistant Lecturer
L3	Gwen	Tennison	Female	0775234567	gten@hotmail.com	Senior Lecturer
L4	Frank	Jonson	Male	0717834567	frankjon@gmail.com	Senior Lecturer
L5	Jakie	Bolt	Female	0775634567	jbolt@gmail.com	Dean
L6	David	Finis	Male	0717374567	davfin@gmail.com	Assistant Lecturer
L7	Amenda	Francis	Female	0714234567	amend@yahoo.com	Lecturer
L8	Micheal	Block	Male	0765234567	miblock@gmail.com	Senior Lecturer
L9	Windie	Clara	Female	0741534567	windie123@gmail.com	Dean
L10	Shaun	Mendis	Male	0784634567	shMen12@gmail.com	Lecturer

Implementation Discussion

The search lecturer page is employed with one button named search. The search button utilises the functionality to search a lecturer from the entered lecturer name and visualise it in the table. If no search results are found, the table will show no value. Validations have been implemented, such as empty field validation such that when a user leaves a field empty and attempts to click search, an error message will be exhibited. Moreover, after a

successful searching or filtering of the lecturer, details will be prompted in the table as results for the relevant search. Furthermore, validation has been utilised to the dropdowns so that filtering from only one of the two is possible at a time.

User Involvement

After entering the edit lecturer page, it implements different mechanisms for the user to interact. Interaction can be done with the system through clicking buttons, dropdown buttons and tables. A user can interact with it by typing the required lecture name of the user which he/she wants to search. Then the user can interact with the dropdown boxes to filter the results which will filter out the results shown in the table according to the filtered category. Moreover, the user is left with interaction in the table where a user can scroll through the list of lecturer details publicised in the table. Besides, the user can interact with the navigation panel to move around in the software, which will prompt the relevant page which the user tends to navigate through the clickable navigation panel icons and labels. Tooltips have been used as navigational help for user as hovering over a text fields, buttons, icons and all UI components displays the tooltip on how to work with the relevant component.

Test Cases

1. TC12 : Table size, row heights, column widths and positioning

Test Case ID	Test Case scenario	Steps	Test Data	Expected Results	Actual Results	Pass/Fail
TC13	Search a lecturer with existing lecturer first name	1. Navigate to Add Lecturer page 2. Navigate to search lecturer page 3. Enter lecturer name 4. Click search	Lecturer name = John	Filters table result showing data of John	Filters table result showing data of John	Pass
TC14	Search a lecturer with non-existing lecturer first name	1. Navigate to Add Lecturer page 2. Navigate to search lecturer page 3. Enter lecturer name	Lecturer ID = Mike	Filters table result showing no data	Filters table result showing no data	Pass

		4. Click search				
TC15	Filter results by gender	1. Navigate to Add Lecturer page 2. Navigate to search lecturer page 3. Select relevant gender from dropdown	Lecturer ID = Male	Filters table result showing results of all male lecturers	Filters table result showing results of all male lecturers	Pass
TC16	Filter results by position	1. Navigate to Add Lecturer page 2. Navigate to search lecturer page 3. Select relevant position from dropdown	Lecturer ID = Senior Lecturer	Filters table result showing results of all senior lecturers	Filters table result showing results of all senior lecturers	Pass
TC17	Navigate to another page	1. Navigate to Add Lecturer page 2. Click Add lecturer button	Click Add lecturer button	Prompt Add lecturer page	Prompt Add lecturer page	Pass

Common test cases:

1. TC18 : Consistent font type
2. TC19 : Consistent font size
3. TC20 : Consistent colours for all interfaces
4. TC21 : Consistent types of icons
5. TC22 : Dialog boxes are consistent for all the UIs
6. TC23: Delete confirmation
7. TC24 : Validations
8. TC25 : Text field size and positioning
9. TC26: Dropdown box size and positioning
10. TC27 : Button size, positioning and colors
11. TC28 : Error message positioning and format consistent

11. Evaluation

Finishing some meeting with the supervisor and we made some team discussion several times before starting the project. During building this project our attention focused on the audience who will be using this application. First, we make a list of the audience and plan the project functionalities based on their requirements. Then drew some sketches for user interfaces and did some changes and starting to design the project. Thus, we discuss user inputs, outputs and process the system will generate. When discussing the functions, collect every team member idea and talk about the possibilities of each idea. It generates more ideas about the relevant function thus it was very helpful to cover all the functions as well. Doing task like this it exposes our mistakes of the function, what components are should be updated, what items that should be deleted etc. As a team, implementing this method for the whole project we achieved better project finalization. Before implementing new components to the project first thing we are considering about the purpose of this application. Sometimes the newly implemented components maybe can carry the project purpose for another direction, so it was not good.

Done with the frontend part, then we discussed how to implements backend successfully. When developing the backend, first we did some research about how the build our backends successfully. After through start to collect necessary coding parts, executable jar files and other kinds of stuff. Then began the coding segment with full of confidence. According to an earlier created milestone, we started the development part and on time we can finish our coding as we planned. As a team, we agreed to build our interfaces for some unique methods. These methods give some consistency to our design. All the team member gave their higher contribution to the success of this project on time. The NetBeans platform with inbuild Derby database applied to build the project. Two days before the deadline we finished all our works and rechecked what should be updated. Working as a real group is the most powerful fact that carried us to our achievement.

a. Meetings

The day before the meeting, the team leader informs all the members at what time the meeting will be started and what are topics that be discussed. So, everyone finds some data related to the topic and all these facts are discussed properly. Every week we make more than two team meetings and discuss our progress and planning the next steps.

We held out first team meeting to choose what application that we are going to do. In there several ideas came out, thus making a discussion for every idea and finally selected one application that we designed. After that, the second meeting called for analysis the client requirements. Regarding this section we have held a client meeting and get all the client requirements and suggestions, thus divide each requirement into several topics and analyze each component neatly. Next meeting, we had to plan because we want to gather the data that needed for the application. Before this meeting, every member collects some fact according to this section. It makes helpful during the meeting and we analyze each thing and collect what we exactly need. A project proposal is the next immense responsible job during the project period. Before designing the project proposal, we make some decisions about the project, thus we must get together much time to do this job perfectly. The project development section is the major part and before began this we have to give attention to many things like as what should we prepare, how we implementing components of each thing, what should be

updated and what should be deleted. We spend a lot of time in the earlier mentioned part. We had through conversation with the client and identify the exact needs of the client regarding the technology stack need to develop the application. During this time period, we make another meeting with the client and show our progress to the client and do changes according to the client's feedback. During a meeting, we presented what we completed for now and discussed the functionalities completed for now. here are some functions on the project related to everyone like as connecting inbuild database. Functionalities like these we did together when we in a group meeting. The whole time of the project period all the meeting that we made gives the biggest service for us.

b. Risk Management

When designing the project all the interfaces divide between every team member. So, every member must be designed less than three or four interfaces. Finally, we had to merge every single interface and it was the riskiest part. Before merging the whole project, we get the basic knowledge about what we want and finalize it successfully.

Schedule Risk: Schedule risk is the risk that some activities will take longer than we planned. Matters like these delay the project benefits and make issues with future project plans. During other works, some parts make it difficult to provide better system acknowledgement. Thus, we must work hard to fix these difficulties.

Risk Identification: Risk identification is one of the best opportunities for a risk management plan. Underneath the risk management can identify what type of errors can occur from the system and can handle them perfectly. A risk or random event can be a negative outcome with a kind of bugs, thus we must face to them suddenly. Classifying these issues to different categories then allows the team members to manage all the risks successfully.

Risk Analyze: After identifying the risks, team members assess the risk area and find the solution to avoid the risk. After the identified the risk and assessed it, the team members must measure the probability of risk is occurring and must look at the possibility after the event will occur. Then rate each risk by the size of the damages as small, medium or high. Then start from the lowest damage part and go ahead.

Risk Mitigation: For analyzed risks, we must create a set of risk mitigation tactics. When implementing risk mitigation tactics, we must do it very carefully because doing some changes to the system may be new errors can be occurred.

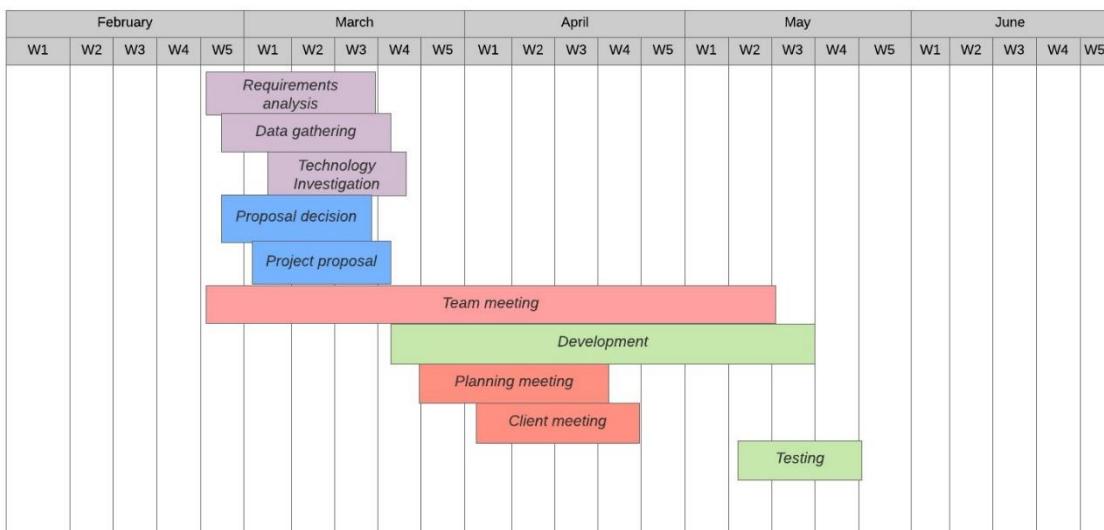
c. Milestones

Milestones are an important component in project management because it shows the current status and futures steps of your project. Using milestones, we can be monitoring the project deadlines. Thus, we can achieve our target on time with handle all bottlenecks that generate from the project.

Due date	Milestone
March 04, 2020	Requirements analysis
March 05, 2020	Data gathering
March 10, 2020	Technology Investigation
March 12, 2020	Proposal decision
March 14, 2020	Project proposal
March 20, 2020	Team meeting
April 27, 2020	Planning meeting
April 29, 2020	Client meeting
May 13, 2020	Development
May 15, 2020	Testing

- During the project period, we have conducted two team meeting per week and for the development part, we spend 10 hours per week.

Gantt Chart for Project Planning



d. Problems Encountered

1. Difficulty of understanding the functionality of the original College Timetable Application

Initially when understanding the features provided by the original College Timetable application, its convoluted design on a single user interface caused it to be more difficult to comprehend its functionality as it is for any inexperienced user. To be more specific, the untitled sections on the user interface, irrational unstructured set of buttons, ambiguous terms that are used in the content of a timetable and its confusing documentations of steps

to follow are the main reasons that causes these complications. In order to overcome this, we had no other solution but to go through the given user manual and test the application a several times.

2. Complications when communicating with the group members under the prevailing situation.

Due to the circumstances at present, it has been difficult to maintain continuous communication among the members of the group. This has been mainly due to the personal commitments since at the moment, every individual is focused on both their work and personal responsibilities at the same time. Moreover, the issues related to network happened to be a significant barrier since it is the main form of communication available to work on the projects and assignments virtually. Even through such hindrances, we managed to drive the work towards its successful completion by being in touch whenever possible.

e. Conclusion

In this project, we as the “Team Upfront” focused our utmost knowledge that we accumulated on user-centric design and usability principles through the module “Human-Computer Interaction” to fabricate a preferable alternative design for the original “College Timetable” application which is comprised of a convolutional user interface. Having understood how to distinguish good and bad designs and necessary design principles that a favorable user interface should include, we initially accomplished in determining the drawbacks of the user interface of the original application. After that, identifying the requirements and features that must be implemented, we decided on the most suitable design process to be followed and set-off with our implementations. As a result of engaging in this project, we were privileged to be provided with an opportunity to put all that we learned into practice.

12. References

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13. Appendix

Initial User Survey Responses

Survey Questionnaire is attached below

https://mysliit-my.sharepoint.com/:b/g/personal/it18065022_my_sliit_lk/EenFWctXGyFAmlyh0xAOFXcBurizfEWyU5b10qFMTNdfjA?e=paLjhY

Meeting Minutes

https://mysliit-my.sharepoint.com/:f/g/personal/it18065022_my_sliit_lk/EjtiQkha045Nlf8FBPTmtxABxwa_2BZ5SG4x3FTZ-fz1Xw?e=Ol0hxH