SECJ3104: Applications Development

Software Requirements Specification (SRS)

Timetable & Space Management System

Version 1.0

Date: 27 / 11 / 2021

School of Computing, Faculty of Engineering

Prepared by: Team Beta

Revision Page

a. Overview

This documentation outlines the requirements of our proposed system. The introduction includes the scope, definition, reference, purpose, acronyms, abbreviation and over view of the system. The specific requirements section includes External interface requirements, system features, performance requirements, design constraints, software system attributes and other requirements

b. Target Audience

Stakeholder and System analyst

c. Project Team Members

Member Name	Role
Eyad Reda Mohgoub	Leader
Syed Farqaleet Bukhari	
Fadly Maulana Nasution	

d. Version Control History

Version	Primary Author(s)	Description of Version	Date Completed
0.1	Eyad Reda Abdallah Mohgoub	Generated Outline	20/11
1.0		Compiled Document	26/11

Note:
This System Documentation (SD) template is adapted from IEEE Recommended Practice for Software Requirements Specification (SRS) (IEEE Std. 830-1998), Software Design Descriptions (SDD) (IEEE Std. 1016-1998 1), and Software Test Documentation (IEEE Std. 829-2008) that are simplified and customized to meet the need of SECJ2203 course at School of Computing, UTM. Examples of models are from Arlow and Neustadt (2002) and other sources stated accordingly.

Table of Contents

1. Introduction

1.1 Purpose

The purpose of this document is to describe Software Requirements Specification (SRS) of the proposed application for Timetable & Space Management System. This document contains a list of External Interface requirements of the system. The document also contains system features along with use case specifications. The document also contains a list of functional and non-functional requirements.

1.2 Scope

The system's main goal is to add mobile phone support to the TBMS web application. This will be possible by creating a PWA that utilises the JSON api provided to give the TBMS a fresh new look and mobile display support.

1.3 Definitions, Acronyms and Abbreviation

Definitions of all terms, acronyms and abbreviation used are to be defined here:

- TSMS: Timetable & Space Management System

1.4 References

[1] E-Learing FSKSM: http://web.fc.utm.my/

1.5 Overview

This documentation contains a detailed overview of the flow of operations in the TSMS along with other general hardware and software requirements to run the system.

2. Overall Description

2.1 Operating Environment

TBMS is a web application that runs on both desktops and mobile phones. The Data used by the web application is stored on a JSON API. The website sends a request to the server and the server returns the data to be displayed.

2.2 Design Constraints

- The user should be able to access the web application form either a desktop or a mobile phone.
- Account information is to only be accessed by adminstration members.

3. Specific Requirements

3.1 External Requirements

3.1.1 User Interfaces

When a user first opens the application, they are greeted with a login screen. The user is then prompted to enter their matric number and password to login. After the user logs in to their account, they are greeted with a screen that displays a list of all the actions that they can do.

3.1.1.1 View current year and semester

Displays a prompt with current semester along with start date and end date of semester.

3.1.1.2 View all programs offered

Displays a table of all programs offered by the university. Students and Lecturers can search for a specific program using the search bar. Beside each program are the options to “View Details” and “Edit Course”. “View Details” displays a page that shows a list of courses provided in the corresponding program. “Edit Courses” option is only visible to Lecturers and can be used to add or remove courses from the program list. A page displaying list of currently added courses along with options to add or remove courses.

3.1.1.3 View all courses

Displays a table of all courses provided of the university. Students and lecturers can use the search bar above the table to search for a specific course. Beside each course is an option to “view list of students registered”. This displays a page with a table that contains all students that have registered to the course.

3.1.1.4 View list of students

Displays a table containing a list of all students enrolled in the university along with their details. Users can use the search bar on top to search for a specific student.

3.1.1.5 View list of lecturers

Displays a table containing a list of all lecturers enrolled in the university along with their details. Users can use the search bar on top to search for a specific lecturer.

3.1.1.6 View Timetable

Displays a table of the current weekly timetable for the respective lecturer/student. Lecturers will have the option to add remove classes from each timeslot in the timetable.

3.1.2 Hardware Interfaces

Since our proposed system is an upgrade to current system with the addittion of mobile support. Our system is expected to run on the current available servers with no problems.

As for the end-user, the requirements to run the mobile web page are simply: a mobile phone with a working internet connection. As for Desktop access, please refer to the minimum required specs for the web browser that you wish to you use.

3.1.3 Software Interfaces

Regarding accessing the system using the desktop application. The user must first have a web browser installed beforehand. The recommended browser is Google Chrome.

- Name: Google Chrome
- Version: 90.0.4430.93.
- Source: https://www.google.com/chrome/

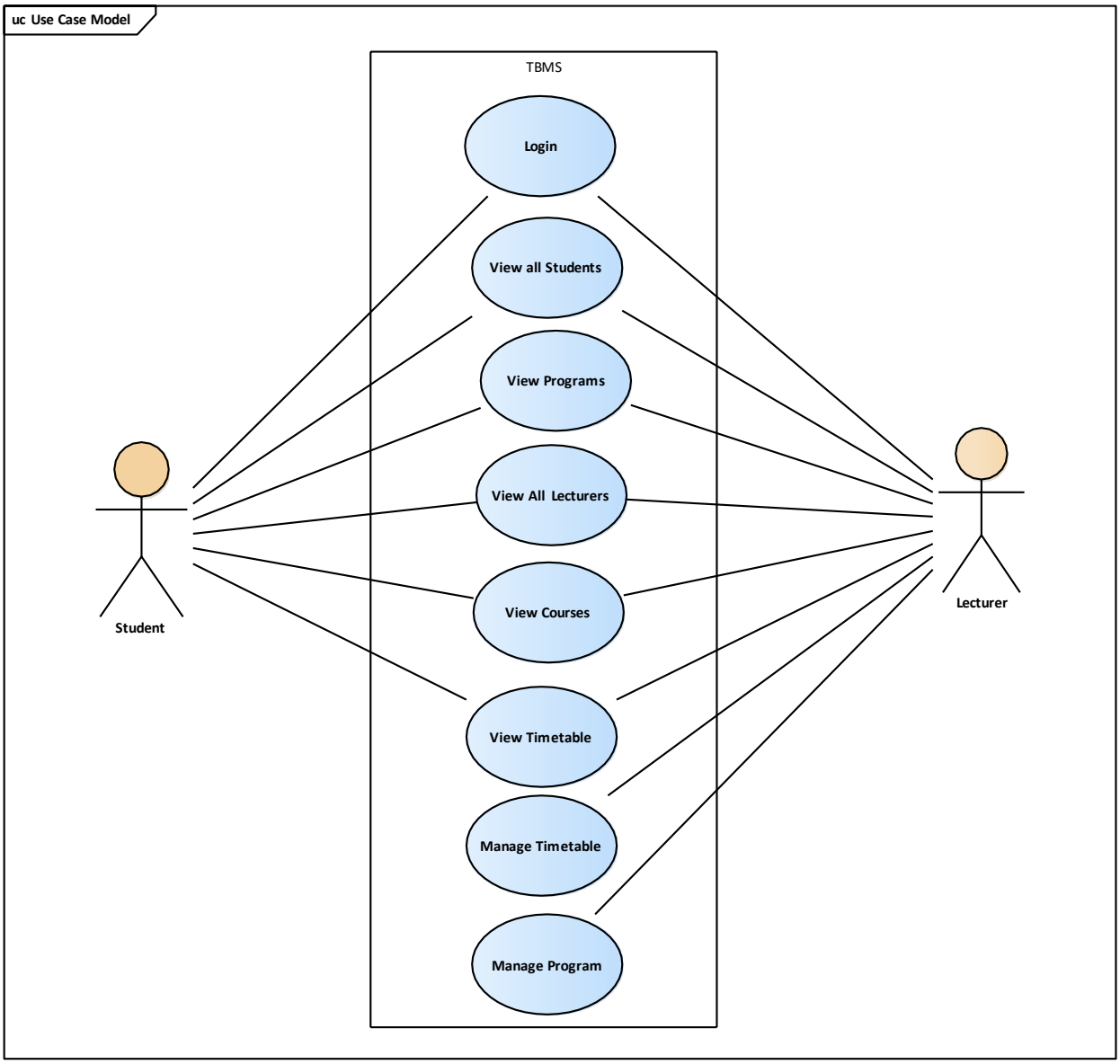
As for accessing the system through mobile phones. The user can use the web browsers that have been preinstalled with the phone.

3.1.4 Communication Interfaces

Since our application is a web-based application, it is going to communicate with the server to retrieve web pages using the internet protocols: Hypertext Transfer Protocol (HTTP), Transmission Control Protocol (TCP), and User Datagram Protocol (UDP).

3.2 System Features

The TBMS offers its users the ability to carry out multiple actions that can help them. The main actors of the TBMS are Students and Lecturers. The use-case model below shows the available actions as well as what actor can carry out which actions. For each use -case there will be a use-case specification to describe the use case in details.



3.2.1 UC001: Login

Use Case name	Login
Use case ID	UC001
Actors	Student, Lecturer
Pre-conditions	none
Normal flow	1. User accesses website using web browser 2. User enters Matric no and password 3. System verifies information 4. New session created
Post Conditions	User logged in

3.2.2 UC002: View all Students

Use Case name	View all Students
Use case ID	UC002
Actors	Student, Lecturer
Pre-conditions	User logged in
Normal flow	1. User Clicks "Student List" 2. System displays list of students 3. User types student name in search bar
Post Conditions	Page with list of all students

3.2.3 UC003: View Programs

Use Case name	View Programs
Use case ID	UC003
Actors	Student, Lecturer
Pre-conditions	User logged in
Normal flow	1. User Clicks "program List" 2. System displays list of offered Programs 3. User types program name in search bar
Post Conditions	Page with list of all Programs

3.2.4 UC004: View all Lecturers

Use Case name	View all Lecturers
Use case ID	UC004
Actors	Student, Lecturer
Pre-conditions	User logged in
Normal flow	1. User Clicks "Lecturer List" 2. System displays list of Lecturers 3. User types Lecturer name in search bar
Post Conditions	Page with list of all Lecturers

3.2.5 UC005: View Courses

Use Case name	View Courses
Use case ID	UC005
Actors	Student, Lecturer
Pre-conditions	User logged in
Normal flow	1. User Clicks "Course List" 2. System displays list of Courses 3. User types Course name in search bar
Post Conditions	Page with list of all Courses

3.2.6 UC006: View Timetable

Use Case name	View Timetable
Use case ID	UC006
Actors	Student, Lecturer
Pre-conditions	User logged in
Normal flow	1. User clicks on view Timetable 2. System displays current semester's weekly timetable
Post Conditions	Current weekly timetable

3.2.7 UC007: Manage Program

Use Case name	Manage Program
Use case ID	UC007
Actors	Lecturer
Pre-conditions	User logged in
Normal flow	1. User Clicks "program List" 2. System displays list of offered Programs 3. User types program name in search bar 4. Lecturer selects "edit program". 5. Lecturer selects "add course" and selects course to add. 6. Lecturer selects "delete course" and selects course to delete 7. Lecturer selects "save changes"
Post Conditions	Edited program's list of courses offered

3.2.8 UC008: Manage Timetable

Use Case name	Manage Timetable
Use case ID	UC008
Actors	Lecturer
Pre-conditions	User logged in
Normal flow	1. User clicks on view Timetable 2. System displays current semester's weekly timetable 3. Lecturer selects "edit program". 4. Lecturer selects "add course" and selects course to add. 5. Lecturer selects "remove course" and selects course to remove 6. Lecturer selects "save changes"
Post Conditions	Modified timetable

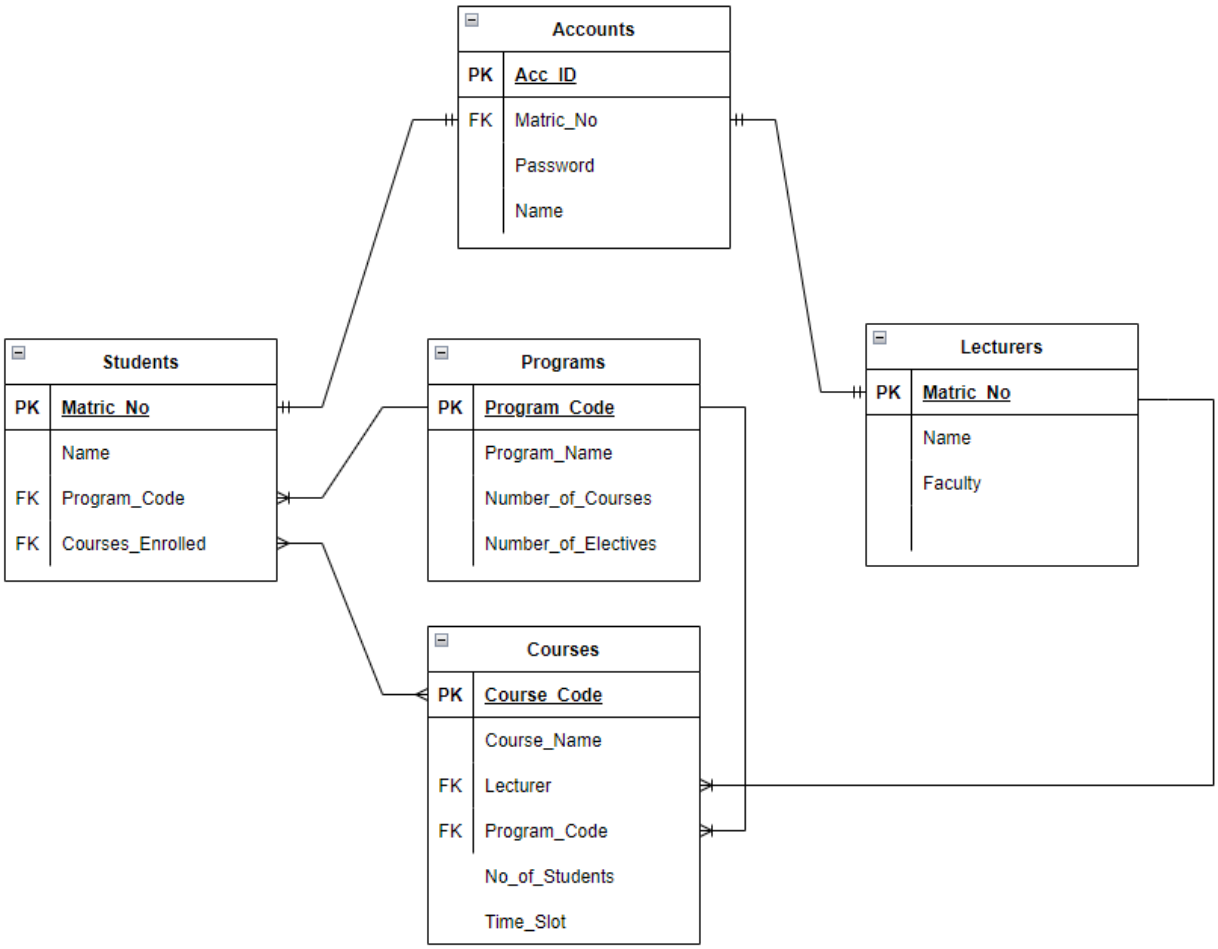
3.3 Non-Functional Requirements

- Usability: current system compatible to be displayed on mobile devices.
- Security: make sure the system is not susceptible to data breaches and user information is secure.
- Availability: the current system is available to all Users. System is to be recovered quickly in cases of downtime.
- Performance: This system is very simple and fast to access.
- Service ability: Users can access all options in their account

3.4 Software System Attributes

1. The user interface must be appealing to users and made in a way that is easy to understand. The user must be able to navigate the application freely without any problems.
2. Every user must have their unique username and password and avoid duplication.
3. The languague of the system should be in either English or Malay.
4. User information must be protected from unauthorised access.

4. ERD

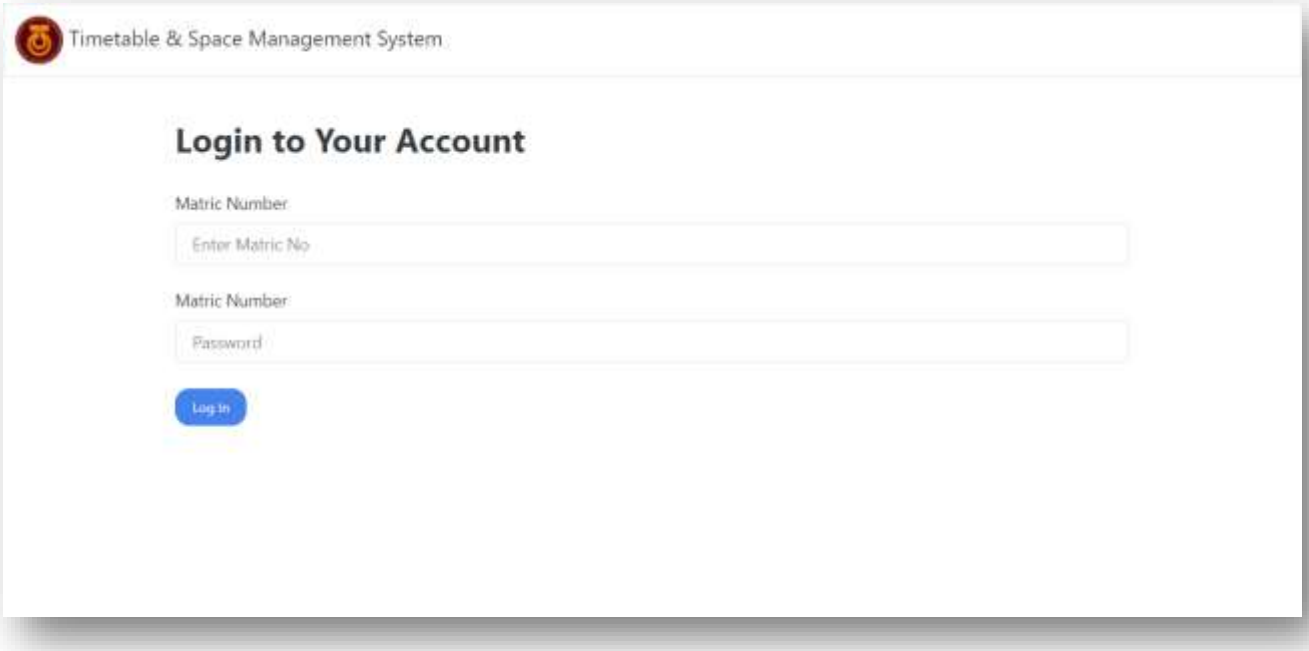


The figure above shows the ERD to be used in the development of the TBMS. Starting off with the Account entity which is responsible for storing all the data related to the accounts that will be used to access the system. The Students entity is responsible for storing all information related to all students registerd in UTM along with with what program they are part of and what courses that they have enrolled to. The Lecturer entity stores all information related to Lecturers currently working in UTM. The Programs entity stores all information about the current available programs along with number of subjects available for each and number of electives. Finally, the Courses entity stores all information related to the courses offered by UTM along with the lecturer assigned to them and the code of the program that offers this course.

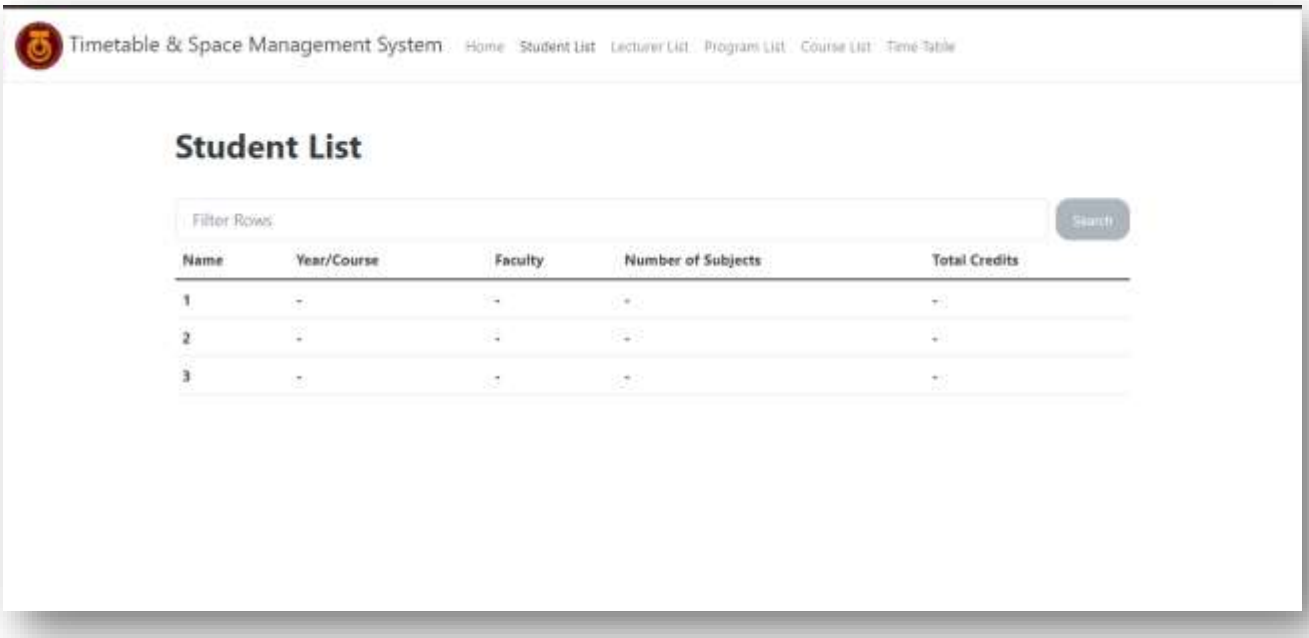
5. UI Prototype & Resources

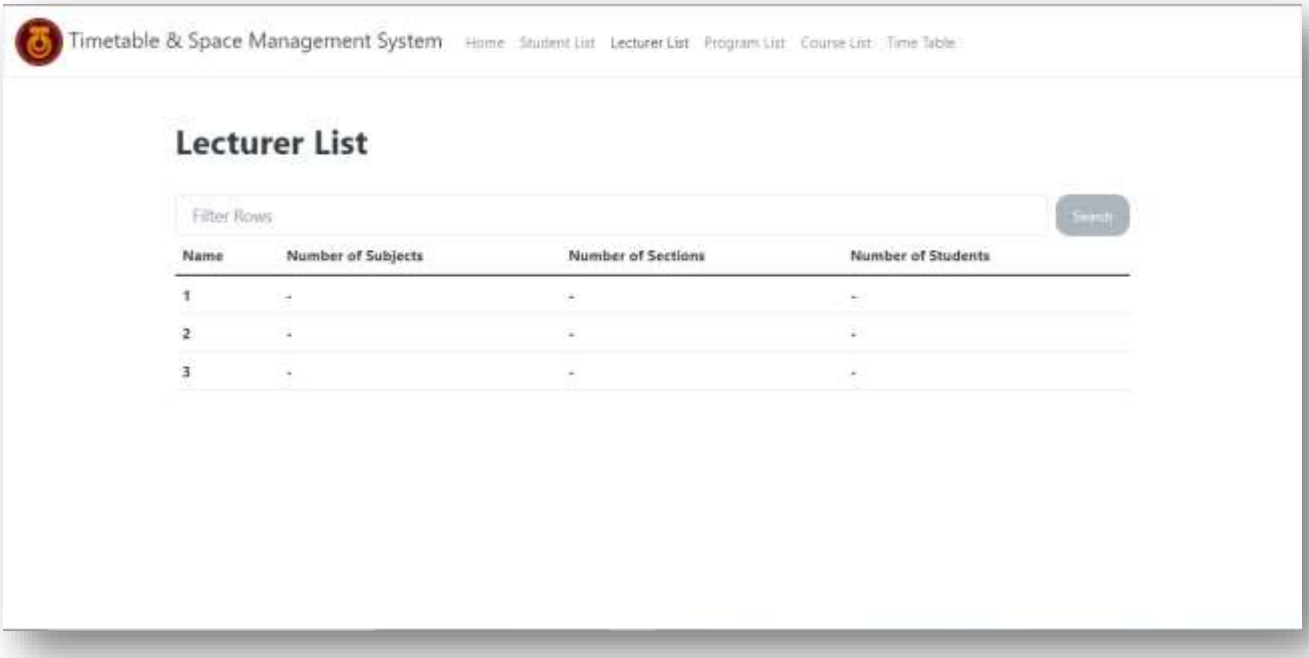
Below is what we envision the TBMS website to look like when its complete. Our team has created some templates to follow. For now, the developlment is limited to visuals using HTML and CSS. We will later expand on this by adding functionality.

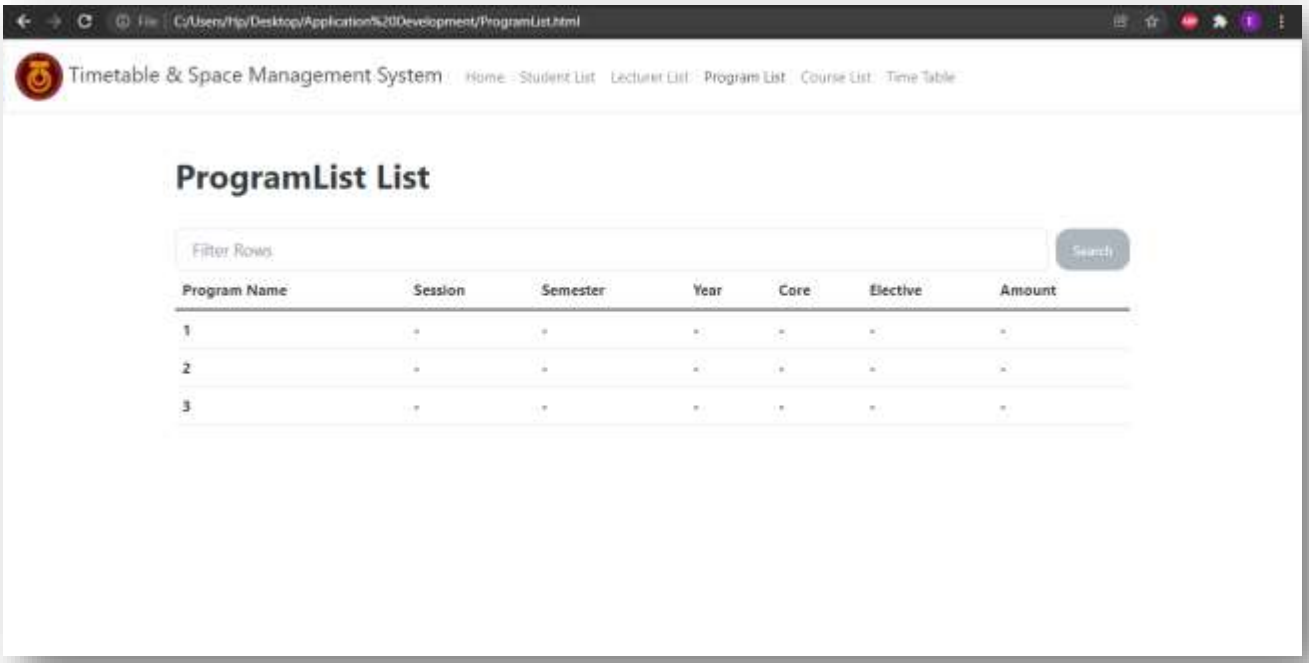
5.1 Login Screen

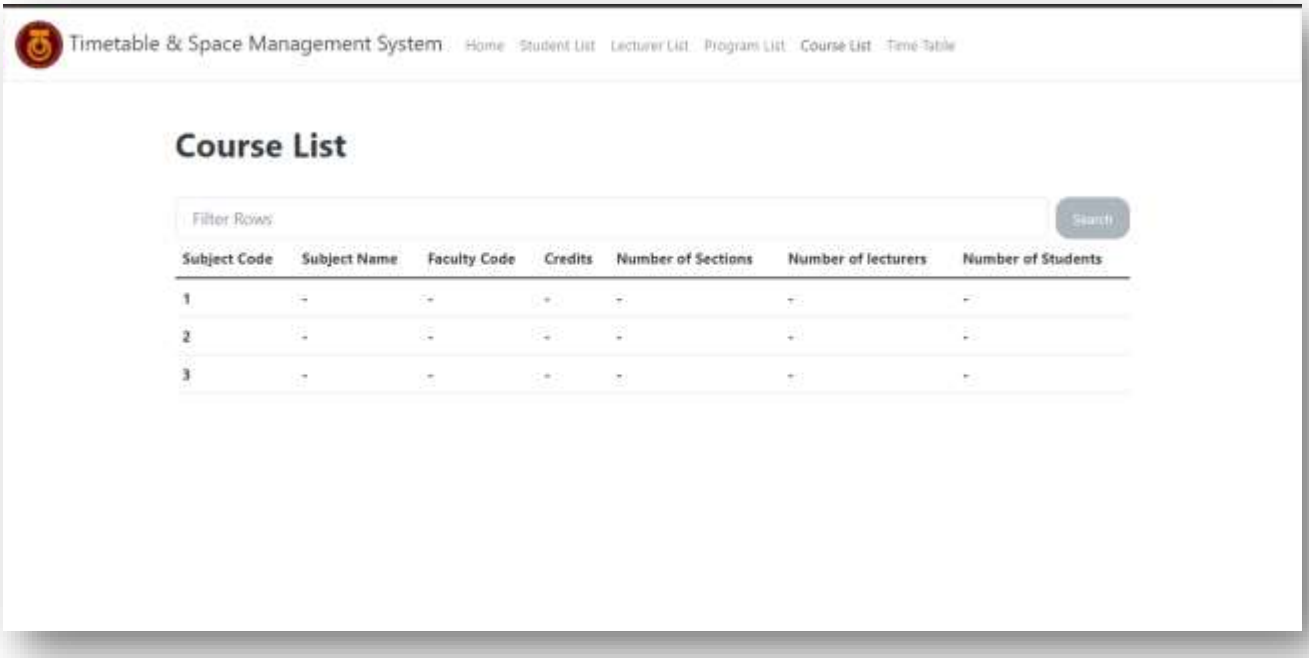


5.2 Table Screens




Timetable & Space Management System
Home
Student List
Lecturer List
Program List
Course List
Time Table
Lecturer List
Filter Rows
Search
Name
Number of Subjects
Number of Sections
Number of Students
1
2
3


C:/Users/Hp/Desktop/Application%20Development/ProgramList.html
Timetable & Space Management System
Home
Student List
Lecturer List
Program List
Course List
Time Table
ProgramList List
Filter Rows
Search
Program Name
Session
Semester
Year
Core
Elective
Amount
1
2
3



5.3 Timtable Screen