

# **Chapter 1**

## **Introduction**

### **1. Introduction**

The Smart U Student Management System is a software application developed to simplify the management of student information in a university. It provides a platform for administrators to easily enroll new students, maintain their personal and academic records, and calculate their Grade Point Average (GPA) based on their results. This helps reduce paperwork and ensures that student data is accurate and up to date.

Students can use the system to securely view their academic details, including their GPA and course performance, anytime they want. By automating these processes, the system improves communication between students and administrators and makes the management of academic information faster and more efficient.

#### **1.1 Objectives**

- Facilitate easy retrieval and updating of student records
- Automate the process of managing student information
- Provide students with secure access to their academic results
- Enable administrators to calculate and update student GPA
- Ensure data integrity and security throughout the system
- Support communication between students and university administrators

#### **1.2 Motivation**

The motivation behind developing the Smart U Student Management System is to automate and simplify these processes by creating a centralized platform that improves accuracy, saves time, and enhances communication between students and administrators. This system aims to provide easy access to academic data, reduce administrative workload.

## **Chapter 2**

### **Fundamentals of System Architecture**

#### **2.1 Background (Web Application Development)**

Smart U (Student Management System) is code with PHP, JavaScript, HTML, CSS and use MySQL database to store the data uploaded by administrator. The system uses MD5 function to encrypt the password and store it to make the system more secure and reliable. The system is also coded with modules such that header modules, body modules and footer modules and so on. In this way, system is easy to maintain in the future and can easily add new functions if new requirements have been identified.

#### **2.2 System Overview**

The Smart U system is designed to serve two primary user groups: administrators and students. Administrators manage student data and academic records, while students access their academic profiles. The system architecture ensures that these roles have distinct interfaces and functionalities.

#### **2.3 Architecture Model**

Smart U follows a multi-tier architecture that separates the system into:

- Presentation Layer: User interface for administrators and students.
- Business Logic Layer: Core functionality such as enrollment and GPA calculation.
- Data Layer: Central database storing all student and academic data.

#### **2.4 System Components**

- Administrator Module: Enrolls students, updates record, calculates GPA.
- Student Module: Provides students with access to view their academic information.
- Database: Stores all necessary data securely.

# **Chapter 3**

## **Database System and Web application Development**

### **3.1 User Interface**

The Smart U Student Management System – Student Interface is organized with a clear and functional layout. Upon logging in, users land on the Dashboard, which displays the system logo and serves as a simple home screen. On the left-hand side, the navigation sidebar is always visible, allowing users to quickly access key sections like Students List, Subjects List, and Curriculum List. The Students List section presents a table of student records showing LRN, name, and enrolled curriculum, with a “View Profile” button that opens a detailed modal showing personal and academic information.

In the Subjects List, users can view all subjects along with their codes, descriptions, and applicable curriculums; this page includes search and pagination features for convenience. The Curriculum List displays various curriculum codes and their semester descriptions, with a clickable “Subjects” link that opens a modal listing the related subjects—though some return “NO RESULT,” indicating missing links. Each page uses a clean white and blue theme with modals for pop-up views, ensuring consistent user experience throughout.

### **3.2 System Interface**

We use operating system as Windows and MySQL for database.

### **3.3 Hardware and Software Requirement**

#### **Hardware Requirement**

- Processor: Pentium 1 or above
- RAM: 128 MB or above
- HD: 20GB or above
- NIC: For each party

#### **Software Requirement**

- OS: Windows
- Development tool: PHP, JavaScript
- Application: XAMPP application
- Database: MySQL Database Server

### **3.4 User Characteristics**

Administrator: Manage student accounts and maintain the system.

Student: Check the GPA, Time Tables and subject related to year attended.

### **3.5 Database Requirements**

We use MySQL for database requirement.

### **3.6 Functional Requirements**

The student can only log into the system if and only if the administrator signs up them for you. The only administrator can manage the student data and maintain them. The students can only check their GPAs and subjects.

### **3.7 Non-functional Requirements**

- Performance**

Maximum possible quick response if it is required, also should provide fast updating of records. The changes if any made should be reflected automatically in the next screens. Server will be working 24/7 times.

- Security**

The application is password protected using MD5 encryption method and the transaction histories are also recorded.

- Maintainability**

The application is to be designed so that is easily maintained. Also, it should allow incorporating new requirements in any module of the system.

- Portability**

The application will be easily portable because it is web-based system.

- Availability**

The Smart U Student Management System can be accessed 24 hours.

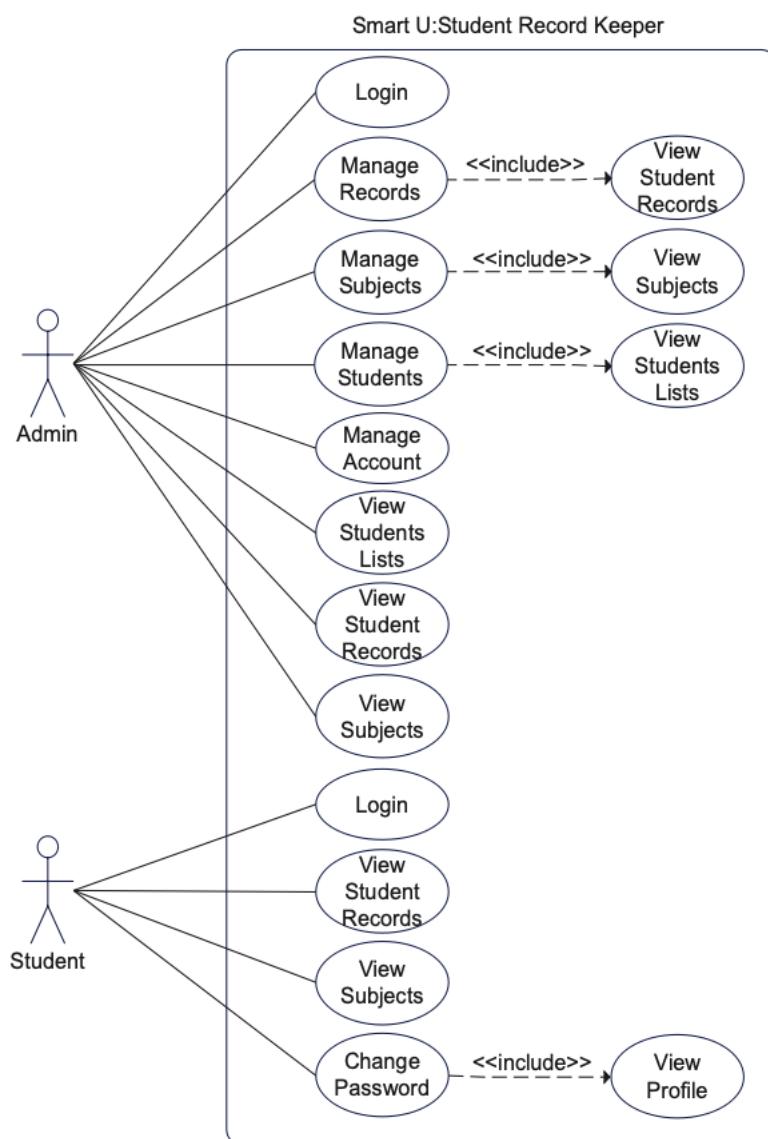
## Chapter 4

### System Design

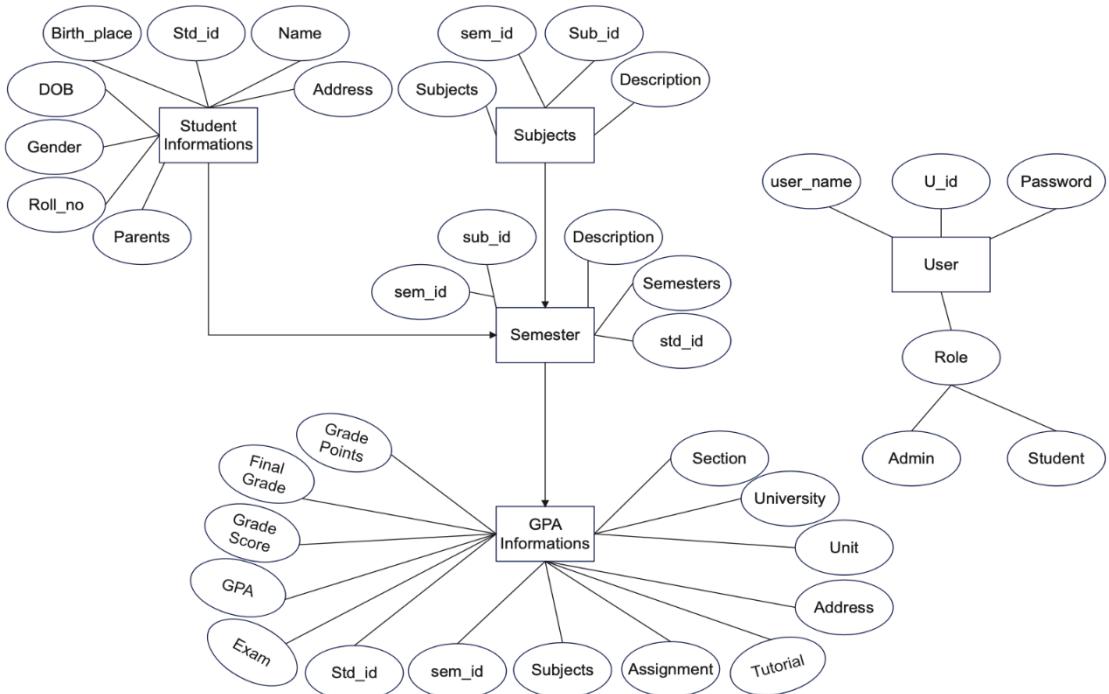
#### 4.1 System Design Architecture

We describe the system behaviors with UseCase Diagram and ER Diagram.

##### 4.1.1 Use case Diagram



#### 4.1.2 ER Diagram



## 4.2 User Interface (UI) Design for Web

UI design helps user to see the overall structure, interaction and flow of the system while user is in it.

### 4.2.1 Student Page

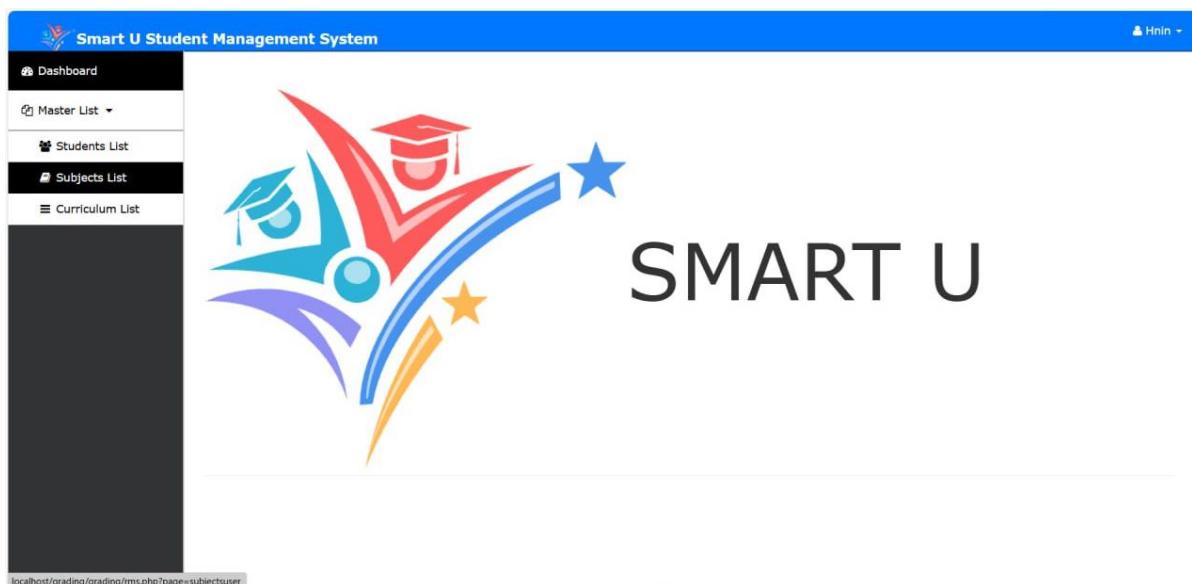
#### Login Page

The first page of the project is login page as shown in Figure.



#### Home Page

When user login, he will come to homepage (Figure). This page show dashboard, subject list and curriculum list.



## Student List Page

This page shows the student list that the year he attends in.

The screenshot shows the 'Students List' page of the Smart U Student Management System. The left sidebar has navigation links: Dashboard, Master List, Students List (which is selected and highlighted in black), Subjects List, and Curriculum List. The main content area has a header 'Students List' with dropdowns for 'records per page' (set to 10) and a search bar. A table lists student details: LRN NO., Name, Curriculum, and a 'View Profile' button. The data includes:

LRN NO.	Name	Curriculum	Action
UTC-00011	Shin Saung Phyu	1CST(2sem)	<a href="#">View Profile</a>
UTC-1234	Su Sandar kyaw	2CS(2 sem)	<a href="#">View Profile</a>
UTC-23345	Myat Hein Thu	2CS(2 sem)	<a href="#">View Profile</a>
UTC-00012	May Thu Han	3CS(2 sem)	<a href="#">View Profile</a>
UTC-00006	Khun Aung KO	3CS(2 sem)	<a href="#">View Profile</a>
UTC_00007	Nang Kham Htin	4CS(2 sem)	<a href="#">View Profile</a>
UTC-00009	Lin Honey Htun	4CS(2 sem)	<a href="#">View Profile</a>
UTC-00003	Yin Yin Moe	4CS(2 sem)	<a href="#">View Profile</a>
UTC-00008	Nang Khaing Moe Oo	4CS(2 sem)	<a href="#">View Profile</a>
UTC-00002	Shwe Yee Myint Myat	4CS(2 sem)	<a href="#">View Profile</a>

Showing 1 to 10 of 15 entries

In this page, he can also check his classmate profile.

The screenshot shows a modal window titled 'PROFILE' for a student. The modal displays detailed information about the student: LRN: UTC-00011, Name: Shin Saung Phyu, Gender: FEMALE, Date of Birth: 2006-02-23, Place of Birth: Heho, Address: Heho, Parent or Guardian: U Ba, Parent or Guardian Address: Heho, Intermediate Course Completed: BEHS(1),Heho, Total no. of years: 1, School Year: 2024-2025, General Average: 390, Curriculum Enrolled: 1CST(2sem). The background shows the same 'Students List' table as the previous screenshot.

## Subject List Page

In this page, he can view the subject related to his year.

The screenshot shows the 'Smart U Student Management System' interface. The left sidebar has a dark theme with white text and icons. The main content area has a light blue header bar with the system name and a user icon. Below the header, the title 'SUBJECTS' is displayed in large, bold, black font. Underneath the title is a table titled 'List of Subjects'. The table has columns for 'Subjects', 'Applicable For', and 'Description'. It lists 10 entries from CS-2205 to CST-2111. At the bottom of the table, it says 'Showing 1 to 10 of 49 entries' and includes a navigation bar with links for 'Previous', '1', '2', '3', '4', '5', and 'Next'.

Subjects	Applicable For	Description
CS-2205	2CS(2 sem)	Advanced Java Programming
CS-2254	2CS(2 sem)	Web Technology(J5)
CS-3124	3CS(1 sem)	Software Analysis and Design
CS-3125	3CS(1 sem)	Database System Structure
CS-3156	3CS(1 sem)	Web Development PHP
CS-4214	4CS(2 sem)	Advanced AI and Machine Learning
CS-4216	4CS(2 sem)	Net Centric Computing
CS-4223	4CS(2 sem)	Object Oriented Design and Developme
CS-4225	4CS(2 sem)	Advanced Database System
CST-2111	2CT(1 sem)	Programming Language(Java)

## Curriculum List Page

In this page, he can view the subject related to the year he attends in.

The screenshot shows the 'Smart U Student Management System' interface. The left sidebar has a dark theme with white text and icons. The main content area has a light blue header bar with the system name and a user icon. Below the header, the title 'Program section' is displayed in large, bold, black font. Underneath the title is a table titled 'List of Curriculum'. The table has columns for 'Curriculum' and 'Description'. It lists 8 entries from 1CST(1sem) to 3CS(2 sem). Each row has a link labeled 'Subjects' at the end. At the bottom of the table, it says 'Showing 1 to 8 of 8 entries' and includes a navigation bar with links for 'Previous', '1', '2', '3', '4', '5', and 'Next'.

Curriculum	Description	Subjects
1CST(1sem)	First Year First Semester (CST)	<a href="#">Subjects</a>
1CST(2sem)	First Year Second Semester (CST)	<a href="#">Subjects</a>
2CS(1 sem)	Second Year First Semester (CS)	<a href="#">Subjects</a>
2CS(2 sem)	Second Year Second Semester (CS)	<a href="#">Subjects</a>
2CT(1 sem)	Second Year First Semester (CT)	<a href="#">Subjects</a>
2CT(2 sem)	Second Year Second Semester (CT)	<a href="#">Subjects</a>
3CS(1 sem)	Third Year First Semester (CS)	<a href="#">Subjects</a>
3CS(2 sem)	Third Year Second Semester (CS)	<a href="#">Subjects</a>

He can also view the subject by clicking the Subjects.

The screenshot shows the 'Smart U Student Management System' interface. On the left, there's a sidebar with navigation links: Dashboard, Master List (with Students List and Subjects List), and Curriculum List. The main area is titled 'Program section' and shows a table under 'List of Curriculum'. The table has columns for Curriculum (e.g., 1CST(1sem), 1CST(2sem), 2CS(1 sem), 2CS(2 sem), 2CT(1 sem), 2CT(2 sem), 3CS(1 sem), 3CS(2 sem)) and Subjects. A modal window titled 'Subjects' is open, showing a table with one row: 'NO RESULT!'.

Curriculum	Subjects
1CST(1sem)	
1CST(2sem)	First Year Second Semester (CST)
2CS(1 sem)	Second Year First Semester (CS)
2CS(2 sem)	Second Year Second Semester (CS)
2CT(1 sem)	Second Year First Semester (CT)
2CT(2 sem)	Second Year Second Semester (CT)
3CS(1 sem)	Third Year First Semester (CS)
3CS(2 sem)	Third Year Second Semester (CS)

#### 4.2.2 Admin Page

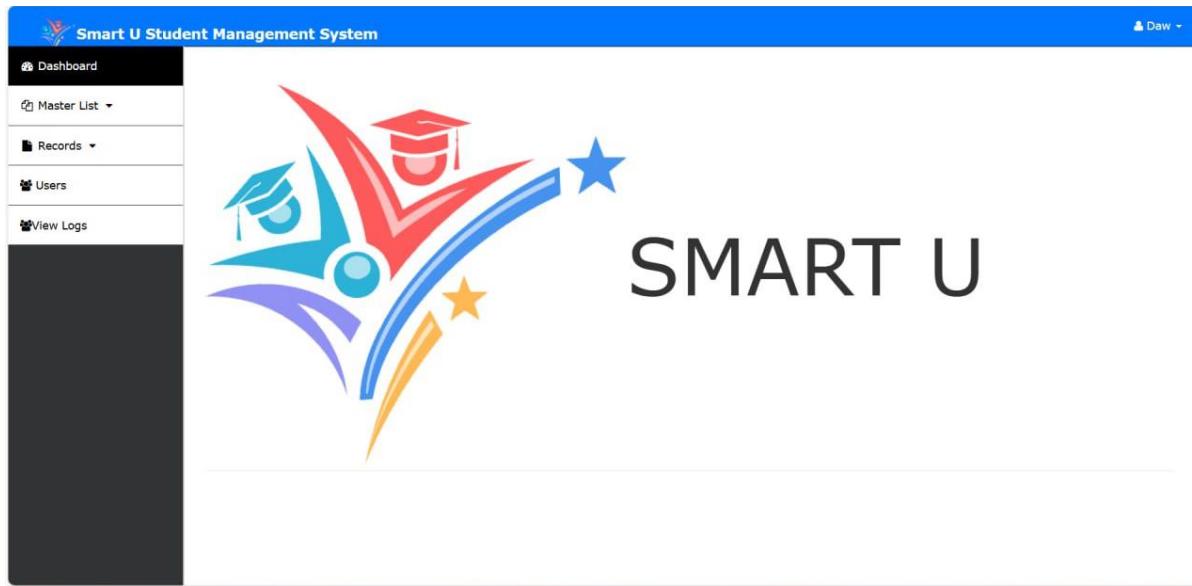
#### Admin Login Page

In this page, the admin has its own password to log into admin dashboard and manage the student accounts.



## Admin Dashboard Page

Admin can manage the following described in the figure below.



## Students List Page

In this page, admin can view student profile, delete student and add new student.

The screenshot shows the Students List page. The top navigation bar is blue with the system name 'Smart U Student Management System' and a user dropdown 'Daw'. On the left, a dark sidebar menu includes 'Dashboard', 'Master List', 'Students List' (which is selected and highlighted in black), 'Subjects List', 'Semester List', 'Records', 'Reports', 'Users', and 'Maintenance'. The main area has a title 'STUDENTS' and a 'New Entry' button. Below is a table titled 'Students List' with columns: 'Student ID.', 'Name', 'Semester', 'View Profile', and 'Delete'. The table lists 10 student records, each with a unique ID, name, semester (e.g., 1CST(2sem), 2CS(2 sem), etc.), and two buttons per row.

When admin clicks view profile, the detail of student profile will be dropped down.

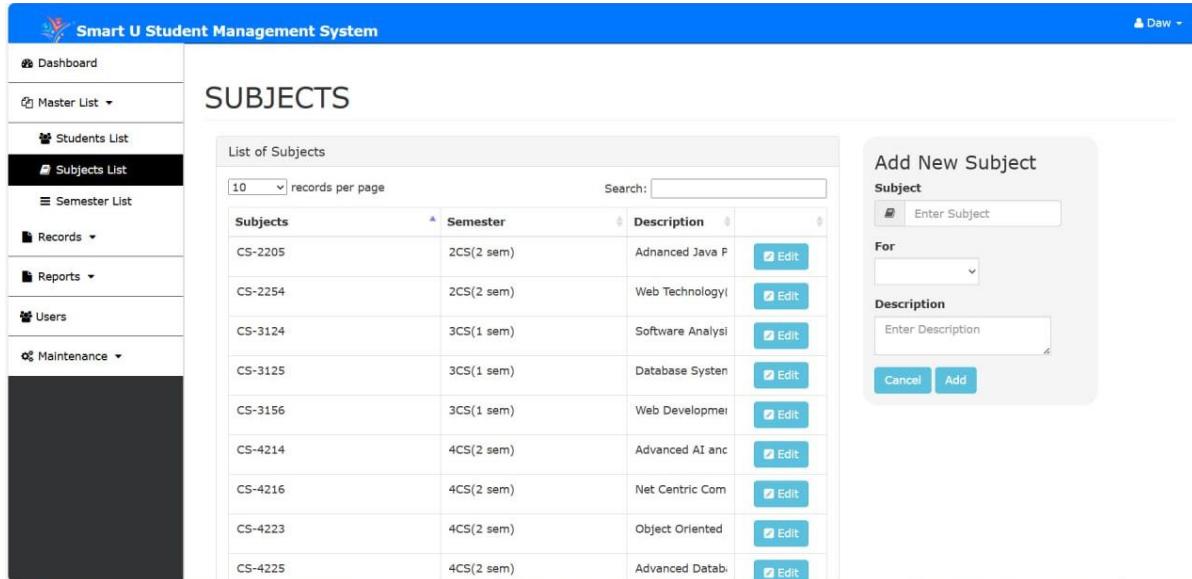
The screenshot shows the 'STUDENTS' section of the system. A modal window titled 'PROFILE' is open, displaying detailed information about a student. The student's ID is UTC-00011, and their name is Shin Saung Phyu, female, born on 2006-02-23 in Heho. The modal also shows the student's address as Heho, parent/guardian as U Ba, and guardian address as Heho. Matriculation details include completion of BEHS(1), roll number HeMa-23, total years 1, school year 2024-2025, matriculation score 390, and semester enrolled 1CST(2sem). Below the modal, a table lists other students with their names, addresses, and matriculation details. Buttons for 'Update' and 'Close' are visible at the bottom right of the modal.

When the update button was clicked, the admin can update the student information.

The screenshot shows the 'New Students' form under the 'STUDENTS' section. The form is divided into two main sections: 'Student's Personal Details' and 'Matriculation Details'. In the 'Personal Details' section, fields include Student ID (Enter LRN), Name (Firstname, Middlename, Lastname), Date of Birth (mm/dd/yyyy), Address (Enter Student Address), Parent/Guardian (Enter Full Name, Enter Address), Gender (Male), and Birth Place (Birth Place). In the 'Matriculation Details' section, fields include Completed Matriculation (Enter High School Graduated), School Year (FROM-TO), Total No Of year (Enter), and Matriculation Roll No. (Enter). The background shows a list of existing student records.

## Subject List Page

In this page, the subjects are shown according to the semester of each year. The admin can also add the subjects and edit the subject name.

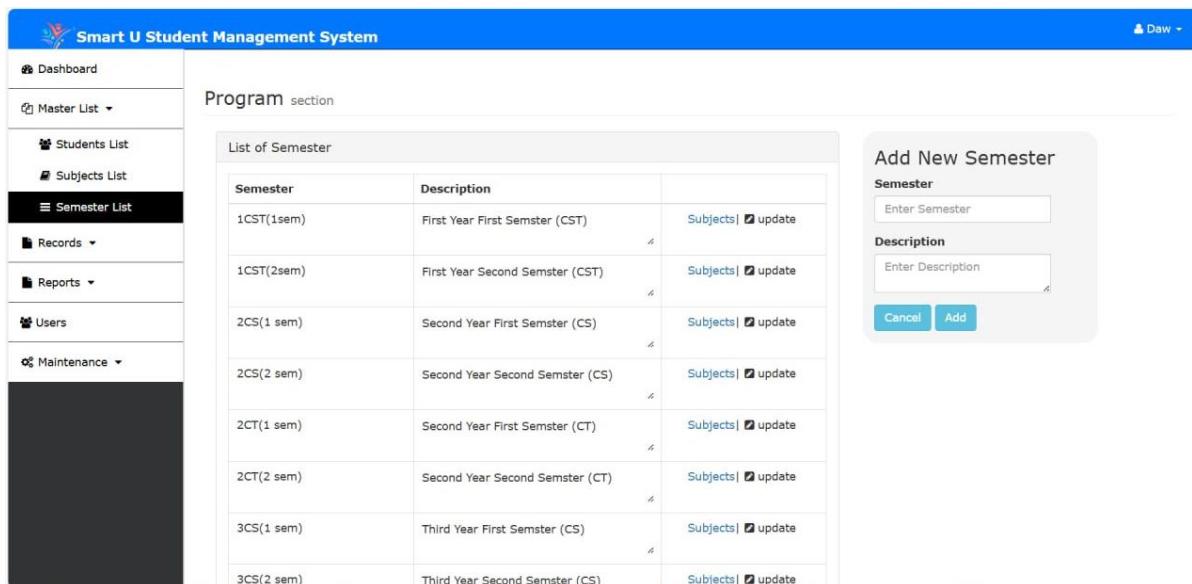


The screenshot shows the 'SUBJECTS' section of the Smart U Student Management System. On the left, a sidebar menu includes 'Subjects List' under the 'Subjects' category. The main area displays a table titled 'List of Subjects' with columns for 'Subjects', 'Semester', and 'Description'. The table contains 10 entries, each with an 'Edit' button. A search bar and a dropdown for records per page (set to 10) are at the top of the table. To the right, a modal window titled 'Add New Subject' has fields for 'Subject' (with placeholder 'Enter Subject'), 'For' (with dropdown), and 'Description' (with placeholder 'Enter Description'). Buttons for 'Cancel' and 'Add' are at the bottom of the modal.

Subjects	Semester	Description
CS-2205	2CS(2 sem)	Advanced Java P
CS-2254	2CS(2 sem)	Web Technologyl
CS-3124	3CS(1 sem)	Software Analysi
CS-3125	3CS(1 sem)	Database System
CS-3156	3CS(1 sem)	Web Developmert
CS-4214	4CS(2 sem)	Advanced AI anc
CS-4216	4CS(2 sem)	Net Centric Com
CS-4223	4CS(2 sem)	Object Oriented
CS-4225	4CS(2 sem)	Advanced Databa

## Semester List

Admin can also manage the subject in a semester and update the changes.



The screenshot shows the 'Program section' of the Smart U Student Management System. On the left, a sidebar menu includes 'Semester List' under the 'Subjects' category. The main area displays a table titled 'List of Semester' with columns for 'Semester' and 'Description'. The table contains 8 entries, each with 'Subjects' and 'update' buttons. A search bar and a dropdown for records per page (set to 10) are at the top of the table. To the right, a modal window titled 'Add New Semester' has fields for 'Semester' (with placeholder 'Enter Semester') and 'Description' (with placeholder 'Enter Description'). Buttons for 'Cancel' and 'Add' are at the bottom of the modal.

Semester	Description
1CST(1sem)	First Year First Semster (CST)
1CST(2sem)	First Year Second Semster (CST)
2CS(1 sem)	Second Year First Semster (CS)
2CS(2 sem)	Second Year Second Semster (CS)
2CT(1 sem)	Second Year First Semster (CT)
2CT(2 sem)	Second Year Second Semster (CT)
3CS(1 sem)	Third Year First Semster (CS)
3CS(2 sem)	Third Year Second Semster (CS)

## Academic Record Page

In this page, the admin can manage the student records.

Student ID.	Name	Gender	Semester	
UTC-00001	May Zin Phyu	FEMALE	4CS(2 sem)	<button>View Records</button>
UTC-00002	Shwe Yee Myint Myat	FEMALE	4CS(2 sem)	<button>View Records</button>
UTC-00003	Yin Yin Moe	FEMALE	4CS(2 sem)	<button>View Records</button>
UTC-00004	Lax mi puatil	FEMALE	4CS(2 sem)	<button>View Records</button>
UTC-00005	Nang Su Myat Sithu	FEMALE	4CS(2 sem)	<button>View Records</button>
UTC-00006	Khun Aung KO	MALE	3CS(2 sem)	<button>View Records</button>
UTC-00008	Nang Khaing Moe Oo	FEMALE	4CS(2 sem)	<button>View Records</button>
UTC-00009	Lin Honey Htun	FEMALE	4CS(2 sem)	<button>View Records</button>
UTC-00010	Aye Nyein Thu	FEMALE	4CS(2 sem)	<button>View Records</button>

## Manage User Page

In this page, admin can mange and view the total users and can create student account.

Name	User	Type	
Daw Sandar	admin	ADMINISTRATOR	<input checked="" type="checkbox"/> edit
Hey Han	ayehan	Student	<input checked="" type="checkbox"/> edit
Hnin Cherry	hnincherry	ADMINISTRATOR	<input checked="" type="checkbox"/> edit
Hnin Ei Wai	hnin	Student	<input checked="" type="checkbox"/> edit
laxmi Purtill	laxmi	Student	<input checked="" type="checkbox"/> edit
May Zin Phyu	mayzinphyu	Student	<input checked="" type="checkbox"/> edit
Shwe Yee Myint Myat	shin	Student	<input checked="" type="checkbox"/> edit
Shwe Yi	bf8fdcb954	Student	<input checked="" type="checkbox"/> edit
Su Sandar	susandar	ADMINISTRATOR	<input checked="" type="checkbox"/> edit
Su Su	user	Student	<input checked="" type="checkbox"/> edit

**Add New Users**

**First Name**  
Enter Firstname

**Last Name**  
Enter Lastname

**User**  
Enter username

**Password**  
Enter password

**User Type**

Cancel  Add

## View logs Page

In this page, all activity made by admin can be viewed.

The screenshot shows the 'Smart U Student Management System' interface. On the left, there is a vertical sidebar with the following menu items:

- Dashboard
- Master List ▾
- Records ▾
- Users
- View Logs** (highlighted in white)

The main content area is titled 'History Logs'. It includes the following controls:

- 'records per page' dropdown set to 10
- 'Search:' input field
- Sorting dropdowns for 'User ID' (set to 'Transaction') and 'Date & Time'
- Message: 'No data available in table'
- Status message: 'Showing 0 to 0 of 0 entries'
- Navigation buttons: '← Previous' and 'Next →'

The URL in the browser's address bar is `localhost/grading/rms.php?page=historyLog`.

## Chapter 5

### Implementation

#### 5.1 Project Link with Database

```
<?php  
  
$conn=mysqli_connect ('localhost', 'root', '123456', 'student') or  
die ('connection failed');  
  
?>
```

#### 5.2 Use of group\_concat Function

```
$search_qry      =      mysqli_query($conn,      "SELECT      *      FROM  
student_year_info  
  
JOIN                      student_info                      ON  
student_year_info.STUDENT_ID=student_info.STUDENT_ID  
  
WHERE student_year_info.STUDENT_ID = '$id'");
```

#### 5.3 Trigger Creation

```
session_regeneration();  
  
$use = mysqli_fetch_assoc($result);  
  
$_SESSION['ID'] = $use['USER_ID'];  
  
$_SESSION['fname'] = $use['FIRSTNAME'];  
  
$id = $use['USER_ID'];  
  
mysqli_query($conn,      “INSERT      INTO      history_log      (transaction,  
user_id,date_added)VALUES('logged in','$id',NOW()) ”)  
  
header ("location: rms.php?page=home");
```

## **5.4 Use Md5() Encryption Function**

```
include('db.php');  
  
$user = $_POST['user'];  
  
$pwd = md5($_POST['pwd']);
```

## **5.5 Use Session to control Security**

When login

```
$_SESSION['ID'] = $use['USER_ID'];  
  
$_SESSION['fname'] = $use['FIRSTNAME'];
```

When logout

```
session_start();  
  
session_unset();  
  
session_destroy();
```

## **Chapter 6**

### **Summary**

#### **6. Summary**

Today is information technology age. The SmartU Academic Record Keeper web application aims to significantly improve academic record management through an efficient, secure, and user-friendly digital platform. By centralizing data and empowering both administrators and students, it will enhance operational efficiency and the overall academic experience.