

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 it 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.

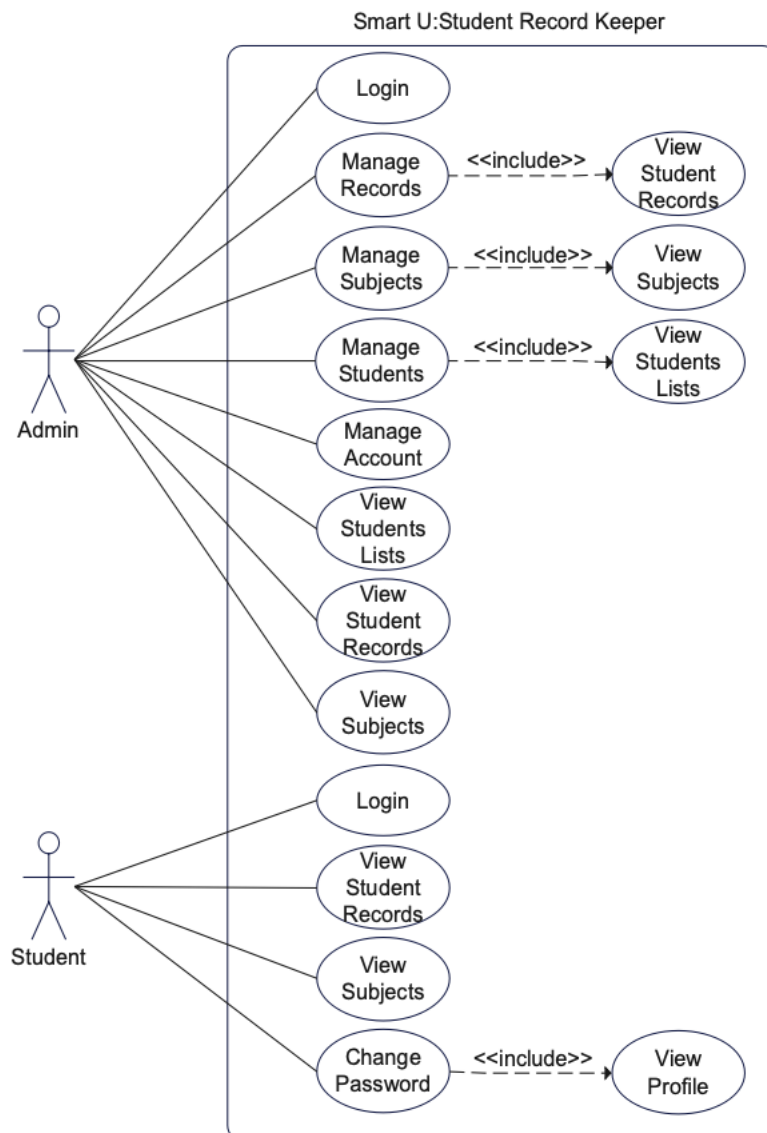
Chapter 4

System Design

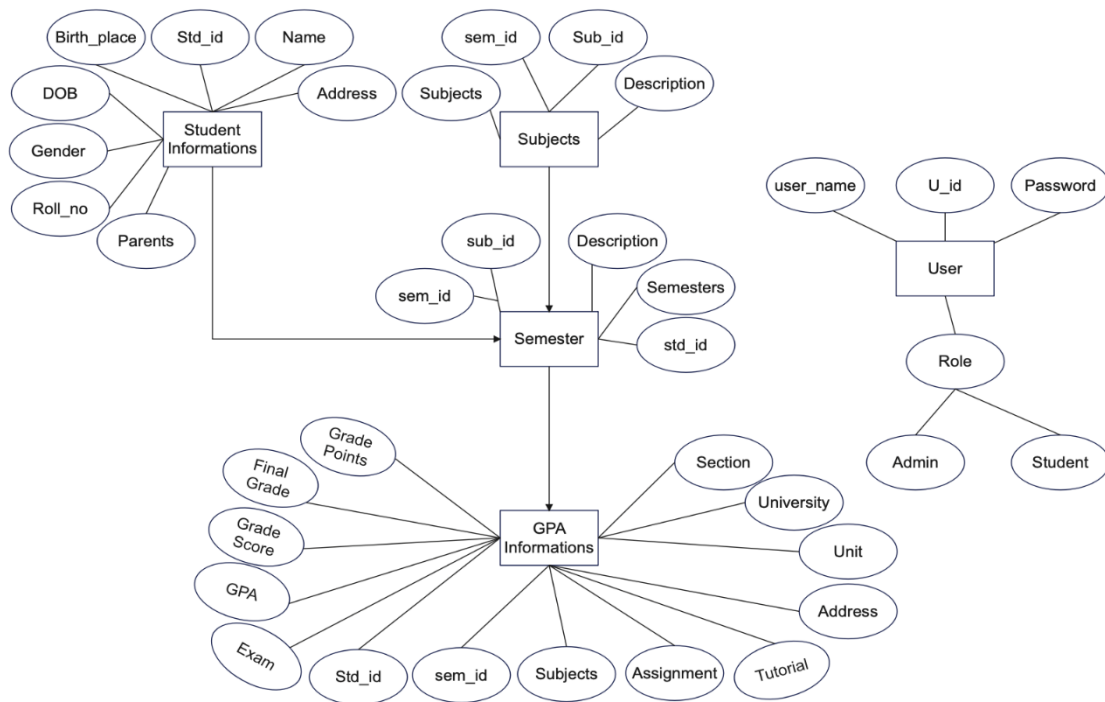
4.1 System Design Architecture

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

4.1.1 Use case Diagram



4.1.2 ER Diagram



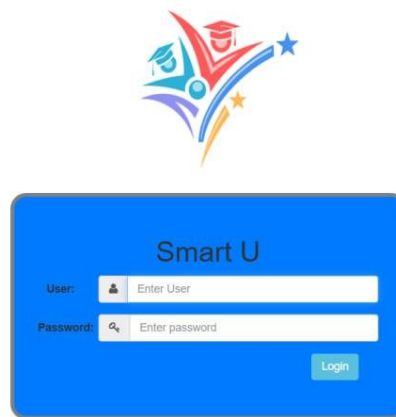
4.2 User Interface (UI) Design for Web

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

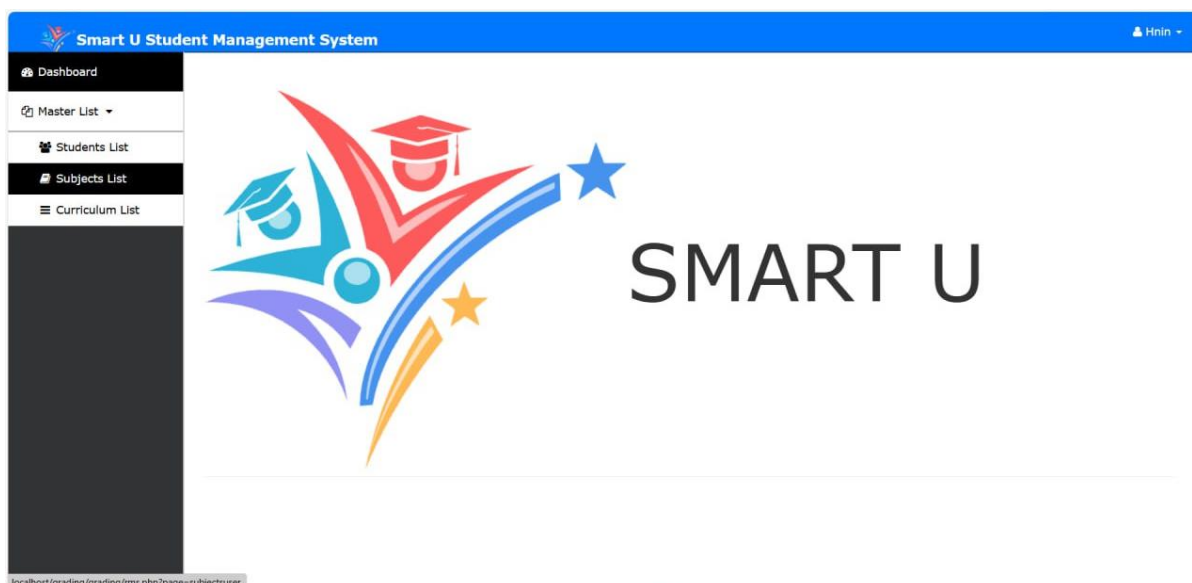
Login Page

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



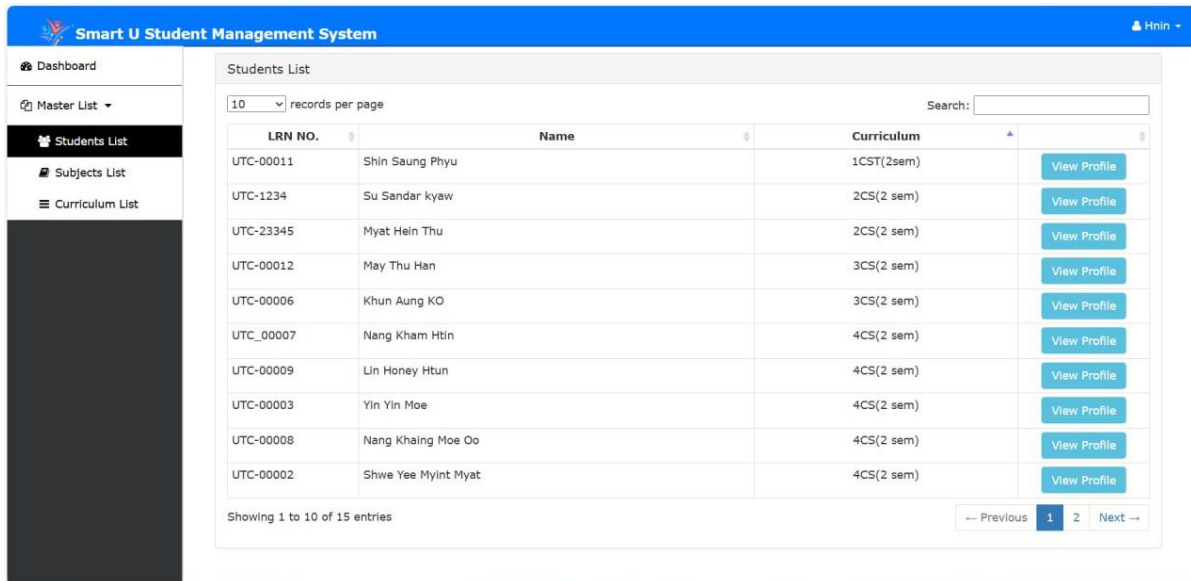
Home Page

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.



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

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



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

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. On the left is a sidebar with navigation links: Dashboard, Master List, Students List, Subjects List (highlighted), and Curriculum List. The main content area is titled 'SUBJECTS' and contains a 'List of Subjects' table. The table has columns for Subjects, Applicable For, and Description. It lists 10 subjects, with pagination showing 'Showing 1 to 10 of 49 entries' and a 'Previous' button.

Subjects	Applicable For	Description
CS-2205	2CS(2 sem)	Adnanced Java Programming
CS-2254	2CS(2 sem)	Web Technology(JS)
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)

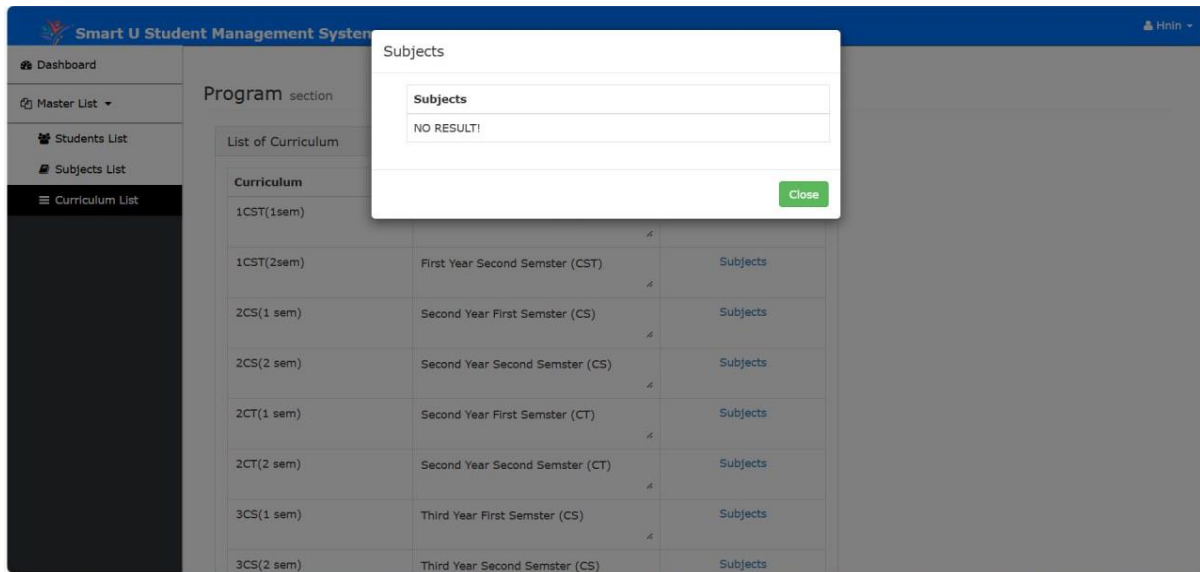
Curriculum List Page

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. On the left is a sidebar with navigation links: Dashboard, Master List, Students List, Subjects List, and Curriculum List (highlighted). The main content area is titled 'Program section' and contains a 'List of Curriculum' table. The table has columns for Curriculum, Description, and a link to 'Subjects'. It lists 8 curriculum items, with pagination showing 'Showing 1 to 8 of 8 entries' and a 'Previous' button.

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

He can also view the subject by clicking the Subjects.



4.2.2 Admin Page

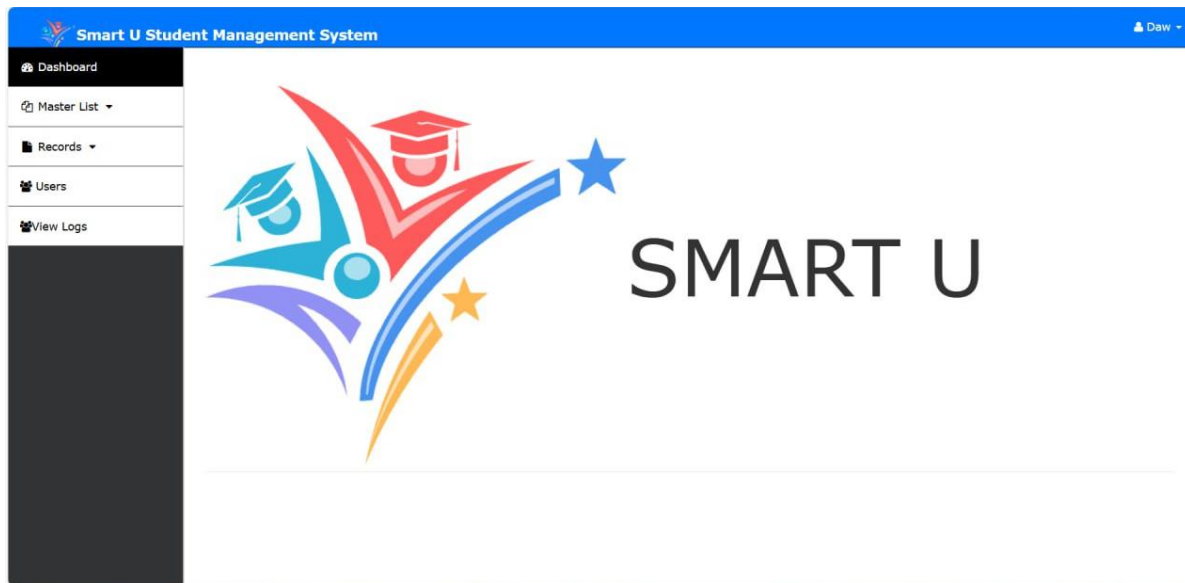
Admin Login Page

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



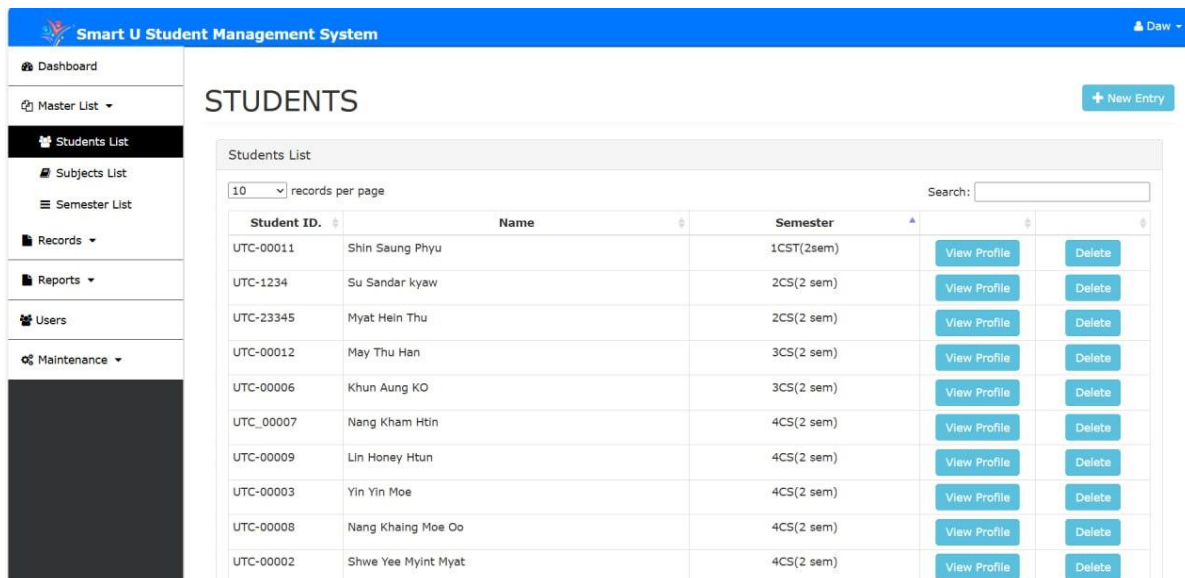
Admin Dashboard Page

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.



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

The screenshot displays the 'Smart U Student Management System' interface. A modal window titled 'PROFILE' is open, showing the details for student UTC-00011. The background shows a 'STUDENTS' list table with columns for Student ID, Name, and Semester. The modal contains the following information:

Student ID:	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
Matriculation Completed:	BEHS(1),Heho
Matriculation Roll No:	HeMa-23
Total No of Year:	1
School Year:	2024-2025
Matriculation Score:	390
Semester Enrolled:	1CST(2sem)

At the bottom right of the modal are 'Update' and 'Close' buttons.

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

The screenshot displays the 'Smart U Student Management System' interface with a 'New Students' modal open. The modal is divided into two sections: 'Student's Personal Details' and 'Matriculation Details'.

Student's Personal Details:

- Student ID:
- Name: , ,
- Gender:
- Birth Place:
- Date of Birth:
- ADDRESS:
- Parent/Guardian: ,

Matriculation Details:

- Completed Matriculation:
- School Year:
- Total No Of year:
- Matriculation Roll No.:

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 'Smart U Student Management System' interface. On the left is a sidebar with navigation links: Dashboard, Master List, Students List, Subjects List (highlighted), Semester List, Records, Reports, Users, and Maintenance. The main content area is titled 'SUBJECTS' and contains a 'List of Subjects' table. The table has columns for Subjects, Semester, and Description, with an 'Edit' button for each row. To the right of the table is a 'Add New Subject' form with fields for Subject, For (a dropdown), and Description, and 'Cancel' and 'Add' buttons.

Subjects	Semester	Description	
CS-2205	2CS(2 sem)	Adnanced Java F	Edit
CS-2254	2CS(2 sem)	Web TechnologyI	Edit
CS-3124	3CS(1 sem)	Software Analysi	Edit
CS-3125	3CS(1 sem)	Database System	Edit
CS-3156	3CS(1 sem)	Web Developmer	Edit
CS-4214	4CS(2 sem)	Advanced AI anc	Edit
CS-4216	4CS(2 sem)	Net Centric Com	Edit
CS-4223	4CS(2 sem)	Object Oriented	Edit
CS-4225	4CS(2 sem)	Advanced Datab.	Edit

Semester List

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

The screenshot shows the 'Smart U Student Management System' interface. On the left is a sidebar with navigation links: Dashboard, Master List, Students List, Subjects List, Semester List (highlighted), Records, Reports, Users, and Maintenance. The main content area is titled 'Program section' and contains a 'List of Semester' table. The table has columns for Semester, Description, and a link to 'Subjects' followed by an 'update' button. To the right of the table is a 'Add New Semester' form with fields for Semester and Description, and 'Cancel' and 'Add' buttons.

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

Academic Record Page

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

The screenshot shows the 'Smart U Student Management System' interface. The left sidebar contains navigation links: Dashboard, Master List, Records, Academic Record (selected), Reports, Users, and Maintenance. The main content area is titled 'Student Records' and displays a 'Students List' table. The table has columns for Student ID, Name, Gender, and Semester. Each row includes a 'View Records' button. The table lists 10 students, all with '4CS(2 sem)' as their semester, except for one with '3CS(2 sem)'. A search bar and a 'records per page' dropdown (set to 10) are at the top of the table.

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

Manage User Page

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

The screenshot shows the 'Smart U Student Management System' interface for user management. The left sidebar is the same as the previous page, with 'Users' selected. The main content area is titled 'List of Users' and displays a table with columns for Name, User, and Type. Each row includes an 'edit' button. The table lists 10 users, including 'admin' (ADMINISTRATOR) and several 'Student' accounts. A search bar and a 'records per page' dropdown (set to 10) are at the top. To the right of the table is a 'Add New Users' form with fields for First Name, Last Name, User (username), Password, and a User Type dropdown. The form has 'Cancel' and 'Add' buttons. At the bottom of the table, it says 'Showing 1 to 10 of 10 entries' with pagination controls.

Name	User	Type	
Daw Sandar	admin	ADMINISTRATOR	edit
Hey Han	ayehan	Student	edit
Hnin Cherry	hnincherry	ADMINISTRATOR	edit
Hnin El Wai	hnin	Student	edit
Iaxmi Putil	laxmi	Student	edit
May Zin Phyu	mayzinphyu	Student	edit
Shwe Yee Myint Myat	shin	Student	edit
Shwe Yi	bf8fdb954	Student	edit
Su Sandar	susandar	ADMINISTRATOR	edit
Su Su	user	Student	edit

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 is a sidebar with navigation links: Dashboard, Master List, Records, Users, and View Logs (which is highlighted). The main content area is titled 'History Logs' and contains a search bar, a dropdown for '10 records per page', and a table with columns 'User ID', 'Transaction', and 'Date & Time'. The table is currently empty, displaying the message 'No data available in table'. Below the table, it says 'Showing 0 to 0 of 0 entries' and includes 'Previous' and 'Next' navigation buttons. The browser's address bar at the bottom shows the URL: localhost/grading/grading/rms.php?page=historyLog.

Smart U Student Management System

Dashboard

Master List

Records

Users

View Logs

History Logs

10 records per page

Search:

User ID Transaction Date & Time

No data available in table

Showing 0 to 0 of 0 entries

Previous Next

localhost/grading/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_regenerate_id();  
  
$use = mysqli_fetch_assoc($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.