Software Requirements Specification

for

Student Admission Management System

Version 1.0 approved

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Table of Contents

Revision History

Name	Date	Reason For Changes	Version

1. Introduction

1.1 Purpose

The purpose of this SRS is to describe the functional and non-functional requirements of the "Student Admission Management" web application. This document will serve as a reference for the developers, testers, and stakeholders involved in the project, to ensure that all features and requirements are fully defined and understood.

1.2 Project Scope

The scope of the "Student Admission Management" web application is to manage the onboarding process of students for a particular course. The application will provide a platform for students to register and submit their documents, as well as for administrators to manage the admission process and view analytics. The system will also provide information about the CCAT exam, CDAC centre location, course list and duration, fees details on the home page's navigation bar without any need for login.

1.3 Definitions, Acronyms, and Abbreviations

The following definitions, acronyms, and abbreviations are used throughout this document:>

- *SRS: Software Requirements Specification*
- *UI: User Interface*
- *PDF: Portable Document Format*
- *SQL: Structured Query Language*
- *API: Application Programming Interface*
- *SSL: Secure Sockets Layer*

1.4 References

The following references were used to develop this SRS:>

- *IEEE Standard for Software Requirements Specification (IEEE Std 830-1998)*
- *OWASP Top 10 security risks*
- *W3C Web Content Accessibility Guidelines*

1.5 Overview

The "Student Admission Management" web application will provide a platform for students to register for a particular course and submit their documents for verification. The application will also provide administrators with the ability to manage the admission process, view analytics, and generate reports. The system will be web-based and will utilize a SQL database to store data. The application will have two user types - students and administrators - and each will have their own login credentials. The UI will be intuitive and user-friendly, and the system will be designed with security, performance, and accessibility in mind.

2. System Requirements

2.1 Functional Requirements

The functional requirements describe the core features and functionalities of the "Student Admission Management" web application. These requirements are broken down into the following categories:

- *Login: The system shall allow students and administrators to login to their respective accounts using their user id and password.*
- *Registration: The system shall allow students to register for a particular course by providing basic information such as name, email, and phone number.*
- *Document Submission: The system shall allow students to upload documents required for admission and allow administrators to verify and approve documents.*
- *Analytics Dashboard: The system shall provide administrators with an analytics dashboard to view document status (pending vs completed) and generate reports.*
- *Report Generation: The system shall allow administrators to generate report cards for students in PDF format and email them to students.*

2.2 Non-Functional Requirements

The non-functional requirements describe the characteristics of the "Student Admission Management" web application that are not related to specific functionalities but are essential for the overall performance and usability of the system. These requirements are broken down into the following categories:

- *Security: The system shall be designed with security in mind, including data encryption, secure login, and protection against common web application security risks (e.g., cross-site scripting and SQL injection).*
- *Performance: The system shall be designed to perform efficiently, including fast loading times, minimal downtime, and scalable architecture.*
- *Compatibility: The system shall be compatible with modern web browsers and mobile devices.*
- *Accessibility: The system shall comply with the W3C Web Content Accessibility Guidelines to ensure that the UI is accessible to users with disabilities.*
- *Usability: The system shall have an intuitive and user-friendly UI, with clear navigation, consistent design, and easy-to-understand instructions.*

2.3 System Architecture

The "Student Admission Management" web application will be designed using a client-server architecture. The server will host the web application, which will be accessed by clients using a

web browser. The system will utilize a SQL database to store data, and APIs will be used for integration with external systems (e.g., email services).

2.4 Technology Stack

The "Student Admission Management" web application will be built using the following technology stack:

- *Programming Language: JavaScript (Node.js)*
- *Web Framework: Express.js*
- *Database: MySQL*
- *Frontend Framework: React.js*
- *UI Design: Bootstrap*
- *Email Service: SendGrid*
- *Deployment: Amazon Web Services (AWS)*
- *SSL Certificate: Let's Encrypt*

The choice of this technology stack is based on its proven reliability, scalability, and compatibility with modern web browsers and mobile devices.

3. User Requirements

3.1 User Classes and Characteristics

There are two primary user classes for the "Student Admission Management" web application: students and administrators.

- *Students: These users are potential students who are interested in registering for a particular course. They will use the web application to submit their personal information and documents required for admission, as well as to view the status of their admission application.*
- *Administrators: These users are staff members responsible for managing the onboarding process of students for a particular course. They will use the web application to verify and approve submitted documents, as well as to generate reports and analytics related to the admission process.*

3.2 Assumptions and Dependencies

The following assumptions and dependencies are relevant to the "Student Admission Management" web application:

- *Students have access to a reliable internet connection and modern web browsers.*
- *Administrators have access to a reliable internet connection and modern web browsers.*
- *The system will rely on the availability and security of external services such as email delivery, SSL certificate management, and cloud infrastructure.*

3.3 User Stories

The user stories describe specific actions and goals of the users, which are necessary to fulfill the system requirements. Here are a few user stories for the "Student Admission Management" web application:

- *As a student, I want to register for a course by providing my personal information (name, email, phone number) and the necessary documents required for admission.*
- *As an administrator, I want to receive notifications when a new student registers and submits documents for admission.*
- *As an administrator, I want to verify the authenticity of the documents submitted by the students and approve or reject them.*
- *As a student, I want to receive regular updates on the status of my admission application and the documents I submitted.*
- *As an administrator, I want to generate reports on the document status (pending vs completed) of all the students and download them as PDF files.*

- *As an administrator, I want to view an analytics dashboard that displays the number of pending and completed documents, and the status of the overall admission process.*

3.4 Use Cases

Use cases describe how the user interacts with the system to achieve specific goals. Here are a few examples of use cases for the "Student Admission Management" web application:

- *Register for a Course: The student selects the course they want to register for, fills out a registration form with personal information, and uploads the required documents. Upon submission, the system sends an email to the student confirming their registration.*
- *Verify and Approve Documents: The administrator logs into the system, navigates to the documents section, and views the documents submitted by the students. The administrator verifies the authenticity of the documents and approves or rejects them. If approved, the system sends an email to the student confirming their document status.*
- *Generate Report: The administrator logs into the system, navigates to the analytics dashboard, and generates a report on the document status (pending vs completed) of all the students. The system generates a PDF report that can be downloaded and emailed to the students.*
- *View Status: The student logs into the system and views the status of their admission application, including the status of their submitted documents. If any document is pending, the system displays a message asking the student to wait for the administrator's approval.*

4. Database Design

4.1 Database Schema

The "Student Admission Management" web application will use a database to store all the relevant data related to the admission process. The database schema will consist of the following tables:

- *Students: This table will store the personal information of all the students who register for a course. The fields will include the student ID, name, email, phone number, and the course they registered for.*
- *Course Details: This table will store the details of the course, such as the course ID, name, duration, fees, and the number of seats available.*
- *Student Documents: This table will store the documents uploaded by the students for admission, such as their academic transcripts, passport photos, and ID proofs. The fields will include the document ID, document type, document name, and the student ID.*
- *Document Status: This table will store the status of the documents uploaded by the students. The fields will include the document ID, document type, status (pending, approved, or rejected), and the date of approval or rejection.*

4.2 Data Dictionary

Here is a detailed data dictionary for the tables used in the "Student Admission Management" web application:

Admin Login Table:

Field Name	Data Type	Length	Key	Description
Admin_ID	Varchar	30	Primary Key	Unique ID for each admin
UserName	Varchar	16	NN	User Name of the admin
Email	Varchar	50	NN	Email address of the admin
Password	Varchar	32	NN	Password of the admin

User Login Table:

Field Name	Data Type	Length	Key	Description
User_ID	Varchar	30	Primary Key	Unique ID for each
UserName	Varchar	16	NN	User Name of the admin
Email	Varchar	50	NN	Email address of the admin
Password	Varchar	32	NN	Password of the admin

Courses Table:

Field Name	Data Type	Length	Key	Description
Course_ID	Varchar	20	Primary Key	Unique ID for each course
Course_Name	Varchar	45	NN	Name for the course
Course_Details	Varchar	45	NN	Details for given course
Course_Fee	Varchar	10	NN	Course fee information
Course_Duration	Varchar	45	NN	Duration for specific courses
Seats_Available	Varchar	45	NN	Information for seats availability

Student Documents Table:

Field Name	Data Type	Length	Key	Description
Document_ID	Varchar	30	Primary Key	Unique ID for each document
Document_Type	Varchar	45	NN	Adhaar, Passport etc.
Document_Name	Varchar	45	NN	
Student_ID	Varchar	45	Foreign Key	
Submission_Date	Date	45		

Students Enrolled Table:

Field Name	Data Type	Length	Key	Description
Enrolled_ID	Varchar	45	Primary Key	Unique Enroll ID for each student
Student_ID	Varchar	45	Foreign Key	
Course_ID	Varchar	45	Foreign Key	

Documents Status Table:

Field Name	Data Type	Length	Key	Description
Document_ID	Varchar	45	Foreign Key	Unique Doc ID for each submission
Approved	Bool	45		
Rejected	Bool	45		
Approval_Rejection_Date	Date	45		

Exam Preparation Table:

Field Name	Data Type	Length	Key	Description
Test_ID	Varchar	45	Primary Key	Unique Test ID for each Test, Subject Wise
Mock_Test	Varchar	45		
Assignment	Varchar	45		

Student Registration Table:

Field Name	Data Type	Length	Key	Description
Student_ID	Varchar	45	Primary Key	Unique Test ID for each Test, Subject Wise
Student_Name	Varchar	45		
Course_Enrolled	Varchar	45		
Student_Center	Varchar	45		
Education_Details	Varchar	250		To be filled by the students
Fee_Details	Varchar	45		
Personal_Details	Varchar	250		Personal Details to be filled by students

Teacher Information Table:

Field Name	Data Type	Length	Key	Description
Teacher_ID	Varchar	20	Primary Key	Unique Teacher ID for each Teacher
Teacher_Name	Varchar	45		
Teacher_Qualifiacation	Varchar	250		
Subject_Alloted	Varchar	100		
Teacher_Contact	Varchar	45		Email Address of Teacher

Remarks Table:

Field Name	Data Type	Length	Key	Description
FeedBack	Varchar	250		
Testimonials	Varchar	250		
Project	Varchar	250		

The above data dictionary provides a detailed understanding of the fields in each table, their data types, and their descriptions. This will help in creating the database and its tables efficiently.

5. System Interface

5.1 User Interface

The user interface will be designed to be simple, user-friendly, and intuitive to use. The application will be a web-based application accessible through standard web browsers. The UI will have the following features:

- *Login page for both admin and students with username and password fields.*
- *The main menu will display all the functions that are accessible to the user. The functions include view report card and document status, analytics dashboard, and others.*
- *The report card page will display the student's information, including the course name, grades, and other relevant information. This page will also provide the option to download the report card in a PDF format.*
- *The document status page will display a table that shows the status of the student's documents, including pending and completed documents.*
- *The analytics dashboard page will display graphs and charts to show the overall document status of students, pending and completed documents, and other relevant information.*

5.2 Navigation

The navigation bar will be available on all pages to allow users to easily navigate to any other page. The main menu will have links to all the available pages.

5.3 Forms

The application will have various forms for entering and editing information. These forms include:

- *Student admission form for entering student information*
- *Course details form for entering course information*
- *Student document form for uploading and attaching documents to student records*
- *Student document status form for tracking document status*

All forms will have required fields and validation checks to ensure that all necessary information is captured.

5.4 Reports

The application will generate various reports to provide useful information to the users. These reports include:

- *Report card in PDF format to be emailed to the student*
- *Analytics dashboard to show various statistics and charts to the admin*

5.5 Notification

The application will send notification emails to students when their report cards are ready for download. It will also send notifications to admins when students upload or update their documents. The notification will be sent to the email address associated with the account.

6. Constraints

6.1 Legal and Regulatory

The Student Admission Management system must comply with all applicable laws and regulations. The following legal and regulatory requirements must be met:

- *The system must comply with data protection and privacy laws to ensure that all student information is secure and confidential.*
- *The system must comply with laws and regulations regarding the handling of student documents, including data security and privacy laws.*

6.2 Security

The system will handle sensitive student information, so security is a critical consideration. The following security requirements must be met:

- *The system must use secure login methods to prevent unauthorized access to the system and student information.*
- *The system must encrypt all data transmissions to prevent unauthorized access to sensitive information.*
- *The system must store all student information and documents in a secure database that is only accessible to authorized personnel.*
- *The system must implement appropriate access control measures to ensure that only authorized personnel can access student information and documents.*

6.3 Performance

The system must be designed to perform well under normal operating conditions. The following performance requirements must be met:

- *The system must be able to handle a large number of users simultaneously without experiencing significant slowdowns or crashes.*
- *The system must be able to handle a large amount of data without experiencing significant performance issues.*
- *The system must be able to generate reports and analytics quickly and accurately.*

6.4 Compatibility

The system must be compatible with various browsers and devices to ensure that all users can access the system. The following compatibility requirements must be met:

- *The system must be compatible with all modern web browsers, including Chrome, Firefox, Safari, and Edge.*
- *The system must be compatible with various devices, including desktop computers, laptops, tablets, and smartphones.*

6.5 Accessibility

The system must be designed to be accessible to all users, including those with disabilities. The following accessibility requirements must be met:

- *The system must comply with web accessibility standards, such as the Web Content Accessibility Guidelines (WCAG).*
- *The system must be designed to be usable with assistive technologies, such as screen readers and keyboard-only navigation.*

6.6 Usability

The system must be designed to be easy to use for all users. The following usability requirements must be met:

- *The system must have a simple and intuitive user interface that is easy to navigate.*
- *The system must have clear instructions and guidance for all functions and tasks.*
- *The system must have appropriate feedback mechanisms to inform users of the status of their tasks and actions.*

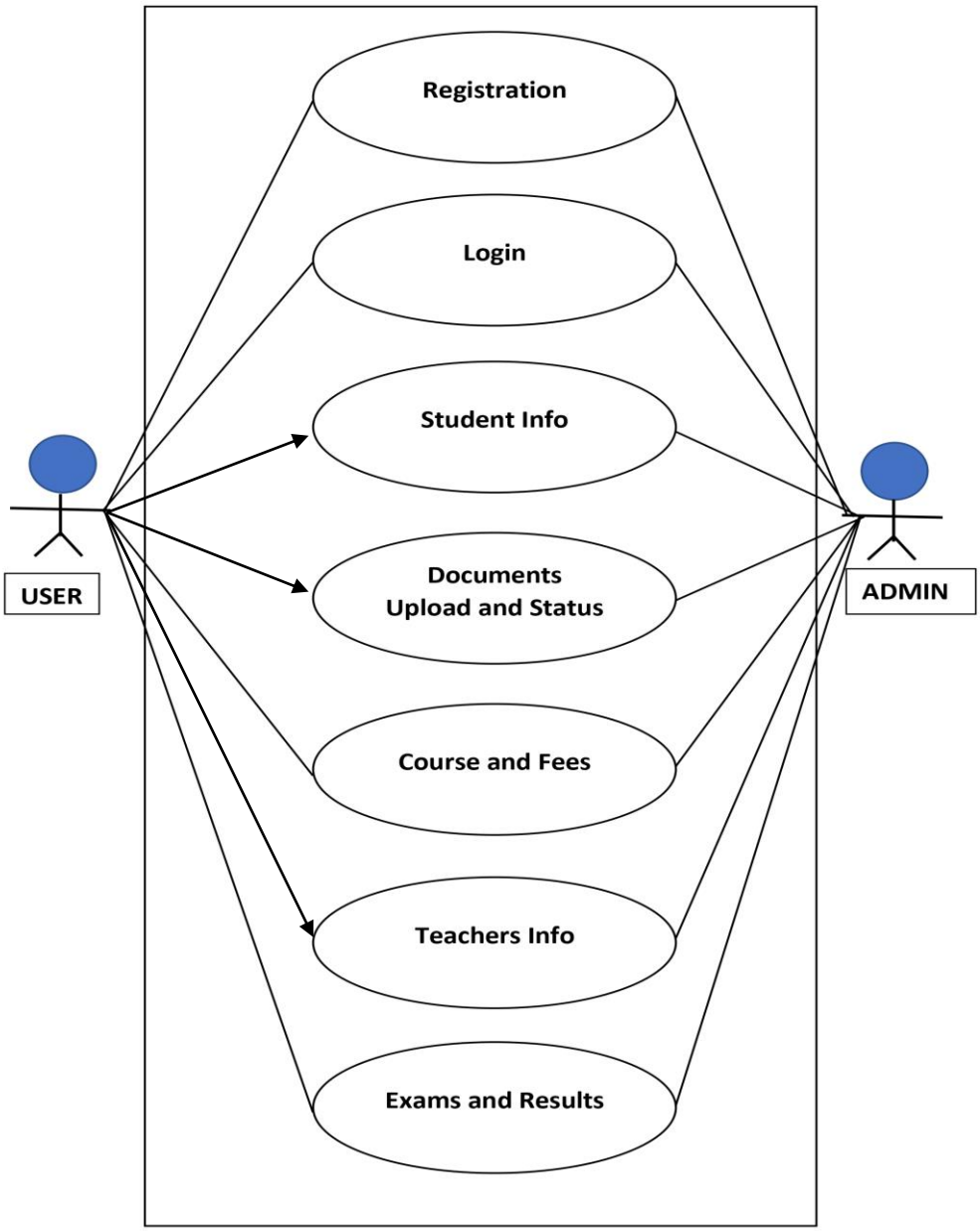
7. Appendices

7.1 Glossary

- *SAMS: Student Admission Management System*
- *Admin: System Administrator*
- *User: Any user of the SAMS system, including students, faculty, and staff*
- *Student: A person enrolled in a course of study at the educational institution*
- *Course: A program of study offered by the educational institution*
- *Document: Any paperwork or electronic file required for student admission and enrollment*

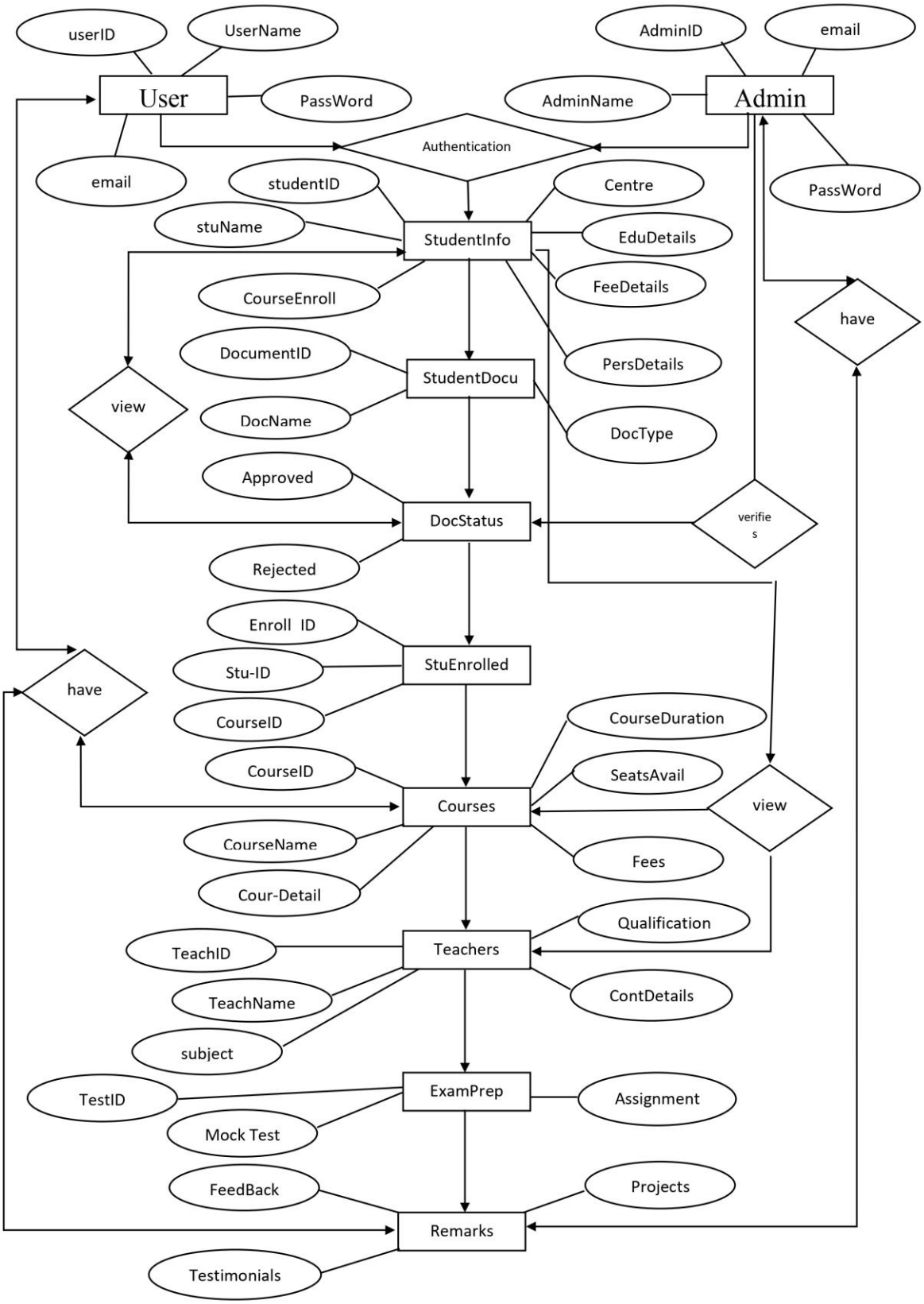
7.2 Use Case Diagrams

The following use case diagram provides a high-level overview of the functionality of the SAMS system.



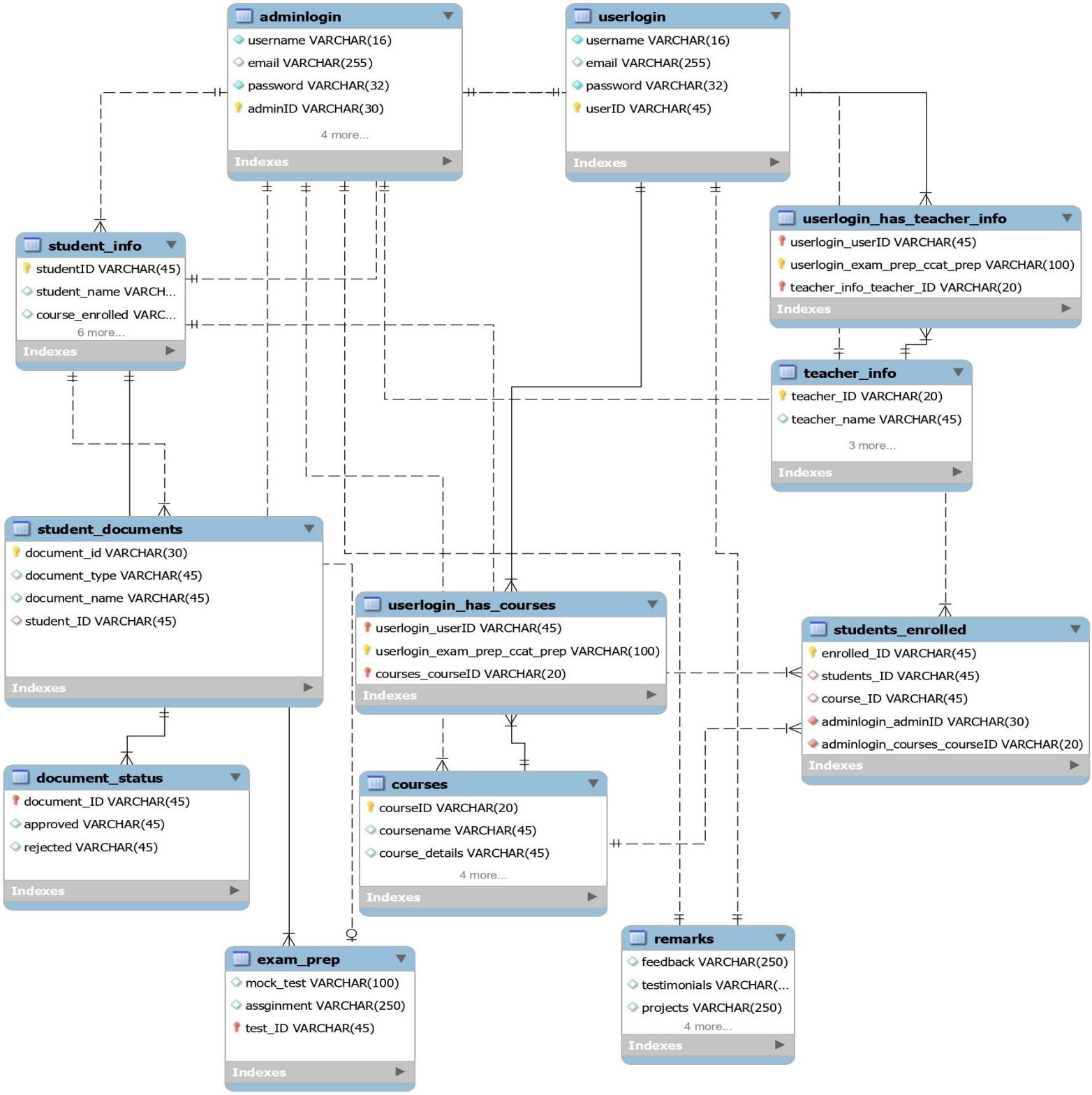
7.3 Entity Relationship Diagram

The following entity relationship diagram (ERD) provides an overview of the database schema for the SAMS system.



7.4 Data Flow Diagrams

The following data flow diagram (DFD) provides an overview of the data flow in the SAMS system.

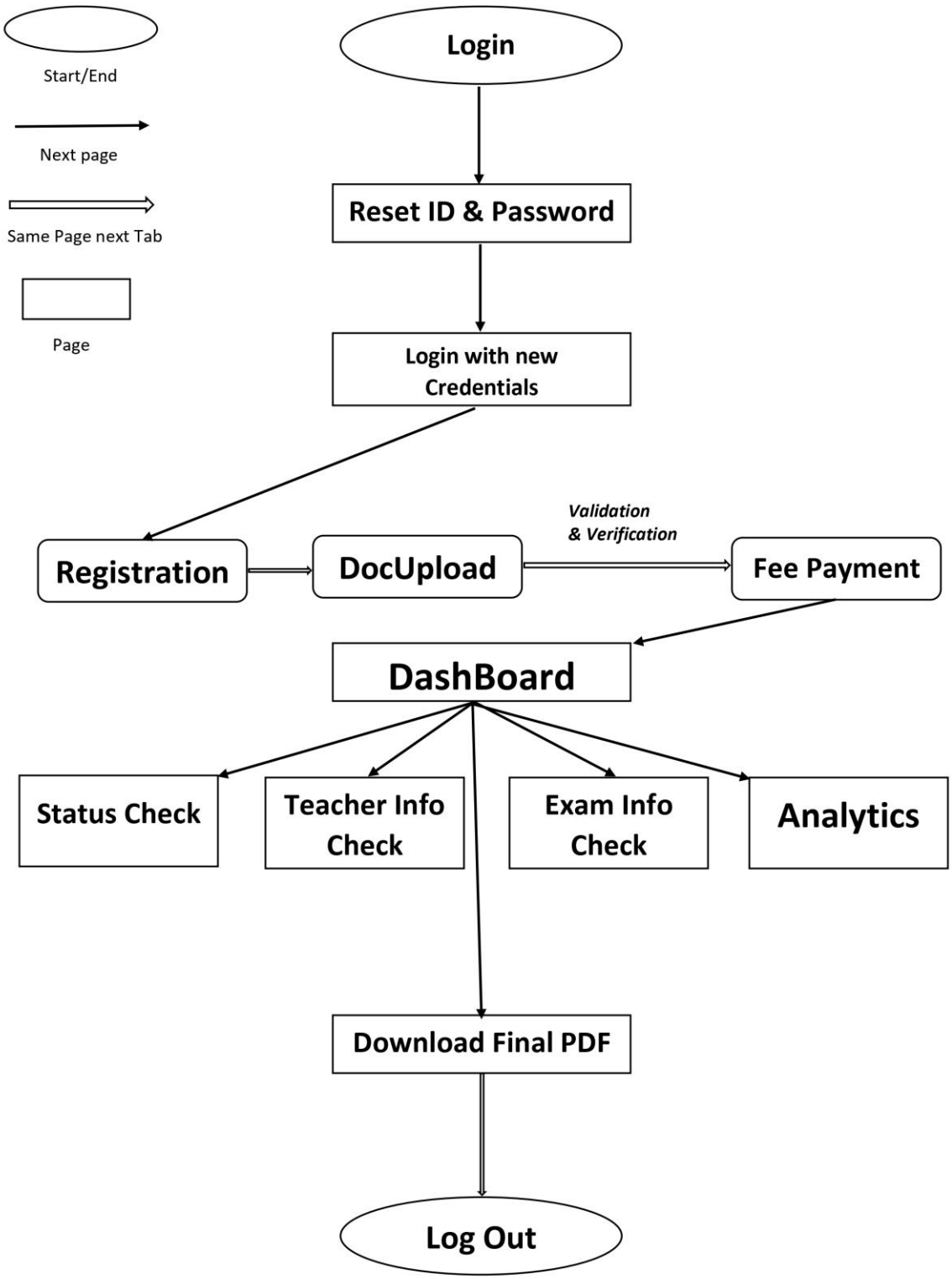


7.5 Features

- *The system will have a student table that will store student information such as name, gender, email address, and phone number.*
- *The system will have a course details table that will store information about the course such as course name, duration, and fees.*
- *The system will have a student document table that will store information about the documents required for admission such as mark sheets, certificates, and ID proof.*
- *The system will have a student document status table that will store information about the status of the documents submitted by the student.*
- *The system will have a login for students where they can log in using their pre-defined user ID and password.*
- *The system will have a login for administrators where they can manage student information, course details, student documents, and document status.*
- *The system will have a menu that will allow administrators to navigate to different modules.*
- *The system will have a view that will display the report card for students in PDF format.*
- *The system will generate a report card in PDF format that will be emailed to the student.*
- *The system will have an analytics dashboard that will display the document status of pending and completed documents.*
- *The system will allow the administrator to send an email with a pre-defined user ID and password to the students who have passed the entry test.*
- *Students will be able to change their username and password, but they will not be able to change other information like their name and gender filled by the admin.*
- *This kind of login will be provided for security reasons so that failed students cannot create an account in the portal and cannot access it.*
- *After uploading documents, students will be able to check their document status in their account.*
- *The administrator will be able to verify the documents uploaded by the students.*
- *The administrator will be able to inform the student if their documents have been accepted or rejected.*
- *If the documents are rejected, the administrator will inform the student of the reason for the rejection and provide an option for the student to correct it.*

7.6 UI/UX FlowChart

The following mockups and prototypes provide a visual representation of the user interface for the SAMS system.



7.7 Traceability Matrix

The following Traceability Matrix that maps the requirements to the functional and non-functional requirements:

Requirement ID	Requirement	Functional Requirements	Non-Functional Requirements
1	Student Table	✔	✔
2	Course details table	✔	✔
3	Student document table	✔	✔
4	Student document status	✔	✔
5	Login for student	✔	✔
6	Login for admin	✔	✔
7	Menu	✔	✔
8	View: Report Card for students (document status)	✔	✔
9	Report Card in Pdf to be email to student	✔	✔
10	Analytics Dashboard (Document status – pending vs completed)	✔	✔
11	Admin will send email with pre-defined user id and password to the students who have passed the entry test	✔	✔
12	Students can change their username and password, but they cannot change other information like their name and gender filled by the admin	✔	✔
13	Login will be provided for security reasons so that failed students cannot create an account in the portal and cannot access it	✔	✔
14	Students will be able to check their document status in their account	✔	✔
15	Administration will be able to verify the documents uploaded by the students	✔	✔
16	Administration will inform the student if their documents have been accepted or rejected	✔	✔
17	If the documents are rejected, the administrator will inform the student of the	✔	✔

Requirement ID	Requirement	Functional Requirements	Non-Functional Requirements
	reason for the rejection and provide an option for the student to correct it		
18	*Information about the CCAT exam, CDAC centre location, course list and duration, fees details will be displayed on the home page's navigation bar without any need for login*	✔	✔
19	*The system will be accessible from any device with an internet connection*		✔
20	*The system will have a user-friendly interface*		✔
21	*The system will be secure and will only allow authorized users to access it*		✔
22	*The system will be scalable and will be able to handle a large number of users*		✔

The following Traceability Matrix that maps the requirements to the test cases to ensure that all requirements are tested:

Requirement ID	Requirement	Test Case ID
1	*Student Table*	*TC01*
2	*Course details table*	*TC02*
3	*Student document table*	*TC03*
4	*Student document status*	*TC04*
5	*Login for student*	*TC05*
6	*Login for admin*	*TC06*
7	*Menu*	*TC07*
8	*View: Report Card for students (document status)*	*TC08*
9	*Report Card in Pdf to be email to student*	*TC09*
10	*Analytics Dashboard (Document status –pending vs completed)*	*TC10*
11	*Admin will send email with pre-defined user id and password to the students who have passed the entry test*	*TC11*
12	*Students can change their username and password, but they cannot change other information like their name and gender filled by the admin*	*TC12*
13	*Login will be provided for security reasons so that failed students cannot create an account in the portal and cannot access it*	*TC13*

Requirement ID	***Requirement***	***Test Case ID***
14	*Students will be able to check their document status in their account*	*TC14*
15	*Administration will be able to verify the documents uploaded by the students*	*TC15*
16	*Administration will inform the student if their documents have been accepted or rejected*	*TC16*
17	*If the documents are rejected, the administrator will inform the student of the reason for the rejection and provide an option for the student to correct it*	*TC17*
18	*Information about the CCAT exam, CDAC centre location, course list and duration, fees details will be displayed on the home page's navigation bar without any need for login*	*TC18*
19	*The system will be accessible from any device with an internet connection*	*TC19*
20	*The system will have a user-friendly interface*	*TC20*
21	*The system will be secure and will only allow authorized users to access it*	*TC21*
22	*The system will be scalable and will be able to handle a large number of users*	*TC22*

7.8 Test Cases

The following test cases are designed to ensure that the SAMS system meets all requirements.

Test Case ID	***Test Case Description***	***Expected Result***
TC01	*Verify that the student table can be populated with new students*	*New student data is saved in the student table*
TC02	*Verify that the course details table can be populated with new courses*	*New course data is saved in the course details table*
TC03	*Verify that students can upload their documents to the document table*	*Documents uploaded by students are saved in the student document table*
TC04	*Verify that the student document status can be updated by the administration*	*The student document status is updated in the student document status table*
TC05	*Verify that students can log in to their account using their credentials*	*Students are able to log in to their account*
TC06	*Verify that the administrator can log in to the system using their credentials*	*The administrator is able to log in to the system*
TC07	*Verify that the menu options are displayed correctly*	*The menu options are displayed as expected*
TC08	*Verify that students can view their report card*	*Students are able to view their report card*
TC09	*Verify that the report card can be sent to the student via email as a PDF*	*The report card is sent to the student's email as a PDF*
TC10	*Verify that the analytics dashboard displays document status (pending vs completed)*	*The analytics dashboard displays document status (pending vs completed)*
TC11	*Verify that the administrator can send an email with pre-defined user id and password to students who have passed the entry test*	*The email with pre-defined user id and password is sent to the students who have passed the entry test*
TC12	*Verify that students can change their username and password but not other information filled by the administrator*	*Students are able to change their username and password but not other information filled by the administrator*
TC13	*Verify that login is provided for security reasons so that failed students cannot create an account in the portal and cannot access it*	*Failed students are unable to create an account in the portal and cannot access it*

Test Case ID	***Test Case Description***	***Expected Result***
TC14	*Verify that students can check their document status in their account*	*Students are able to check their document status in their account*
TC15	*Verify that administration can verify the documents uploaded by the students*	*The administration is able to verify the documents uploaded by the students*
TC16	*Verify that the administration informs the student if their documents have been accepted or rejected*	*The student is informed if their documents have been accepted or rejected*
TC17	*Verify that if the documents are rejected, the administration informs the student of the reason for the rejection and provides an option for the student to correct it*	*The student is informed of the reason for the rejection and provided with an option to correct it*
TC18	*Verify that information about the CCAT exam, CDAC centre location, course list and duration, fees details is displayed on the home page's navigation bar without any need for login*	*The information is displayed on the home page's navigation bar*
TC19	*Verify that the system can be accessed from any device with an internet connection*	*The system is accessible from any device with an internet connection*
TC20	*Verify that the system has a user-friendly interface*	*The system has a user-friendly interface*
TC21	*Verify that the system is secure and only allows authorized users to access it*	*The system is secure and only allows authorized users to access it*
TC22	*Verify that the system is scalable and can handle a large number of users*	*The system is scalable and can handle a large number of users*

7.9 Change Control Procedure

The following change control procedure outlines the process for making changes to the SAMS system.

1. *A change request must be submitted to the System Administrator, detailing the requested change.*
2. *The System Administrator will review the change request and determine the impact on the system.*
3. *If the change is approved, the System Administrator will create a change request ticket and assign it to the appropriate personnel.*
4. *The personnel assigned to the change request will implement the change in a test environment.*
5. *The change will be tested in the test environment to ensure it does not negatively impact the system.*
6. *If the change is successful in the test environment, it will be implemented in the production environment.*
7. *The change request ticket will be closed and the change will be documented in the system.*