A MINI PROJECT REPORT

ON

SCHOOL MANAGEMENT SYSTEM

BY

BUBACARR CEESAY [A 15]

FROM

Shree Chanakya Education Society

Indira College of Commerce and Science, Pune

(BCA DEPARTMENT)

Academic Year: 2024– 2025

DECLARATION

We, the undersigned, hereby declare that the project report entitled "School Management System" is a genuine and original work prepared by us under the guidance of Prof. Sumit Sasane.

This project report is submitted to the University of Pune in partial fulfillment of the requirements for the degree of Bachelor of Computer Applications (BCA). We affirm that this work is our own and has not been copied from any other sources.

We also acknowledge the support and guidance of Dr. Shivendu Bhushan, Head of Department.

Date: 27th September 2024.

Place: Pune

Names of Student:

1. **BUBACARR CEESAY**

Acknowledgement

We would like to express our sincere and heartfelt gratitude to our institution" Indira College of Commerce and Science" which provided us with excellent opportunity to achieve our most cherished goal in life to become Bachelor's degree in BCA(Science)

We are extremely grateful to our respected Vice Principal and HOD **Dr. Shivendu Bhushan** for providing excellent academic environment which has made this endeavour possible.

We take this opportunity to express our deep sense of gratitude to our guide **Prof. Sumit Sasane** for their resplendent idea and constant encouragement in making this project unmitigated success. Their thoughtfulness and understanding was vast and thoroughly helpful in successful completion of project. Our sincere thanks to all our faculties and non-teaching staff for them at most co-operation.

Finally, we proudly thank our parents and friends for their constant support and priceless guidance in throughout this endeavour.

Date: 27th September, 2024

Place: Pune

Names of Student:

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Guidelines for whole project documentation:

1. Font Name: Times New Roman
2. Font Size(Heading) : 16
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6. Page No. : Centre

1. INTRODUCTION

1.1: MOTIVATION

Education systems form the backbone of every nation. And hence it is important to provide a strong educational foundation to the young generation to ensure the development of open-minded global citizens securing the future for everyone. Advanced technology available today can play a crucial role in streamlining education-related processes to promote solidarity among students, teachers, parents and the school staff. The School Management System consists of tasks such as registering students, attendance record keeping controlling absentees, producing report cards, producing official transcript, preparing timetable and producing different reports for teachers and parents.

The School Management System (SMS) will replace the paper-based data collection and information exchange system among the various departments of a particular school. The appearance of your student records says a lot about the quality of your school. Other educators and registrars make judgments based on student records that can permanently affect a student's life. SMS capabilities include the basics such as student registration, report cards, attendance, and discipline as well as many other specialized capabilities, including parental access to real time student grades on the Internet. This means that not only administrators but also parents, teachers, and students have access to real-time data.

Automation is the utilization of technology to replace humans with a machine that can perform more quickly and more continuously. By automating SMS documents that take up many large storage rooms can be stored on a few disks. Transcript images can be annotated. It reduces the time to retrieve old data from hours to seconds.

1.2: PROBLEM STATEMENT

Managing the administrative and academic operations of a school can be a complex and time-consuming task, especially in large institutions. Traditional manual processes for maintaining student records, managing attendance, handling examinations, communicating with parents, and managing teaching resources are prone to errors, require extensive paperwork, and consume significant amounts of time and effort. As a result, educators and administrators face challenges in efficiently overseeing day-to-day activities, which negatively impacts productivity and effective decision-making.

The lack of a centralized and automated system often leads to issues such as:

i. Data Inconsistency: Manually recorded data can become disorganized or incorrect, leading to difficulties in accessing and verifying information.

ii. Limited Accessibility: Important information like student performance, attendance, and schedules may not be easily accessible to teachers, students, and parents.

iii. Inefficient Communication: Traditional methods like physical notices or verbal messages result in delays and can lead to missed information.

iv. Complex Administrative Workflows: Handling multiple activities such as exam scheduling, fee management, and generating academic reports becomes cumbersome without automation.

v. Time and Resource Wastage: Manual record-keeping and data entry processes waste valuable time and resources that could be better utilized in teaching and learning.

1.3: OBJECTIVES / GOALS / PURPOSE

The objective of the system is to provide a user-friendly application which mange the whole school. The software helps the user to record the student and employee's data. Give a path for better reporting.

The Primary goal of the online school system is to instantly provide the data or Information to the Students and Teachers and Principle. Another aim is to keep the Information about the school and provide to users. Administrator performs important job for the live system. This system is best to create communication between students, teachers and their parents by inter messaging. Also, Admin can send a message to the student about school result & Activity. Students can see his or her Exam timetable and result. Parents also show the result, Attendees reports, and exam timetable of children. Admin can also generate reports like student information, news, activity, staff, management etc.

Other objectives include:

i. Computerized System is more efficient, accurate and manual, so this system is very accurate and reduces manual works.

ii. Improving current systems and enabling all schools to operate as part of an integrated flexible education system.

iii. Save the time and make the work easy for users

iv. To get the actual number of students that register in school.

v. Main objective of this website is let multiple information such as principal, faculty, student, management, examination, standard and extra activity of school.

1.4: LITERATURE SURVEY

A School Management System (SMS) is a comprehensive software platform designed to manage various administrative and academic operations of a school or educational institution. The evolution of SMS has been influenced by the integration of technology in education. Early systems were primarily record-keeping databases, but with the advancement in technology, modern SMS platforms now offer multi-faceted functionalities such as communication tools, online learning modules, and real-time analytics.

A well-designed system not only simplifies administrative tasks but also promotes collaboration among students, teachers, and parents. Studies have shown that schools with effective management systems experience improved productivity, better student engagement, and reduced paperwork, thereby allowing educators to focus more on teaching and learning.

Most contemporary School Management Systems are built using web-based or cloud technologies, enabling anytime-anywhere access. Core features include:

i. Student Information Management: Managing student records, attendance, performance, and personal information.
ii. Teacher and Staff Management: Keeping track of teacher schedules, payroll, and performance evaluations.
iii. Examination and Grading: Automated examination scheduling, result computation, and report generation.
iv. Communication Modules: Tools for effective communication among students, teachers, and parents via SMS, emails, or in-app notifications.
v. Financial Management: Fee collection, budgeting, and accounting modules.

Research has also highlighted the use of artificial intelligence (AI) and machine learning (ML) in modern SMS for predictive analytics—such as identifying at-risk students based on their performance trends or behavioral patterns. Cloud-based systems are gaining popularity due to their scalability and security features, ensuring data integrity and ease of backup.

1.5: PROJECT SCOPE AND LIMATION

SCOPE

The scope of the system is:

i. To manage students' information and their fees.

ii. To develop registration system.

iii. To facilitate School by controlling the timetable and examinations.

iv. To facilitate attendance record keeping.

v. To facilitate various report generation.

vi. To manage the student information, human resources and fees module.

vii. To communicate with parents and share notice.

LIMITATIONS

i. Potential difficulties in data migration from legacy systems.

ii. Risks associated with data breaches and unauthorized access.

iii. Dependence on internet connectivity.

iv. Resistance from staff and students to adopt the new system and may need training and support to ensure effective use of the system.

v. Dependence on technical support for troubleshooting and resolving issues.

2. SYSTEM ANALYSIS

2.1: EXISTING SYSTEM

In the current system we need to keep several records related to the student and want to enter the details of the student and the marks manually. In this system only the teacher or the school authority views the mark of the student and enter the details of the student.

This is time consuming and has much cost. Teachers may want to associate a student with his parents or emergency persons for disciplinary measures which need searching of the student's record in the record office. It has been difficult to search for a record from thousands of such records and observed that students can take any person claiming that he/she is their parent or emergency person which creates problem in control of students. With traditional reporting methods parents may not find out how their student is performing in school until the end of the quarter or semester, usually too late to correct a problem situation.

2.2: SCOPE AND DRAWBACKS OF EXISTING SYSTEM

i. Time consuming:

   Every works is done manually so we cannot generate report in the month exam, quiz and attendance because of its very time consuming

ii. Not user friendly:

   The existing is not user friendly, because the retrieval of data is very slow, and data is not maintained efficiently.

iii. Manual control:

   All calculations for generating reports are done manually which may lead to errors.

iv. Lack of security of data.

2.3: REQUIREMENT ANALYSIS

2.3.1: FUNCTIONAL ANALYSIS

The School Management System is designed to streamline administrative tasks, enhance communication, and improve data management for schools. It includes key modules for managing students, teachers, classes, attendance, and exams. Core functionalities involve student registration, attendance tracking, timetable management, grade entry, and report generation. Additionally, it offers features for teacher-student-parent communication through notices, email notifications, and a digital noticeboard. The system enables teachers to upload study materials and assignments, and facilitates exam scheduling and results management, ensuring comprehensive academic tracking.

2.3.2: PERFORMANCE ANALYSIS

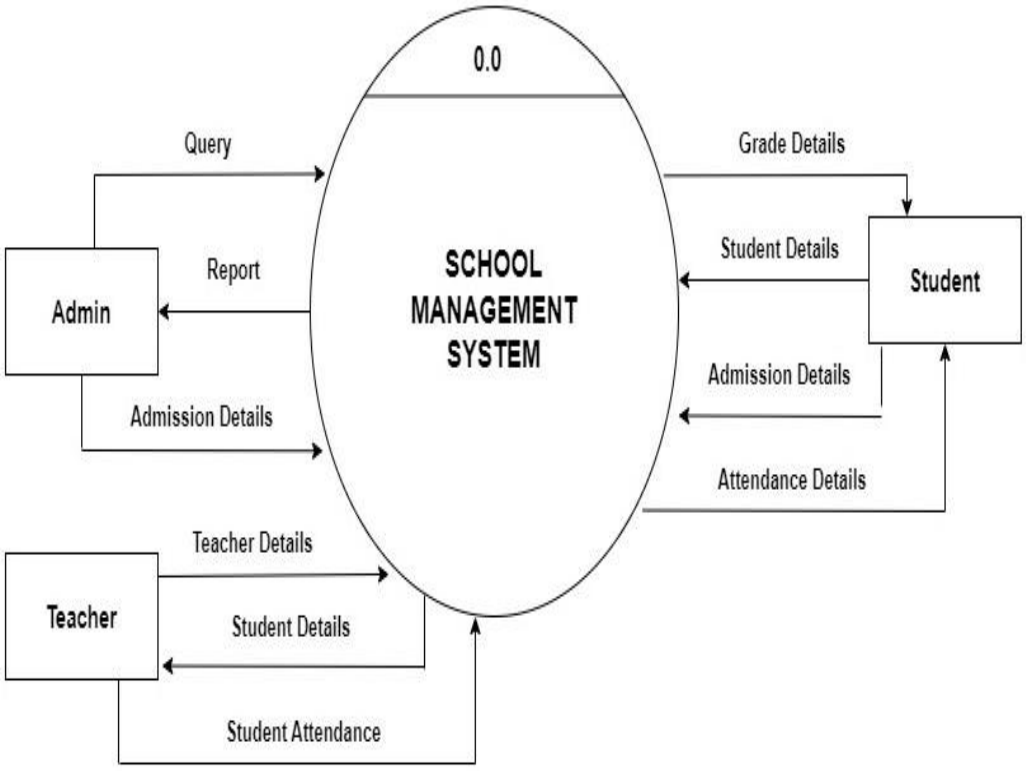
Performance is critical for a system catering to multiple stakeholders like students, teachers, and administrators. The School Management System should provide fast response times, with page loading and data retrieval optimized to handle high concurrent user loads. Database queries are fine-tuned for efficiency, ensuring that data operations like attendance marking, result calculations, and large data searches are performed with minimal delay. Scalability is built into the system to accommodate future growth in users, classes, and educational resources, ensuring a consistent and reliable user experience.

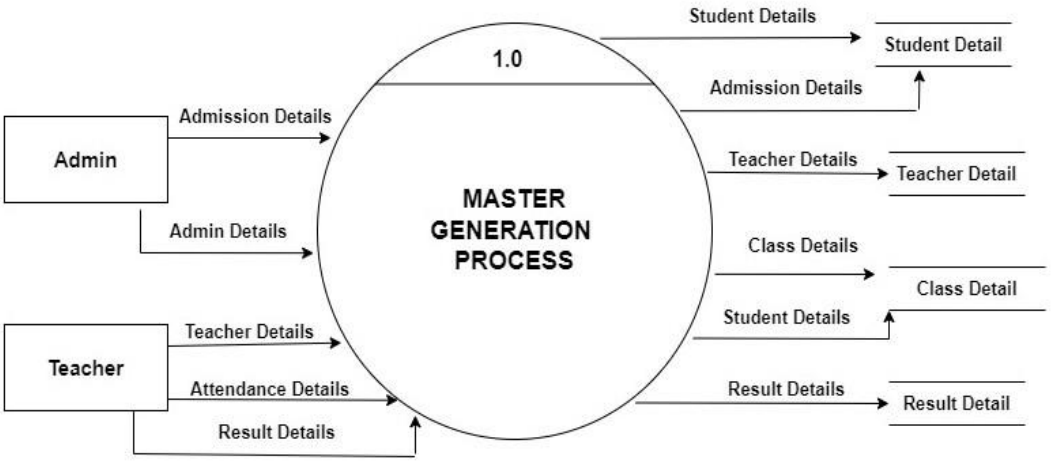
2.3.3: SECURITY ANALYSIS

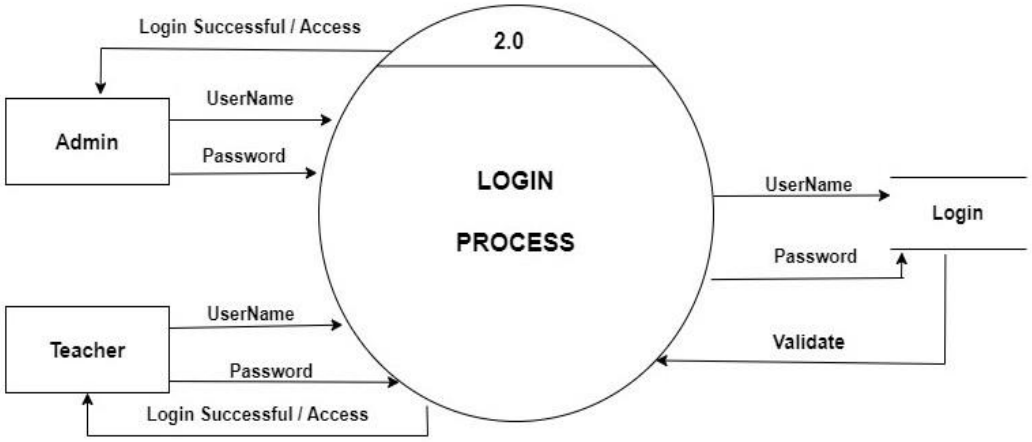
The School Management System handles sensitive data, including personal and academic information of students and staff, making security a priority. It employs user authentication, role-based access control, and secure data transmission protocols to safeguard information. Only authorized personnel can access or modify sensitive records.

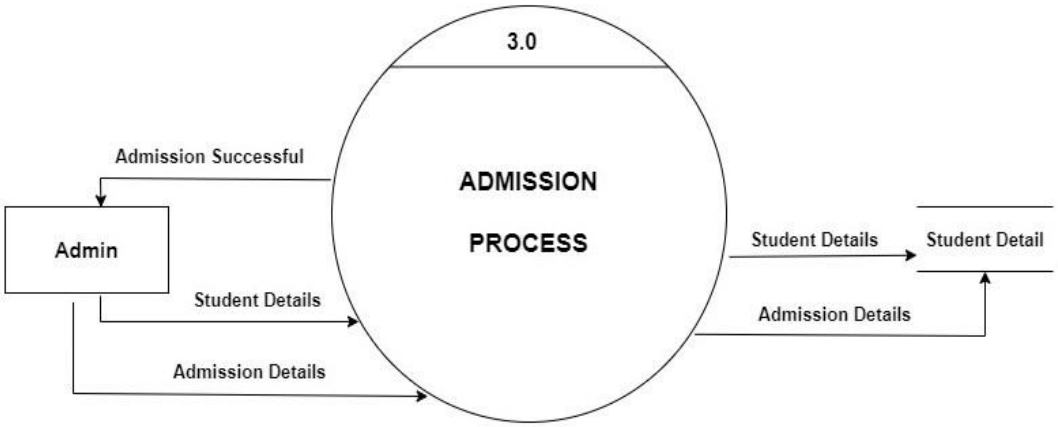
3. SYSTEM DESIGN

3.1: DATA FLOW DIAGRAM




1.0
MASTER GENERATION PROCESS
Admin
Admission Details
Admin Details
Teacher
Teacher Details
Attendance Details
Result Details
Student Details
Student Detail
Admission Details
Teacher Details
Teacher Detail
Class Details
Class Detail
Student Details
Result Details
Result Detail


2.0
LOGIN PROCESS
Admin
Login Successful / Access
UserName
Password
Teacher
UserName
Password
Login Successful / Access
UserName
Login
Password
Validate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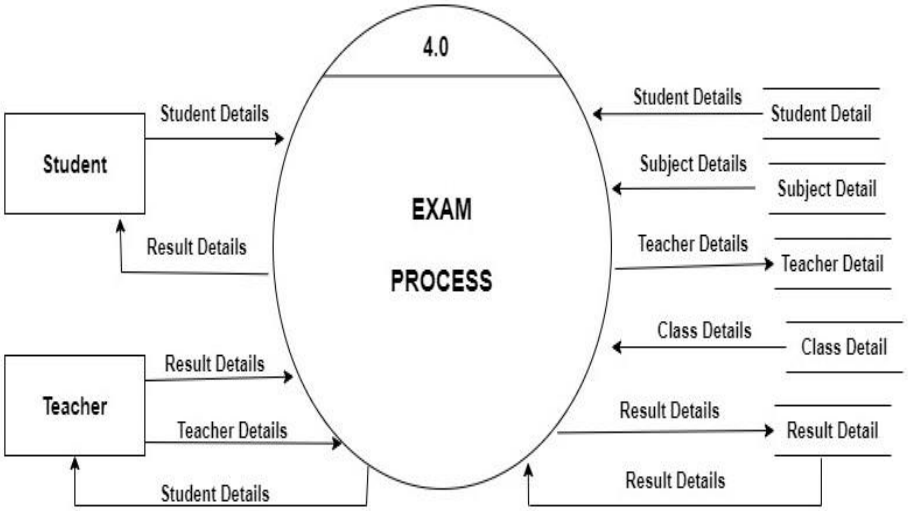
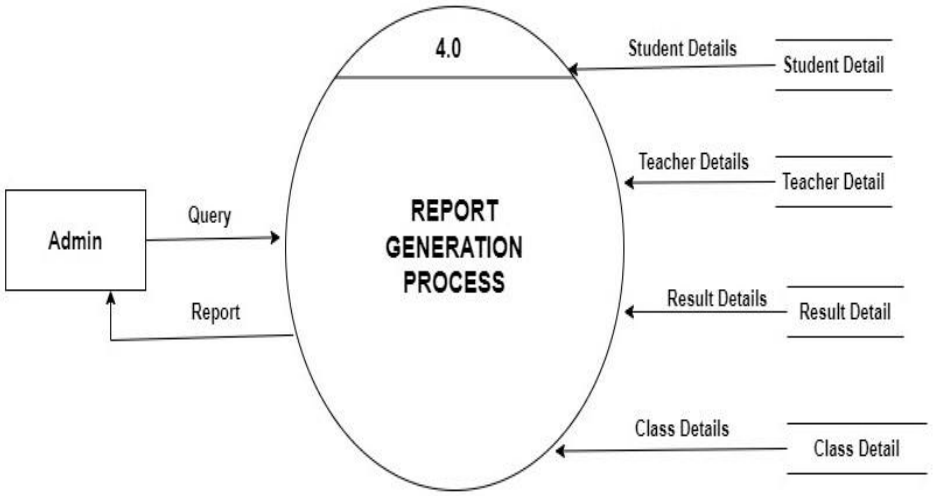
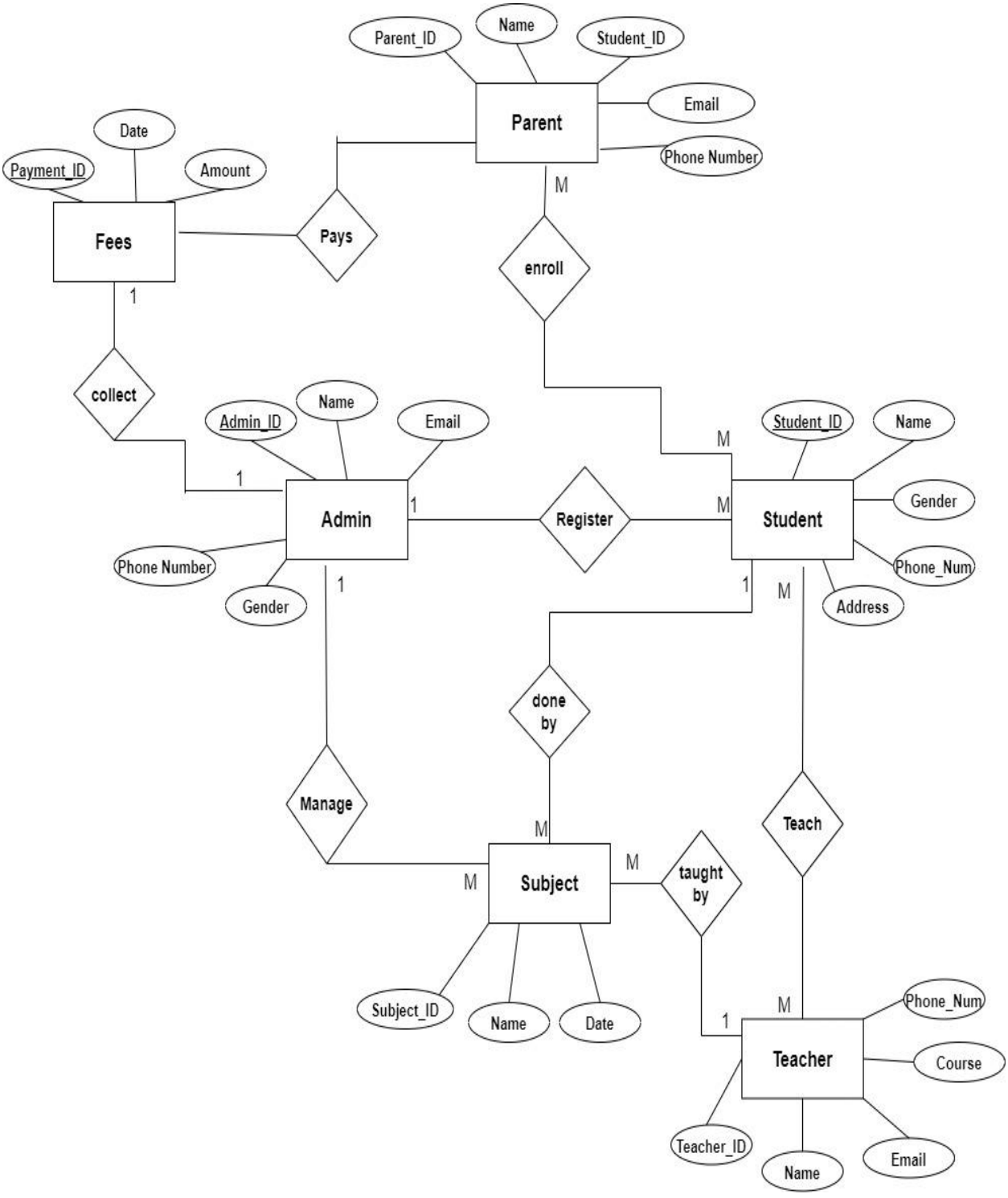
ADMISSION PROCESS
Admin
Admission Successful
Student Details
Admission Details
Student Details
Student Detail
Admission Details


4.0
EXAM
PROCESS
Student
Teacher
Student Details
Result Details
Teacher Details
Student Details
Subject Details
Teacher Details
Class Details
Result Details
Result Details
Student Details
Student Detail
Subject Detail
Teacher Detail
Class Detail
Result Detail
Result Details


4.0
REPORT
GENERATION
PROCESS
Admin
Query
Report
Student Details
Teacher Details
Result Details
Class Details
Student Detail
Teacher Detail
Result Detail
Class Detail

3.2: ENTIY RELATIONSHIP DIAGRAM(ERD)



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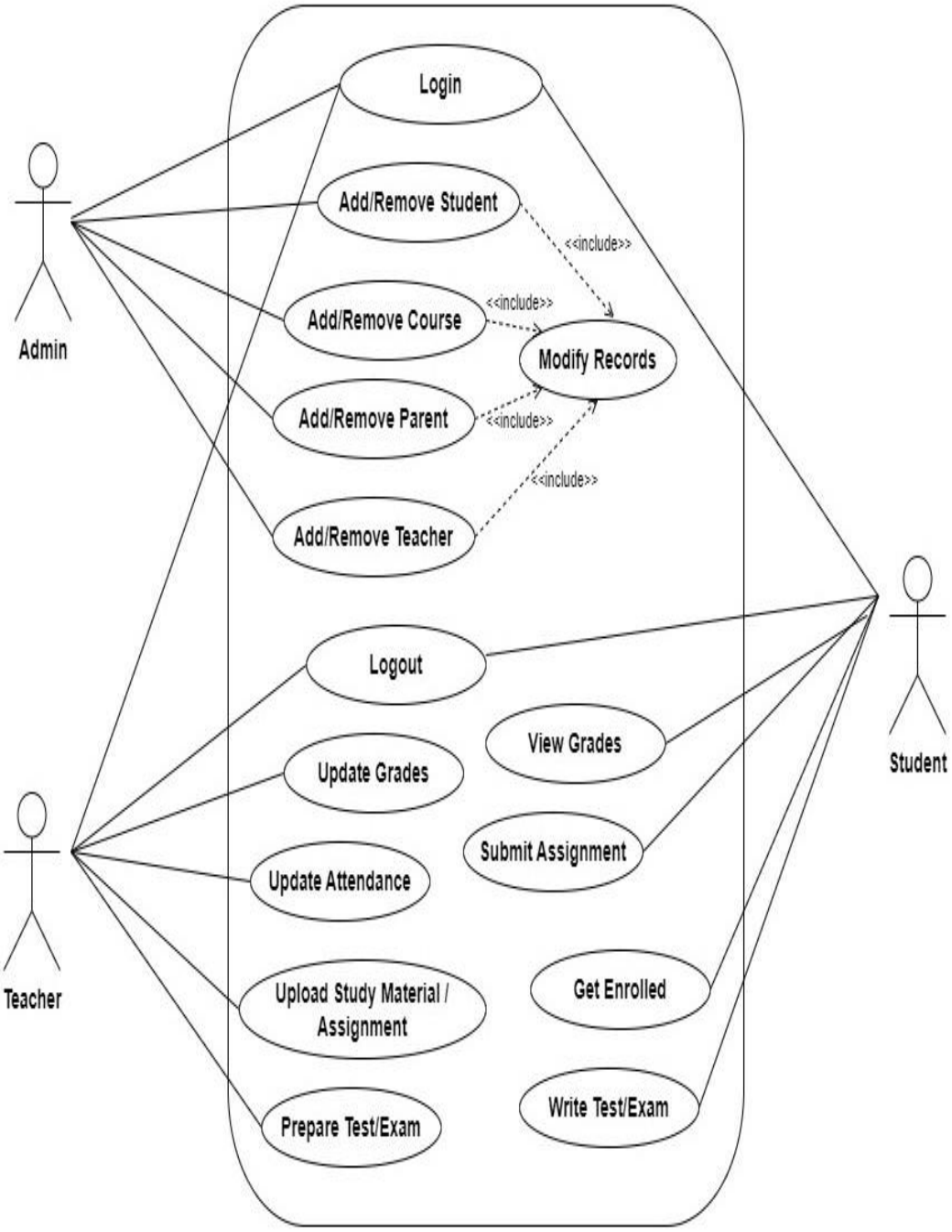
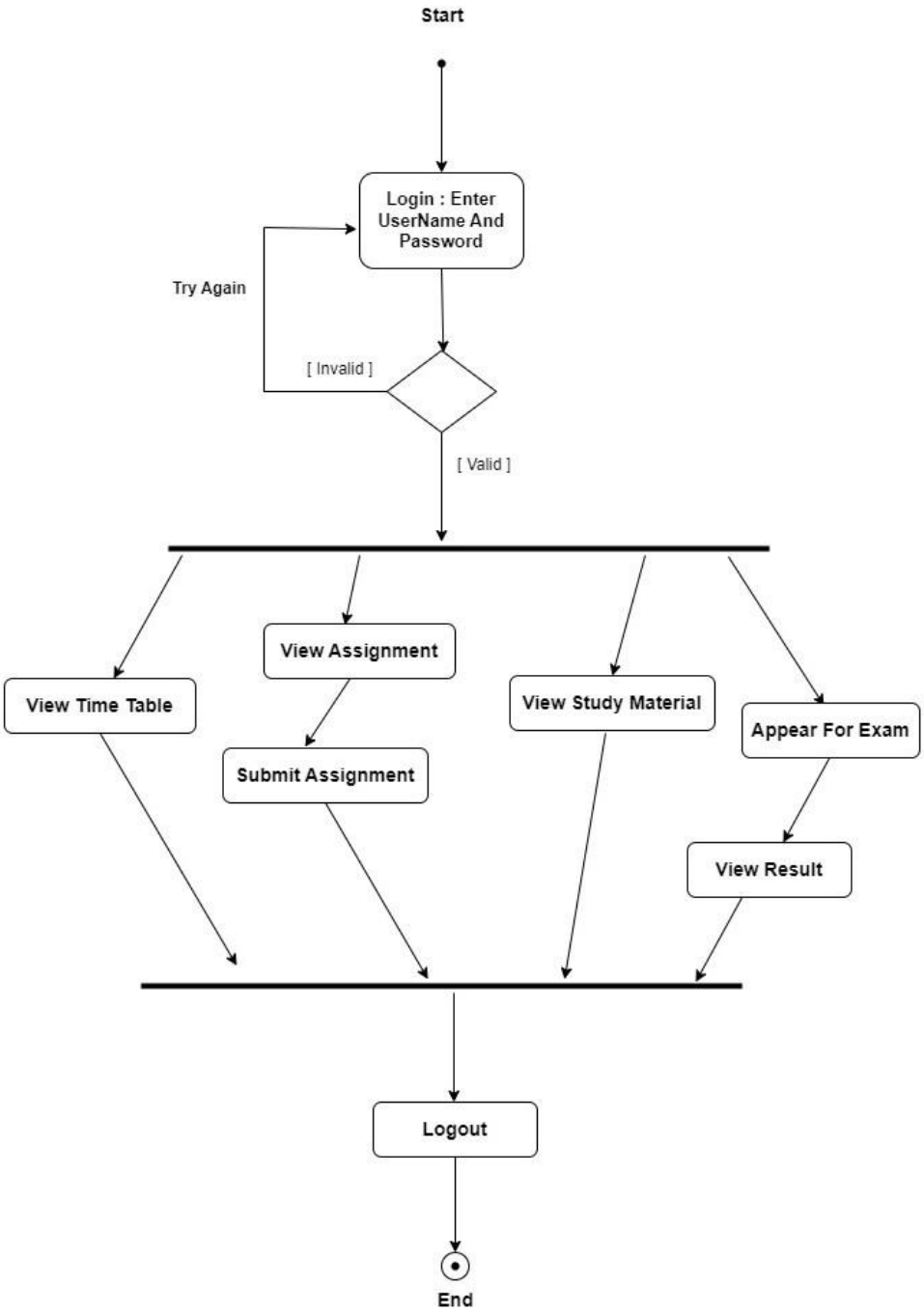
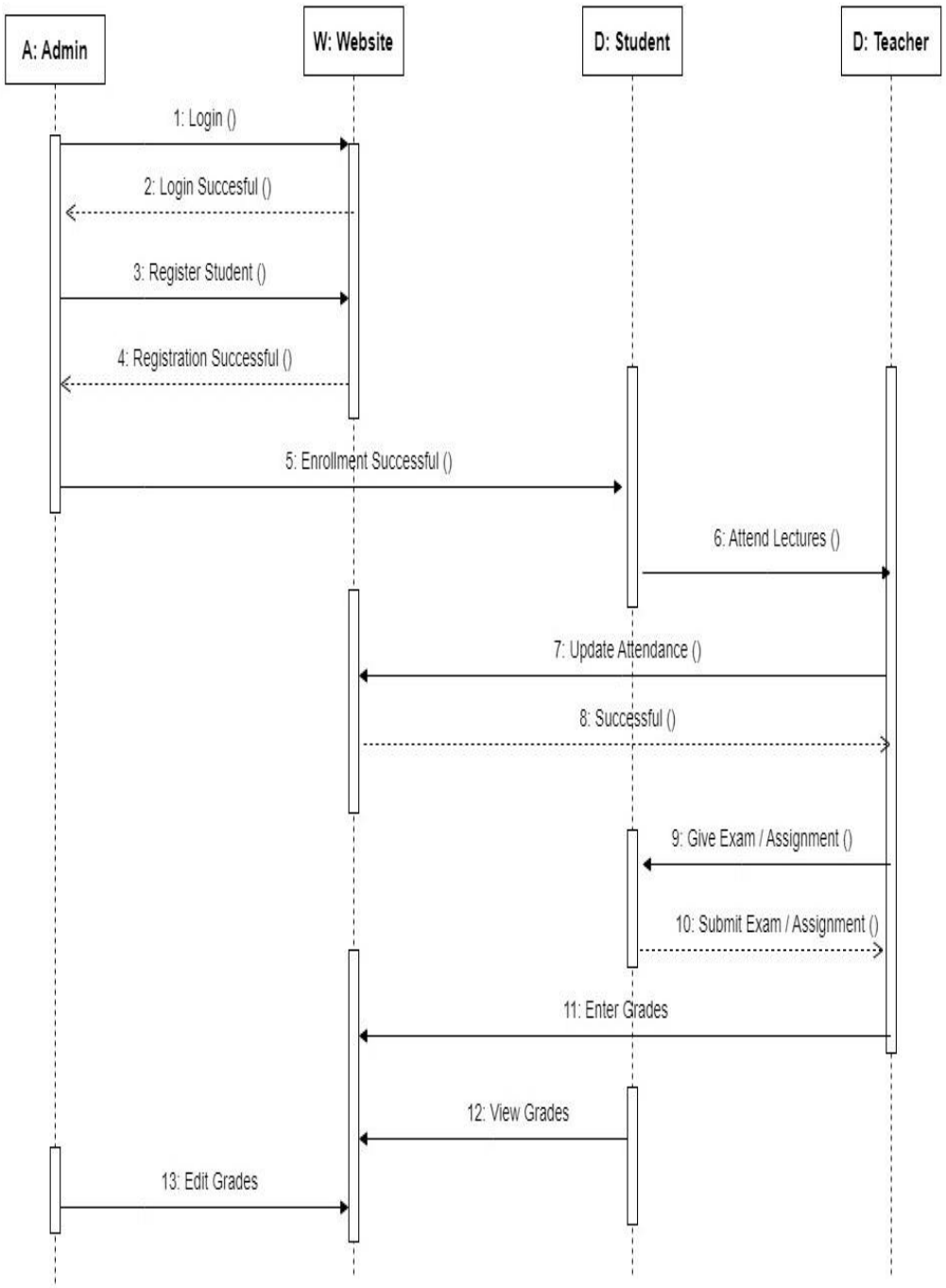


3.4: ACTIVITY DIAGRAM



3.5: SEQUENCE DIAGRAM



3.6: DATABASE DESIGN

ADMIN TABLE

Sr.No.	Field Name	Type	Size	Constraint
1	ID	Integer	10	Primary Key
2	UserName	Varchar()	20	Not Null
3	Password	Varchar()	30	Not Null
4	Profile	Varchar()	100	Not Null

STUDENT TABLE

Sr.No.	Field Name	Type	Size	Constraint
1	ID	Integer	10	Primary Key
2	FirstName	Varchar()	20	Not Null
3	LastName	Varchar()	20	Not Null
4	UserName	Varchar()	20	Not Null
5	Email	Varchar()	30	Not Null
6	Password	Varchar()	30	Not Null
7	Gender	Varchar()	10	Not Null
8	Phone_No	Varchar()	15	Not Null
9	ClassId	Integer	10	Not Null
10	DivisionId	Integer	10	Not Null

TEACHER TABLE

Sr.No.	Field Name	Type	Size	Constraint
1	ID	Integer	10	Primary Key
2	FirstName	Varchar()	20	Not Null
3	LastName	Varchar()	20	Not Null
4	UserName	Varchar()	20	Not Null
5	Email	Varchar()	30	Not Null
6	Password	Varchar()	30	Not Null
7	Gender	Varchar()	10	Not Null
8	Phone_No	Varchar()	15	Not Null
9	Address	Varchar()	40	Not Null
10	Profile	Varchar()	20	Not Null

SUBJECT TABLE

Sr.No.	Field Name	Type	Size	Constraint
1	ID	Integer	10	Primary Key
2	Name	Varchar()	20	Not Null
3	ClassID	Integer	10	Not Null
4	DivisionID	Integer	10	Not Null
5	TeacherID	Integer	10	Not Null

RESULT TABLE

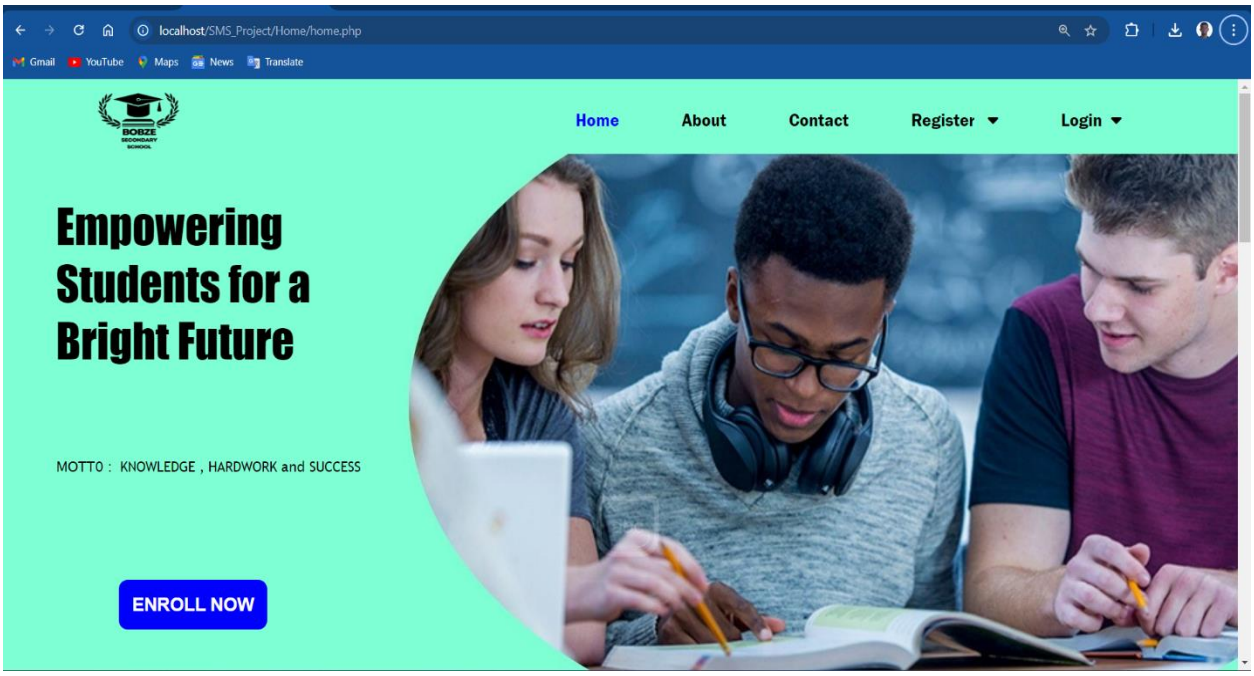
Sr.No.	Field Name	Type	Size	Constraint
1	ID	Integer	10	Primary Key
2	StudentID	Integer	10	Not Null
3	ClassID	Integer	10	Not Null
4	DivisionID	Integer	10	Not Null
5	ExamID	Integer	10	Not Null
6	SubjectID	Integer	10	Not Null
7	Mark	Integer	10	Not Null

3.7: DATABASE DICTIONARY

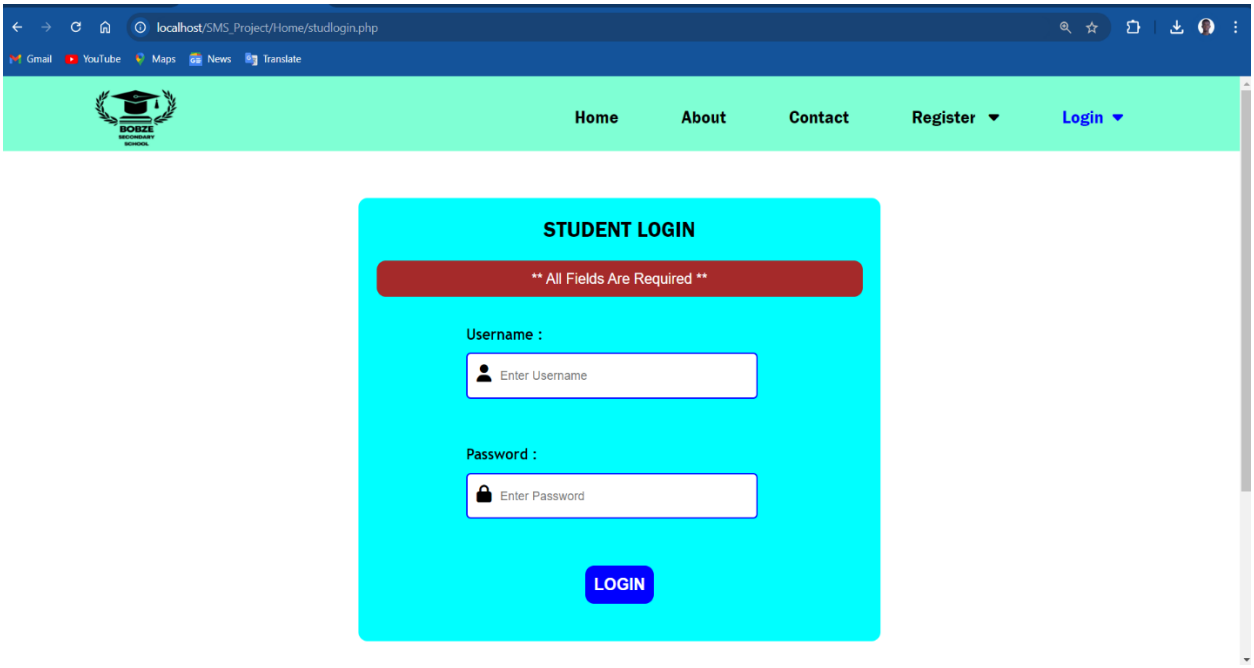
Sr.No.	Field Name	Type	Size	Constraint
1	Admin_ID	Integer	10	Primary Key
2	UserName	Varchar()	20	Not Null
3	Password	Varchar()	30	Not Null
4	Profile	Varchar()	100	Not Null
5	Student_ID	Integer	10	Primary Key
6	FirstName	Varchar()	20	Not Null
7	LastName	Varchar()	20	Not Null
8	UserName	Varchar()	20	Not Null
9	Email	Varchar()	30	Not Null
10	Password	Varchar()	30	Not Null
11	Gender	Varchar()	10	Not Null
12	Phone_No	Varchar()	15	Not Null
13	ClassId	Integer	10	Not Null
14	DivisionId	Integer	10	Not Null
15	Teacher_ID	Integer	10	Primary Key
16	FirstName	Varchar()	20	Not Null
18	LastName	Varchar()	20	Not Null
19	UserName	Varchar()	20	Not Null
20	Email	Varchar()	30	Not Null
21	Password	Varchar()	30	Not Null
22	Gender	Varchar()	10	Not Null
23	Phone_No	Varchar()	15	Not Null
24	Address	Varchar()	40	Not Null
25	Profile	Varchar()	20	Not Null
26	Subject_ID	Integer	10	Primary Key
27	Name	Varchar()	20	Not Null
28	ClassID	Integer	10	Not Null
29	DivisionID	Integer	10	Not Null
30	TeacherID	Integer	10	Not Null
31	Result_ID	Integer	10	Primary Key
32	StudentID	Integer	10	Not Null
33	ClassID	Integer	10	Not Null
34	DivisionID	Integer	10	Not Null
35	ExamID	Integer	10	Not Null
36	SubjectID	Integer	10	Not Null
37	Mark	Integer	10	Not Null

3.8: INPUT SCREENS

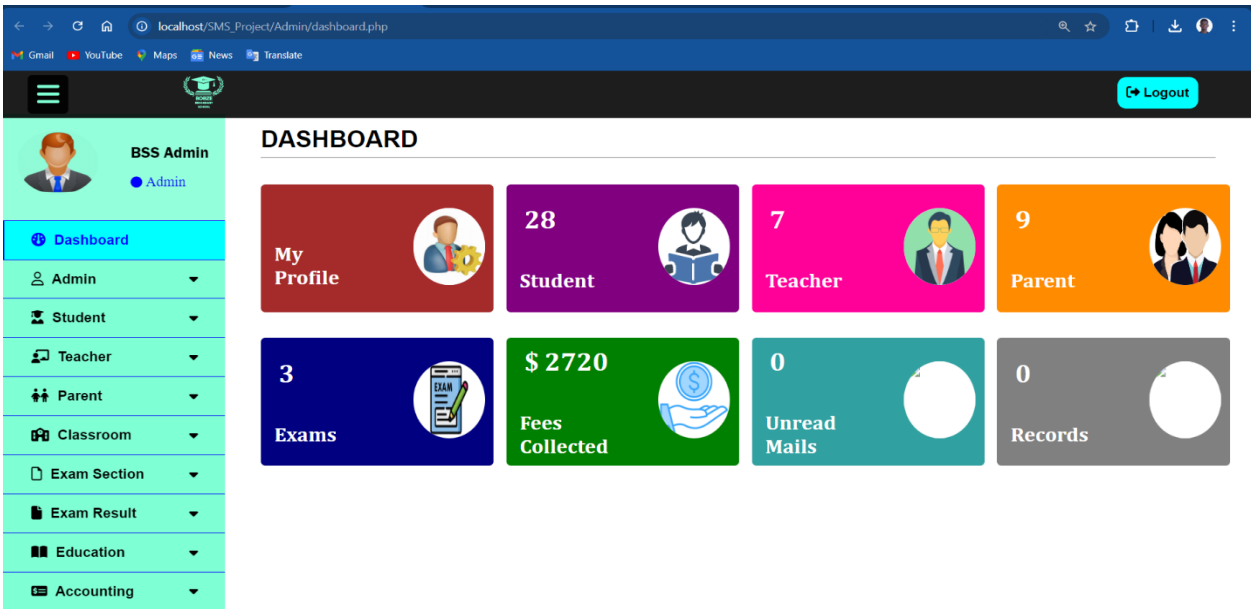
HOME PAGE



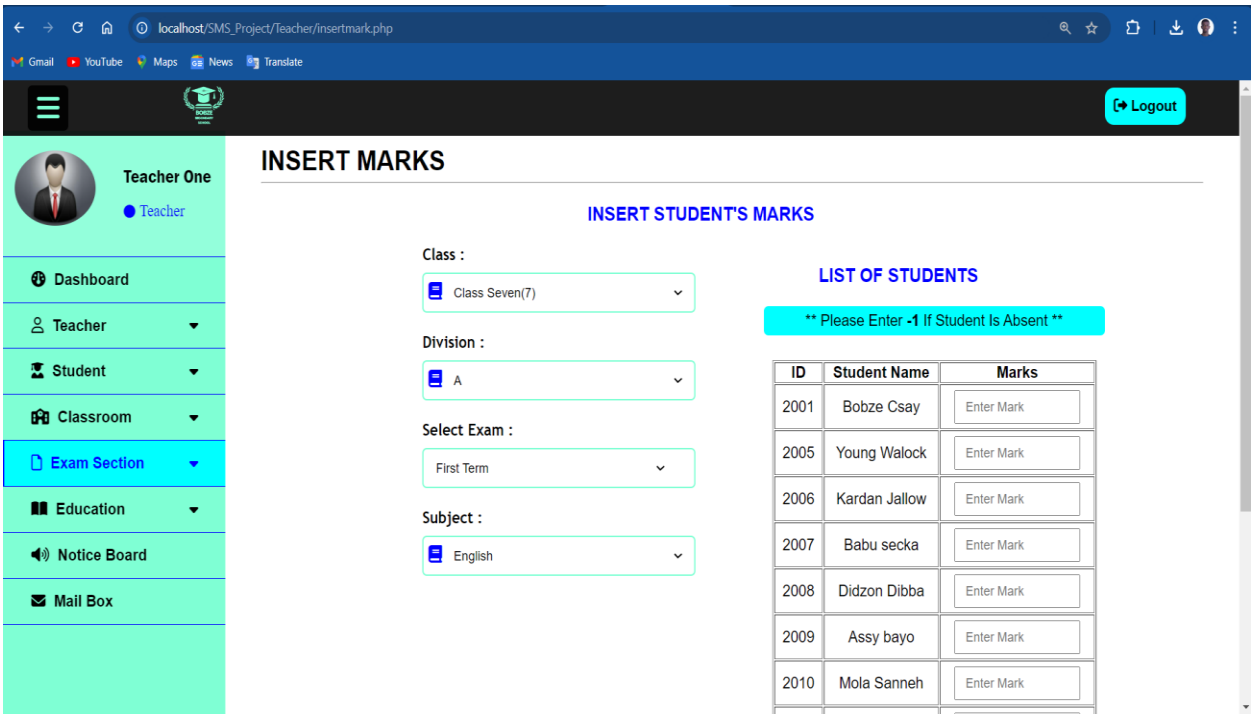
STUDENT LOGIN



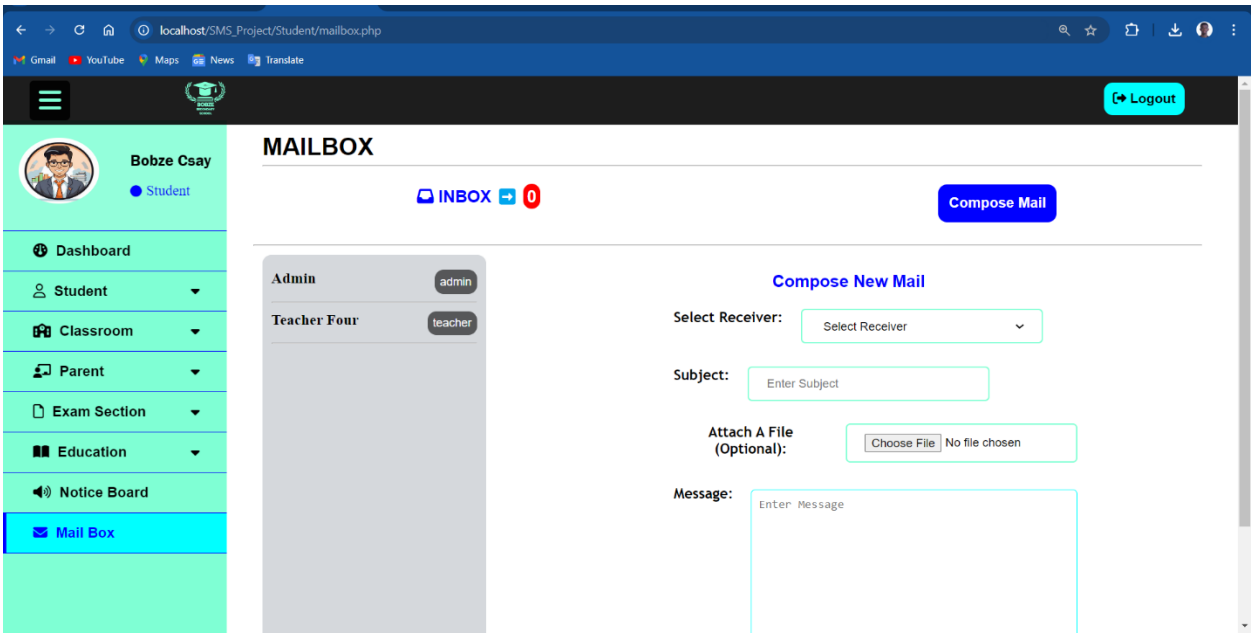
ADMIN DASHBOARD



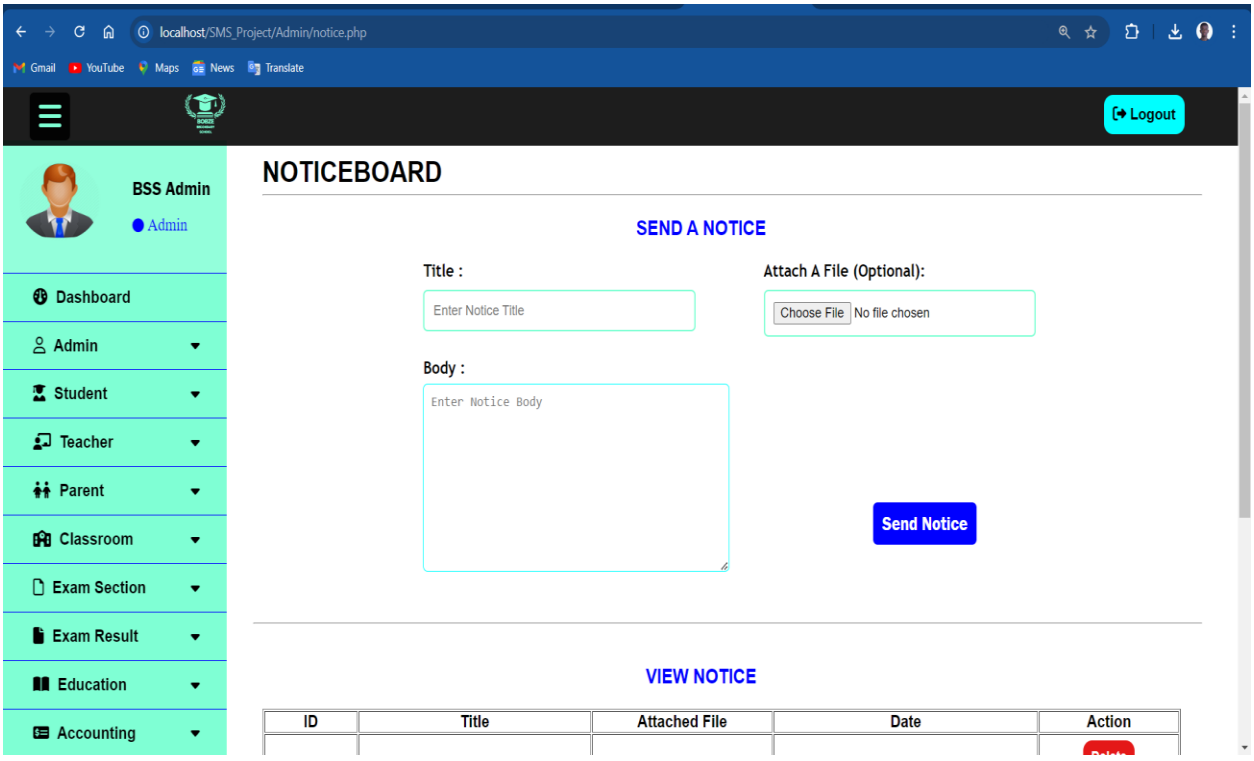
INSERT STUDENT'S MARKS PAGE



MAIL PAGE



NOTICE PAGE



4. IMPLEMENTATION DETAILS

4.1: SOFTWARE AND HARDWARE SPECIFICATION

Software Requirement	
Operating System	Microsoft Windows
Software Technology	
Front –End Software	WAMP Server, HTML, CSS, JavaScript
Back-End Software	PHP, MySQL Database
Browser	Microsoft Edge, Google Chrome, Mozilla Firefox etc
Hardware Requirement	
Processer:	Intel core i5 2GHZ
RAM:	4GB or more
Monitor:	LCD monitor
Keyboard:	Normal keyboard
Mouse:	Compatible mouse

5. TESTING

5.1: TEST PLAN

The Test Plan for the School Management System outlines the testing strategies, scope, and procedures for verifying that the system meets the specified requirements. The goal is to ensure that the software functions correctly, is free from defects, and meets the expectations of users. This document includes details on the scope, approach, resources, and schedule for the testing activities.

5.2: TESTING PROCEDURE AND IMPLEMENTATION

BLACK BOX TESTING

Black Box Testing is a software testing method in which the functionalities of software applications are tested without having knowledge of internal code structure, implementation details and internal paths.

Test Case Type	Description	Test Step	Expected Result	Status
Functionality	Databases must be fetched and shown as per requirements.	Sign in with user's credentials fetching from database.	Access should be permitted according to whomever user is logged in.	**Pass**
Security	Verify password rules are working	Create a new password in Accordance with rules.	The user's password will be accepted if it adheres to the rules.	**Pass**
Usability	Ensure all links are working properly.	Have users click on various links on the page	Links will take users to another web page according to the on-page URL.	**Pass**

WHITE BOX TESTING

White Box Testing, also known as clear box testing or logic-driven testing, examines the internal structure of a program to derive test cases based on program logic or code.

ID	PROCESS	STEPS	EXPECTED RESULT	PASS/FAIL
TC1	Register Student (Admin)	1. Log in as Admin 2. Navigate to "Add Student" 3. Fill student details 4. Click Add	Student successfully registered and appears in the student list	
TC2	Manage Fees (Admin)	1. Log in as Admin 2. Navigate to "Manage Fees" 3. Update fee details	Fee structure updated and visible in the fee records for each student	
TC3	Add Teacher (Admin)	1. Log in as Admin 2. Navigate to "Add Teacher" 3. Fill in teacher details 4. Click Add	Teacher added to the system and appears in the teacher list	
TC4	Remove Teacher (Admin)	1. Log in as Admin 2. Navigate to "View Teacher" 3. Click Remove	Teacher successfully removed from the system	

TC5	Upload Syllabus (Admin)	1. Log in as Admin 2. Navigate to "Upload Syllabus" 3. Upload a syllabus file 4. Click Upload	Syllabus successfully uploaded and available for students to download	
TC6	Manage Exams (Admin)	1. Log in as Admin 2. Navigate to "Manage Exams" 3. Add or edit exam details 4. Save Changes	Exam details successfully updated and visible in exam management section	
TC7	Edit Student Grades (Admin)	1. Log in as Admin 2. Navigate to "Edit Grades" 3. Select student and update grades 4. Save Changes	Student grades updated successfully	
TC8	View Syllabus (Student)	1. Log in as Student 2. Navigate to "Syllabus" section 3. Download syllabus	Student can view and download the syllabus successfully	
TC9	Send Mail to Teacher (Student)	1. Log in as Student 2. Navigate to "Mail" 3. Compose mail to teacher 4. Send	Mail sent to teacher successfully and appears in sent mail folder	
TC10	Upload Study Material (Teacher)	1. Log in as Teacher 2. Navigate to "Upload Study Material" 3. Upload file	Study material successfully uploaded and accessible to students	
TC11	Insert Student Grades (Teacher)	1. Log in as Teacher 2. Navigate to "Insert marks" 3. Select student 4. Enter grades 5. Click Insert	Student grades successfully entered and saved in the system	
TC12	Send Notice (Admin)	1. Log in as Admin 2. Navigate to "Noticeboard" 3. Compose notice 4. Click Send	Notice successfully sent to all students, parents and teachers, visible in their notice section	

TC13	Edit Profile (Student, Parent)	1. Log in as Parent 2. Navigate to "Edit Profile" 3. Change profile details	Parent profile updated successfully and reflects the changes	
TC14	View Student Marksheet (Parent, Student)	1. Log in as Parent or Student 2. Navigate to "Marksheet" 3. Click Download	Marksheet successfully downloaded	
TC15	View Notice (Teacher, Student, Parent)	1. Log in 2. Navigate to "Notice" 3. View notice sent by Admin	Successfully view the notice sent by the Admin	

6. USER MANUAL

6.1: USER MANUAL

The School Management System (SMS) is a web-based application designed to streamline administrative and academic activities for schools. This system provides functionalities for administrators, teachers, and students, enhancing the efficiency of managing data and communication.

User Roles: The system has three primary roles—Admin, Teacher, and Student, each with different access levels.

ADMIN

i. Register student
ii. Manage fees
iii. Add or remove Teacher
iv. Add parent information
v. Send notice to parents, teachers and students
vi. Upload syllabus and timetable
vii. Manage exams
viii. Edit student grades
ix. Add or remove a course
x. Send notice

STUDENT

i. View and download syllabus and timetable
ii. View and download study materials(notes)
iii. Send mail to teachers, admin or fellow students.
iv. Edit profile
v. View and download result
vi. Receive notice

TEACHER

i. Upload study material
ii. Upload assignments
iii. View notice and students' information
iv. Send mail to parent, student or fellow teacher
v. Insert student grades
vi. Edit profile

PARENT

i. Send and view mail from admin and teachers
ii. View notice from admin
iii. View student marksheet
iv. Edit profile

6.2: DRAWBACKS AND LIMITATIONS

i. **Internet Dependency:** The system requires a stable internet connection. Offline functionality is not supported, which may hinder usability in areas with limited connectivity.

ii. **Scalability Issues:** As the student database grows, there may be a need for optimization to prevent slow performance.

iii. **User Training Requirement:** New users, especially teachers and administrators, may require initial training to understand and navigate the system efficiently.

iv. **Lack of Advanced Features:** Features like automated timetable generation, AI-based attendance tracking, and mobile application support are not yet integrated.

v. **Security Concerns:** The system must implement robust security protocols to prevent unauthorized access and data breaches.

7. CONCLUSION&RECOMMENDATION

The School Management System (SMS) serves as an efficient tool for managing academic and administrative tasks within educational institutions. By integrating various functions such as attendance tracking, grade management, and communication channels, the SMS streamlines operations, enhances collaboration among teachers, students, and parents, and ultimately improves the learning experience. The automation of routine tasks reduces administrative burden, allowing educators to focus on teaching and student engagement.

To maximize the effectiveness of the SMS, it is recommended to provide regular training sessions for staff to ensure they are proficient in using the system's features. Furthermore, soliciting feedback from users can help identify areas for improvement, ensuring the system evolves to meet the needs of its users. Lastly, implementing a robust data security framework is essential to protect sensitive information and maintain trust among stakeholders. By addressing these areas, the School Management System can significantly contribute to a more organized and effective educational environment.

8. FUTURE SCOPE

The future enhancements of the system are as follows:

i. To improve the security of the system.

ii. To add a video application to the system, so that it may have videos.

iii. To extend the scope of the project.

iv. Will provide online exam facility.

v. Will provide SMS and Email alert for each module.

vi. integrate additional features such as an online fee payment system, enhanced security measures for data protection etc.

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