STUDENT MANAGEMENT SYSTEM

A Project Report

submitted in partial fulfillment of the requirements

of

Applied Cloud Computing for Software Development

by

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ABSTRACT

Student Management System is a management of information system for education establishments to manage student data. The Student Management System is an automated version of manual Student Management System. Student Management System is software which is helpful for students as well as the college authorities. In the current system all the activities are done manually. It is very time consuming and costly. Our Student Management System deals with the various activities related to the students. Student Management System can handle all the details about a student. The details include college details, Students personal details, Academic details etc. It provides capabilities for registering students in courses, admitting students, tracking student attendance and submitting student documents and fee payment online.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

CHAPTER 1

INTRODUCTION

1.1. Introduction

Schools and Universities are the foundation of knowledge and an educational body on which students rely upon. Therefore, they need to maintain a proper database of its students to keep all the updated records and easily share information with students. Most schools and Universities count on an advanced software tool knows as 'Student Information System (SIS)' to keep all their student records and administrative operations including, examinations, attendance**,** and other activities. Over the recent years, the performance and efficiency of the education industry have been enhanced by using the Student Management System. This tool has productively taken over the workload of the admin department with its well-organized, easy, and reliable online school management software**.**

Student Management System (SMS) is a solution tool that is designed to track, maintain and manage all the data generated by a School, including the grades of a student, their attendance, their interpersonal activities records, etc.

1.2. Problem Statement:

The educational institutions has to handle records for many number of students and maintaining more number of student records is very difficult. Using manual system to manage the students details in the form of physical records causes the loss of data and prone to unauthorized access. It becomes difficult and troublesome to handle data.

Schools and colleges management leads to time-consuming and error-prone processes for collecting, storing, and managing student information. This inefficiency results in difficulties during admission, examination, and overall record maintenance.

Locating specific student details and upgrading information is a cumbersome task in the current manual system. This leads to delays, data redundancy, and a lack of real-time access to critical information.

The manual system lacks robust security measures, making student records vulnerable to unauthorized access, loss, or damage. Ensuring the confidentiality and integrity of sensitive student data is a significant concern.

1.3. Problem Definition:

In educational institutions, the traditional manual methods of managing student information and administrative processes have become outdated and inefficient. The reliance on paperwork and decentralized record-keeping poses several challenges, hindering the overall effectiveness of educational administration. The Student Management System addresses these issues and aims to provide a comprehensive solution to modernize the management of student-related data.

The Student Management System seeks to address these problems by introducing a digital platform that streamlines data management, enhances security, reduces paperwork, and fosters efficient communication. Through the proposed system, the aim is to create a centralized and user-friendly solution that revolutionizes the way educational institutions handle student information and administrative tasks.

1.4. Existing System:

The existing system relies heavily on manual, paper-based processes. Student records, attendance, and grades are maintained in physical files or paper registers, contributing to inefficiencies and the risk of errors. Administrative tasks, including student registration and grade management, are handled manually, leading to time-consuming data entry processes and delays in report generation. Accessibility to student records is limited to specific physical locations, hindering seamless communication between teachers, students, and parents. The system lacks data analysis capabilities, making it challenging to derive insights from student data for informed decision-making. Furthermore, communication gaps exist, with challenges in maintaining regular and effective communication between teachers and parents. Security concerns arise from the susceptibility of physical records to loss, damage, or unauthorized access, posing privacy risks for student information. The system faces scalability issues as it struggles to adapt to a growing number of students and expanding requirements. Additionally, the lack of automation, outdated technology, and minimal integration with other educational systems contribute to a suboptimal user experience. Overall, the existing system

presents significant challenges in terms of efficiency, security, and adaptability, highlighting the need for an improved student management system.

1.5 Disadvantages of Existing System

The existing system operates manually, which maintains physical records to store student details such as student name, email, phone number, personal details, marks etc. This manual process makes it challenging to manage historical data effectively.

There are several drawbacks of the existing system such as:

- Searching and upgrading the details is tedious task.
- Inadequate security measures.
- As the number of students increases, it leads to performance issues.

1.6 Proposed System

The proposed system for the student management system introduces a comprehensive and efficient solution to address the limitations of the existing manual and paper-based processes. This modernized system leverages technology to automate various aspects of student management, offering a user-friendly interface for streamlined operations. Student records, attendance, and grades are digitized and stored in a secure database, reducing the risk of errors associated with manual data entry and providing easy accessibility from any location. Administrative tasks such as student registration and grade management are automated, significantly improving efficiency and reducing processing times. The proposed system facilitates improved communication channels between teachers, students, and parents through digital platforms, fostering a more transparent and collaborative educational environment.

Moreover, the system incorporates robust data analysis capabilities, allowing for the generation of insightful reports on student performance, attendance trends, and other key metrics. This data-driven approach enhances decision-making processes and supports educators in tailoring their teaching strategies to meet individual student needs. Security measures, including data encryption and access controls, are implemented to ensure the privacy and integrity of student information. The proposed system is designed with scalability in mind, accommodating the increasing number of students and evolving educational requirements.

1.7 Advantages of Proposed System

The objective of the Student Management System is to enhance the efficiency, and overall effectiveness of educational administration within a institution, focusing on key features such as

- To manage students information during admission and examination.
- To reduce unnecessary paper work in maintaining students information.
- To foster transparent and efficient communication.
- Provide real-time monitoring of student performance.

CHAPTER 2

LITERATURE SURVEY

Literature was reviewed from various sources, like from research papers, publications books, existing bibliographic information, and recommendations. These research papers has provided us sufficient amount of data for the survey.

Automation can be defined as the process of reducing or minimalizing the manual hard work with help of computers, computer operated software and devices. There are certain works that are beyond human capacities which can be carried out through automation techniques. The real idea of implementing Automation is to enhance efficiency, reduce delays, increase production flexibility, reduce prices, human error elimination, and alleviate labor shortage, high degree of accuracy. Automation in Educational Assessment created in Nigeria shows how an online automation system can be implemented to eradicate human errors and bring fairness during the exams. Defining the Paperless Workplace with the Paper Metaphor, has explained the difficulties faced by the organization while switching from conventionally used paper based system to an online automated system as they were not able to draw the gap between both the systems but automated Project Grading & Instant Feedback System provides an example of an automated system which enhances the efficiency of manual project grading system with feedbacks can being easily managed.

The hierarchical approach is followed in the institutional organizations. Teachers, staffs and students have different privileges. So for this system we have used access control method which suits the ranking that is the role based access control method. Since there are large number of users present in an academic institution it is a prime requisite to grant certain privileges to each users according to their positions so that the sensitive information is not misused. The role based access control makes it easy for the system to differentiate between its users which makes the system faster without any lagging. There are certain activities restricted to specific users so to avoid the violation of code of conduct fairness is maintained in the system. Thus, the new system is named as the student management system. The prevailing offline paper based system has several disadvantages such as excessive use of time for manual record keeping, wasting resources, inefficiency in data logging as inconsistent data can be recorded. Most of the academic institutions still use this traditional method for student management.

The data and information of any student is not accessible globally as the system is not online due to which the concerning users have to physically meet for the exchange of information. Students have to stand in long queue and wait for hours to perform basic tasks such as fee payments and submit forms. Students are also not able to view their own attendance record and

college notices when needed. To overcome the limitations of an existing system, we have proposed a web-based student management system. It is an online automated approach, advanced for everyday record keeping in academic organizations.

It makes it simpler to get entry to the statistics of a scholar in a specific class. This system helps in evaluating the all-around development of students on a single platform. With just a click, the web application will be able to provide the student's attendance report, defaulters list, fee details, admission status, etc. Thus, decreasing the need for iterative manual work which is susceptible to human faults and time expending. It is built for the automation of student management. It also increases the performance speed of record keeping, information gathering, and status analysis easily.

A student management application is a domain where the student documents and records in the institutional organization are processed. It works with the help of automatic computed techniques. Traditionally it was done using ledgers, files, binders, and manual documentation. The proposed system provides assistance to both, the student and the faculties while saving time. It involves procedures like registering the scholar's details, assignment of the department according to the course chosen, and maintaining records. It cuts the value and personnel needed for the job. Since the system is online, the data is accessible to everyone. This feature makes it efficient and useful for simultaneous data access anywhere anytime. An Integrated Automated Paperless Academic Module explains that the online system should follow the same approach of management of hierarchy maintained by the offline paper based system. Creation of user hierarchy: The facility of acquiring the resources is mainly dependent on the ranking of the employees in an organization. Role based hierarchy constitutes of various forms of roles that are linked together. A contrast is created amongst institutional and task roles.

CHAPTER 3

PROPOSED METHODOLOGY

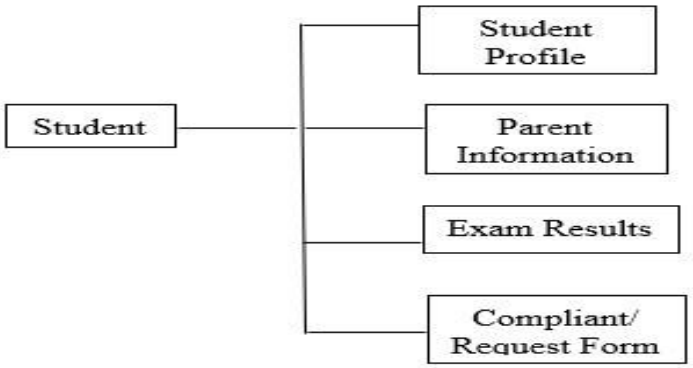
3.1 System Design

3.1.1 Introduction:

System design is a process through which requirements are translated into are presentation of software. Initially the representation depicts a holistic view of software. Subsequent refinement leads to a design representation of student management system. Design is a place where quality fostered in software development. Design provides us with representation of software which can be assessed for quality. By designing we can accurately translate the customer requirements into finished software product or system. System design serves as the foundation for all software engineering and software maintenance.

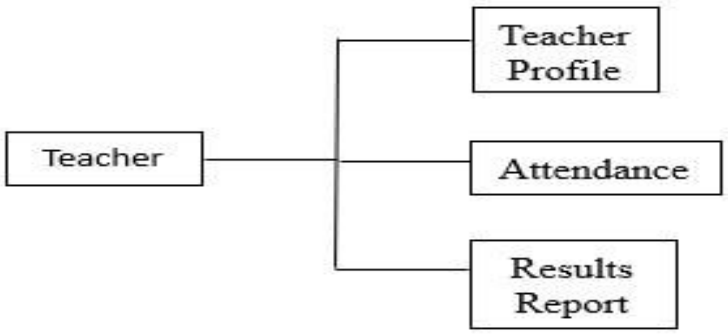
3.1.2 Student

Student can have access to edit student profile and parent information, view exam results and raise complaint /request form. student profile system encompasses various components, including student details, parent information, exam results, and a complaint/request form. The student section typically contains personal information such as name, address, and contact details. Parent information provides insight into the student's family background, facilitating effective communication between the educational institution and the parents. The exam results segment is crucial for tracking academic progress, displaying grades, and identifying areas for improvement. Lastly, the complaint/request form serves as a communication channel between students, parents, and the school administration, allowing individuals to voice concerns, make requests, or report issues.



3.1.3 Teacher

Teacher can have access to edit teacher profile, mark attendance for students and generate result reports. The teacher profile system consists of key components designed to streamline various aspects of academic management. The teacher section provides a detailed profile of educators, including their personal and professional information, facilitating efficient communication within the educational institution. The attendance module allows teachers to manage and track student attendance, providing an essential tool for monitoring class participation and identifying potential issues. Additionally, the results report feature enables teachers to access reports for students. generate and academic performance their

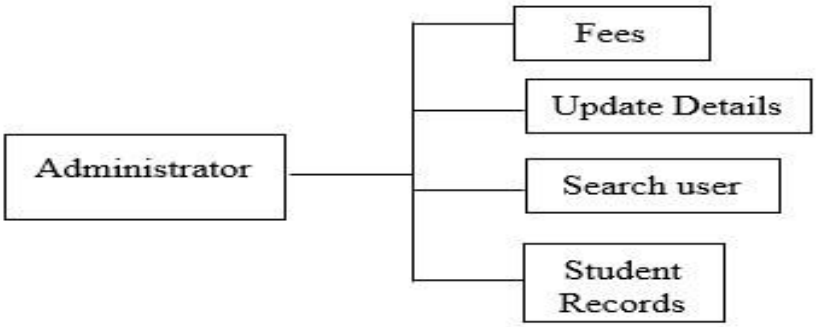


3.1.4 Administrator

Administrator can have access to update details, maintain fee details of students, search for particular student, manage student records. administrative framework designed to manage various aspects within an educational institution. The fees component suggests a module dedicated to handling financial transactions related to student fees, providing a structured platform for payment tracking and financial record-keeping. The update details feature is likely designed to empower users, potentially students or their guardians, to modify and maintain their personal information, ensuring that the system's records remain accurate and current.

The Administrator signifies a central role responsible for overseeing and controlling various administrative functions. This could encompass user access management, system configurations, and overall system maintenance, ensuring smooth operation. The search user functionality appears to offer a tool for efficiently locating specific users within the system, facilitating administrative tasks and user support. Administrator maintains student records,

indicating a comprehensive database housing detailed information about students. This likely includes academic records, personal details, and possibly other pertinent information, serving



as a centralized repository for managing student-related data.

3.2 Modules Used

Student Module

Once the student has registered in college the administration provides them with user credentials to log into the system. Due to the role-based access model the user will get only those privileges for which one has registered. Here, the user is a student, so the privileges of students are:

- Viewing and editing profile dashboard.
- Viewing timetable, calendar, and notice boards.
- Access to fee payment gateway.
- Contact/ Complain/ Request Form

Teacher Module

Attendance management system:

Teachers can take attendance by selecting the section of a given department they need. Teachers will also be able to modify the attendance of a student if wronged by chance.

Students can only view the attendance for their respective lectures. **Administrator Module**

- Admission System: Management staff can update the details of students taking admissions. The students are categorized by their departments and sections. The details of admissions of fresher's batch are added to the system and existing details are modified according to the year of admission.
- Accounting system: Fee details of the students are updated and modified by the accounting department. The students are categorized by their departments and sections. Updates such as fees paid, or unpaid and defaulters list are generated here.

Fees Module

The Fee Module manages all the information of the fees, here admin and faculty can upload the fees and students can view and download the fees. Access level restrictions has also been implemented on this module so only admins can access it.

- Admin can upload fee receipts
- Admin can view list of all student fees
- Admin can edit/update the fee status

Attendance Module

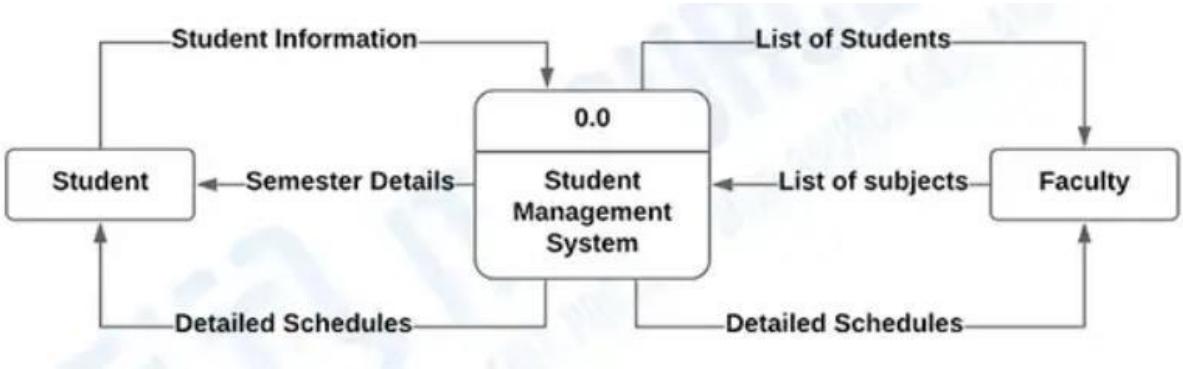
The main purpose of developing this module is to manage the attendance of the students. Attendance of every student will be marked by admin/faculty and student can be able to see his/her attendance. Admin can view the list of all students attendance and filter them accordingly.

- Admin can mark the student attendance
- Admin can edit/delete the student attendance
- Admin can view the list of all students
- Students can only view the attendance

3.3 Data Flow Diagrams

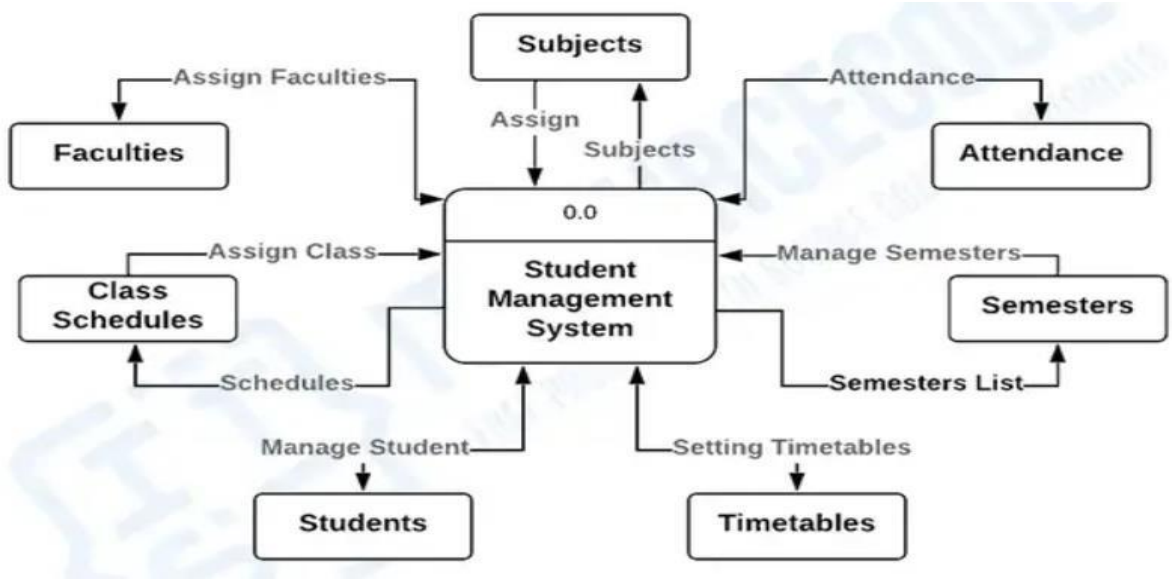
A Data Flow Diagram (DFD) is a graphical representation of the "flow" of data through an information system, modeling its process aspects. A DFD is often used as a preliminary step to create an overview of the system, which can later be elaborated. DFDs can also be used for the visualization of data processing (structured design).

3.3.1. DFD Level 0:



3.3.2. DFD Level 1:

To elaborate more on the context diagram, the **1st level in DFD** is applied. DFD level 1 gives more specificity to the idea given in DFD level 0. Therefore, DFD level 1 is the expanded version of the context diagram.

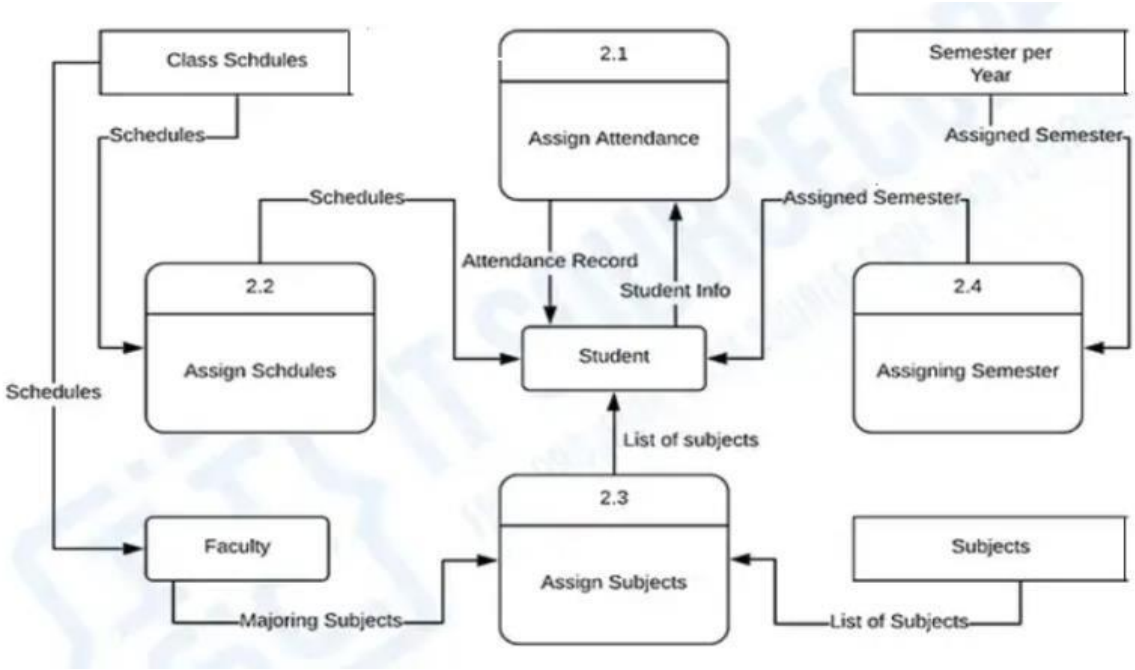


This level reveals the sub-processes of the student management (0.0) process. However, this diagram only highlighted more on the external entities of the main process. This includes:

- Subjects
- Faculties
- Class Schedules
- Students
- Time Tables
- Semester
- Attendance

Therefore, the system DFD level 1 implies that the student management system is the central process. Its external entities are specified to know the flow of data and its processes.

3.3.3. DFD Level 2:



3.4 Table Structures

Student Table

Field Name	Data Type	Constraint
RollNo	Number	Primary Key
SName	Text(50)	
Phno	Text(15)	
Sex	Text(10)	
FName	Text(50)	
Occupation	Text(50)	
MName	Text(50)	
DOB	Date/Time	
Age	Number	
Caste	Text(25)	
Religion	Text(30)	
Hname	Text(50)	
City	Text(50)	
District	Text(50)	
State	Text(50)	
Pin	Text(10)	
Year	Number	
Qualification	Text(25)	

Table 1: Student Table

3.4.2 User Table

Field Name	Data Type	Constraint
Username	Text(25)	Primary Key
Password	Text(15)	
Type	Text(15)	

Table 2: User Table

3.4.3 Subjects Table

Field Name	Data Type	Constraint
Subjectcode	Text(10)	Primary Key
Subjectname	Text(50)	
Creditmark	Number	
MaxMark	Number	
Type	Text(25)	

Table 3: Subjects Table

3.4.4 SubjectAllocation Table

Field Name	Data Type	Constraint
Subjectname	Text(50)	
Semester	Number	Primary key
Batch	Text(15)	

Table 4: SubjectAllocation Table

3.5 Requirement Specification

3.5.1. Hardware Requirements:

- Processor: Pentium
- RAM : 256 MB
- Hard Disk: 10 GB
- Microsoft Compatible Keyboard

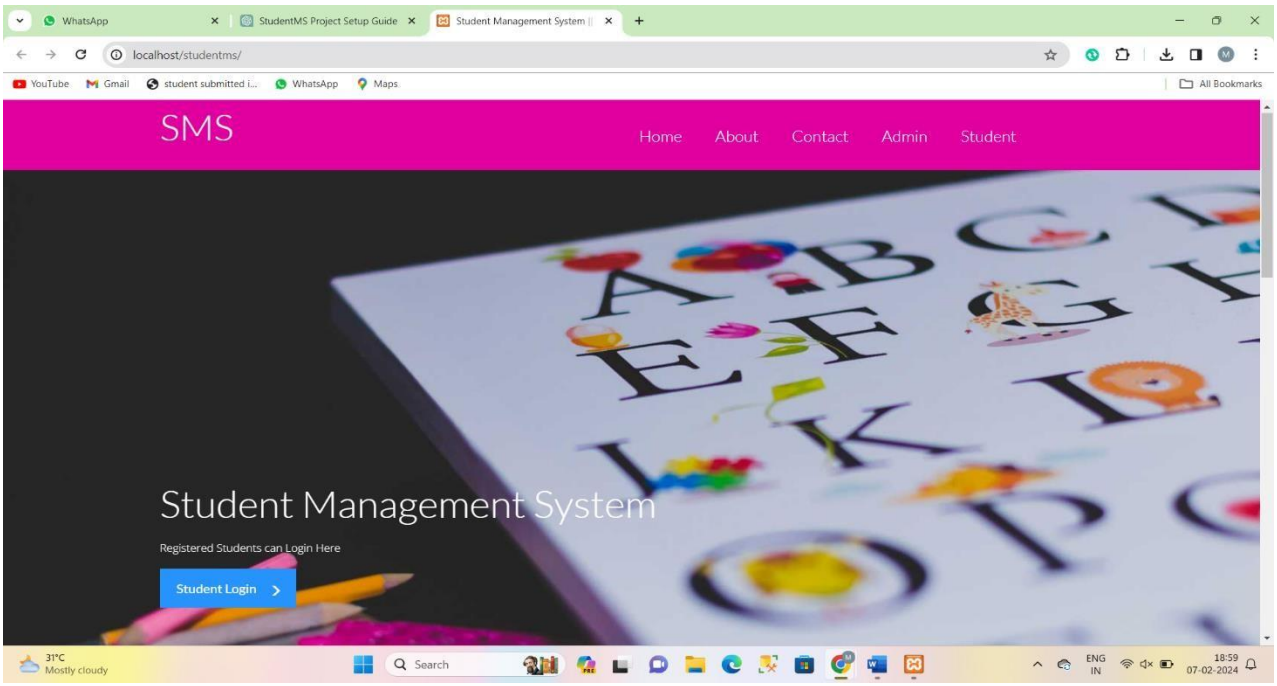
3.5.2 Software Requirements:

- Operating System : Windows
- Web Technologies: PHP
- Front-End: HTML, CSS, JavaScript
- Back-End: PHP, MySQL
- Web Server: Apache Server

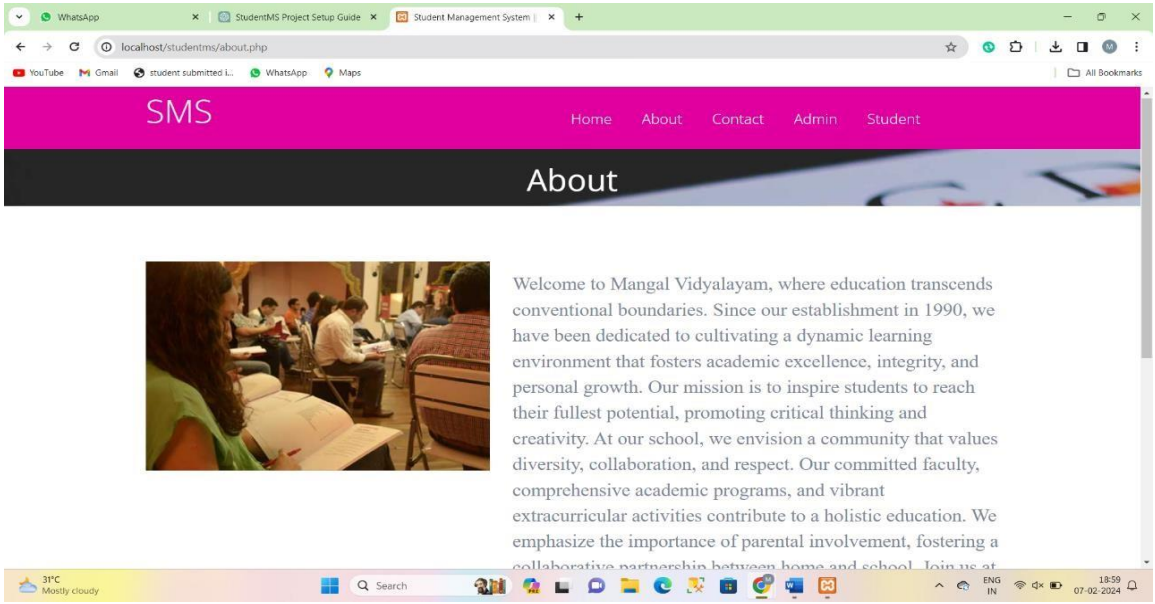
CHAPTER 4

IMPLEMENTATION and RESULT

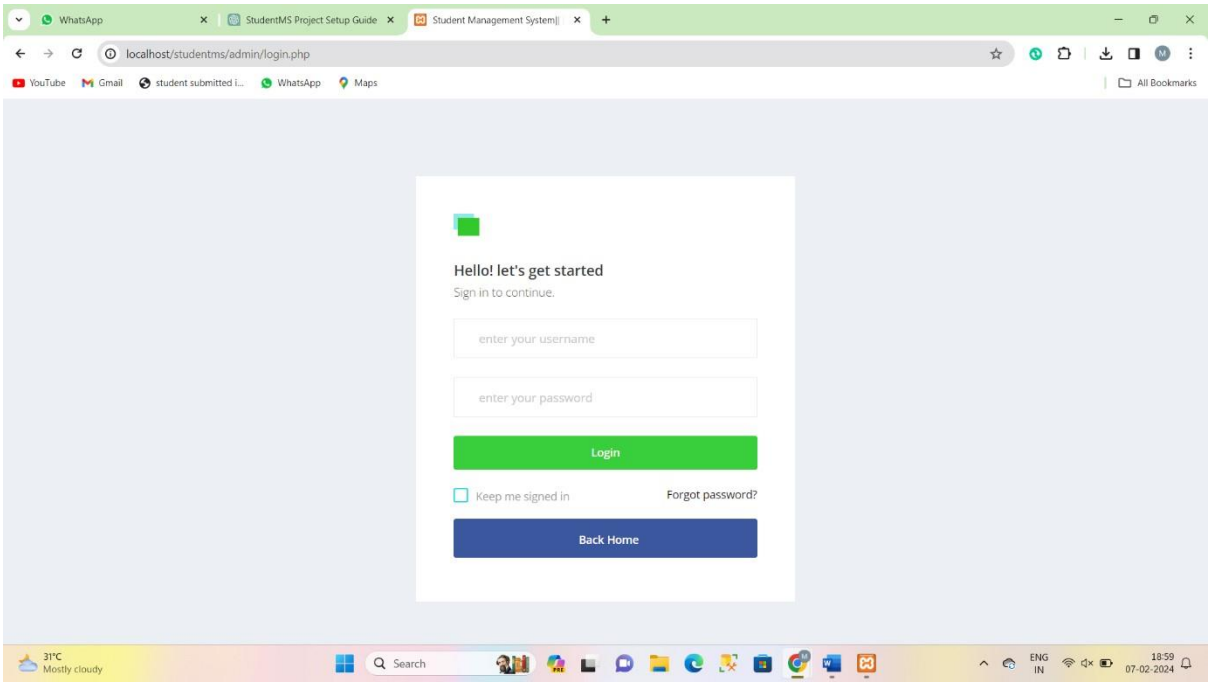
4.1 Home page of the student management system



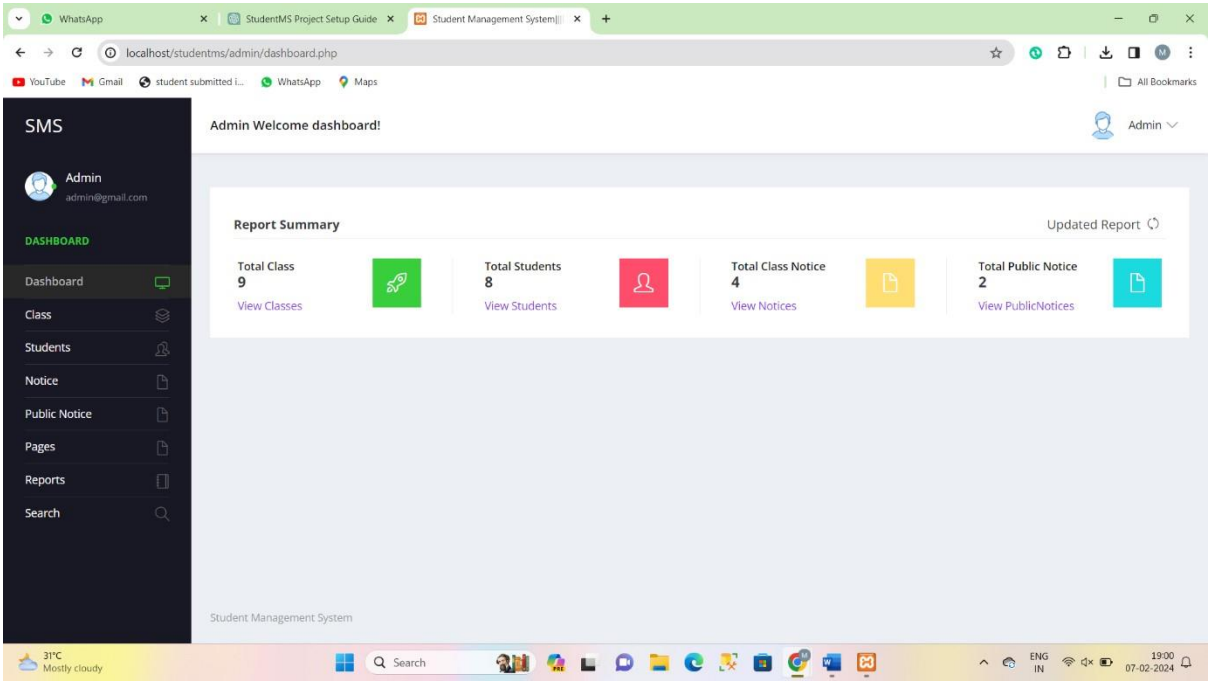
4.2 About us page of student management system



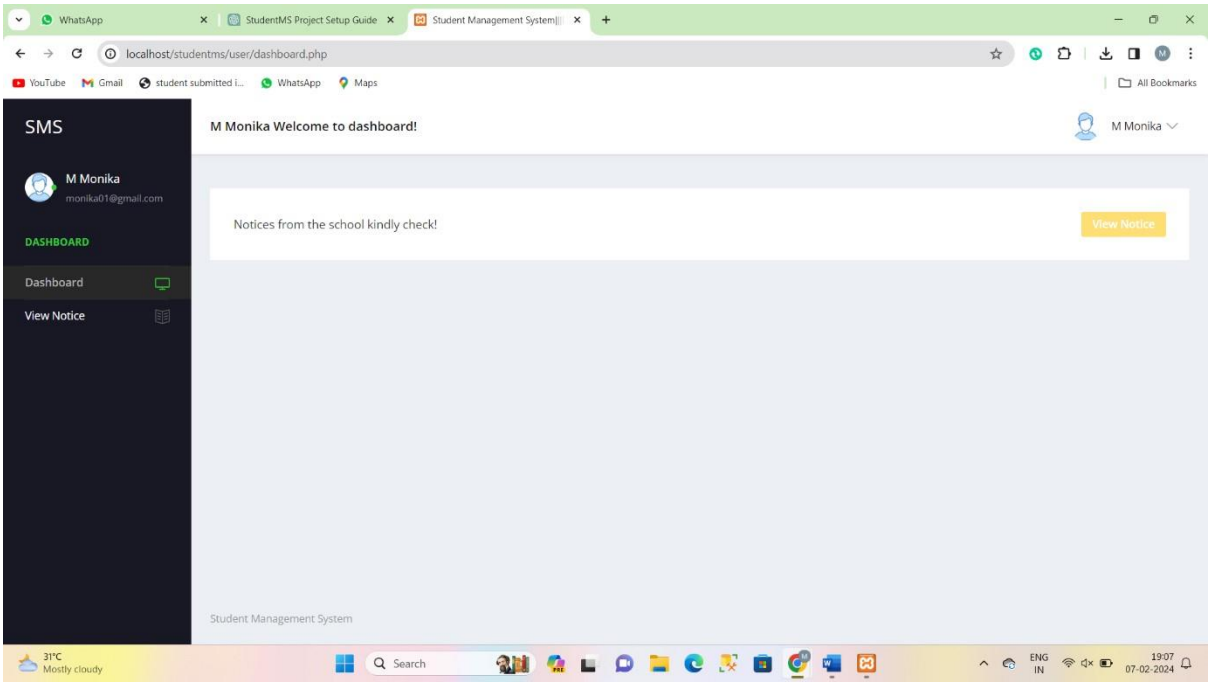
4.3 Admin and student login page:



4.4 Admin page:



4.5 Student page:



CHAPTER 5

CONCLUSION

ADVANTAGES:

Student Management System project is designed to overcome the problems faced by the educational institutions

- Easy to handle and feasible so all educational institutions can use this frequently.
- Improved operational efficiency by automating administrative tasks.
- Improved data management.
- System security, data integrity and reliability.
- Adaptability and Scalability.
- Security and Compliance.
- Cost Reduction.
- Fast and Convenient.

FUTURE SCOPE:

Student Management System can involve several enhancements and advancements to meet evolving educational needs.

Future Enhancements:

- Integration with Learning Management Systems
- Advanced Analytics and Predictive Insights
- Enhanced Communication Channels
- Mobile Compatibility
- Personalized Learning Paths
- Enhanced Security Features

GITHUB link: **https://github.com/monika0118/StudentManagementSystem.git**

Video Link:
https://drive.google.com/file/d/1uMf8_iFLv8BVsiBxHtDYleriqQqtf_JR/view?usp=drivesdk

REFERENCES

https://www.lovelycoding.org/student-management-system/