Diploma in Software Engineering

Final Project – DSE 23.1

Students Marks Display System

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1 Contents

1 . Introduction

1.1 1.1 Case Study

Few years ago, printing of marks and enrolling the student in the classes were the traditional way of performing the same work. But now these paper-based methods are giving way to digital which offers unique efficiency scalability, and reliability. The Student Marks Display System may be the prime example of the data management transition that gives one modernized system for managing and delivering the data about academic lives of college students. Fundamentally, the is aimed at having people like, but not limited to, students themselves, teachers, and administrative staff be able to attribute to this easy and safe access to the student records. Its user-interface technology is based on friendliness and supports smooth interaction, meaning users of any technical proficiency can navigate it with ease. A fundamental feature is the real-time update capacity, that is crucial to avoid wasted time. Here marks can be added directly by the teachers and the feedback and intervention process can be adapted accordingly more promptly. Last but, it uses custom access rights that give users access to corresponding information only to what fits their positions and duties choice. This tailoring not only plays role to data security but also help to facilitate workflow. Class performance summaries, assessment scores or individual progress reports, all are forms of analytics that assist the decision-making process through data-driven evidence, thus enabling school to create a culture of constant progress.

1.2 Abstract

Student Marks Display System, as a digital instrument, is beneficial in streamlining the traditional student record keeping methods as well as improving the ease of retrieval of this information by learners within academic institutions. It is the very essence of serving the role of a veritable safety guard, operating based on making services more secure and convenient for the authorized users such as pupils, teachers, and school administrative personnel. Safe authentication using a robust system and a user-friendly interface of the system is provided that ensures data security and ease of usage for any level of user. Data analytics along with reporting functions help administrators to accumulate descriptive insights from student information which enable them to take educational traction and to consistently improve. The effectiveness of the Student Marks Display System is ensured by collaboration among the stakeholders, accompanied by keeping in touch with them constantly through out the process of creation and deployment. To the end, the Student Marks Display System stands for the vector of transition from the traditional education system to a digital educational landscape, characterized by openness, accountability, and student-centricity, aiming to facilitate the transformative power of this technology.

1.2 1.3 System Requirement Specification

4.1.5 1.3.1 Functional Requirements of System

For Admin

- Admin shall be able to add, update, delete students.
- Admin shall be able to add, update, delete Teachers.
- Admin shall be able to add subjects.

For Teachers

- Teacher shall be able to add, update, delete marks.
- Teachers shall be able to add subjects.
- Teachers shall be able to add, update feedback.

For Student

- Student shall be able to view their marks.
- Student shall be able to view feedback.

4.1.5 1.3.2 Non Functional Requirements of the system

- User Authentication
    - User should be able to login securely.
    - Different access levels (Student, teacher, Administrator)
- Results display
    - Teachers should be capability to enter and update scores for their representative subjects.
    - Teachers should be able to add feedback to the students individually.
    - Students should be able to view their individual results by log in.
    - Students should be able to view their feedback.
- Results Analysis
    - Provide statistical analysis tools for teachers to access overall performance, subject-wise performance.
- Data Management
    - Enable teachers to manage student profiles, subjects, class and results data.
    - Allow to modification students details.
    - Allow to modification Teachers details.

1.3 1.4 Introduction to the system

We can use new technology to improve education and communication. Our website can be used to display school semester exam marks so that parents can monitor the performance and trends of students in a school. The main aim of this website is to provide an easily accessible media platform to users.

The traditional process here is to hand out a handwritten book to each student, but this website can save the labour, time and reduce paper usage.

Students and parents will be able to view test scores quickly and securely through this website. Parents can use this system to track student performance. This innovative platform not only manages but also promotes dialogue between students, teachers and parents.

For this we will communicate with the concerned customers and create the website according to the relevant facts and finally any student will be able to track their student marks.

1.4 1.5 Problem Definition

4.1.5 1.5.1 Current problems with existing system

- Paper-based method is used to give the test scores to the students which are traditional methods.
- It takes more time to give the marks because the teachers are writing the marks of the students.
- Lack of an easily accessible platform for students, parents to view scores and teacher add test scores.
- Traditional methods take too much time.
- Parents face challenges in monitoring their child's educational level.
- The possibility of errors and inconsistencies in handwritten test marks.
- Still less use of new technology in schools.
- Lack of effective feedback between teachers, parents and students.
- Increased risk of loss or destruction

4.1.5 1.5.2 Fixes for current problems

- The website can be used to reduce the time spent on writing on paper.
- Providing easy access for students and parents to view exam marks.
- To reduce the risk of losing test scores, update data regularly
- Using security policies for security issues.

1.5 1.6 Objectives

- Student marks display and Student performance dashboard.
- Real-time Updates.
- Communication parents & teachers about student's marks
- Teachers can add student marks any time.
- Can view any time can any year student’s marks.
- Secure Cloud-Based Repository.

1.6 1.7 Proposed Technologies

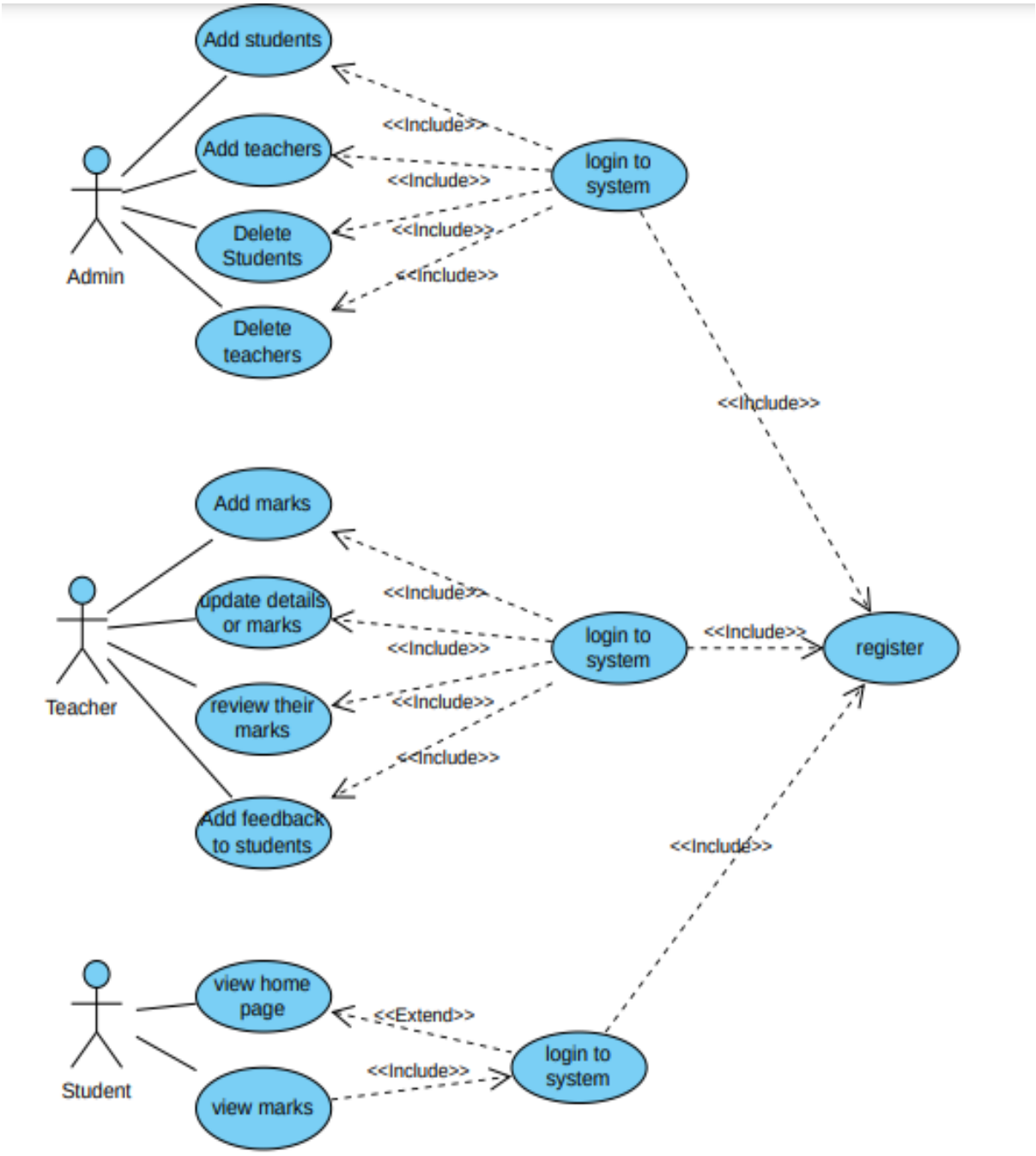
- HTML
- CSS
- SQL (PHP My Admin)
- Java Script
- PHP

1.7 1.8 Design phase.

Design phase is second phase in Software development life cycle (SDLC). In the design phase, we must design database functioning, interface functioning and that need for code the system.so this phase we want to create UML diagrams like Use case diagram, class diagram, sequential diagram and ER diagram.

2 2.0 Analysis

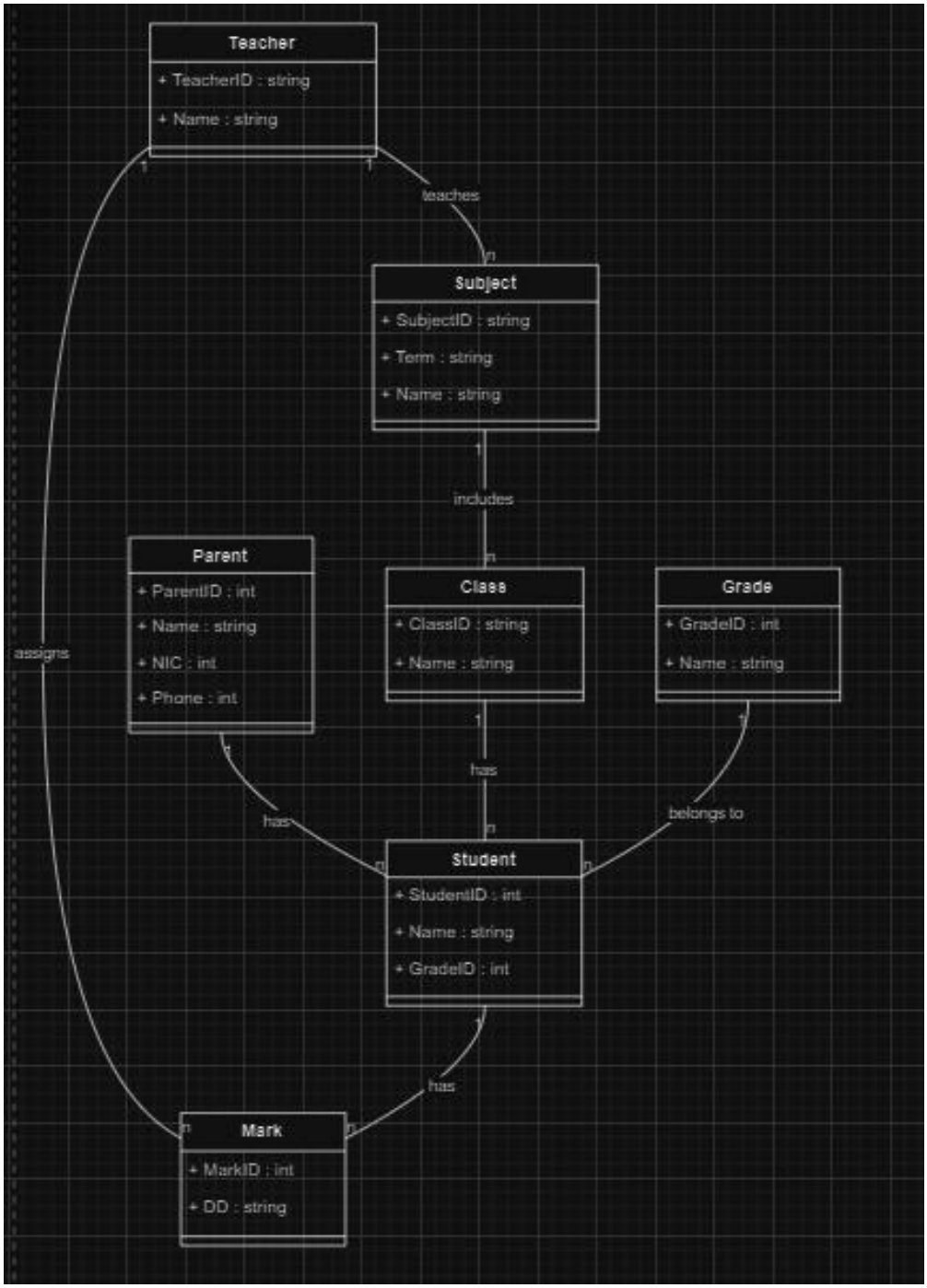
2.1 2.1 Use case diagram.



4.1.5 Figure 01 - use case diagram

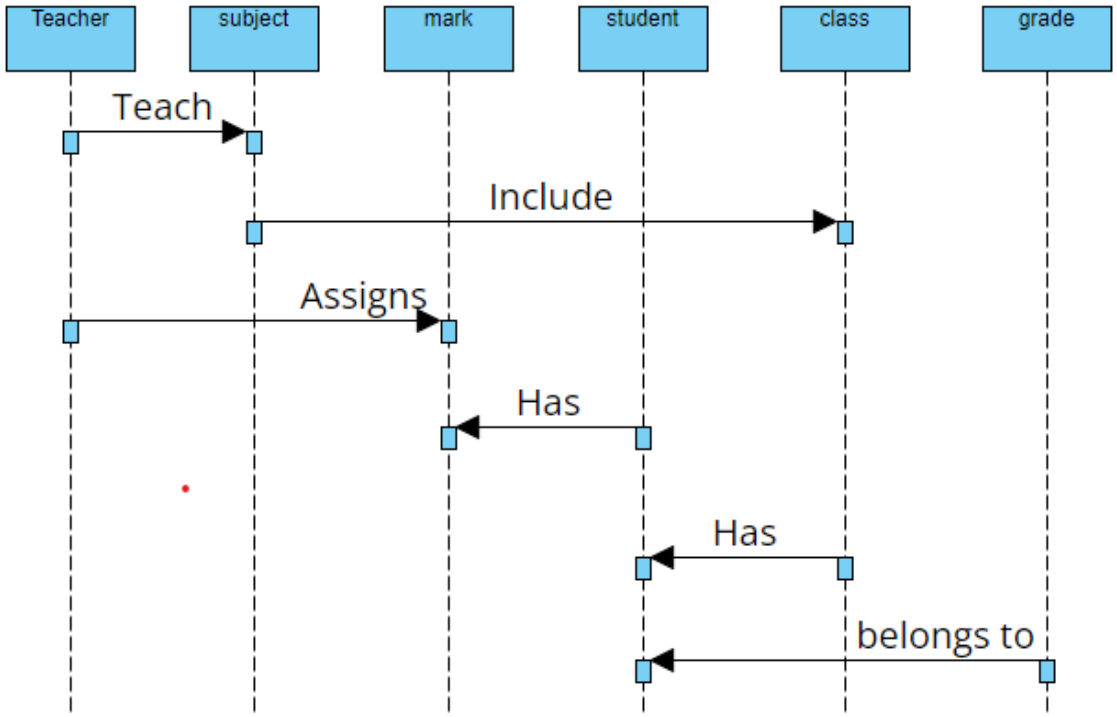
2.2

2.3 2.2 Class Diagram



4.1.5 Figure 02 -Class diagram

2.4 2.3 Sequential diagram

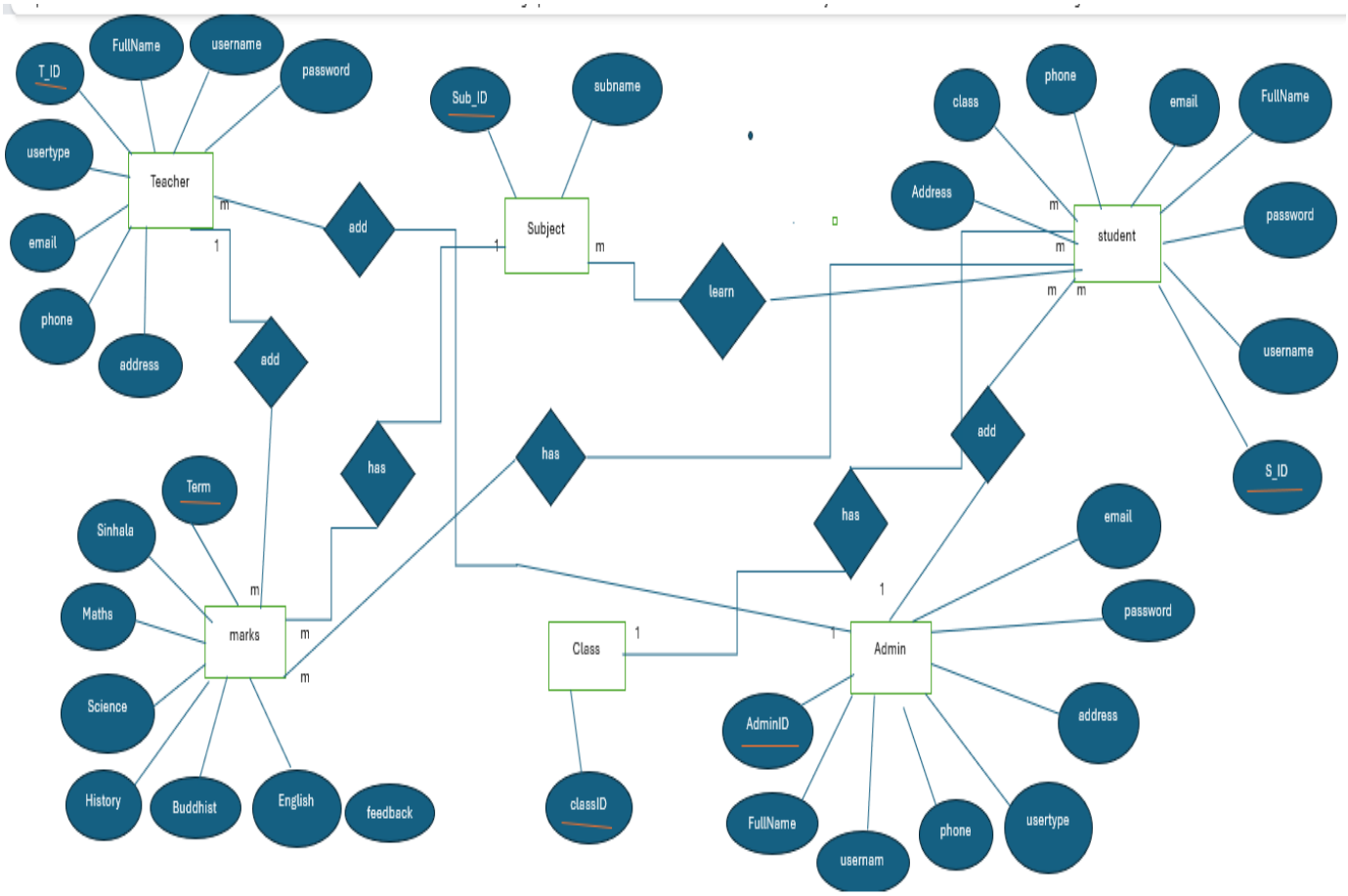


4.1.5

4.1.5 Figure 03-sequential diagram

2.5

2.6 2.4 ER Diagram



2.7

4.1.5

4.1.5 Figure 04 -ER diagram

2.8 2.5 Relational Schema

- Teacher(T_ID,usertype,email,phone,address,Fullname,username,password)
- Marks(Term,Sinhala,Maths,Science,History,Buddhist,English,feedback)
- Subject(Sub_ID,subname)
- Class(classID)
- Admin(AdminID,FullName,username,phone,usertype,address,password,email)
- Student(S_ID,username,password,FullName,email,phone,class,Address)

3 3.0 Solution Design

Presenting the proposed solution's design is the main goal of the solution design. It covers a range of topics including report layout design, database design and interface design.

3.1 3.1 Introduction

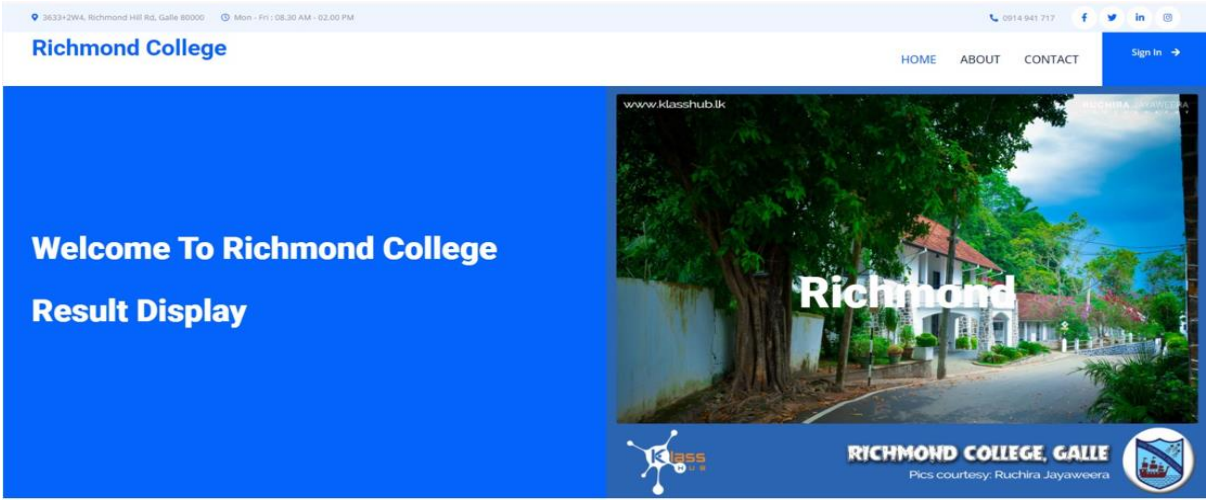
Our school branded website aims to provide students and teachers with the ability to access and manage exam marks information efficiently. The homepage features intuitive interfaces designed for a variety of user applications. displaying student dashboards including for view results and view feedback. Teacher dashboard for add marks and feedback, and administrator dashboard for overall system management (add, update, delete students and teacher's details). Built with responsive design principles, website ensures seamless operation across devices Behind the scenes are robust authentication mechanisms, database managements, ensure that secure data capture is performed as Node for subsequent development. Technologies like java script, SQL(PhpMyAdmin) for database management, contribute to system reliability and security. By applying best practices in front-end and back-end development, our school icon display program aims to provide learning internal content management has been simplified by prioritizing user privacy and security.

3.2 3.2 Interface Design

4.1.5 3.2.1 Interface No. 01

Interface Name: Home page

Description: Home page of school marks display system (Richmond school version) desktop layout

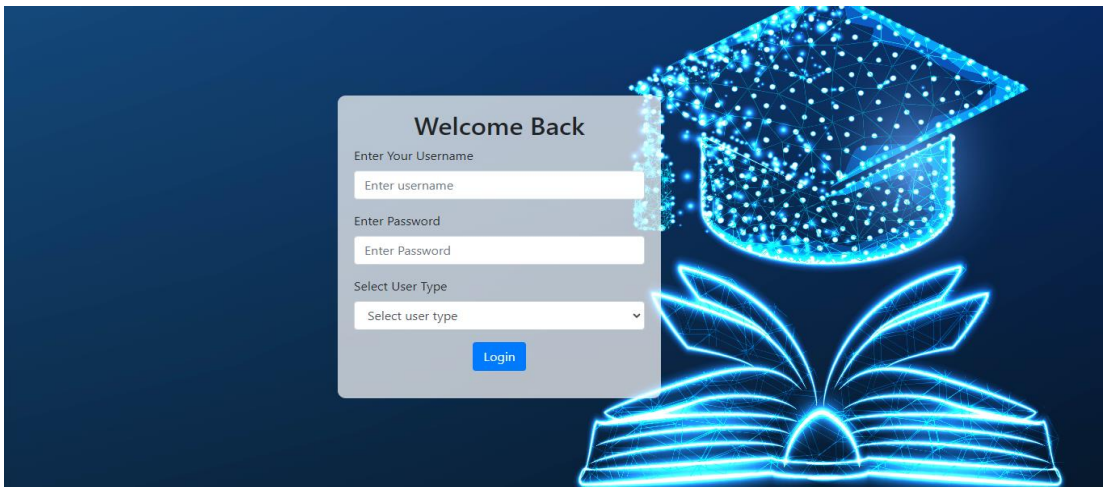


4.1.5 Interface 01 picture

4.1.5 3.2.2 Interface No.02

Interface Name : Login page

Description : Students, teachers and administrators can login to system with correct username and passwords.

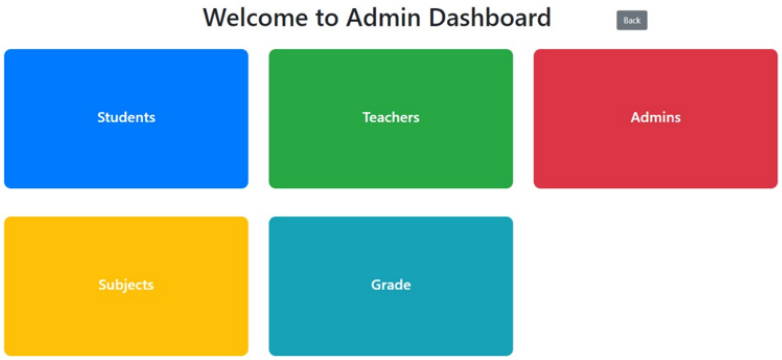


4.1.5 Interface 02 picture

4.1.5 3.2.3 Interface No: 03

Interface Name : Admin Dashboard

Description : Admin can add students, teachers and can add new admins to the system.



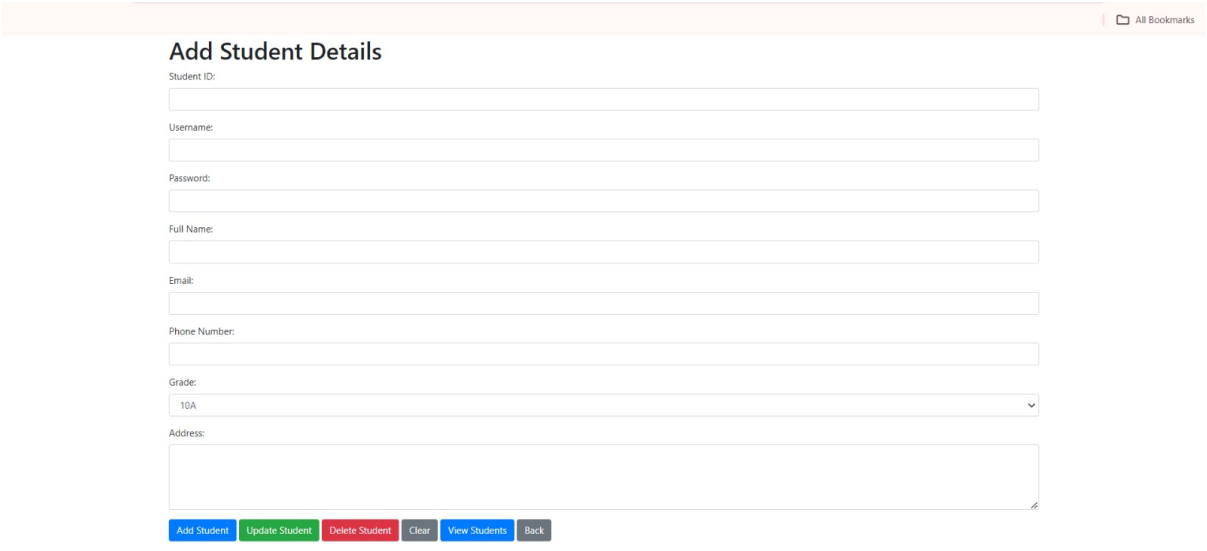
4.1.5 Interface 03 picture

4.1.5

4.1.5 3.2.4 Interface No 04

Interface Name : register students page

Description : Admin can register students

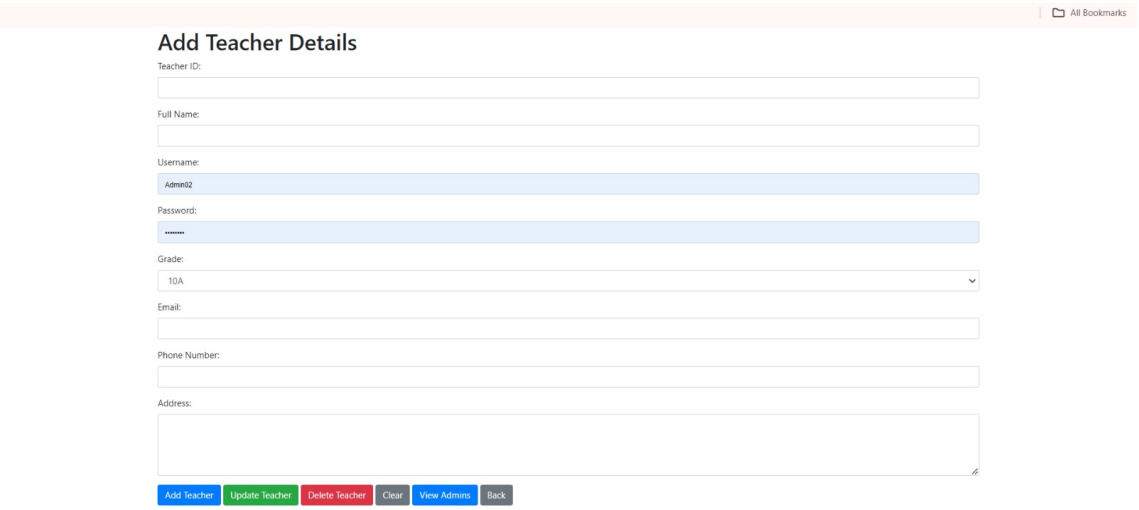


4.1.5 Interface 04 picture

4.1.5 3.2.5 Interface No 05

Interface Name : Teacher registration page

Description : admin can register teachers

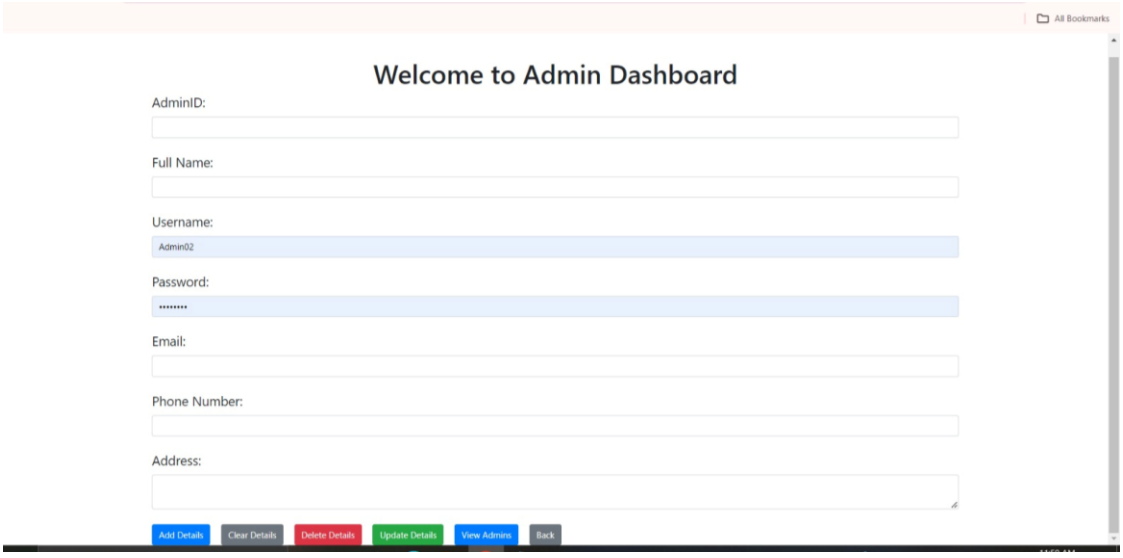


4.1.5 Interface 05 picture

4.1.5 3.2.6 Interface No 06

Interface Name : Admin registration page

Description :Admin can register new admins



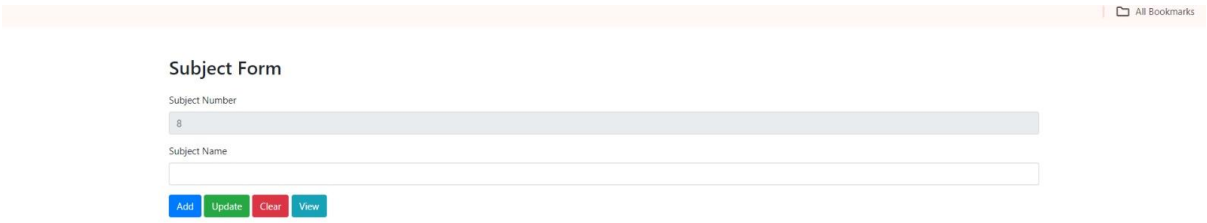
4.1.5 Interface 06 picture

4.1.5

4.1.5 3.2.7 Interface No 07

Interface Name : Subject Form

Description : Admin can add, update, delete subjects to the system



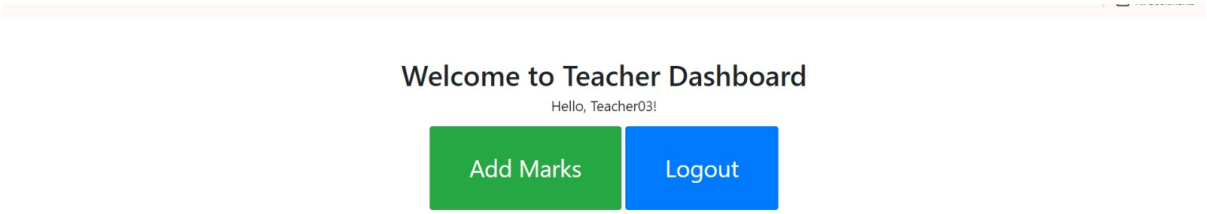
4.1.5 Interface 07 picture

4.1.5

4.1.5 3.2.8 Interface No 08

Interface Name : Teacher Dashboard

Description : Teacher can add marks to the system



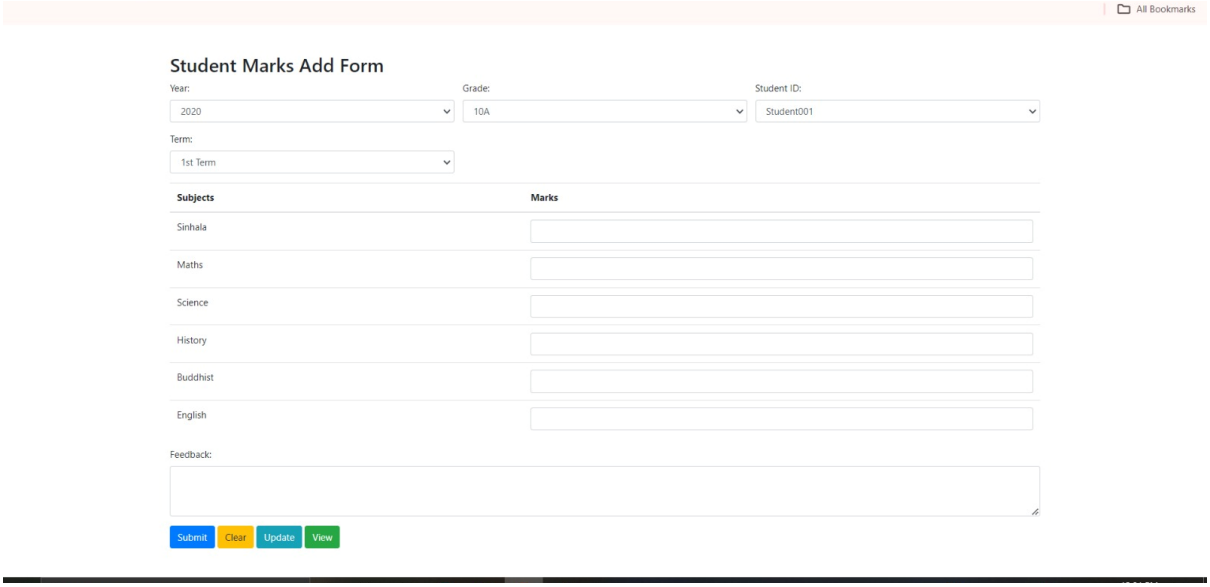
4.1.5 Interface 08 picture

4.1.5

4.1.5 3.2.9 Interface No 09

Interface Name : Add students

Description : add students marks and add feedback to the students

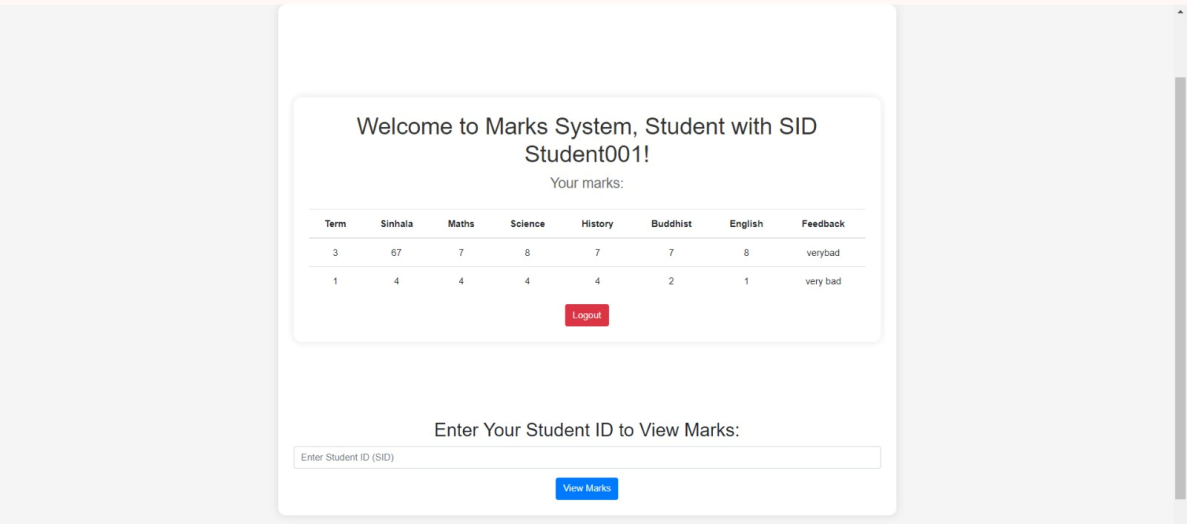


4.1.5 Interface 09 picture

4.1.5 3.2.10 Interface No 10

Interface Name : Student Dashboard

Description : Students can view marks and feedback



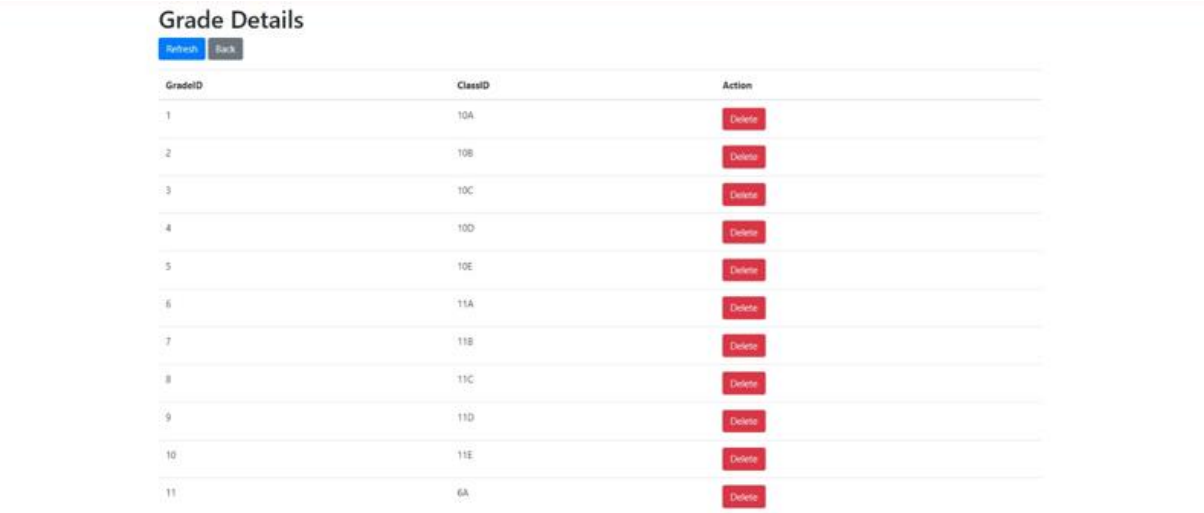
4.1.5 Interface 10 picture

3.3

4.1.5 3.2.11 Interface No 11

Interface Name : Grade Dashboard

Description : Display grades in system

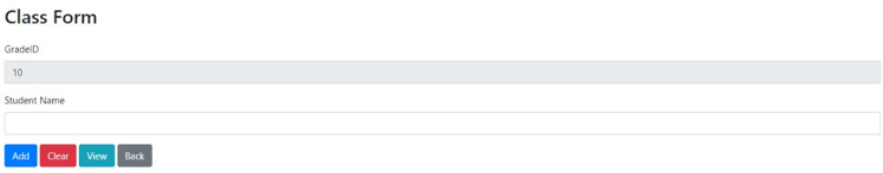


4.1.5 Interface 11 picture

4.1.5 3.12.12 Interface No 12

Interface Name : Grade details

Description : Add students to grades



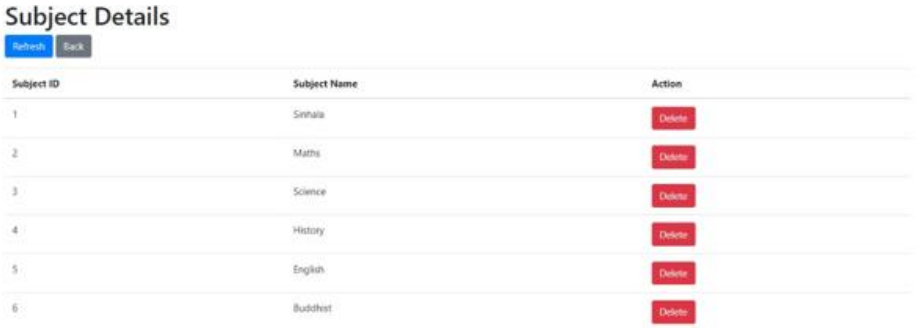
4.1.5 Interface 12 picture

4.1.5

4.1.5 3.12.13 Interface No 13

Interface Name : Subject details

Description : Display subject details and delete subjects from the system



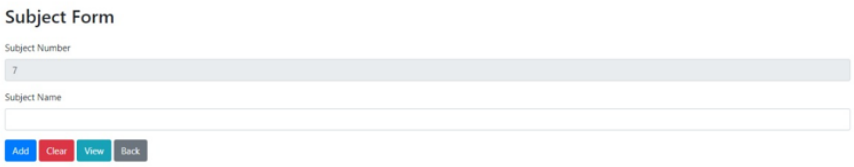
3.3..1.1

Interface 13 picture

4.1.5 3.12.14 Interface No 14

Interface Name : Subject Form

Description : Add subjects to the system

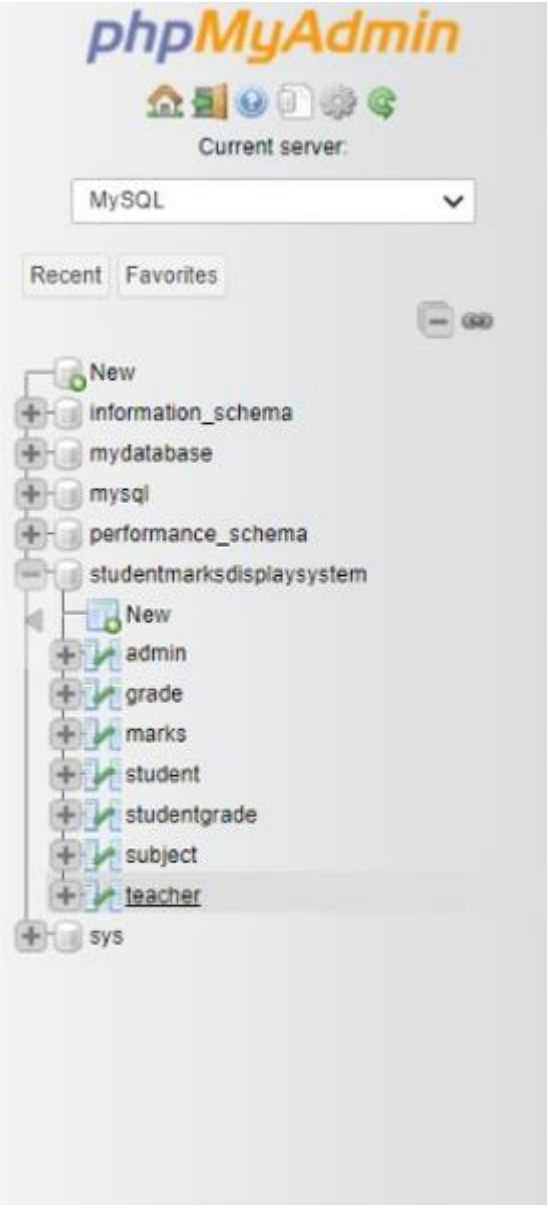


3.3..1.1 Interface 14 picture

3.4

3.5 3.3 Database Design

A key component of the suggested solutions is the database design of school marks display system, which offers a reliable and effective data storage system for web application. Use PhpMyAdmin database to design database system. Data consistency, integrity, and effective querying for all supported by phpMyAdmin database. This offers a seamless and scalable method for managing applications and changing data requirements.

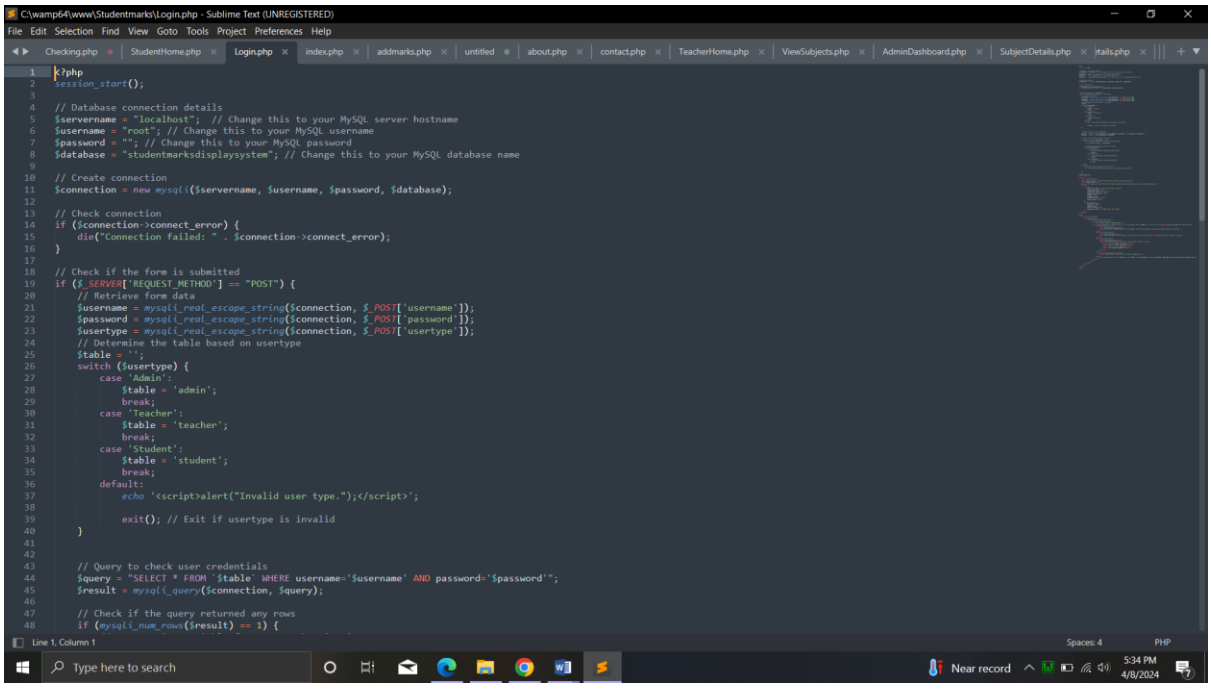


4 4.0 Implementation

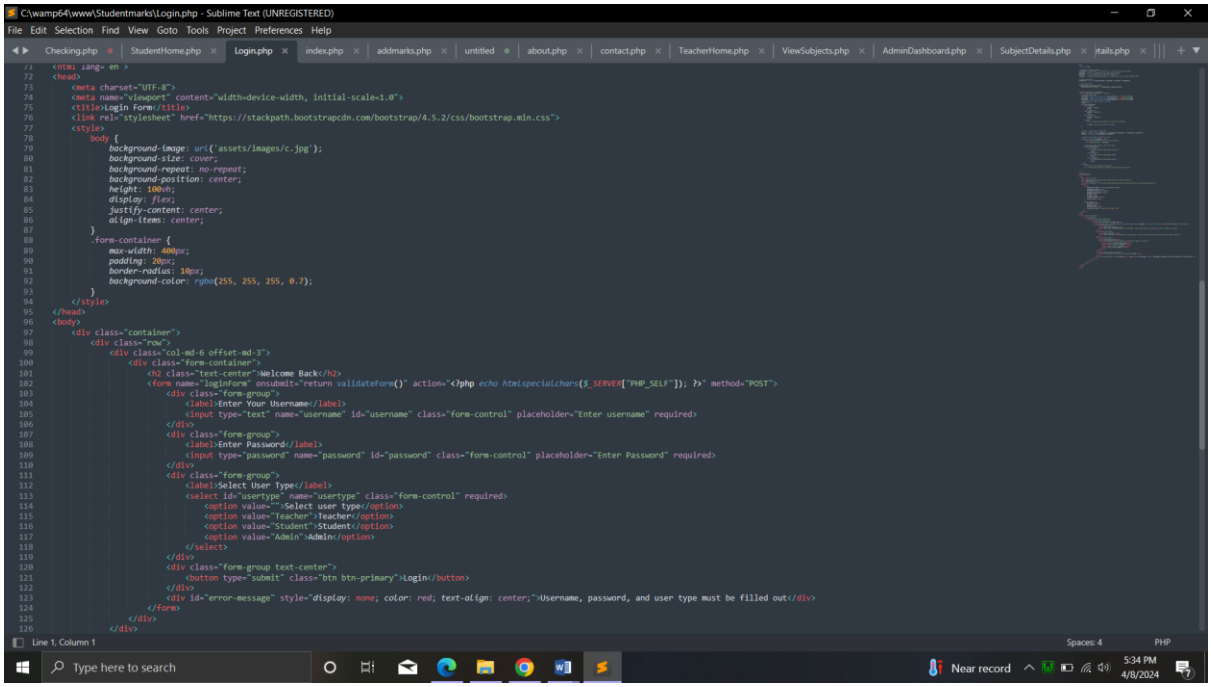
4.1 4.1 Introduction

The School Marks Display System is a web base application, which is created for smoothly performing actions related with showing and processing of students' marks in schools. Its focus is on increasing the efficiency of the system and to allow the exchange of information easier between teachers, students, and parents and it also helps to improve students academics. The main purposes of this school marks display system is to provide all needed help for marks management and increase the student academic knowledge. The system will be user-friendly, So the teachers will be able to insert and change marks quickly, and generate reports easily. It is going to increase the possibility for both the students and their parents to monitor the marks very quickly, move forward with the so called educational progress and learn in a timely fashion. The key feature of this system will be the mark input tool where all teacher can indicate marks of different subjects, exam or any other assessment type. It will help to determine overall scores and disclose the students indications about their progress.

4.1.1. Login.php code



4.1.5 Login.php



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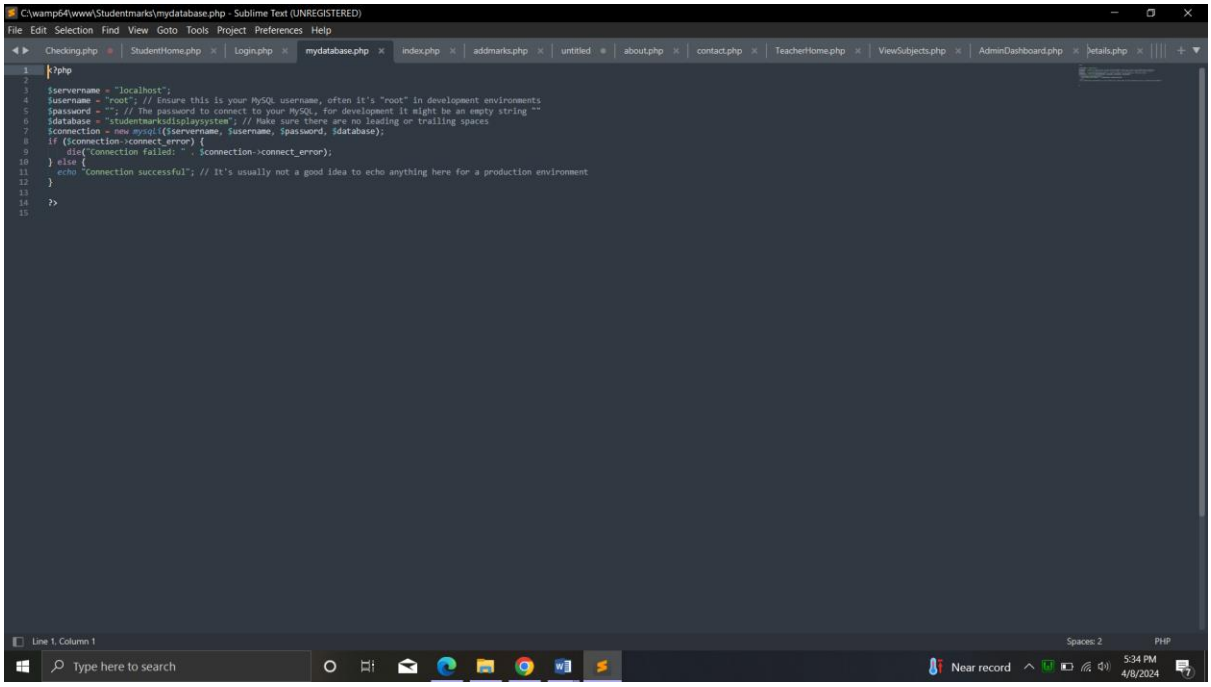
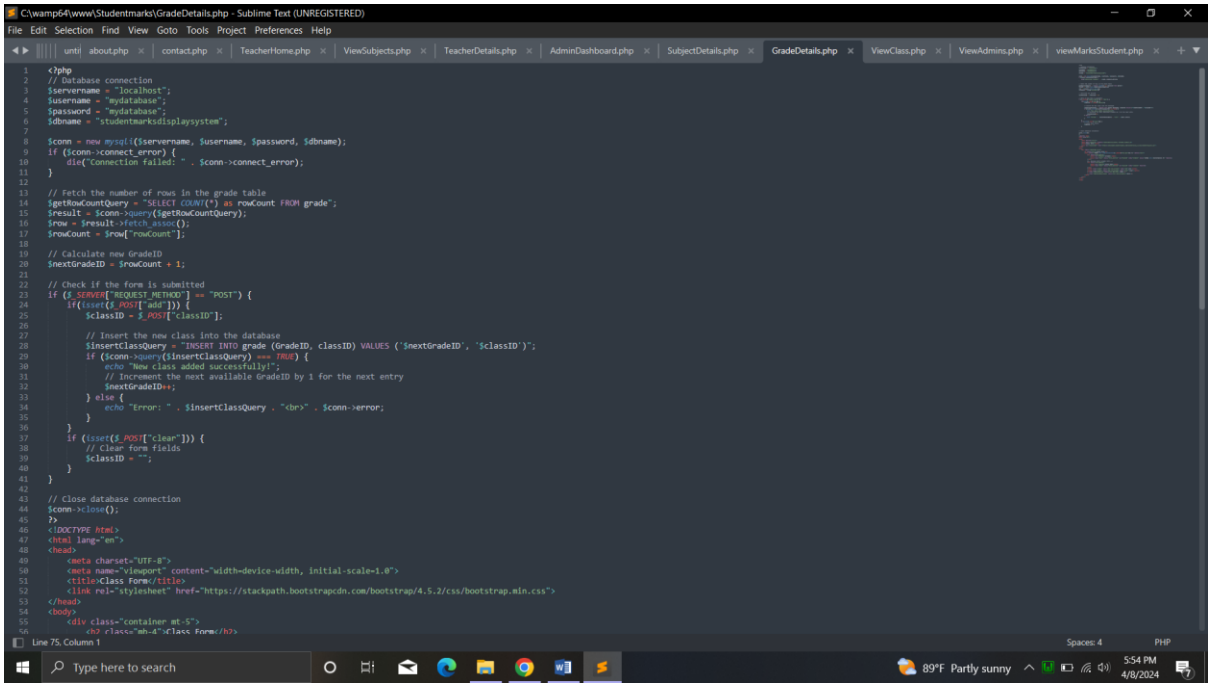
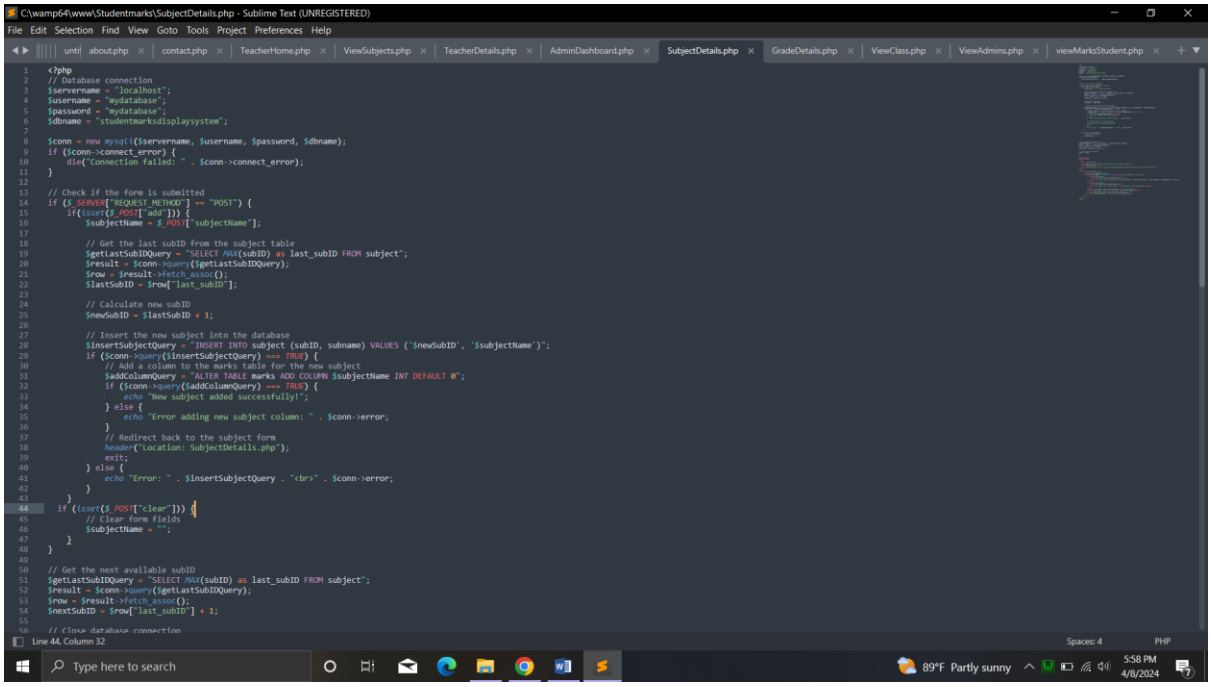


4.1.5 GradeDetails.php



4.1.5 Subject Details.php



4.2 4.2 Environmental Setup

The implementation of the environmental setup for students marks display system can be done by following the steps mentioned above.

- Hardware and Infrastructure setup

  Ascertaining the kind of hardware devices required to handle the workload and traffic. Technical deliverables may vary from simple server configuration, appropriate for smaller installations.

- Operating system and software installation

  Set up the better operating system and the associated software applications (VS code, sublime text, WampServer, web browser) needed for the working environment of this application.

- Database configuration

  Pick a free open-source Database Management System (PhpMyAdmin) from available ones that is the most appropriate for storing the marks data about students.

- Application installations

  Install the applications that you will need in building an application such as Students Marks Display System. (e.g., WampServer, visual studio code and sublime text and web browser)

- IDE selection

  Choose the suitable IDE to face the challenging development needs of the project. Here we will choose Visual studio code for IDE.

- Documentation and Tutorials

  Stick to tutorials, documentations and do whatever you have to do to keep the processes consistent and be through best practices through development process.

- Testing and quality assurance

  testing which will help you to find out and solve the errors and performances issues in the system.

- Launch

  Following the completion of the all necessary setup and testing in accordance to specifications, put the mark generator system to production

4.3 System Architecture

- Frontend Architecture

1. User Interface Design (UI design) : The first step of frontend development architecture is designing user interface. It include layout, navigation flow, and interaction elements such as buttons, menus and etc..

2. HTML, CSS, JavaScript : The foundation of frontend architecture is HTML for structuring web pages, We used CSS for styling them and JavaScript use to validate client side validations, handling user events, making asynchronous.

3. Framework and Libraries: Framework of front-ends is mostly used for that purpose- to simplify the development process and to make code reuse more possible. These frameworks address the problem of development process by providing the build-in components that eliminate time and efforts otherwise expensed in writing them from scratch.

4. API Integration: To facilitate alteration of students' marks, interface with APIs is included. Use asynchronous techniques such AJAX requests of fetch API to communicate with the server dynamically. Ensure proper error handling and data validation to handle different scenarios gracefully.

5. Responsive Design: with the mobile devices, desktops, tablets, it is crucial for the frontend architecture to responsive design. This UI adapts provide optimal viewing experience for across different devices.

- Backend Architecture

The backend architecture of Students Marks Display System has these its essential building blocks server tier, framework of application, database management system. This is the topology provides performance, effectively managing data and request processing security. This is the topology provides performance, effectively managing marks. In this way, the backend supports the platform with an authentication, authorization and data integrity framework alongside scalability and performance optimization that is required to have a manner that is safe and reliable for accessing the student marks data.

- Database Architecture

This system will efficiently store retrieve students' performance details across various subjects and exams.

Key components

- Student information – store individual student details.
- Teacher information – store individual teacher details.
- Exam information – keeps track of conducted exams
- Subject information – stored subject details
- Marks records – store marks by each student in each exam for specific subjects

Relationships

The data parts are connected and thus the accuracy of data is ensured and provided in a fast way. Imagin a student talking multiple exam results in various subjects. The system connects the student's information to the specific exam and subject with their corresponding marks.

Benefits

- Organized data: students, marks, subjects and exams data easier to manage.
- Reliable information: foreign key relationships prevent errors and maintain data consistency.

- Adaptable structure: this system design allows for future expansion with additional information.

Conclusion of database

The database structure will serve the directing in the students marks display system. It allows more effective data management including searching students marks with student ID wise. The suggested pattern could be also possible to be changing future requirements.

- Performance Testing

The performance test is very important during students marks display system implementation phase for guaranteeing the applications dependability, functionality and user satisfaction. The following testing and quality were used to accomplish this.

- Bug fixing

Bug fixing is very important functionality because this is school based system. Identify bug issues with user feedbacks and fix Bug Issues and apply fixes and improve user experience of the system.

- Security testing

Security testing is a key part of The Student marks display system. Including password encrypting, secure login so that's safe guards for students marks display system. With the implementation of such login measures, the system will become it will be protected against hacking or unauthorized access.

5 5.0 Conclusion

Finally, students mark display system serves as an indispensable tool for data management in schools. It streamlines marks record keeping, saving educators valuable time and granting them effortless access to the student's results data. Through meticulous design and testing we prioritized user experience, security and system reliability. Ensure seamless mark records management.

In the last part, it can be argued that the marks display system of the students is a crucial step in the educational management because it provides a data center to store student reports accurately. Currently, it performs core tasks including the administrative interface, provisioning of credentials for admins, teachers and students, as well as the support for input for marking of multiple teachers which, by the way is accessible to students. On the other hand, it is foreseeable that the further evolvement of the open banking ecosystem into such platforms offers a broader repository of datasets and format storylines enabling comprehensive data access to different participating organizations. In the environment where students can with just a click refer to all their academic details and possibility for static configuration charts where students with the similar grades will be placed in the same class, the system promotes transparency and leads to individual record keeping. Future improvements might involve the provision of expanded parental access as well as evidently making sure that guardians are well-informed on regards to progress of their kids This holistic perspective involves systems growing to incorporate different styles of learning by educational stakeholders in promoting interaction and communication as well as simplifying administration. More importantly, the future of a student marks display system establishment and its perpetual enhancement will result in it becoming an essential tool in the production of the modern classroom, where educational success and parent participation will be at its highest.

6 6.0 References

- Google - https://www.google.com/