A PHP BASED SPORTS MANAGEMENT SYSTEM FOR VIGNAN UNIVERSITY

A PROJECT REPORT

Submitted by

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in partial fulfillment for the award of the degree

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in

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CERTIFICATE

This is to certify that the project report entitled **"A PHP based Vignan Sports Management System"** being submitted by **A. SIDDHARDHA - 221FJ01003** and **SUNNY KUMAR - 221FJ01070** in partial fulfillment of requirements for the award of Bachelor of Computer Applications Degree in the Department of Computer Applications, Vignan's Foundation for Science Technology and Research, Vadlamudi, Guntur District, Andhra Pradesh, India, is a Bonafide work carried out by them under our guidance and supervision.

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DECLARATION

We hereby declare that our project work described in this project report titled **"A PHP based Vignan Sports Management System"** which is being submitted by us for the partial fulfillment of requirements for the award of Bachelor of Computer Applications Degree in the Department of Computer Applications, Vignan's Foundation for Science Technology and Research, Vadlamudi, Guntur District, AndhraPradesh, and the result of investigations are carried out by us under the guidance of Mr. ANAND KUMAR.

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With Sincere regards

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ABSTRACT

The Sports Management System is a comprehensive, role-based digital platform designed to streamline and centralize operations across sports academies and athletic organizations. It supports a three-tiered architecture catering to students, coaches, and administrators, each with purpose-specific functionalities. Students can manage credentials, view academic calendars, register for events, track BMI and achievements, while coaches are equipped with tools for academy calendar management, event creation, performance tracking, results documentation, fixture scheduling, inventory handling, and billing. Administrators oversee the entire ecosystem, handling inventory control, event and achievement management, financial operations, health monitoring, coach account creation, and system access. By consolidating these tasks into a unified system, the platform enhances communication, automates routine administrative processes, optimizes resource allocation, and provides data-driven performance insights. Its intuitive interface and centralized repository not only reduce operational inefficiencies but also support the holistic development of student-athletes and the strategic growth of sports academy.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER - 1

INTRODUCTION

The Sports Management System represents a comprehensive digital solution designed to address the complex operational needs of modern sports academies and athletic organizations. As sporting institutions continue to evolve, they face mounting challenges in coordinating resources, tracking performance metrics, managing events, and maintaining efficient administrative operations. Traditional approaches involving disconnected systems, paper-based processes, and manual record-keeping have proven increasingly inadequate for the demands of contemporary sports management. This integrated platform serves the distinct needs of three key stakeholder groups—students, coaches, and administrators—through role-based access and specialized functionality. For students, the system provides tools for account management, event registration, performance tracking, and achievement monitoring. Coaches benefit from features supporting calendar management, student evaluation, event creation, and resource allocation. Administrators gain comprehensive oversight capabilities including inventory management, financial operations, and system-wide configuration. By centralizing these diverse functions within a unified digital ecosystem, the Sports Management System eliminates information silos, reduces redundant processes, and enhances organizational efficiency. The platform facilitates seamless communication between all stakeholders while providing real-time access to critical data. This introduction document outlines the fundamental concepts, architecture, and value proposition of the Sports Management System, establishing the foundation for subsequent technical and operational documentation of this transformative management solution.

1.1. OVERVIEW OF THE PROJECT

The Sports Management System is a comprehensive web-based application designed to streamline and integrate the operational workflows of sports academies and athletic organizations. This system addresses the fundamental challenges of sports program administration by providing a unified platform where all stakeholders—students, coaches, and administrators—can interact with role-specific features tailored to their needs. At its core, the project implements a three-tiered user hierarchy that supports the distinct responsibilities of each user type. Students can manage their profiles, track physical metrics, register for events,

and monitor their achievements. Coaches are empowered with tools to oversee training schedules, evaluate student performance, organize sporting events, and manage equipment inventories. Administrators maintain system-wide control with capabilities for financial management, coach onboarding, comprehensive record keeping, and strategic oversight. The system replaces fragmented legacy approaches to sports management with an integrated solution that centralizes data, automates routine tasks, and facilitates communication across the organization. By digitizing processes that were traditionally manual—from BMI recording to event scheduling—the platform significantly reduces administrative burden while improving data accuracy and accessibility. This project represents a strategic investment in organizational infrastructure, designed to scale with the institution's growth while providing the robust functionality needed to support excellence in both athletic performance and operational efficiency. The Sports Management System serves as the digital backbone for modern sports academies seeking to optimize their resources and enhance their educational and athletic programs.

1.2. PROBLEM STATEMENT

In the dynamic environment of sports academies and athletic institutions, managing day-to-day operations across various roles—students, coaches, and administrators—poses significant challenges. Traditional systems often rely on manual processes, scattered data storage, paper-based records, and multiple disconnected tools for handling academic calendars, event scheduling, inventory, student health tracking, and performance monitoring. This fragmented approach leads to inefficiencies, miscommunication, data redundancy, and difficulty in accessing or updating critical information. Students often lack timely access to personalized updates related to events, achievements, or fitness tracking, which hampers their engagement and progress. Coaches face operational difficulties in managing training schedules, documenting results, monitoring athlete performance metrics like BMI, and handling inventory or billing efficiently. Meanwhile, administrators are burdened with coordinating logistics, maintaining records, creating coach accounts, and ensuring that all systems function cohesively—often without access to real-time, centralized insights. These issues collectively result in increased workload, poor communication among stakeholders, and suboptimal decision-making

Furthermore, the absence of an integrated digital solution inhibits the ability to track and evaluate performance data over time, affecting both individual athlete development and organizational planning. As sports academies grow in scale and complexity, the need for a unified, scalable, and role-based digital platform becomes critical. The proposed Sports Management System addresses these challenges by offering an all-in-one solution that streamlines communication, automates routine tasks, provides centralized data access, and supports real-time monitoring and management of all essential operations. It empowers students, coaches, and administrators alike, promoting efficiency, transparency, and a data-driven approach to athletic and organizational excellence...

1.3. LIMITATIONS OF THE EXISTING SYSTEM

In the dynamic environment of sports academies and athletic institutions, managing day-to-day operations across various roles students, coaches, and administrators poses significant challenges. Traditional systems often rely on manual processes, scattered data storage, paper-based records, and multiple disconnected tools for handling academic calendars, event scheduling, inventory, student health tracking, and performance monitoring. This fragmented approach leads to inefficiencies, miscommunication, data redundancy, and difficulty in accessing or updating critical information. Students often lack timely access to personalized updates related to events, achievements, or fitness tracking, which hampers their engagement and progress. Coaches face operational difficulties in managing training schedules, documenting results, monitoring athlete performance metrics like BMI, and handling inventory or billing efficiently. Meanwhile, administrators are burdened with coordinating logistics, maintaining records, creating coach accounts, and ensuring that all systems function cohesively often without access to real-time, centralized insights. These issues collectively result in increased workload, poor communication among stakeholders, and suboptimal decision-making Furthermore, the absence of an integrated digital solution inhibits the ability to track and evaluate performance data over time, affecting both individual athlete development and organizational planning. As sports academies grow in scale and complexity, the need for a unified, scalable, and role-based digital platform becomes critical. The proposed Sports Management System addresses these challenges by offering an all-in-one solution that streamlines communication, automates routine tasks, provides centralized data access, and supports real-time monitoring and management of all essential operations. It empowers

students, coaches, and administrators alike, promoting efficiency, transparency, and a data-driven approach to athletic and organizational excellence.

1.4. OBJECTIVES

The objective of the Sports Management System is to design and implement a centralized, role-based digital platform that simplifies and automates the core operations of sports academies. This system aims to enhance the efficiency, accuracy, and transparency of activities involving students, coaches, and administrators by offering a unified solution tailored to each role's specific needs. It will centralize the management of academic calendars, event schedules, BMI records, achievements, inventory, and billing, ensuring that all essential data is organized and easily accessible. By incorporating role-based access control, the system will provide secure, personalized dashboards for each user type, allowing them to interact with only the relevant features and information. The platform seeks to automate routine administrative tasks such as event registration, result documentation, and inventory tracking, thereby reducing manual workload and minimizing errors. Additionally, it will support real-time monitoring of student performance and health metrics, enabling data-driven decisions that contribute to athlete development. The system will also improve coordination and communication among stakeholders by offering synchronized calendars, structured workflows, and timely notifications. Furthermore, the platform will be built with scalability and future integration in mind, allowing it to adapt to growing institutional demands. With an intuitive and responsive user interface, the system will promote user engagement and adoption, ultimately contributing to the holistic development of student-athletes and the operational success of sports organizations.

1.5. SCOPE OF PROJECT

The scope of the Sports Management System encompasses the design, development, and deployment of a fully functional, role-based digital platform tailored for the efficient management of sports academies and athletic institutions. This system is intended to serve three primary user groups students, coaches, and administrators each with dedicated modules and functionalities. For students, the platform will provide secure access to academic calendars, event registration, BMI tracking, achievement logging, and account management features such as login, logout, and password updates. Coaches will be able to manage academy calendars,

create and schedule events and fixtures, track student BMI and performance results, manage inventory, generate bills, and maintain secure account access. Administrators will have overarching control of the system, with capabilities that include managing inventories, creating coach accounts, overseeing events, tracking achievements, handling billing processes, and monitoring health records.

The project will be built as a scalable and user-friendly web application, with a focus on data centralization, automation of repetitive tasks, secure access control, and real-time data management. It will also include essential reporting features and analytics tools for performance evaluation and resource planning. The platform is designed to be modular, allowing for the future integration of additional features such as mobile app support, real-time notifications, and integration with wearable fitness devices. By covering the core operational needs of sports academies within a single, cohesive system, this project aims to eliminate inefficiencies found in traditional management methods, promote transparency, and support the overall development and performance tracking of student-athletes.

In addition to streamlining day-to-day operations, the Sports Management System will play a pivotal role in long-term strategic planning and decision-making for sports academies. By maintaining a centralized repository of historical data related to student health, participation, achievements, and inventory usage, the system will enable administrators and coaches to identify trends, evaluate program effectiveness, and allocate resources more efficiently. It will also enhance transparency and accountability across all departments by providing clear logs of activities and performance metrics. Furthermore, the system’s adaptable architecture ensures that it can evolve alongside institutional needs, accommodating future requirements such as multi-branch management, integration with academic systems, or the addition of new modules for talent scouting, certification tracking, or alumni engagement. This extended scope reinforces the platform’s value as a holistic solution for managing the complete lifecycle of sports training and administration.

1.6. ORGANIZATION OF THE REPORT

This comprehensive project report on the Sports Management System is structured to provide stakeholders, developers, and end-users with a complete understanding of the system's conception, development process, technical architecture, and implementation strategy. The document follows a logical progression that builds from foundational concepts to detailed technical specifications, ensuring that readers of varying technical backgrounds can navigate and comprehend the material according to their specific interests and requirements.

CHAPTER - 2

LITERATURE SURVEY

2.1. RELATED WORK & RESEARCH PAPERS REVIEWED

In recent years, there has been increasing interest in the development of digital solutions for sports administration, athlete tracking, and event management. Traditional approaches to managing sports academies have relied heavily on manual paperwork, fragmented data systems, and unstructured communication between stakeholders, which often leads to inefficiencies and a lack of performance insights. Several systems have been proposed to address individual components such as athlete performance tracking, inventory control, or scheduling, but very few offer a holistic, integrated platform tailored for role-based sports management.

Studies such as "A Web-Based Framework for Managing Athletic Training Programs" (2022) explore the need for digitizing athlete performance data, injury reports, and training schedules. However, most of these systems are designed specifically for high-performance athletic centers and lack modularity for broader institutional use. Another paper, "Digital Sports Management Systems: Enhancing Efficiency in Academic Institutions" (2023), highlights the impact of using centralized web-based platforms for managing events, health records, and sports-related administrative workflows in schools and colleges. The research underlines the importance of integrating modules such as student attendance, health metrics (e.g., BMI), equipment tracking, and billing in one system.

ERP systems for educational institutions have also evolved to include sports and extracurricular modules, as discussed in "Extending ERP Architecture for Sports Management in Universities" (2023). These studies emphasize the growing demand for unified platforms that not only support academic operations but also manage sports activities, coach assignments, and training schedules.

Recent developments in wearable tech and health analytics have further contributed to research in athlete monitoring. Papers like "IoT-Driven Health Monitoring in Sports Training Environments" (2024) discuss the use of smart devices to track fitness parameters and feed real-time data into digital dashboards. While these technologies hold great promise, their adoption is limited due to cost and complexity, especially in academic or budget-constrained

environments.

Despite these advancements, a significant gap remains in offering a comprehensive, affordable, and user-friendly system for academic sports environments. Most reviewed systems are either overly complex or lack role-based differentiation for students, coaches, and administrators. Therefore, the need for a simplified, PHP-MySQL-based Sports Management System becomes evident—one that offers core features like event registration, inventory management, BMI tracking, billing, and role-based dashboards, all within an accessible web platform enhanced with modern frontend technologies like JavaScript and GSAP for better usability.

2.2. GAPS IN EXISTING SYSTEMS

Despite the availability of various platforms and tools aimed at managing educational and sports-related activities, there are several noticeable gaps in existing systems that hinder the overall efficiency of sports academies and institutions. Many of the available solutions focus on specific functionalities—such as event scheduling, athlete performance tracking, or academic management—without offering a unified system that caters to the diverse roles within a sports environment, namely students, coaches, and administrators. One major gap lies in the lack of role-based accessibility and customization. Existing platforms often fail to provide tailored dashboards and features based on the user's role. For instance, coaches require tools for fixture planning, BMI tracking, and performance analysis, while students primarily need access to event registration, personal health stats, and achievement records. Administrative users, on the other hand, must oversee all operations, manage inventory and billing, and create coach accounts. The absence of clearly defined role hierarchies in most systems leads to cluttered interfaces and reduced user efficiency. Another significant shortcoming is the fragmentation of data and workflows. Most institutions still rely on separate tools for event management, student information, health tracking, and billing. This separation causes data silos, increases redundancy, and complicates data validation and reporting. Without a centralized system, it becomes difficult to monitor student progress, assess resource utilization, or plan institution-wide strategies effectively. Moreover, many existing solutions lack support for automated health and BMI tracking, which is a critical aspect of any sports training program. Manual record-keeping not only consumes time but is also prone to errors. Few systems offer integrated BMI calculators or history logs that allow tracking physical development over time,

which is vital for coaches and administrators.

In addition, inventory and billing management modules are either absent or minimally implemented in current tools. Managing sports equipment, uniforms, and other resources is essential, especially in larger academies. The lack of inventory oversight can lead to resource mismanagement, losses, and inefficient budget allocation. Similarly, billing systems are often isolated or externally handled, causing delays and confusion in financial operations Lastly, many platforms still use outdated or non-intuitive interfaces, which hinder user engagement. Especially for students and coaches who may not be tech-savvy, systems need to be clean, responsive, and visually guided. The lack of animation, modern UI/UX practices, and responsive design discourages regular usage.

This project addresses these gaps by building a comprehensive Sports Management System using PHP and MySQL, combined with modern frontend technologies like HTML, CSS, JavaScript, and GSAP for dynamic, role-specific user experiences. The platform integrates event planning, health monitoring, inventory and billing control, and secure access for all users—providing a unified, scalable solution for modern sports institutions.

2.3. PROPOSED SOLUTION

The proposed solution is a centralized, web-based Sports Management System designed to streamline operations across sports academies through role-based access for students, coaches, and administrators. Built using PHP and MySQL, with a dynamic frontend powered by HTML, CSS, JavaScript, and GSAP, the system offers modules for event registration, BMI tracking, achievement logging, inventory and billing management, and coach administration. By integrating all core functions into a single platform, the solution eliminates manual processes, enhances communication, ensures secure data handling, and improves overall operational efficiency in managing sports-related activities.

CHAPTER - 3

SYSTEM ANALYSIS & DESIGN

3.1. SYSTEM REQUIREMENTS

3.1.1. Hardware Requirements

- Processor: Intel Xeon / AMD Ryzen 7 or equivalent
- RAM: Minimum 16GB
- Storage: 500GB SSD or 1TB HDD (for storing media files)

3.1.2. Software Requirements

- Operating System: Windows, macOS, or Linux
- Programming Language: PHP
- Frontend Technologies: HTML, CSS, JavaScript
- Database: MySQL
- Development Tools: VS Code

3.2. FEASIBILITY STUDY

A feasibility study evaluates the viability of the project in terms of technical, operational, economic feasibility.

3.2.1. Technical Feasibility

The proposed Sports Management System is technically feasible as it leverages robust, widely adopted, and easily maintainable technologies that are well-suited for building scalable web applications. The backend is developed using PHP, a reliable server-side scripting language known for its compatibility with web servers and strong integration with relational databases. MySQL is used as the primary database, providing efficient and structured storage for managing users, events, BMI records, achievements, inventory, billing, and other related data. This combination ensures secure and efficient data handling with support for complex queries and relationships. The frontend of the application is crafted using HTML, CSS, and JavaScript, ensuring a responsive and accessible user interface across devices. To enhance interactivity and user engagement, GSAP (GreenSock Animation Platform) is utilized, adding smooth transitions and animations that improve overall usability and visual appeal. This makes the

system user-friendly, even for those with limited technical experience, such as students or non-technical staff.

3.2.2. Operational Feasibility

The proposed Sports Management System is operationally feasible and well-suited for implementation in sports academies and educational institutions. It is designed to simplify day-to-day administrative and athletic operations by offering a role-based, user-friendly web platform. Each user student, coach, or administrator has access to relevant features tailored to their responsibilities, improving efficiency and minimizing confusion. For students, the system allows easy access to features like BMI record tracking, event registration, achievement logs, and academic calendar updates. These tools empower students to manage their sports involvement while reducing the need for manual administrative support. The web-based interface ensures accessibility from any device, enabling flexible use. Coaches can manage athlete performance data, event planning, BMI logs, inventory, and billing through a centralized system. This reduces paperwork, improves training schedule organization, and ensures better communication with students and staff. Additionally, it aids in maintaining accurate records for performance assessment and resource management.

3.2.3. Economic Feasibility

The Sports management system is economically feasible as it is designed to be cost- effective while delivering high functionality. The development utilizes open-source technologies such as HTML, CSS and js for the frontend, PHP for the backend, and MySQL for the database, which significantly reduces licensing and infrastructure costs. Since it is hosted online, there is minimal investment required in physical infrastructure or hardware. Maintenance and updates can be managed by a small technical team, further reducing ongoing expenses. In comparison to traditional classroom management and record-keeping systems, this platform minimizes paperwork, administrative effort, and resource utilization, leading to long- term cost savings. The benefits achieved in terms of automation, efficiency, and reduced manual workload outweigh the initial development efforts, making the system financially sustainable and economically justified.

3.3. SYSTEM ARCHITECTURE

The Sports Management System is architecturally designed using a multi-tier approach that

ensures separation of concerns, scalability, and ease of maintenance. At the forefront is the Presentation Layer, which provides an intuitive and role-specific user interface for students, coaches, and administrators. This layer includes distinct UIs for each role, accessible via web browsers and optionally through mobile devices. Students can use the interface to register for events, monitor their BMI and achievements, and stay updated with academic calendars. Coaches, on the other hand, have access to tools for managing events, recording BMI data, logging results, scheduling fixtures, handling inventory, and managing financial transactions. Administrators are equipped with a centralized interface to oversee the entire system, including access to reports, inventory records, billing systems, achievements, and user accounts. This layer ensures users can interact with the system seamlessly, regardless of their device or location.

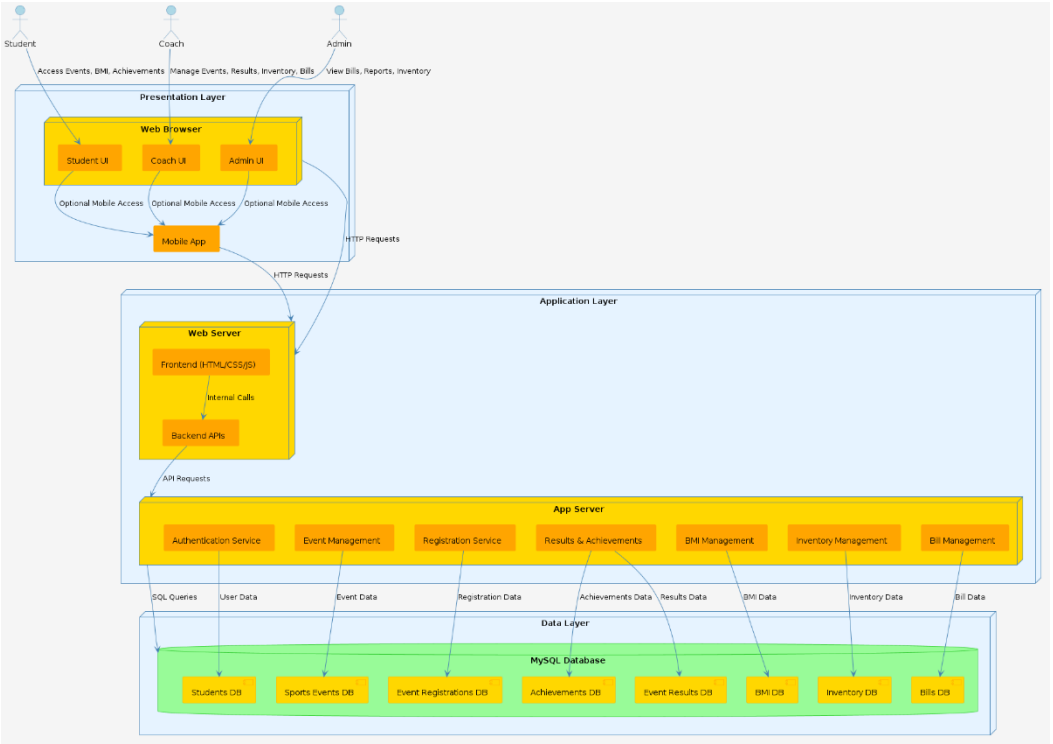

Figure 3.1 System Architecture Overview

The Presentation Layer acts as the front end of the system and is developed using ReactJS. It is responsible for rendering the UI components that interact with users such as students, faculty, and administrators. From logging in to accessing course dashboards, viewing marks, submitting attendance, and managing students, all interactions take place at this level. It sends requests to the backend and updates the UI based on responses. Tailwind CSS and modern UI design

patterns are used to give a responsive and polished look to the application.

The Application Layer functions as the system's backend logic layer, built using Node.js with Express.js. It handles server-side processing, routing of API requests, session management, authentication (via JWT), and business logic operations like student enrollment, subject management, and marks entry. This layer acts as a bridge between the front-end interface and the database, processing data before storing or retrieving it from the database. It also ensure Beneath this, the Application Layer hosts the system's core business logic. This layer is divided into two components: the web server and the application server. The web server handles the front-end interactions developed using HTML, CSS, JavaScript, and enhanced with GSAP for animations.

It processes HTTP requests and forwards them to backend services. The application server is built using PHP and consists of several modular services including authentication, event management, registration services, BMI tracking, result and achievement logging, inventory handling, and billing management. Each service is responsible for processing relevant data, enforcing business rules, and securely communicating with the database. At the base is the Data Layer, which comprises a robust MySQL database system.

This layer stores all persistent information in separate, well-structured databases including student records, sports events, registration data, achievement logs, BMI data, inventory status, and billing details. Each backend module sends optimized SQL queries to its corresponding database, ensuring fast and reliable data transactions. The structure of the data layer supports normalization and relational integrity, making the system consistent and secure.

3.4. USE CASE DIAGRAM

The provided use case diagram represents the core functional interactions between three primary user roles Student, Coach, and Admin within the Sports Management System. Each actor has specific responsibilities and system privileges tailored to their role, ensuring smooth and structured management of sports-related activities, records, and resources. At the heart of the system is the Login/Logout functionality, a shared use case that ensures secure access control for all user types. Once authenticated, each actor gains access to specific modules.

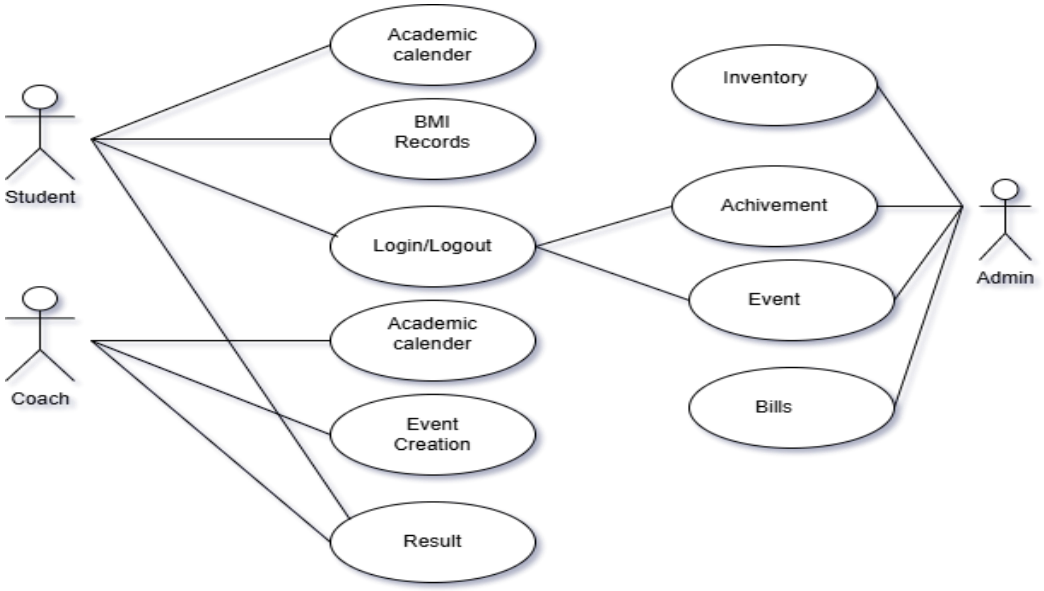

Figure 3.2 Use Case Diagram

Students interact with the system to view their academic calendar, allowing them to stay informed about upcoming sports sessions, academic timelines, and other scheduled activities. They also have access to their BMI records, enabling them to monitor their fitness and health progress regularly. This encourages health awareness and engagement with physical development.

Coaches use the system for more dynamic tasks. In addition to accessing the academic calendar, they are responsible for creating events, such as matches or training sessions. They also manage and input results, allowing for accurate tracking of individual and team performance over time. This contributes to data-driven training approaches and helps maintain a detailed history of

athletic achievements and progress.

Admins, as the highest authority within the system, oversee major operational components. They manage the inventory, ensuring that sports equipment and resources are adequately tracked and maintained. The achievement module allows them to verify and record notable accomplishments by students and coaches. Admins also handle event oversight to ensure consistency and scheduling efficiency, and they are responsible for managing bills, including tracking and maintaining the financial records associated with academy operations.

This use case model emphasizes a role-based access control system, where each user has access only to the features and data relevant to their responsibilities. Such a design not only enhances security and accountability but also improves overall system usability by streamlining each user's workflow. Through this structured interaction, the Sports Management System supports efficient event coordination, health tracking, academic planning, and administrative oversight—forming a cohesive and robust digital environment for sports institutions

3.5. ER DIAGRAM

The provided ER (Entity-Relationship) diagram represents the data model for a Sports Management System, highlighting the key entities, their attributes, and the relationships between them. It is structured to support the operational and administrative needs of a sports academy by managing student records, events, inventory, health data, and results.

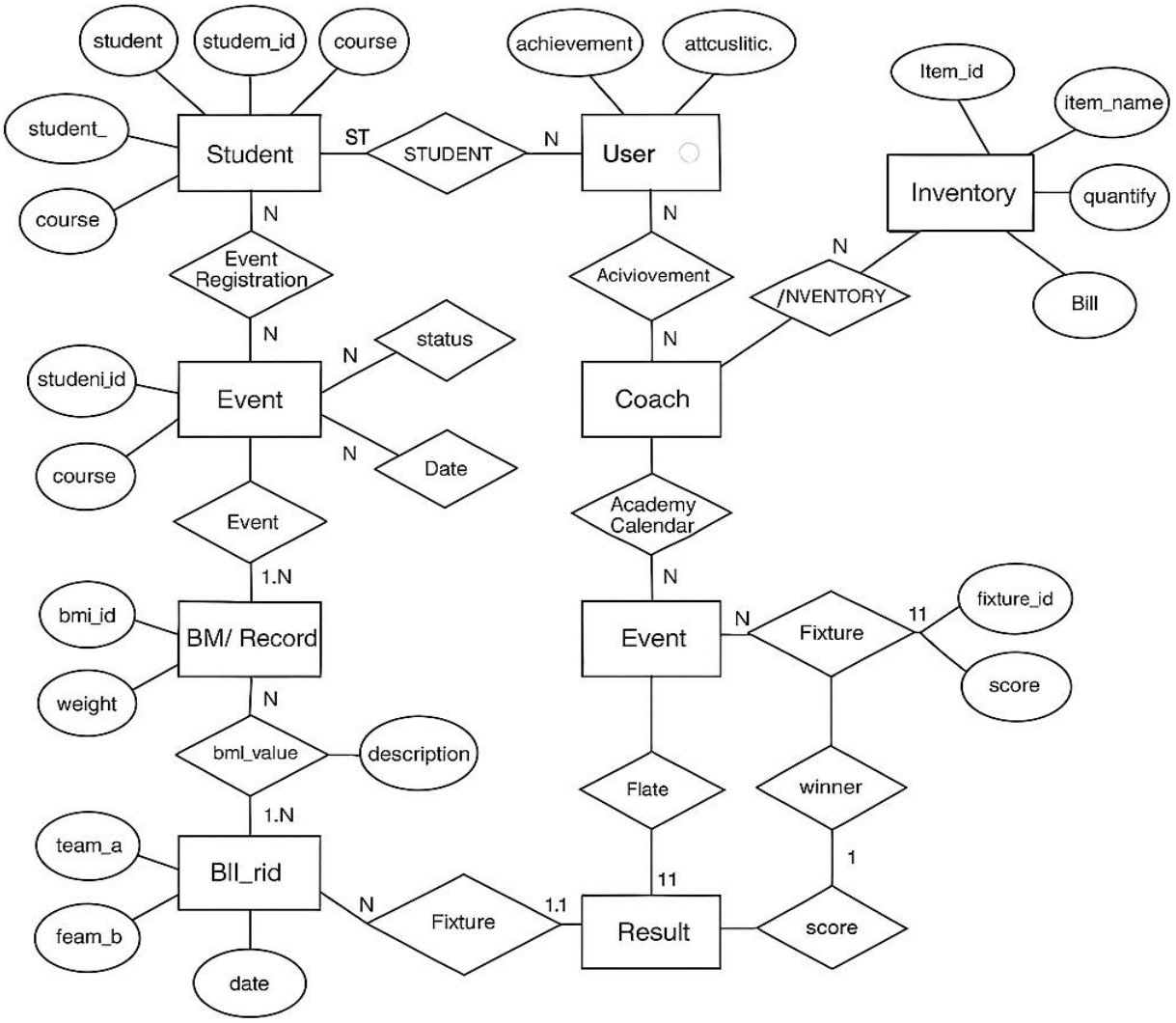

Figure 3.3 ER Diagram

At the heart of the system is the student entity, which stores details like student_id, name, and course. Students are directly linked to various events through the Event Registration relationship, indicating their participation. Each student may participate in multiple events, and each event can have multiple students registered, establishing a many-to-many relationship. Additionally, students are linked to BMI Records, which track physical health data such as bmi_id, weight, bmi_value, and health descriptions, crucial for performance monitoring in sports activities.

The User entity serves as a generalized class for all users of the system—including students, coaches, and possibly administrators—and holds attributes like achievement and attitude/discipline indicators. Coaches are treated as a distinct entity related to both Event and User, with their responsibilities including maintaining the Academy Calendar and managing events. Coaches also participate in the achievement tracking of students and event organization.

Event is a central entity, recording data such as event dates, status, and associated courses. It connects to both students and coaches, and is further linked with Fixture, which defines match details between teams including team_a, team_b, fixture_id, score, and date. Fixtures are directly related to the Result entity, which captures the outcome of events, including the winning team and final scores.

The Inventory entity keeps track of equipment using attributes like item_id, item_name, and quantity. It connects to the Bill entity to manage the financial aspect of resource allocation, ensuring that the use of sports items is well documented and billed accurately.

3.6. CLASS DIAGRAM

The provided class diagram represents the structure of a Sports Management System, detailing its classes, attributes, methods, and relationships. It clearly defines the roles of Admin, Coach, and Student, along with supporting classes like SportsEvent, EventResult, BMI, Achievement, Inventory, IssuedItem, Bill, Course, and Department. Here's a detailed paragraph explanation:

At the core of the system lies the Student class, which includes attributes like roll number, name, email, phone number, and gender. Each student is associated with a department and course, and can register for both individual and group events via the registerForEvent() methods. They also have a connection to their BMI records and Achievements, which track

their health and performance metrics. Students can also login/logout and view their sports calendar and bills.

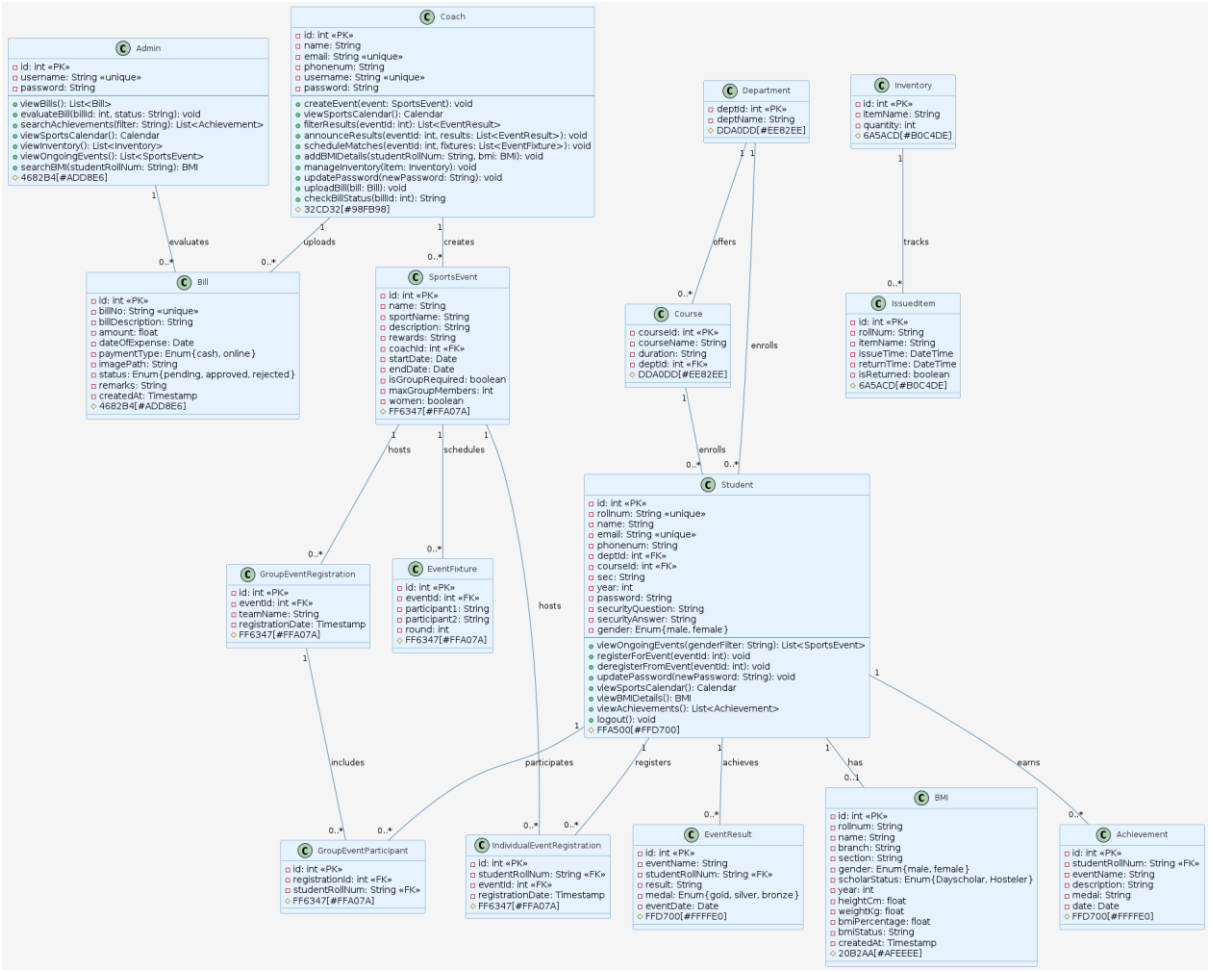

Figure 3.4 Class Diagram

Overall, the class diagram defines the backbone of the Vignan Online system using object-oriented principles. It enables the developers to understand how the classes are related and how they interact with one another in terms of inheritance, association, and aggregation. This design makes the system robust, dynamic, and manageable parts. It also serves as a guide during the implementation and coding phase of the software development lifecycle.

3.7. DATA FLOW DIAGRAM (DFD)

The provided diagram is a Data Flow Diagram (DFD) for a Sports Management System that outlines the movement and interaction of data among various users (Student, Coach, and Admin), processes (like registration, inventory, and billing), and databases (such as Event, Achievement, and BMI databases). It serves as a comprehensive blueprint showcasing how different entities interact with the system's components.

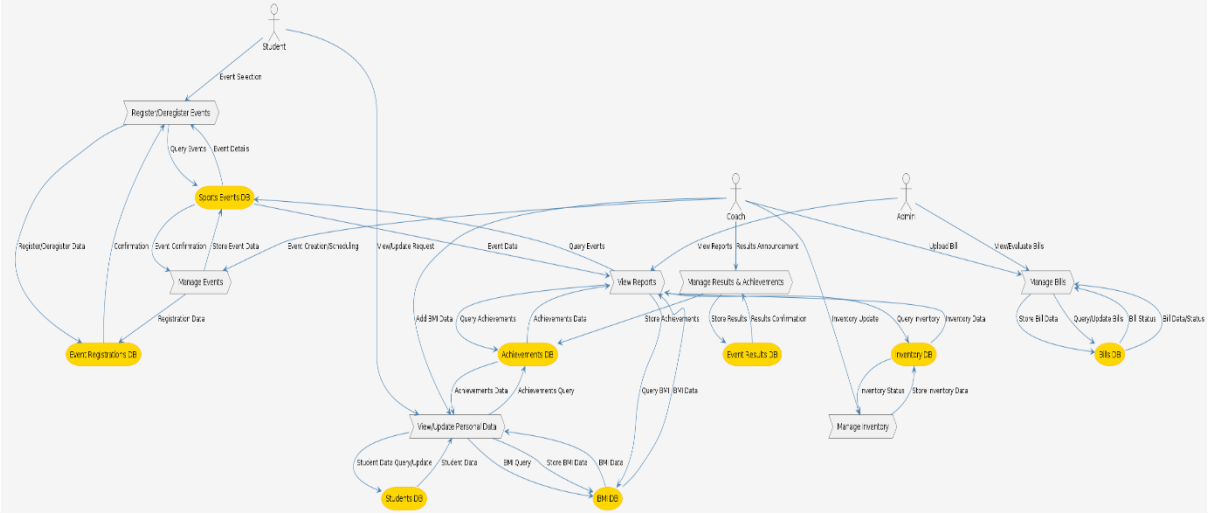

Figure 3.5 Data Flow Diagram

At Level 1, the DFD breaks down the main system into sub-processes such as Student Management, Faculty Management, Course Management, and Marks Entry. Each sub-process details how data is received, processed, and stored in different data stores. For example, when the faculty enters marks for a student, the data flows from the faculty interface to the Marks sub-process and then into the respective student's academic records in the database. Similarly, when an admin adds a new student, the data flows through a student registration process and is stored in the student database.

The DFD also helps identify the different data stores used in the system such as Student Records, Faculty Profiles, Course Details, and Subject Marks. These data stores are connected to various processes through data flow arrows, clearly illustrating how inputs and outputs travel within the system. This not only ensures better understanding but also assists in identifying redundant processes or missing data interactions, which can be optimized for better system performance and data integrity.

The DFD plays a significant role in the system design phase, providing clarity on how data is managed throughout the application. It enables developers and stakeholders to visualize the structure of data movement and interaction, ensuring that the final implementation aligns with the intended design. The Vignan Online Classroom System benefits from this well-organized data flow, making the system more reliable, efficient, and easy to maintain.

The admin user focuses primarily on the financial aspect of the system, using the Manage Bills module. Here, admins upload billing data, which is stored in the Bills DB, and they can evaluate or update bill statuses as required. They also interact with the system to view or evaluate bills, ensuring transparency and accuracy in financial management.

Each of these processes is tightly integrated with the relevant databases. The Sports Events DB handles all data related to event details and scheduling. The Event Registrations DB keeps track of student participation. The Achievements DB and Event Results DB record accomplishments and performance outcomes. Health data like weight and height is stored in the BMI DB, while the Inventory DB tracks sports equipment and resources. The Bills DB stores billing information related to event participation, inventory usage, or other administrative charges

CHAPTER - 4

METHODOLOGY

4.1. TECHNOLOGIES USED

The Sports Management System is developed using a classic yet powerful full-stack approach that ensures seamless performance, ease of development, and high user engagement. The architecture of the system includes a dynamic frontend for user interaction, a robust backend to handle application logic, and a reliable database layer to manage structured data. The system also integrates animation libraries to deliver a modern, interactive user experience.

By leveraging the synergy of client-side and server-side technologies HTML, CSS, JavaScript, GSAP for frontend and PHP, MySQL for backend and data storage the application efficiently supports various modules such as student registration, event scheduling, BMI record tracking, achievements, billing, and administrative control. Below is an in-depth look at the individual technologies used in the project:

4.1.1. Frontend Development: HTML, CSS, JavaScript, and GSAP

HTML5 provides the structural foundation of the web pages. It ensures a semantic, organized layout that is accessible and SEO-friendly. All student, coach, and admin interfaces are built using structured HTML elements.

CSS3 is used for styling and layout management. Flexbox and Grid are utilized for responsive design, while transitions and hover effects provide intuitive navigation cues.

JavaScript plays a key role in enhancing interactivity on the client side. It handles form validations, modal popups, real-time alerts, and UI logic such as filtering and table sorting. JavaScript is also responsible for dynamic content updates without full page reloads.

GSAP (GreenSock Animation Platform) is integrated to animate page components like sliding menus, content loaders, success/error messages, dashboards transitions, and interactive charts. These animations create a modern, engaging experience and help improve user retention.

4.1.2. Backend Development: PHP

PHP is the core backend language used to implement the business logic of the Sports Management System. It is used to:

- Handle form submissions and user inputs securely.
- Authenticate users based on roles (Student, Coach, Admin).
- Connect and perform CRUD operations on the MySQL database.
- Manage sessions and user state across different modules.
- Generate reports such as attendance, event results, BMI charts, and inventory summaries.
- Implement access control to restrict or grant permissions based on user role.

PHP's ability to integrate with HTML and communicate directly with MySQL makes it ideal for building scalable and secure web applications. The system’s backend is modular and reusable, with organized PHP scripts handling each core functionality (BMI tracking, event creation, result upload, etc.).

4.1.3. Database: MySQL

The database for the Sports Management System is managed using MySQL, a powerful and widely adopted RDBMS. It is used to store and organize all system data including:

- User profiles (students, coaches, admins)
- BMI records
- Event details and registrations
- Achievements
- Inventory logs
- Billing information

Relational tables are linked using foreign key constraints to ensure data integrity. MySQL indexes are applied to frequently queried columns to improve search speed. The use of structured queries and normalized tables allows the system to scale and manage thousands of records efficiently.

Backups, transactions, and error handling are incorporated to ensure data safety and reliability. The database design also supports reporting and analytics features such as usage statistics and student performance tracking.

4.2.MODULE-WISE IMPLEMENTATION

The Sports Management System is divided into three main user roles Student, Coach, and Admin each with specific modules.:

- **Student Module:** Allows students to update passwords, view academic calendars, register for events, record BMI, track achievements, and login/logout.
- **Coach Module:** Enables coaches to manage academy calendars, students' BMI records, create events, update results, manage fixtures, handle inventory, generate bills, and perform login/logout.
- **Admin Module:** Provides admins with full control over inventory, achievements, events, bills, BMI records, and coach account creation, along with access management.

CHAPTER - 5

TESTING & RESULTS

5.1. TESTING METHODOLOGY

The sports management system underwent a comprehensive testing process to ensure functionality, security, and performance. The methodology included unit testing, integration testing, functional testing, performance testing, and security testing. These tests were designed to validate that the system meets user expectations across roles students, coaches, and admins.

5.1.1. Unit Testing

Unit testing focused on verifying individual functions of the PHP backend and frontend JavaScript. Each module student registration, event management, BMI tracking, inventory, and billing was tested independently.

Approach Used in Unit Testing:

- Tested PHP functions for data validation, insertion, and updates.
- JavaScript functions for form validation, dynamic UI, and animations (via GSAP).
- Ensured accurate data retrieval with SQL queries.
- Checked error handling for missing fields and incorrect data.

Examples:

- Validating user login and password updates.
- Verifying correct calculation and storage of BMI.
- Ensuring event registration functions work independently.

5.1.2. Integration Testing

Integration testing validated interactions between various system modules and database operations.

Integration Points Tested:

- Communication between HTML forms and PHP scripts for student/coach data.
- PHP-MySQL interaction for event creation, calendar updates, and billing.
- Role-based access flow between admin, coach, and student dashboards.
- Session handling and login/logout transitions**...**

5.1.3. Functional Testing

Each feature of the application was tested to ensure it behaves according to user needs.

Major Functional Areas Tested:

- User authentication and session control.
- Student BMI tracking and event registrations.
- Admin control over achievements, billing, inventory, and coach assignments.
- Coach modules for event creation, result uploads, and inventory access.
- Dashboard responsiveness and accurate data display using JavaScript and GSAP.

5.1.4. Performance and Security Testing

Performance Testing:

- Tested page load times with multiple concurrent user actions.
- Ensured GSAP animations didn’t slow UI response.

Security Testing:

- Validated PHP session security and access control.
- Checked input sanitization to avoid SQL injection.
- Verified password update flows and session logout functionality**.**

5.2.TEST CASES & RESULTS

The testing phase of the Sports Management System focused on validating core functionalities across different user roles Admin, Coach, and Student. Each module was tested under various scenarios to ensure smooth operation and data consistency.

For instance, during student registration, the system correctly handled valid inputs, stored the records in the MySQL database, and provided appropriate validation messages for missing or duplicate fields. Similarly, the login module was tested with both correct and incorrect credentials redirecting users to their respective dashboards upon successful login, or displaying error messages for failed attempts.

The BMI tracking module allowed students and coaches to input data, which was successfully calculated and stored. For event registration, students were able to register seamlessly, and the backend displayed accurate participant lists to coaches and admins. Event creation by coaches was tested for scheduling, venue assignment, and fixture uploads. The results module accurately reflected uploaded scores, and GSAP animations were tested for performance and fluid UI rendering during interactions. The inventory and billing modules allowed admins to add and update stock or issue bills, and all updates were correctly reflected in the database. Access restrictions ensured that only authorized users could view or modify sensitive data.

Search functionality was also tested, enabling quick retrieval of student and event records using filters like name, course, or event type. Overall, the system performed reliably under various scenarios and handled edge cases effectively.

5.2.1. Test Cases for Student Management

The Student Management Module is a crucial component of the Sports Management System. It allows administrators and coaches to manage student records, including adding, updating, deleting, viewing profiles, and assigning students to sports events. The following test cases were designed to ensure this module works as intended under various conditions.

Table 5.1 Student Management Test Cases

TC ID	Scenario	Test Data	Expected Result	Status
TC_01	Add student with valid data	Name: Rohan, Roll No: 101, Course: BCA	Student added successfully	Pass
TC_02	Missing required field	Roll No: ***(empty)***	Error: "Roll Number is required"	Pass
TC_03	Duplicate roll number	Roll No: 101 (exists)	Error: "Roll Number already exists"	Pass
TC_04	Update student course	Roll No: 101 → BCA to MCA	Course updated with success message	Pass
TC_05	Delete student record	Roll No: 102	Record deleted with confirmation	Pass
TC_06	View student profile	Roll No: 101	Full profile displayed correctly	Pass
TC_07	Register student for event	Roll No: 101, Event: 100m race	Registered successfully	Pass

Here are the one-line explanations for each test case:

TC_01 – Verifies student is added successfully with all valid data.

TC_02 – Checks if the system shows an error when a required field is missing.

TC_03 – Ensures duplicate roll numbers are not allowed.

TC_04 – Confirms that student course updates are saved correctly.

TC_05 – Validates deletion of a student record with confirmation.

TC_06 – Checks if full student profile displays accurately.

TC_07 – Verifies successful registration of a student to a sports event..

5.2.2. Authentication & User Access Test Cases

This module was tested to verify secure login, access restrictions, and session management for students, faculty, and admin users.

Table 5.2 Authentication & User Access Test Cases

Test Case ID	Test Scenario	Expected Output	Actual Output	Status
AU_01	Student registration	Student should be registered successfully	Registered successfully	Pass
AU_02	Coaches' registration	coach should be registered successfully	Registered successfully	Pass
AU_03	Admin login with valid credentials	Admin should log in successfully	Logged in successfully	Pass
AU_04	Coaches' login with valid credentials	coach should log in successfully	Logged in successfully	Pass
AU_05	Student login with valid credentials	Student should log in successfully	Logged in successfully	Pass
AU_06	Incorrect password entry	System should display an error message	Error message displayed	Pass
AU_07	Logout functionality	User should be logged out and redirected to login page	Logout successful	Pass

Test Cases AU_01 to AU_03 verified that students, faculty, and administrators could log in using valid credentials.

Test Case AU_04 ensured that incorrect login attempts were properly handled with an appropriate error message.

Test Case AU_05 validated that users could log out smoothly without session persistence.

Test Case AU_06 confirmed that session expiration worked as expected for security purposes.

5.2.3. BMI Test cases

To verify that the system accurately calculates the Body Mass Index (BMI) based on the user's input (weight and height), and categorizes the result correctly.

Table 5.3 BMI Test Cases

TC ID	Scenario	Test Data	Expected Result	Status
TC_01	Add valid BMI	Height: 170 cm, Weight: 65 kg	BMI calculated and saved successfully	Pass
TC_02	Missing height	Height: (empty), Weight: 60 kg	Error massage	Pass
TC_03	Invalid input format	Height: -160, Weight: abs	Invalid input format	Pass
TC_04	Update BMI record	Update weight to 68 kg	BMI Update	Pass
TC_05	View BMI history	Student: Rohan, roll no 101	BMI records displayed	Pass

TC_01 – Add valid BMI:

- Ensures the system correctly calculates and stores BMI when valid height and weight are entered.

TC_02 – Missing height:

- Checks form validation by leaving the height empty; system should show an error message and prevent submission.

TC_03 – Invalid input format:

- Verifies that the system handles invalid inputs like negative numbers or text (e.g., "abs") by showing an appropriate error.

TC_04 – Update BMI record:

- Tests if a user can update an existing BMI entry (like changing weight), and the system correctly recalculates and saves the new value.

TC_05 – View BMI history:

- Confirms that users (or admins) can view a student's BMI history based on identification (name and roll number)

5.3. PERFORMANCE EVALUATION

The performance of the Sports Management System was evaluated to ensure it functions efficiently under expected workloads and delivers a smooth user experience. The primary goal was to assess system responsiveness, resource usage, and scalability across critical modules such as student registration, event handling, BMI tracking, and dashboard interactions.

Key Areas Evaluated:

Load Time Efficiency:

- Dashboard modules (student, coach, admin) loaded within 2–3 seconds under normal traffic.
- Data tables for student and event listings remained responsive with up to 1000 entries.

API Response Time:

- Most APIs (e.g., student registration, BMI entry) responded in less than 500ms.
- Heavier operations (e.g., event search with filters) took under 1 second.

Scalability Testing:

- Simulated 100 concurrent users; no significant drop in performance.
- MongoDB efficiently handled multiple read/write operations simultaneously.

Resource Utilization:

- CPU and memory usage remained under 60% on average during active operations.
- No memory leaks or server crashes observed during continuous use.

Database Performance:

- Indexed queries (by roll number, event ID) ensured fast retrieval.
- Insert, update, and delete operations were completed without delays.

5.4. SCREENSHOTS OF WEB PAGES

The following screenshots showcase the key web pages of the Sports Management System, highlighting its user interface, core functionalities, and smooth navigation. These include the Admin Dashboard, where student records, events, inventory, coaches, and billing are managed; the Coach Panel, where BMI records, event creation, fixture updates, and results are handled; and the Student Portal, where students can view personal profiles, track BMI and achievements, register for sports events, and check the academic calendar. These screenshots serve as visual proof of the system's implementation, ensuring a user-friendly and efficient experience for all types of users.

5.4.1. Home Page Image

This landing page appears to be part of a sports management system for Vignan's Foundation for Science, Technology & Research, a deemed university. The interface features a clean and modern design with a motivational quote prominently displayed: "Alone we can do so little, together we can do so much." This message reinforces the values of teamwork, discipline, and leadership, highlighting the importance of sports in shaping well-rounded individuals. On the top navigation bar, users can access different sections like Gallery, About, Message, Coaches, and Facilities, making the site easy to explore. A banner at the top provides the institution's name in English, Telugu, and Hindi, reflecting the regional inclusivity and multilingual accessibility.

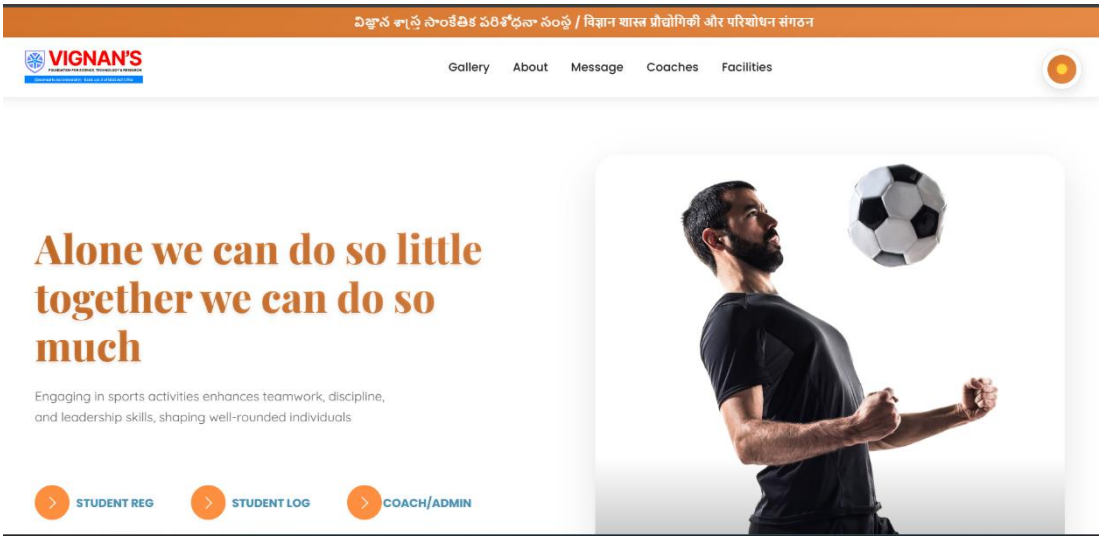

Figure 5.1 Home Page

A central visual depicts a male athlete performing a skillful soccer move, further emphasizing the theme of sports and physical education. Below the main message, there are three clear call-to-action buttons: Student Registration, Student Login, and Coach/Admin login, allowing different user roles to navigate quickly to their respective dashboards or forms.

5.4.2. Login Page

This Student Login page is a part of the Sports Management System for Vignan's Foundation for Science, Technology & Research. The page is visually styled with a soft purple gradient background, giving it a calm and modern interface that appeals to students while maintaining professionalism.

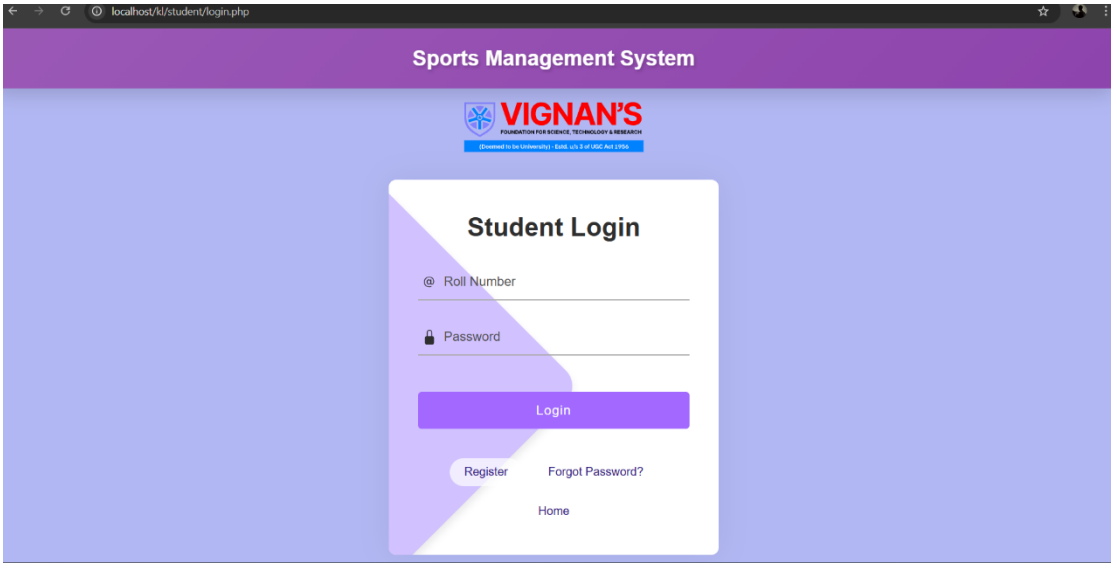

Figure 5.2 Login Page

At the top, the title "Sports Management System" is clearly displayed, followed by the institution's logo and name, reinforcing the brand identity. The central card-like login form is neatly designed with rounded edges and a two-tone layout, enhancing visual appeal and focus.

The login form prompts the student to enter their Roll Number and Password, both accompanied by icons for intuitive UX. The Login button is prominently displayed in purple, matching the theme, and invites action. Below the login area, helpful links are provided for Register, Forgot Password? and Home, giving students quick access to essential navigation and support.

5.4.3. Coach and Admin Login Page

This Coach and Admin Login page is part of the Sports Management System for Vignan's Foundation for Science, Technology & Research. It mirrors the same clean, modern aesthetic as the student login page, featuring a soft purple gradient background and a centered card layout that promotes clarity and focus.

At the top, the system's title is displayed "Sports Management System" along with the Vignan's logo and institutional credentials, maintaining brand consistency and institutional trust. The login form is titled "Coach and Admin Login", clearly differentiating it from the student interface.

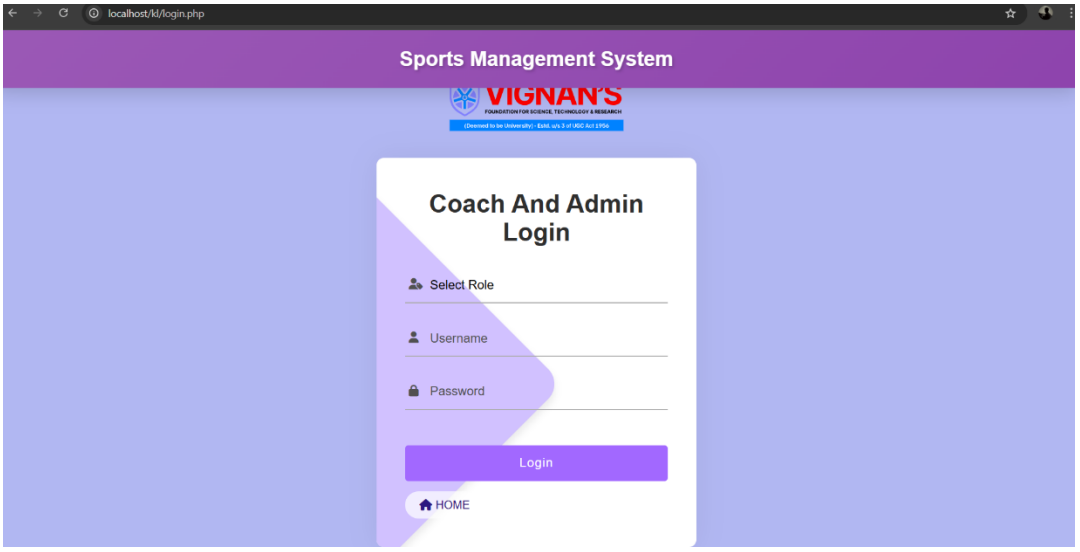

Figure 5.3 Coach and Admin Login Page

This page is designed to provide a seamless login experience for institutional staff and management. By separating user roles at the entry point, the system ensures each user type coach or admin is directed to the appropriate dashboard, where they can manage events, student performance, inventory, or other administrative tasks efficiently. The professional and intuitive layout supports secure access while maintaining visual cohesion across the platform.

5.4.4. Admin Dashboard

The Admin Dashboard of the Sports Management System serves as a central hub for administrators to efficiently manage various aspects of the platform. It features a visually clean

and modern interface with well-organized cards representing different modules. Administrators can view and manage student achievements, sports events, and bills, as well as create new coach accounts directly from the dashboard.

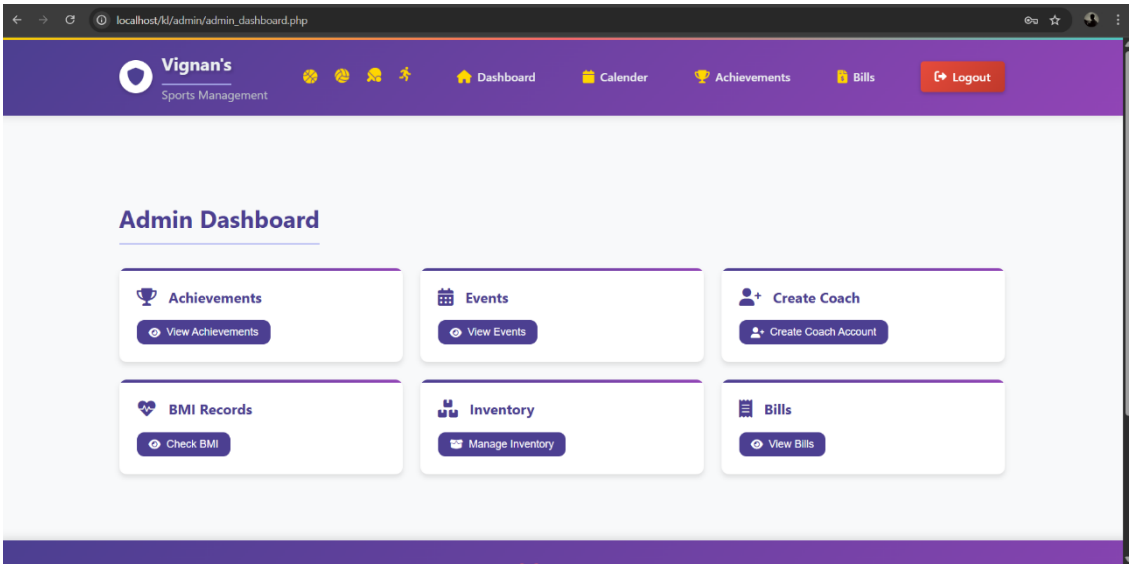

Figure 5.4 Admin Dashboard

The top navigation bar offers quick access to key areas like the dashboard, calendar, achievements, and billing, along with a prominent logout button for secure session management. This layout ensures that administrators have all the necessary tools at their fingertips for streamlined sports management.

5.4.5. Student Dashboard

The Student Dashboard of the Sports Management System offers a personalized interface tailored for students to track their fitness and achievements. At the top, the student is greeted by name along with their roll number, adding a personalized touch. The BMI Details section presents key health metrics such as height, weight, BMI percentage, BMI status, and gender, allowing students to stay informed about their physical health.

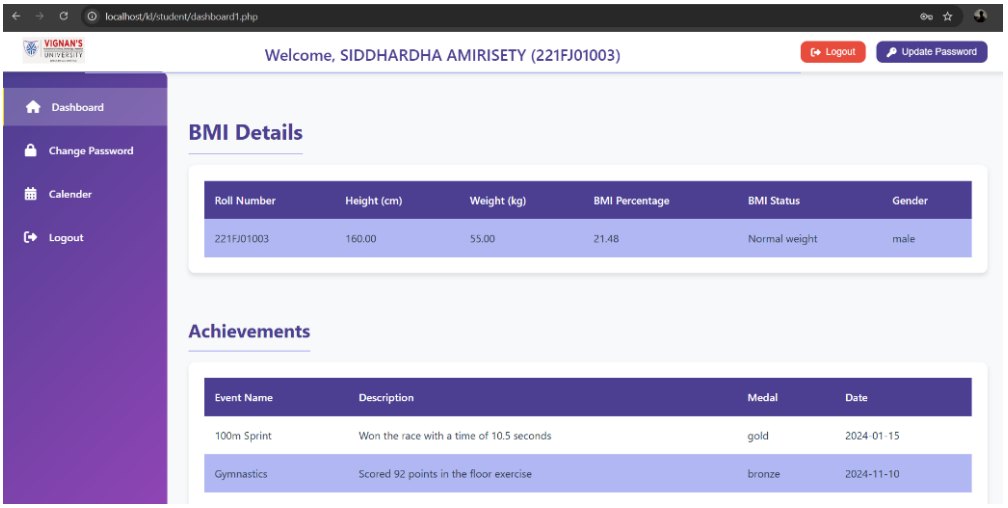

Figure 5.5 Student Dashboard

The sidebar menu provides navigation options like Dashboard, Change Password, Calendar, and Logout, while the top-right corner includes buttons for secure logout and updating the password. The clean design and logical layout enhance user experience and help students engage with their progress in sports and fitness activities.

5.4.6. Game Scheduling page

The Game Scheduling Page in the Sports Management System is designed for coaches to efficiently manage event fixtures. The interface features a clear two-column layout: Event and Action. It lists various sports tournaments and leagues such as Women's Badminton Championship, Open Football Tournament, and Mixed Relay Race, among others. For each event, coaches have two primary action buttons – Schedule Games and View Schedule – both styled prominently in green to encourage quick interaction.

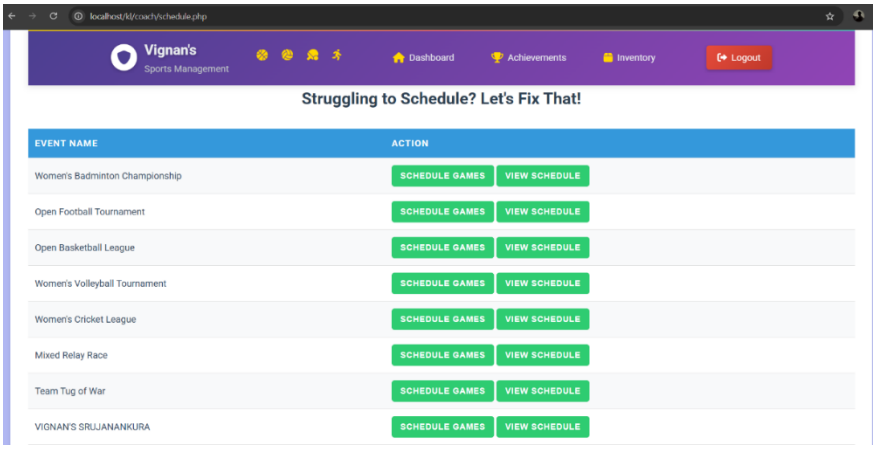

Figure 5.6 Game Scheduling page

The top banner maintains consistency with the platform's branding, offering navigation to Dashboard, Achievements, Inventory, and Logout. A motivational tagline "Struggling to Schedule? Let's Fix That!" adds a friendly, helpful tone to the page. Overall, the design simplifies the scheduling process, ensuring that event organization is seamless and coach-friendly.

5.4.7. Evaluate Bills

The Evaluate Bills page allows admins to review and manage submitted bills in a card format showing details like bill number, amount, date, payment type, and status. Bills are filterable by status (All, Pending, Approved, Rejected) using color-coded buttons. The interface is clean, user-friendly, and includes image attachments for verification, making expense management efficient and transparent.

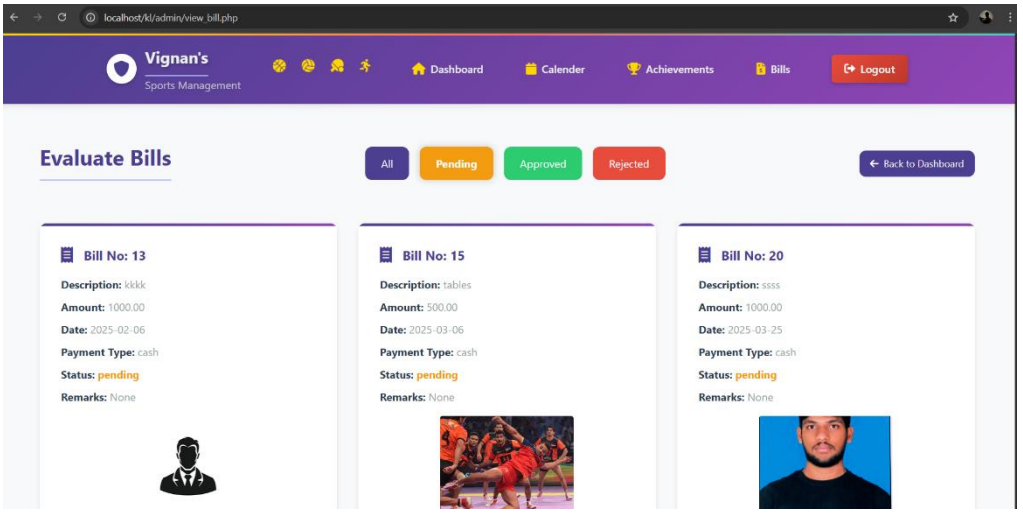

Figure 5.7 Evaluate Bills

5.4.8. BMI page

The BMI Records Management section of the Vignan's Sports Management system provides a streamlined interface for tracking and analyzing students' health metrics. The dashboard visually displays the total number of BMI records, which currently stands at 12. Out of these, 7 students fall within the normal BMI range, 4 are categorized as underweight, and notably, there are no cases of overweight students. The layout is designed with vibrant visuals and intuitive icons, making it user-friendly for coaches to monitor health data.

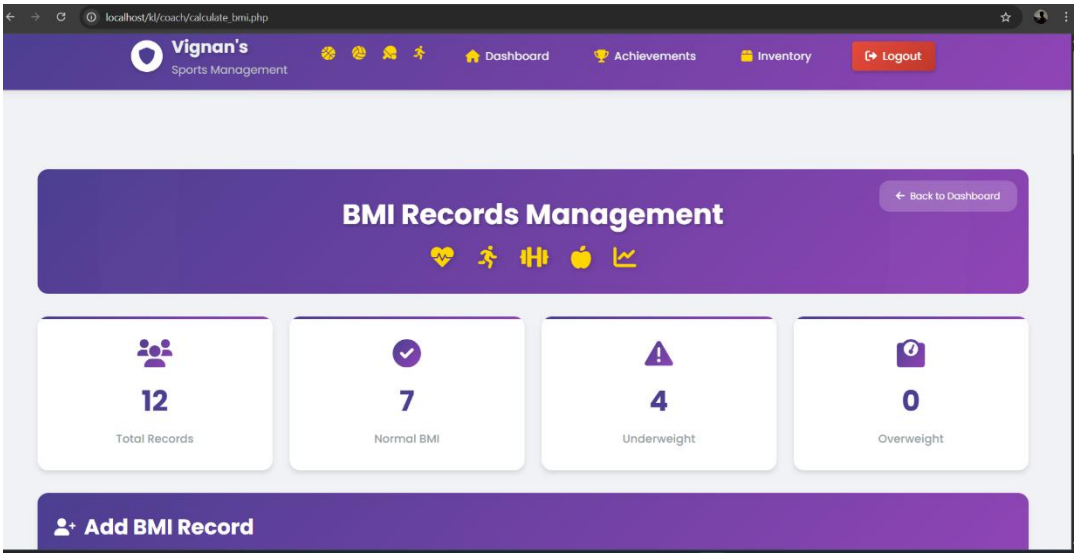

Figure 5.8 BMI page

5.4.9. Inventory Page

The Sports Inventory Management module in Vignan's Sports Management system offers a clear and interactive way to monitor and maintain sports equipment. The dashboard displays three categories: Basketball, Football, and Volleyball, with the current stock status shown as available versus total items. For example, 4 out of 5 basketballs are available, while all footballs and volleyballs are fully stocked. Each card features a clean design with item-specific icons, delete options for quick removal, and a user-friendly interface. Additionally, there's a section to add new inventory items, and confirmation messages

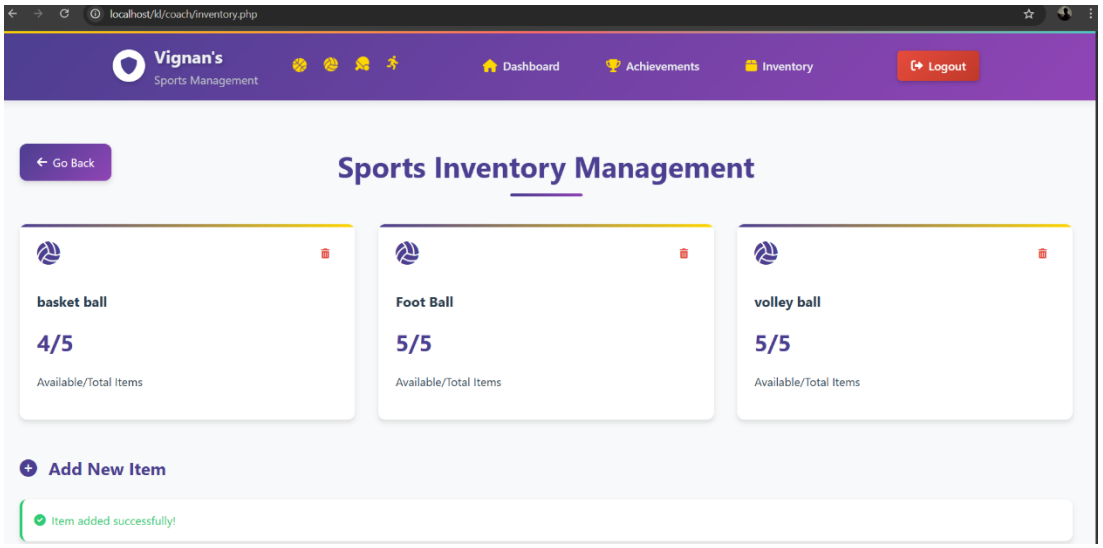

Figure 5.9 Inventory Management

5.4.10. Announce Result Page

The "Announce Results" page within Vignan's Sports Management system serves as a central hub for authorized users, such as coaches or administrators, to record and disseminate the outcomes of various sporting events. Situated under a prominent "Announce Results" heading adorned with celebratory trophy icons, the page offers a clear pathway back to the main dashboard via a dedicated button.

Situated under a prominent "Announce Results" heading adorned with celebratory trophy icons, the page offers a clear pathway back to the main dashboard via a dedicated button. The core of the page is organized into distinct cards, each representing a specific sporting event. For individual competitions like the Women's Badminton Championship (Event ID: 42), the Open Football Tournament (Event ID: 43), and the Open Basketball League (Event ID: 44), each card presents input fields for the "Student Roll Number" and corresponding "Achievement Details," allowing for the recording of individual performances. Conversely, for team-based events such as the Women's Volleyball Tournament (Event ID: 45), indicated by a "group" tag, the card provides a "Select Team" field, likely a dropdown or searchable list, alongside the "Achievement Details" field to capture the collective results.

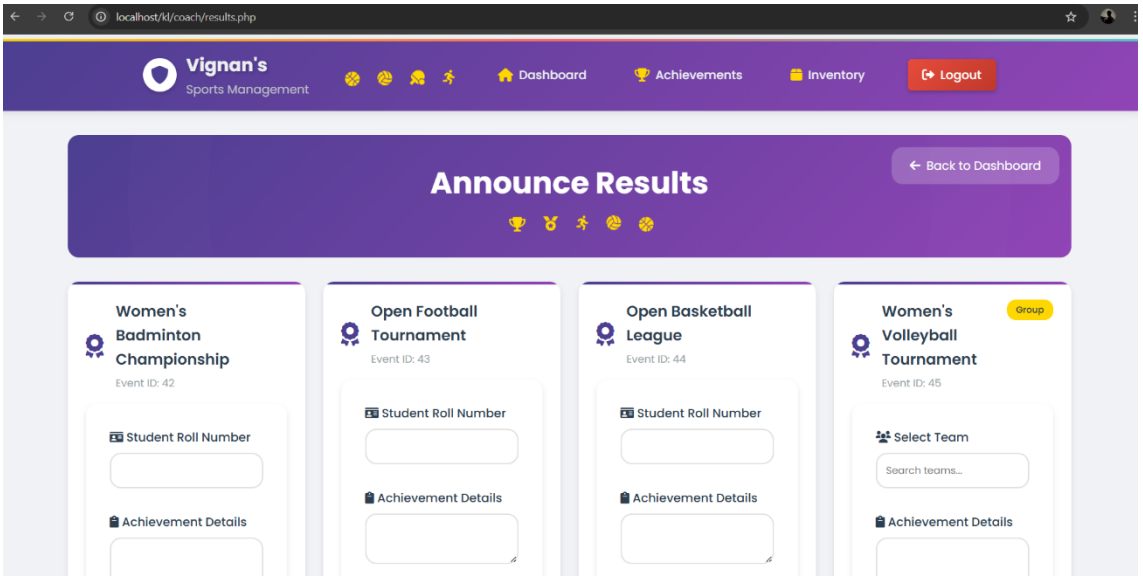

Figure 5.10 Announce Result page

This structured interface streamlines the process of documenting sports results, suggesting that upon completion, a "Save" or "Submit" functionality (not visible in the image) would persist

this information within the system's database for subsequent display, reporting, and updates to relevant profiles. In essence, this page is a vital tool for maintaining an organized and accessible record of sports achievements within the Vignan's institution.

5.4.11. Student Registration

The "Student Registration" page for Vignan's Sports Management System provides a structured online form for new students to enroll within the platform. Featuring the institution's logo prominently at the top, the page clearly titled "Student Registration" presents a series of fields arranged in a user-friendly two-column layout. Prospective students are required to input their "Roll Number," "Full Name," "Email," and "Phone Number," alongside creating a secure "Password." To ensure proper categorization, dropdown menus are provided for selecting their "Course," "Select Department," "Select Year," and "Select Gender." Additionally, students need to specify their academic "Section" and choose a "Security Question" along with providing a corresponding "Security Answer" for potential password recovery.

Figure 5.11 Student Registration

Upon completion and submission of this form (the submit button is not visible in the screenshot), the entered information will be stored within the system's database, enabling the identification and management of student participation in various sports-related activities and features offered by the Vignan's Sports Management System.

5.4.12. Coach Dashboard

The Vignan's Sports Management dashboard offers a central overview with a total of 8 events listed. It displays individual sports events like the Women's Badminton Championship (Jan-Jun 2025), Open Football Tournament (May-Jun 2025), and Open Basketball League (Mar-Jun 2025),

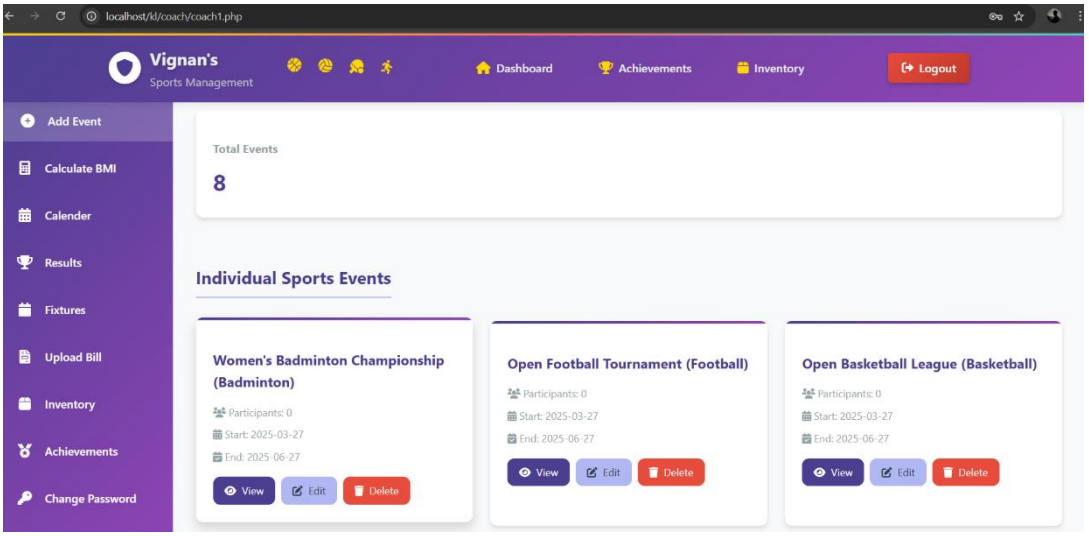

Figure 5.12 Coach Dashboard

all currently showing 0 participants and providing options to view, edit, or delete them. The left sidebar enables navigation to manage events, calculate BMI, view the calendar and results, manage fixtures and bills, access inventory and achievements, and change the password. This dashboard provides a quick snapshot and easy access to manage sports activities within the institution.

5.4.13. Sports Achievement page

The "Sports Achievements" page within the Vignan's Sports Management system offers a dedicated space for exploring and retrieving records of sporting accomplishments. Upon accessing the page, users are greeted with the prominent title "Sports Achievements," visually reinforced by a series of sport-related icons. The primary functionality of this page revolves around a comprehensive filtering system located beneath the title. This filter section presents users with a series of dropdown menus, allowing them to refine their search for achievements based on specific criteria such as the "Month" and "Year" of the achievement, the "Year of Study," "Department," and "Course" of the involved individuals or teams.

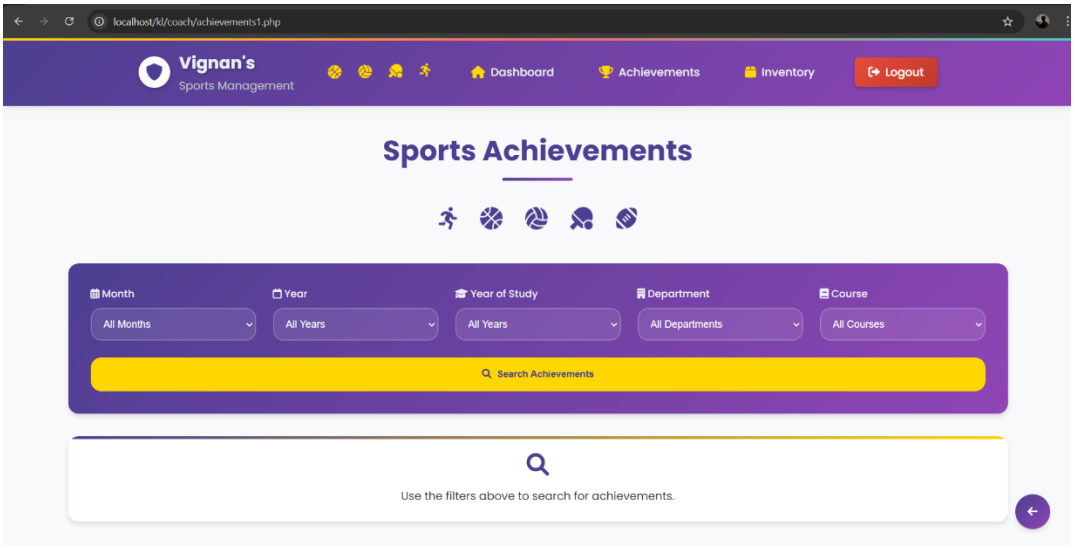

Figure 5.13 Sports Achievement Page

After selecting the desired filters, users can initiate the search by clicking the distinct yellow "Search Achievements" button. Below the filter section, a large search icon and instructional text advise users to utilize the provided filters to locate specific achievements.

5.4.14. Change Password

The "Change Your Password" page within the Vignan's Sports Management system offers a user-friendly interface for updating account security. Centered on the screen, the page features the clear heading "Change Your Password" above a simple form. This form requires users to first enter their "Old Password," followed by their desired "New Password," and then to "Confirm New Password" for verification. A prominent purple "Update Password" button sits below these fields, serving as the action trigger to save the new credentials. For users who decide not to change.

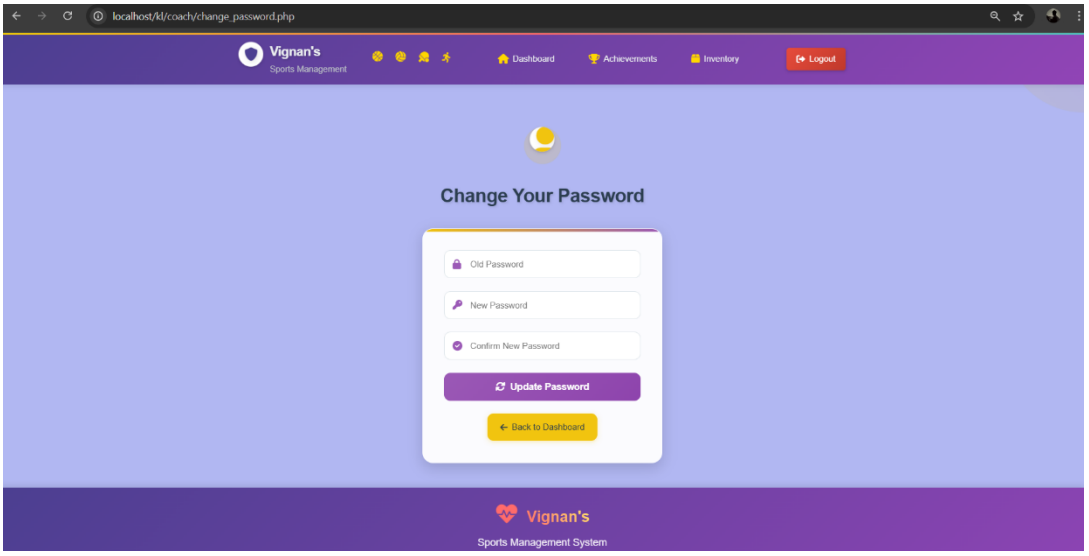

Figure 5.14 Change Password

their password, a "← Back to Dashboard" button provides a direct route back to the main overview. Completing the page is a footer displaying a heart icon alongside "Vignan's" and the system's name, reinforcing the platform's branding. This dedicated page ensures a straightforward and secure process for users to manage and update their login passwords within the Vignan's Sports Management system.

5.4.15. Sports calendar Page

The "Vignan's Sports Calendar 2024-25" page, presented under the purview of the Department of Physical Education, offers a visually organized schedule of sports-related events within the institution. The page features a prominent heading indicating the academic year, accompanied by a "Back" button for easy navigation.

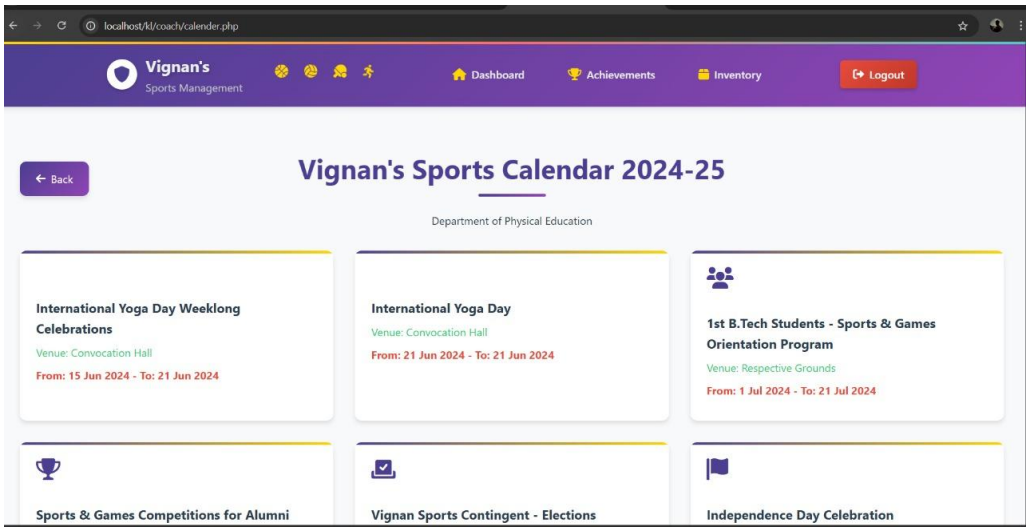

Figure 5.15 Sports calendar

The calendar itself is structured as a series of individual cards, each detailing a specific event with a relevant icon, title, venue, and date range. For example, the "International Yoga Day Weeklong Celebrations" are scheduled from June 15th to 21st, 2024, at the Convocation Hall, while the specific "International Yoga Day" falls on June 21st, 2024, at the same venue. Similarly, the "1st B. Tech Students - Sports & Games Orientation Program" is set to take place from July 1st to 21st, 2024, at the Respective Grounds. Other listed events include "Sports & Games Competitions for Alumni" (July 27th-28th, 2024), "Vignan Sports Contingent - Elections" (July 29th-30th, 2024), and the "Independence Day Celebration" on August 15th, 2024. This calendar serves as a central information hub, allowing the Vignan's community to stay informed about upcoming sports activities and important dates throughout the academic year.

CHAPTER - 6

CONCLUSION

The Sports Management System has successfully modernized the administration of students, coaches, events, and physical education activities, replacing outdated manual processes with an efficient digital solution. Built using PHP for backend development and MySQL for secure data handling, along with HTML, CSS, JavaScript, Tailwind CSS, and GSAP for an engaging and responsive frontend, the system delivers a smooth and intuitive user experience. Modules like BMI tracking, academic and sports calendars, event registration and result management, student-coach interaction, inventory tracking, billing, and achievement management are integrated into role-based dashboards for Admin, Coach, and Student users. This ensures that every user accesses only the tools relevant to their role, boosting productivity and minimizing confusion. The system not only streamlines operations but also enhances transparency and performance monitoring. With visually interactive components powered by GSAP and clean UI styling via Tailwind CSS, users experience a modern, responsive interface that encourages active participation.

FUTURE ENHANCEMENTS

The Sports Management System holds significant potential for future upgrades to enhance user experience, functionality, and scalability. One of the major future goals is to develop a dedicated mobile application, allowing students, coaches, and administrators to manage and access sports-related activities anytime, anywhere. To improve communication and engagement, real-time notifications via SMS, email, or in-app alerts can be introduced for updates regarding events, BMI checks, results, and academic calendar changes. Integrating AI-driven analytics would enable coaches and students to monitor performance trends and receive personalized training or fitness recommendations. A QR-based attendance system can streamline event attendance tracking, eliminating manual entries. For secure record-keeping, blockchain technology could be implemented to store and verify achievements and event results, ensuring data authenticity. Live event tracking and real-time scoreboards can enhance event interactivity, while gamification elements like badges, points, and leaderboards may boost student motivation and participation. Additionally, a coach review and feedback mechanism would promote transparency and continuous improvement. These enhancements will further strengthen the system's usability, making it a comprehensive and forward-thinking platform for sports and physical education management.

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APPENDIX

8. SOURCE CODE SNIPPETS

This section includes key source code snippets that demonstrate the core functionalities of the Sports Management System. It highlights essential parts of the backend logic such as student registration, login authentication, schema modeling using MySQL, and data retrieval for dashboards. Each snippet is carefully selected to represent how different components interact within the php and MySQL environment, ensuring a clear understanding of the system's implementation and functionality.

8.1. Student Login

```
<?php

include('../includes/db_connect.php');

session_start();

$error_message = ''; // Initialize error message variable

        if ($_SERVER['REQUEST_METHOD'] == 'POST') {

   if (isset($_POST['login'])) {

      // Regular Login Process

      $rollnum = strtoupper(trim($_POST['rollnum']));

      $password = $_POST['password'];

$query = "SELECT * FROM students WHERE rollnum = ?";

      $stmt = $conn->prepare($query);

      $stmt->bind_param('s', $rollnum);

      $stmt->execute();
```

```
        $result = $stmt->get_result();
        $user = $result->fetch_assoc();
 if ($user && password_verify($password, $user['password'])) {
            $_SESSION['student_id'] = $user['id'];
            $_SESSION['rollnum'] = $user['rollnum'];
            $_SESSION['name'] = $user['name'];
            header('Location: dashboard1.php');
            exit;
        } else {
            $error_message = "Invalid roll number or password."; // Set error message
        }
    }
}
?>
```

8.1.1. Student Logout

```
<?php
session_start();
 // Clear all session variables
$_SESSION = [];
// Destroy the session
```

```
session_destroy();

// Redirect to the unified index.php located in the sms directory

header("Location: ../index.php");

exit();

?>
```

8.1.2. Admin Login

```
<!-- <?php

session_start();

include 'includes/db_connect.php'; // Include your database connection file

// Enable error reporting for debugging

error_reporting(E_ALL);

ini_set('display_errors', 1);

if ($_SERVER['REQUEST_METHOD'] == 'POST') {

    $username = $_POST['username'];

    $password = $_POST['password'];

    $role = $_POST['role']; // 'admin' or 'coach'

    if ($role === 'admin') {

        // Prepare the SQL statement for admin login

        $sql = "SELECT * FROM admin WHERE username = ?";

    } elseif ($role === 'coach') {
```

```
        // Prepare the SQL statement for coach login
        $sql = "SELECT * FROM coaches WHERE username = ?";
    } else {
        $error = "Invalid role selected.";
    }
    if (!isset($error)) {
        $stmt = $conn->prepare($sql);
        $stmt->bind_param("s", $username);
        $stmt->execute();
        $result = $stmt->get_result();
        if ($result->num_rows == 1) {
            $user = $result->fetch_assoc();
           // Check if the user is a coach and handle password hashing
            if ($role === 'coach') {
                // If the password is not hashed, hash it and update the database
                if (strlen($user['password']) < 60) {
                    $hashed_password = password_hash($user['password'], PASSWORD_DEFAULT);
                    $update_query = "UPDATE coaches SET password = '$hashed_password' WHERE id
= '{$user['id']}'";
                    mysqli_query($conn, $update_query);
                    // Update the user array with the new hashed password
```

```
                $user['password'] = $hashed_password;
            }
        // Verify the password for coach
            if (password_verify($password, $user['password'])) {
                $_SESSION['coach_id'] = $user['id'];
                $_SESSION['coach_name'] = $user['name'];  // Set coach name in session
                header("Location: coach/coach1.php"); // Redirect to coach dashboard
                exit;
            }
        } else {
            // Verify the password for admin
            if ($password === $user['password']) { // Assuming admin passwords are stored in plain text
                $_SESSION['admin_id'] = $user['id'];
                $_SESSION['admin_username'] = $user['username'];
                header("Location: admin/admin_dashboard.php"); // Redirect to admin dashboard
                exit;
            }
        }
// If we reach here, the password was incorrect
$error = "Invalid username or password.";
```

```
        } else {
            $error = "Invalid username or password.";
        }
    }
}
?> -->
```

8.1.3. Student Registration

```
<?php
include($_SERVER['DOCUMENT_ROOT'] . '/sms/includes/db_connect.php');
$status_message = ""; // Initialize a status message variable
// Handle registration form submission
if ($_SERVER['REQUEST_METHOD'] == 'POST') {
    $rollnum = strtoupper(trim($_POST['rollnum'])); // Convert to uppercase
    $name = $_POST['name'];
    $email = $_POST['email'];
    $phonenum = $_POST['phonenum'];
    $dept = $_POST['dept'];
    $course = $_POST['course'];
    $sec = $_POST['sec'];
    $year = $_POST['year'];
```

```
    $password = $_POST['password'];
    $security_question = isset($_POST['security_question']) ? $_POST['security_question'] : null;
    $security_ans = isset($_POST['security_answer']) ? trim($_POST['security_answer']) : null;
    $gender = $_POST['gender']; // Ensure gender is properly retrieved


    // Validate roll number
    if (!preg_match('/^[A-Za-z0-9]{10}$/', $rollnum)) {
        $status_message = "Error: Roll number must be exactly 10 alphanumeric characters.";
    }
    // Validate email
    elseif (!filter_var($email, FILTER_VALIDATE_EMAIL)) {
        $status_message = "Error: Invalid email format.";
    }
    // Validate phone number
    elseif (!preg_match('/^[0-9]{10}$/', $phonenum)) {
        $status_message = "Error: Phone number must be exactly 10 digits.";
    }
    // Validate password (Industry Standard)
    elseif (!preg_match('/^(?=.*[A-Z])(?=.*\d)(?=.*[!@#$%^&*])[A-Za-z\d!@#$%^&*]{8,}$/',
$password)) {
        $status_message = "Error: Password must be at least 8 characters long, include an uppercase
```

```
letter, a number, and a special character.";
    }
    elseif (empty($security_question) || empty($security_ans)) {
        $status_message = "Error: Security question and answer are required.";
    }
    else {
        // Hash the password
        $hashed_password = password_hash($password, PASSWORD_DEFAULT);
        // Insert into database
        $query = "INSERT INTO students (rollnum, name, email, phonenum, dept_id, course_id, sec,
year, password, security_question, security_answer, gender)
                VALUES (?, ?, ?, ?, ?, ?, ?, ?, ?, ?, ?, ?)";
        $stmt = $conn->prepare($query);

        if (!$stmt) {
            $status_message = "Error preparing statement: " . mysqli_error($conn);
        }
        else {
            $stmt->bind_param('sssssssssss', $rollnum, $name, $email, $phonenum, $dept, $course,
$sec, $year,
                        $hashed_password, $security_question, $security_ans, $gender);
```

```
            try {
                if ($stmt->execute()) {
                    $status_message = "Registration successful!";
                }
            } catch (mysqli_sql_exception $e) {
                if (strpos($e->getMessage(), "Duplicate entry") !== false) {
                    if (strpos($e->getMessage(), "rollnum") !== false) {
                        $status_message = "Error: This Roll Number is already registered.";
                    } elseif (strpos($e->getMessage(), "email") !== false) {
                        $status_message = "Error: This Email is already registered.";
                    }
                } else {
                    $status_message = "Error: " . $e->getMessage();
                }
            }
        }
    }
}
// Fetch departments
$departments = mysqli_query($conn, "SELECT * FROM departments");
```

```
// Handle course fetching dynamically
if (isset($_GET['fetch_courses']) && isset($_GET['dept'])) {
    $dept_id = $_GET['dept'];
    $query = "SELECT course_id, course_name FROM courses WHERE dept_id = ?";
    $stmt = $conn->prepare($query);
    $stmt->bind_param('i', $dept_id);
    $stmt->execute();
    $result = $stmt->get_result();

    $courses = [];
    while ($row = $result->fetch_assoc()) {
        $courses[] = $row;
    }
    header('Content-Type: application/json');
    echo json_encode($courses);
    exit;
}
?>
```