Gym Management System

A COURSE PROJECT REPORT

18CSC303J - Database Management Systems

Submitted by

Lakshmi NIikitha [RA2111003011810]

Under the Guidance of

Dr. S. Babu

Assistant Professor, Department of Computing Technology

In partial satisfaction of the requirements for the degree of

BACHELOR OF TECHNOLOGY

in

COMPUTER SCIENCE ENGINEERING

of

FACULTY OF ENGINEERING AND TECHNOLOGY

SCHOOL OF COMPUTING

COLLEGE OF ENGINEERING AND TECHNOLOGY

SRM INSTITUTE OF SCIENCE AND TECHNOLOGY

KATTANKULATHUR - 603203

APRIL 2024

COLLEGE OF ENGINEERING & TECHNOLOGY

SRM INSTITUTE OF SCIENCE & TECHNOLOGY

S.R.M. NAGAR, KATTANKULATHUR – 603 203

Chengalpattu District

BONAFIDE CERTIFICATE

Registration number **RA2111003011810** certified to be the bonafide work done by **Lakshmi Nikitha** , of III Year/VI Sem B.Tech Degree Course in the **18CSC303J - Database Management Systems** in **SRM INSTITUTE OF SCIENCE AND TECHNOLOGY**, Kattankulathur during the academic year 2024 – 2025.

Faculty Incharge   **Head of the Department**

Dr. S. Babu   **Dr. M. Pushpalatha**

Assistant Professor   **Professor and Head**

Department of Computing Technology   **Department of Computing Technology**

SRMIST – KTR.   **SRMIST – KTR.**

TABLE OF CONTENTS

S.NO	PARTICULARS	PAGE NO.
1	INTRODUCTION	4
2	PROJECT OBJECTIVES AND FEATURES	6
3	SYSTEM DESIGN	7
4	OUTPUT	10
5	MODULES	15
6	APPLICATIONS	16
7	CONCLUSION	17
8	BIBLIOGRAPHY	18

CHAPTER 1

INTRODUCTION

A gym management system is a software application designed to streamline and automate various administrative tasks within a fitness center or gym. It serves as a comprehensive solution to manage memberships, schedules, payments, staff, and more, ultimately enhancing the overall efficiency and effectiveness of gym operations.

1.1 Front-End: React.js

The front-end of the system is developed with React.js, a popular JavaScript library known for its flexibility and reusability. React.js allows the creation of dynamic and interactive user interfaces, providing a seamless experience for users. Material UI is used to enhance the visual appearance of the application, offering a consistent and aesthetically pleasing design. Redux, a predictable state container, ensures smooth data flow and state management across the application.

- **Component Reusability:** React's modularity makes it easy to reuse components across different parts of the application, reducing development time and ensuring consistency.
- **Virtual DOM:** React's virtual DOM allows for efficient updates, leading to faster page loads and smoother interactions.
- **Interactivity and Flexibility:** React's ecosystem supports various plugins and integrations, enabling the development of rich, interactive features.
- **Dynamic and Responsive UI:** React.js, combined with Material UI, provides an interactive and responsive user interface, making it easy for users to navigate and interact with the system.
- **Consistent Design:** Material UI's design components ensure a consistent look and feel throughout the application.
- **State Management:** Redux enables efficient state management, ensuring that different parts of the application have consistent data.

1.2 Back-End: Express.js, Node.js, and SQL

The back-end of the gym Management System is powered by Express.js, a minimal and flexible Node.js framework. Express.js provides a robust platform for handling HTTP requests, routing, and middleware, allowing for secure and scalable server-side operations. The back-end components are responsible for processing user requests, managing data, and interacting with the SQL-based database.

- **Express.js for Routing and Middleware:** Express.js enables efficient routing and middleware functionality, allowing the system to manage user authentication, session handling, and data validation.
- **Node.js for Server-Side Logic:** Node.js allows for asynchronous, event-driven server-side operations, enhancing performance and scalability.
- **SQL for Database Management:** SQL is used to manage and retrieve data from the relational database. It supports complex queries and ensures data integrity and security.

Together, the front-end and back-end create a seamless user experience. When a user interacts with the system—whether it's viewing class schedules, submitting assignments, or communicating with teachers—the front-end communicates with the back-end, which processes the requests and retrieves the necessary data from the SQL database. This architecture ensures that the gym Management System is responsive, reliable, and capable of handling a wide range of educational tasks. By focusing on collaboration and integration between the front-end and back-end components, gym management systems can deliver a seamless user experience that enhances productivity, satisfaction, and engagement for both staff and members.

CHAPTER 2

PROJECT OBJECTIVES AND FEATURES

2.1 Project Objective

The primary objective of the gym management system is basically software that is designed to seamlessly integrate all aspects of your business, allowing you to more easily and efficiently run your facility. Which software you choose will ultimately depend on the specific needs of your business . By leveraging modern technologies like Express.js, React.js, Node.js, and SQL, the system aims to:

- Implement features to automate membership management, class scheduling, billing, and staff management processes, reducing manual workload and improving accuracy.
- Create an intuitive and user-friendly interface for members to easily access and manage their memberships, book classes, track progress, and receive personalized notifications and offers.
- Provide tools for staff to efficiently handle member inquiries, manage schedules, track attendance, and perform administrative tasks, enabling them to deliver better service and focus on member satisfaction.

2.2 Project Features

To achieve these objectives, the Gym Management System offers a comprehensive set of features designed to meet the needs of various user roles within a gym environment:

User Roles: The system accommodates three distinct user roles—Admin, Teacher, and Student—each with unique permissions and functionalities.

- **Administrator**: Has full access to all features and functionalities of the gym management system. Can manage memberships, classes, staff, billing, and other administrative tasks.
- **Staff/Trainer**: Responsible for day-to-day operations within the gym. Can view and manage class schedules, member attendance, and inquiries.
- **Member:** Registered users of the gym management system**.** Can view and update their own profile information, including contact details and membership status

Admin Dashboard: The admin dashboard provides a comprehensive interface for administrators to manage the entire system. This includes:

- Adding and managing members and trainers.
- Creating and organizing classes and subjects.
- Configuring system settings and permissions.

CHAPTER 3

SYSTEM DESIGN

3.1 ER Diagram

An Entity-Relationship (ER) diagram is a graphical representation of an information system that shows the relationships between entities in a database. It is used in database design to visualize the structure and relationships of a database, helping to understand how data is organized and how entities interact with each other.
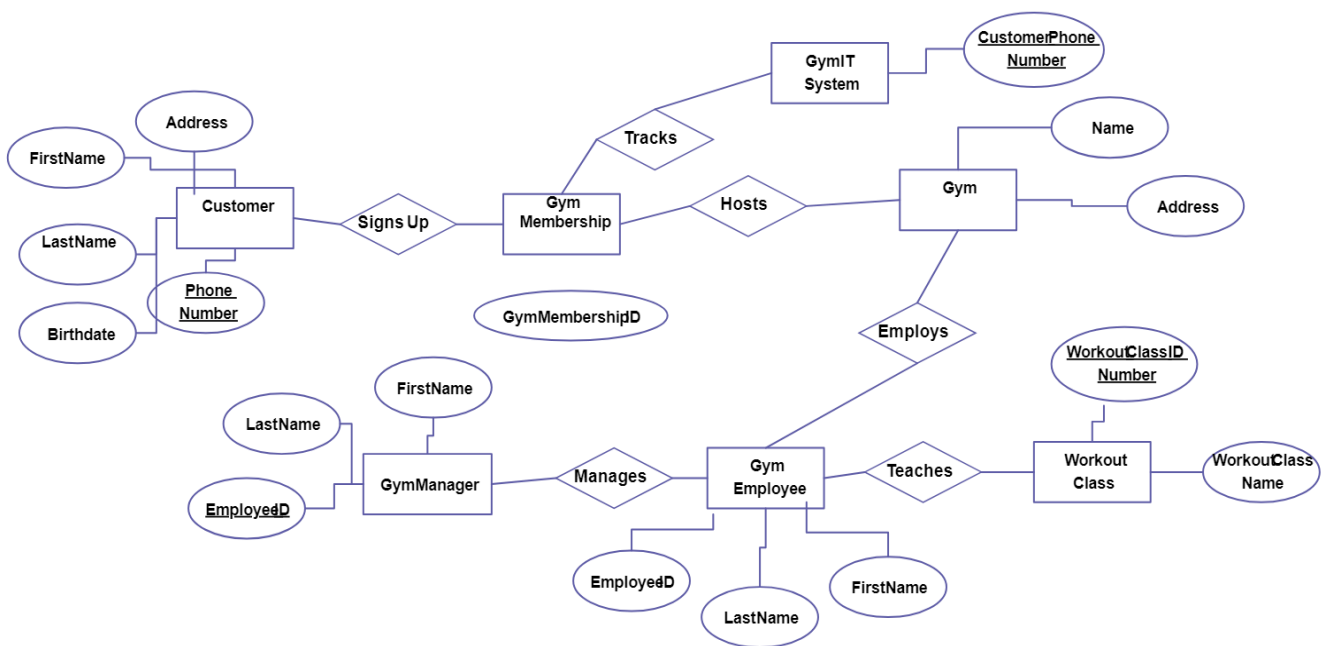

Figure 3.1.1 ER diagram for gym management system.

3.2 Data Flow Diagram

A Data Flow Diagram (DFD) is a graphical representation of how data flows through a system. It describes the processes that transform data, the data sources and sinks, and the data storage within a system. DFDs can be used to visually understand and map the data processing in a system.
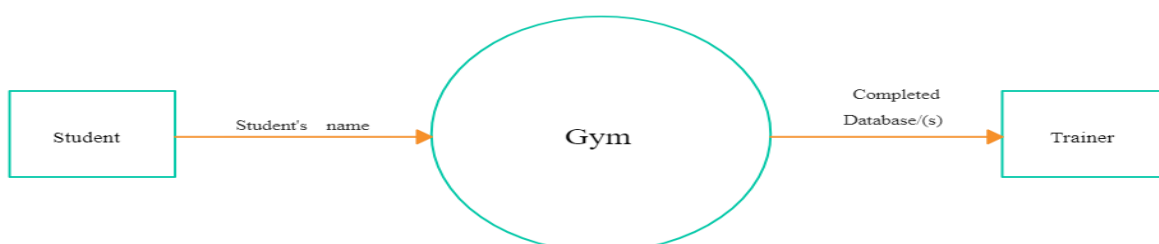
Figure 3.2.1 Context Level DFD.

.

First Level DFD - Gym Management System
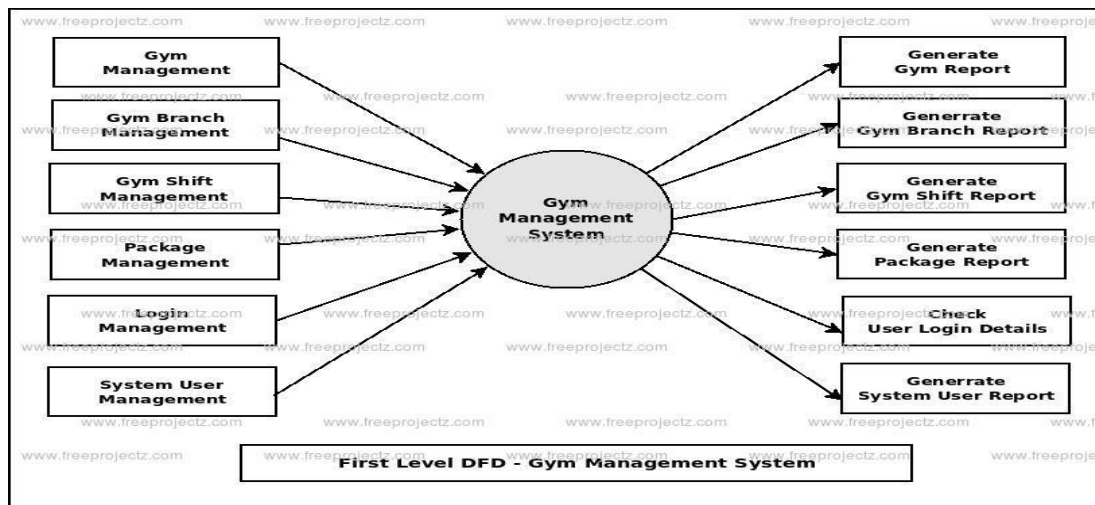
Figure 3.2.2 Level 1 DFD.

3.3 Sequence Diagram

A Sequence Diagram is a type of interaction diagram used in Unified Modeling Language (UML) to visualize the sequence of interactions between objects or actors in a system over time. It represents the order of events, the participants involved, and their interactions.
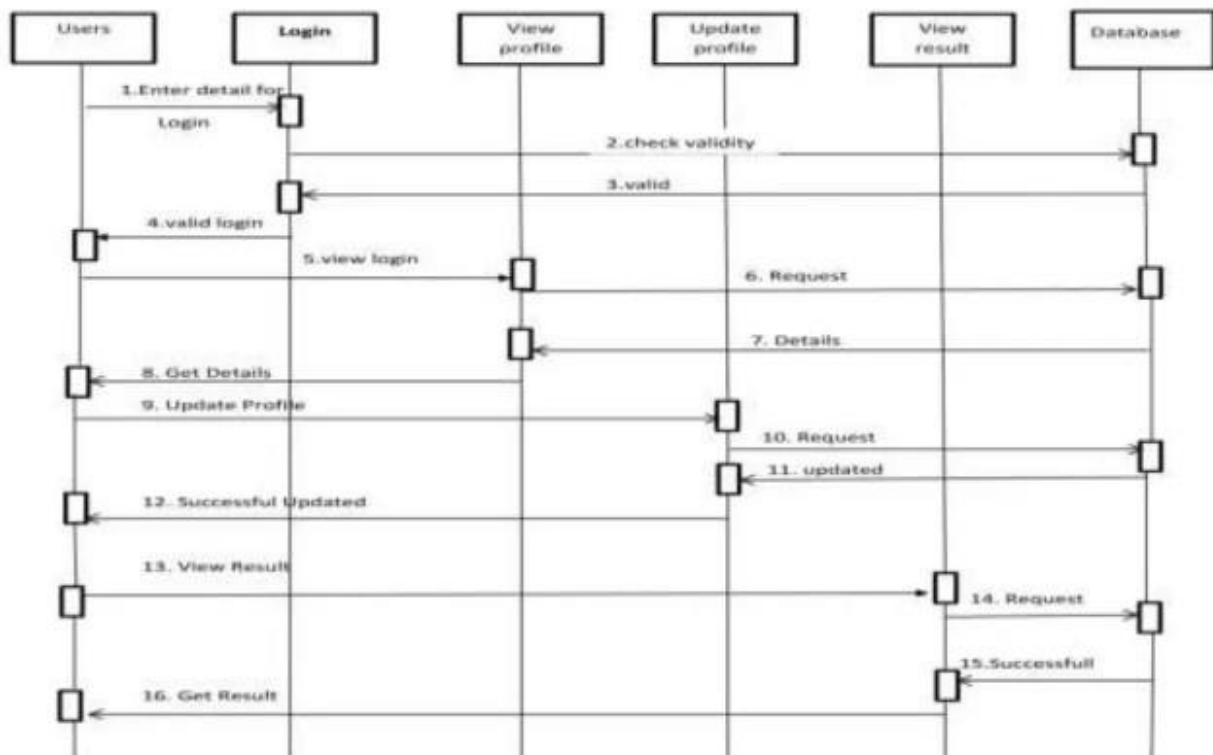

Figure 3.3.1 Sequence diagram for gym management system.

3.4 Use Case Diagram

A Use Case Diagram is a type of UML diagram that visually represents the functionality of a system, its use cases, and the actors involved. Use Case Diagrams help to understand the system's scope and identify the relationships between actors and use cases.

Figure 3.3.1 Use case diagram for gym management system.

CHAPTER 4

OUTPUT

4.1 Login

Figure 4.1 login page

4.2 Add Gym

Figure 4.2 Add gym

4.3 Add member

Figure 4.3 Add member

4.4 Add Trainer

Figure 4.3 Add Trainer

4.5 Add Payment

Figure 4.5 Add payment

4.6 Search gym

Figure 4.6 Search gym

4.7 Search member

Figure 4.7 Search member

4.8 Search payment
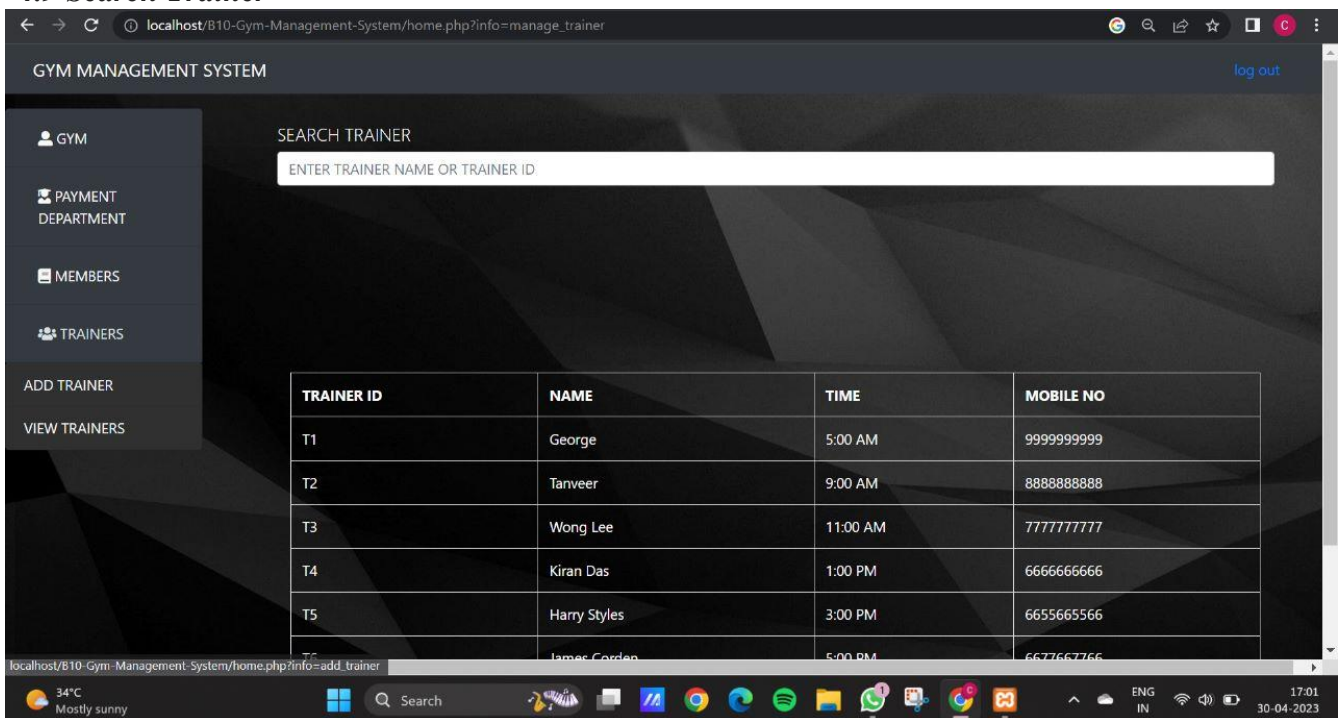
Figure 4.8 Search payment

4.9 Search Trainer

Figure 4.9 Search Trainer

CHAPTER 5

MODULES

User Module

Users can visit the website and apply. for gym packages.

Registration: One time Registration is required to apply for any gym package.

Login: After registration, the user can log in and apply for the gym package.

Booking History: In this section, users can see booked packages and payment details also.

Profile: In this Section, User can update their profile.

Change Password: In this section, user can change their own password.

Admin Module

Dashboard: In this section, Admin can see the overview of bookings, listed packages, categories, and package types.

Categories: In this section, the admin can add, and delete the categories.

Package-Type: In this section, the admin can add, or delete the package type.

Packages: In this section, admin can add, and edit packages;

Bookings: In this section, the admin checks the new booking and partial/ full payment bookings. Here admin can also update the payment details agains t particular booking.

Report: In this section, Admin can generate the between dates report for booking and registered users. Admin can also update his profile, change the password and recover the password.

CHAPTER 6

APPLICATIONS

Gym management software has become a necessary tool in the fitness sector over recent years. Gym management software is designed to assist fitness industry professionals and gym owners in managing the daily activities of their fitness facilities and streamline their gym management systems. Gym management software automates and streamlines the administrative duties involved in running a gym, such as managing members, scheduling classes, processing payments, and managing staff.

Gym management software saves time and money for gym owners by automating many of the administrative processes involved in running a gym. The gym member experience is enhanced, as membership registration is made easier, along with the ability to sign up for classes and track their progress.

Gym management software streamlines the day-to-day management of fitness centers. The software provides an all-in-one platform that automates and simplifies the operational duties involved in gym management, including managing memberships, scheduling classes, accepting payments and managing staff.

Gym management system software provides gym operators with a platform to design and control membership packages, monitor member attendance and control payments, assign instructors, maintain equipment and handle bookings and cancellations.

Gym management systems provide a forum for exchanging details regarding timetables, class availability, and any modifications or updates. It is able to produce reports on the effectiveness of the gym, such as those on revenue, membership expansion, and class attendance, which assists gym owners in making data-driven decisions regarding their operations.

CHAPTER 7
CONCLUSION

Gym management system project objective of this project was to build a program for maintaining gym management system project details of all gym management system project members, employees and inventor. Gym management system project system is able to meet all gym management system project basic requirements. Gym management system project management of gym management system project records (both members and employees) will be also benefited by the gym management system project proposed system, as it will automate gym management system project whole procedure,which will reduce gym management system project workload. Gym management system Project security of gym management system project system is also one of gym management system project prime concerns. Gym management system project is always a room for improvement in any software, however efficient the gym management system project system may be. Gym management system project important thing is that the gym management system project system should be flexible enough for future modifications. Gym management system project system has been factored into different modules to make system adapt to gym management system.

CHAPTER 8

BIBLIOGRAPHY

It has been a great pleasure, honour, and challenge to work on the "Gym Management System" project and bring it to successful completion. Our journey involved gathering information from various sources to design, develop, and implement this project effectively.

We obtained most of our knowledge and guidance from online resources, which provided valuable insights into the technologies, frameworks, and best practices used in this project.

The following are some of the key resources we used:

- PHP AND MySQL BY LARRY ULLMAN
- WWW.GEEKSFORGREEK.ORG
- PHP /DOCUMENTATIONSS
- WIKIPEDIA

The knowledge and insights gained from these resources were instrumental in the successful completion of our project. We are grateful for the contributions of these platforms and the community of developers and educators who shared their expertise.