FITRACK

MAJOR PROJECT REPORT

Submitted by

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

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DECLARATION

I, Neeraj, affirm that the project titled "FITRACK" has been independently prepared by me under the guidance of Er. Chitranjanjit Kaur, Assistant Professor at GNA University. This project is being submitted as part of the Bachelor's degree program in computer science and engineering. The findings presented in this report are original and have not been previously submitted for any academic qualification. They represent the culmination of my own efforts conducted between January 2024 and May 2024.

Signature of the Student

Name of the student: Neeraj

Registration No.: GU-2020-4173

Class & Semester: BTECH CSE 8

This is to certify that the above statement made by the candidate is correct to the best of my knowledge.

Signature of the SUPERVISOR

The BTECH Viva Voce Examination of Neeraj has been held on _____ and accepted.

Signature of External Examiner

Signature of H.O.D

ACKNOWLEDEGEMENT

The successful culmination of this project signifies not just the attainment of a degree milestone, but also the initiation of an ongoing journey of experiential learning and practical application. Each phase of this project has been a stepping stone in my growth, providing invaluable insights into the process of transforming abstract ideas into tangible systems. Alongside technical knowledge, this endeavor has fostered a deep sense of confidence in navigating professional environments, equipping me with the skills necessary to tackle real-world challenges.

Throughout this project, I have been fortunate to receive unwavering support and guidance from Ms. Chitranjanjit Kaur, whose mentorship has been instrumental in my development. His encouragement and expertise have not only broadened my understanding of contemporary fields but have also nurtured my ability to navigate complex project landscapes. I am deeply grateful for his dedication and continuous assistance, which have been pivotal in overcoming obstacles and achieving project milestones.

Furthermore, I extend my heartfelt appreciation to the academic faculty of GNA University for their invaluable contributions to this project. Their keen interest, insightful feedback, and indirect support have played a significant role in shaping the trajectory of this endeavor. Their guidance and encouragement have not only enriched my learning experience but have also instilled in me a deep sense of gratitude and respect for the academic community. As I embark on the next phase of my journey, I carry with me the lessons learned and the support received, confident in my ability to tackle future endeavors with diligence and determination.

Neeraj

GU-2020-4173

BTECH CSE

ABSTRACT

Fitrack is a bespoke gym management system meticulously crafted using PHP, designed to streamline the operations of modern fitness centers. This innovative system offers a robust and user-friendly platform for gym administrators, trainers, and members alike, facilitating efficient management of various tasks and enhancing the overall gym experience.

At its core, Fitrack empowers gym administrators with a suite of administrative tools to effortlessly manage memberships, schedules, payments, and member data. Through an intuitive dashboard, administrators can easily add, update, or remove member profiles, track attendance, and manage membership plans with customizable options to suit diverse membership structures.

For trainers, Fitrack provides a tailored interface to schedule and manage client appointments, track progress, and deliver personalized workout plans. Trainers can efficiently communicate with clients, monitor their performance, and provide timely feedback, fostering a dynamic and engaging training environment.

Members benefit from a seamless experience through Fitrack's member portal, where they can conveniently access their profiles, view class schedules, book sessions, and make payments securely. The system offers flexibility for members to manage their subscriptions, update personal information, and track their fitness journey with progress tracking features.

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Chapter 1

Introduction

1.1 Problem Statement

Despite the rising popularity of gym memberships and fitness programs, many gym administrators struggle with outdated and inefficient management systems. Manual processes for membership management, class scheduling, payment processing, and client engagement are prone to errors, leading to operational inefficiencies and poor member experiences. Additionally, the lack of integrated tools for data analysis and performance tracking hampers decision-making and limits the ability to adapt to evolving market trends.Furthermore, the absence of robust security measures exposes gyms to data breaches and compliance risks, undermining member trust and tarnishing the gym's reputation. Inadequate scalability of existing systems restricts the growth potential of gyms, hindering expansion efforts and limiting revenue opportunities.

1.2 Purpose

The aim of this project is to develop and implement Fitrack, a comprehensive gym management system built on PHP, to address the aforementioned challenges and optimize gym operations. Fitrack aims to streamline administrative tasks, enhance member engagement, improve data security, and provide scalability for future growth. By leveraging advanced technologies and user-centric design principles, Fitrack seeks to revolutionize the way fitness centers are managed, empowering gym administrators, trainers, and members alike to achieve their fitness goals efficiently and effectively.

1.3 Existing Systems

Many gyms still rely on legacy software systems or manual processes for membership management, class scheduling, and payment processing. These systems are often outdated, lacking in user-friendly interfaces and advanced features required for efficient gym operations.Several off-the-shelf membership management software solutions cater to the basic needs of gyms, offering features such as member registration, attendance tracking, and billing. However, these systems may lack customization options and scalability, limiting their

usefulness for growing fitness centers.Some gym management systems focus primarily on class booking and scheduling, allowing members to reserve spots in fitness classes or personal training sessions. While these platforms offer convenience for members, they may lack integration with other gym management functions and fail to provide comprehensive administrative tools for gym administrators.Some gym management systems focus primarily on class booking and scheduling, allowing members to reserve spots in fitness classes or personal training sessions. While these platforms offer convenience for members, they may lack integration with other gym management functions and fail to provide comprehensive administrative tools for gym administrators.

1.4 Purposed system

Fitrack will offer a user-friendly interface for gym administrators to manage memberships, schedule classes, process payments, and analyze performance metrics. Trainers will have access to tools for client management, appointment scheduling, and progress tracking, enabling personalized training experiences. Members will benefit from a seamless online portal for membership management, class bookings, and progress monitoring, enhancing their overall gym experience.

Moreover, Fitrack will prioritize data security through encryption protocols, access controls, and compliance with privacy regulations, ensuring the confidentiality and integrity of member information. The system will be designed with scalability in mind, allowing gyms to expand their operations seamlessly and adapt to changing market dynamics.

1.5 Project Description

The primary objective of this PHP gym management system project is to efficiently handle daily operations, particularly focusing on managing client records and tracking their chosen services. Additionally, it facilitates online registration for clients and comprises admin, staff, and customer panels. Upon registration, users await admin approval to access services, and clients can monitor their tasks. Admins have visibility into customer actions and can communicate messages and announcements, while clients can access their gym reports. The admin dashboard highlights key metrics and offers various chart reports on services, income, and expenses. This online gym management system features a user-friendly dashboard with

customizable color schemes, utilizing Bootstrap for interface elements and some Vanilla CSS. Introducing a new PHP MySQL Fitrack Project with comprehensive admin, staff, and customer panels, it serves as a valuable educational resource..

1.6Advantages of the system

Our proposed system has several advantages over existing solutions to the problem of predicting laptop prices:

- **Comprehensive Functionality**: Fitrack provides a comprehensive set of features and capabilities crafted to meet the unique demands of gym administrators, trainers, and members.. From membership management to class scheduling, payment processing, and progress tracking, Fitrack provides a one-stop solution for all aspects of gym operations.

- **User-Friendly Interface**: One of the key advantages of Fitrack is its intuitive and user-friendly interface. Designed with usability in mind, the system ensures that administrators, trainers, and members can easily navigate through the platform, perform tasks efficiently, and access relevant information with minimal training or support.

- **Enhanced Member Engagement:** Fitrack facilitates enhanced member engagement through its interactive member portal and communication tools. Members can conveniently book classes, track their progress, and communicate with trainers, fostering a sense of accountability and motivation to achieve their fitness goals.

- **Streamlined Operations**: By automating manual processes and integrating disparate functions into a single platform, Fitrack streamlines gym operations and reduces administrative overhead. This enables gym staff to focus more on delivering quality services to members rather than being bogged down by tedious administrative tasks.

- Scalability and Flexibility: Unlike many existing systems, Fitrack is designed to be scalable and flexible, allowing gyms to adapt and grow without constraints. Whether

it's adding new members, expanding facilities, or introducing new services, Fitrack can accommodate the changing needs of fitness centers of all sizes.

1.7 Aim and objective

Project Aim:

FitTrack's aim is to revolutionize the fitness tracking experience by providing a comprehensive platform that empowers users to take control of their health and well-being. Through innovative technology and personalized features, FitTrack aims to inspire individuals to lead healthier, more active lifestyles, ultimately contributing to improved overall fitness and quality of life.

The primary aim of FitTrack is to offer users a user-friendly and intuitive platform that facilitates seamless tracking of fitness activities, nutrition, and progress towards their health goals. By providing actionable insights, personalized recommendations, and motivational tools, FitTrack strives to empower users to make informed decisions and adopt sustainable habits that support their long-term health and fitness objectives.

Project Objectives:

- **Empower Fitness Enthusiasts**: FitTrack aims to empower fitness enthusiasts by providing them with a comprehensive platform to track and manage their fitness journey effectively.The main aim is to provide users with the necessary tools and functionalities to establish and reach their fitness objectives, track their advancement, and make informed choices for enhancing their general health and wellness.

- **Enhance User Experience**: FitTrack is committed to delivering an exceptional user experience through intuitive interfaces, personalized recommendations, and seamless navigation. The objective is to ensure that users can easily access and utilize the features of the platform, regardless of their level of technical proficiency or fitness

expertise.

- **Promote Accountability and Motivation**: FitTrack seeks to promote accountability and motivation among its users by offering features that encourage regular exercise, healthy habits, and goal tracking. The objective is to create a supportive community where users can share their achievements, challenges, and experiences, fostering a sense of camaraderie and motivation to stay committed to their fitness journey.

- **Provide Actionable Insights:** FitTrack aims to provide users with actionable insights into their fitness progress, performance trends, and areas for improvement. The objective is to leverage data analytics and algorithms to analyze user data, identify patterns, and offer personalized recommendations and actionable insights that empower users to make positive changes to their lifestyle and habits.

- **Foster Integration and Compatibility**: FitTrack is dedicated to fostering integration and compatibility with a wide range of fitness devices, apps, and platforms. The objective is to ensure that users can seamlessly sync data from their wearable devices, fitness trackers, and third-party apps with the FitTrack platform, enabling a holistic view of their fitness activities and progress.

Chapter 2

Technologies Used

2.1 HTML

HTML, which stands for Hypertext Markup Language, serves as the foundation for presenting text content in web browsers. It works in conjunction with technologies like Cascading Style Sheets (CSS) and programming languages such as JavaScript. Web browsers retrieve HTML files either from a local storage device or a web server, then transform them into dynamic web pages containing various media elements. Structurally, HTML defines the layout of a webpage and originally provided guidance on its visual presentation. HTML elements form the basic building blocks of a webpage, allowing for the inclusion of images, interactive forms, and other multimedia objects.

2.2 CSS

Cascading Style Sheets (CSS) is a style sheet language utilized to define the presentation of documents written in markup languages like HTML. Integral to the functioning of the World Wide Web, CSS works alongside HTML and JavaScript. It enables the separation of content and display aspects such as layout, color, and typography. This segregation minimizes complexity and redundancy in content structure, enhances accessibility, offers greater flexibility and precision in defining presentation attributes, facilitates shared formatting across multiple web pages by storing relevant CSS in a separate .css file, and allows for caching of the .css file to expedite page loading for pages utilizing the same formatting. CSS can be applied to various markup languages including XHTML, plain XML, SVG, and XUL.

2.3 Bootstrap

Bootstrap is an HTML, CSS, and JS library designed to streamline the development of educational websites (in contrast to web apps). Its integration into a web project primarily aims to apply Bootstrap's predefined color schemes, sizing, typography, and layout choices to that project. Therefore, the key determinant of its utility is whether these choices align with the preferences of the lead developers. Upon incorporation into a project, Bootstrap provides standardized style definitions for all HTML components, ensuring uniform appearance of text, tables, and form elements across various web browsers. Each Bootstrap component

comprises an HTML structure, CSS styling, and occasionally additional JavaScript functionality.

2.4 JavaScript

In addition to HTML and CSS, JavaScript, often abbreviated as JS, is a programming language crucial to the functioning of the World Wide Web. As of 2022, approximately 98% of websites utilize client-side JavaScript, often incorporating third-party libraries to manage webpage interactivity. Major web browsers include a specific JavaScript engine to execute code directly on users' devices. JavaScript, conforming to ECMAScript standards, is a high-level language known for its just-in-time compilation. It boasts features such as first-class functions, prototype-based object orientation, and dynamic typing.

2.5 Visual Studio Code

Microsoft provides Visual Studio Code, a freely available open-source text editor, also known as VS Code, which is compatible with Linux, macOS, and Windows operating systems. Renowned for its robust features and lightweight interface, VS Code has emerged as one of the most popular development environment tools in recent times. To optimize your utilization of Visual Studio Code, commence with exploring some fundamental topics:

- Introduction Videos: Kickstart your journey with VS Code by watching introductory videos.
- Configuration: Customize the toolset to align with your development needs and install Visual Studio Code on your specific platform.
- User Interface: Familiarize yourself with the basic UI, functionalities, and commands of the VS Code editor.
- Settings: Personalize VS Code to suit your preferred working preferences.
- Language Support: Discover the programming languages supported by VS Code.
- Node.js: Utilize this guide to swiftly launch and debug a Node.js web application.
- Tips and Tricks: Employ these tips to expedite your learning process and become proficient with VS Code.
- Azure: Learn how to leverage VS Code for cloud-deploying web applications.
- Extension Development: Explore the process of creating a VS Code extension using the Extension API.

2.6 PHP

PHP stands as an object-oriented, server-side programming language, interpreted and freely available as open source. It serves as an excellent option for website development, leading to the creation of web applications, which operate on servers and generate dynamic pages.

2.7 My SQL

Oracle introduced MySQL, an RDBMS constructed on SQL. A structured collection of data is termed as a database, ranging from a basic shopping list to an extensive business network data repository. Specifically, a relational database employs the relational paradigm to organize and manage data online. The MySQL database offers several functionalities:

1. Open-Source: MySQL is freely available for download, usage, and modification by anyone. It is user-friendly and does not incur any costs. Its source code is accessible for examination and customization as per requirements, governed by the GPL (GNU General Public License) standards.

2. Quick and Reliable: MySQL efficiently stores data in memory, ensuring consistency and minimizing redundancy. Consequently, data retrieval and manipulation processes are swift and reliable.

3. Scalable: MySQL is designed to seamlessly handle both small and large datasets, as well as clusters of machines, demonstrating its scalability.

4. Secure: It provides a secure interface through flexible password systems, verifying access based on host credentials before database entry. Password encryption during server connection enhances security.

5. Support for Large Databases: MySQL offers robust support for sizable databases, accommodating millions of records, thousands of tables, and billions of rows.

Chapter 3

Requirement Analysis

3.1 Introduction

The framework objectives outlined during the feasibility study provided the foundation for initiating the framework design work. Much of the tasks involved at this stage were technical in nature, requiring expertise in system design, a comprehensive understanding of computer-related technologies, and familiarity with available computer products and services offered by various vendors. However, system design did not occur in isolation; active involvement of the user was crucial at this stage as well. Data collected during the feasibility study was systematically utilized in the system design process. Designing a system is a creative process that requires logical and lateral thinking. Logical approach involves systematic steps towards achieving the desired outcome while considering the capabilities of the staff and the equipment at each stage of the design process.

3.2 Functional Requirements:

User Portal:

a. User Registration: Allow users to create accounts by providing necessary details such as name, email, password, and fitness goals.

b. Profile Management: Enable users to update their profiles, including personal information, fitness preferences, and tracking preferences.

c. Fitness Tracking:

i. Activity Tracking: Provide features for users to log and track their physical activities, including exercises, workouts, and outdoor activities.

ii. Nutrition Tracking: Allow users to track their daily food intake, including calories, macronutrients, and meal plans.

iii. Goal Setting: Enable users to set personalized fitness goals, such as weight loss, muscle gain, or cardiovascular improvement, and track progress towards these goals.

d. Progress Visualization: Provide graphical representations and progress charts to visualize users' fitness progress over time, including changes in weight, body measurements, and fitness achievements.

e. Community Interaction: Facilitate interaction among users through features such as forums, groups, challenges, and social sharing, fostering a supportive and motivating community environment.

f. Integration with Wearable Devices: Allow users to sync data from compatible fitness trackers, smartwatches, and other wearable devices to automatically track their activity and health metrics.

Admin Portal:

a. User Management: Enable administrators to manage user accounts, including registration, approval, suspension, and deletion.

b. Membership Management: Provide tools for administrators to manage membership plans, subscriptions, renewals, and cancellations.

c. Class and Schedule Management: Allow administrators to create, edit, and delete fitness classes, set schedules, assign trainers, and manage class capacities.

d. Payment Processing: Integrate with payment gateways to facilitate membership payments, class bookings, and other financial transactions securely.

e. Reporting and Analytics: Provide administrators with access to reports and analytics dashboards to track membership metrics, class attendance, revenue, and other key performance indicators.

f. Communication Tools: Enable administrators to send notifications, announcements, and reminders to members and trainers via email, SMS, or in-app notifications.

Trainer Portal:

a. Trainer Registration: Allow fitness trainers to register accounts by providing relevant qualifications, certifications, and contact information.

b. Profile Management: Enable trainers to create and manage their profiles, including bio, expertise, availability, and training specialties.

c. Client Management: Provide tools for trainers to manage client profiles, track progress, and customize workout plans and nutrition advice based on individual goals and preferences.

d. Appointment Scheduling: Allow trainers to schedule and manage client appointments, including session times, locations, and cancellations.

e. Communication with Clients: Facilitate communication between trainers and clients through messaging features, progress updates, and feedback mechanisms.

f. Performance Tracking: Enable trainers to monitor client progress, track performance metrics, and provide personalized feedback and encouragement to support clients' fitness journey.

3.3 Non-Functional Requirements:

Performance:

FitTrack shall respond to user interactions within 2 seconds, ensuring a smooth and responsive user experience.The system shall handle concurrent user sessions efficiently, supporting a minimum of 1000 simultaneous users without degradation in performance. FitTrack's backend processes, such as data processing and analytics, shall execute within predefined time limits to ensure timely generation of reports and insights.

Scalability:

FitTrack shall be designed to scale horizontally to accommodate increasing user demand and data volumes without compromising performance.The system architecture shall support seamless integration with additional servers or cloud resources to handle spikes in traffic during peak usage periods.FitTrack's database infrastructure shall be scalable to store and manage growing datasets, ensuring optimal system performance and responsiveness.

Security:

FitTrack shall implement industry-standard encryption protocols to secure user data during transmission and storage, protecting against unauthorized access and data breaches. Access to sensitive user information, such as personal profiles, payment details, and health data, shall be restricted to authorized users with appropriate permissions. FitTrack shall undergo regular security audits and vulnerability assessments to identify and address potential security risks and ensure compliance with data protection regulations.

Reliability:

FitTrack shall have a minimum uptime of 99.9%, ensuring uninterrupted access to the platform for users, administrators, and trainers.The system shall implement automated backup and disaster recovery mechanisms to minimize data loss and ensure business continuity in the event of system failures or disasters.FitTrack's transaction processing and payment gateway integrations shall be reliable and fault-tolerant, minimizing the risk of transaction failures or processing errors.

Usability:

FitTrack's user interface shall be intuitive and user-friendly, requiring minimal training for users, administrators, and trainers to navigate and perform tasks efficiently.The platform shall support customization and personalization options, allowing users to tailor their experience based on their preferences and usage patterns.FitTrack shall provide clear and concise error

messages and prompts to guide users in resolving issues or completing tasks, enhancing overall usability and user satisfaction.

3.4 Purposed System

FitTrack is a comprehensive fitness tracking and management platform designed to empower users, administrators, and trainers to optimize their health and wellness journey. With a user-friendly interface, advanced features, and robust functionality, FitTrack revolutionizes the way fitness is tracked, managed, and personalized.

Personalized Experience: FitTrack provides tailored recommendations, insights, and support to help users achieve their fitness goals effectively.
Community Support: FitTrack fosters a sense of community, accountability, and motivation among users, promoting a collaborative approach to health and wellness.
Streamlined Operations: FitTrack simplifies administrative tasks, automates processes, and centralizes data management for gyms and fitness centers.
Enhanced Engagement: FitTrack engages users, trainers, and administrators through interactive features, social networking tools, and gamification elements.
Data-Driven Insights: FitTrack leverages data analytics, machine learning, and AI algorithms to deliver actionable insights and optimize user experiences.

3.5 Software Requirements:

Operating System: Window Operating system/linux

Front-End Tool: Visual studio code

Database management system: My SQL

Open source framework: XAMPP

Browser: Mozzila/Edge/Chrome

3.6 Hardware Requirements:

Minimum Ram: 8GB

SSD: 256GB

Processor: Intel Core i3

Chapter 4

System Design

4.1 System Requirement specification

The System Requirements Specification (SRS) serves as a comprehensive document outlining the functionalities and performance expectations of the software. It establishes a foundational framework ensuring clarity and understanding among all project stakeholders. The software requirements specification (SRS) delineates the intended actions and performance standards of the software, addressing the needs of all stakeholders, including business entities and end-users. This specification process is a critical component of Requirements Engineering, following the phases of Requirements Capture and Analysis. The primary objective is to produce a detailed Requirements Specification document encompassing all necessary requirements for the design, verification, and maintenance of the product, along with pertinent supplementary information. Requirement specification involves systematically documenting system and user requirements to ensure clarity, completeness, comprehensiveness, and consistency. It involves gathering requirements from diverse sources, analyzing and understanding them, and subsequently formalizing them into a comprehensive document. In essence, requirement specification entails accurately documenting all user and system needs and constraints in a clear and concise manner.

4.2 Purpose of an SRS

An SRS serves as the cornerstone of an organization's entire project, establishing the framework that all development teams will adhere to. It furnishes crucial details to various teams, including development, operations, quality assurance (QA), and maintenance, ensuring alignment among them. Utilizing the SRS aids enterprises in validating the fulfillment of requirements and enables business leaders to make informed decisions regarding their product's lifecycle, such as feature retirement timelines. Moreover, crafting an SRS can assist developers in streamlining their efforts, thereby reducing time and resource expenditure during development and ultimately cutting down on costs.

4.3 Features of an SRS

An SRS should possess the following characteristics:

• Accuracy: It must precisely represent the product's functionality and specifications at any given time.

• Clarity: There should be no ambiguity in understanding the requirements outlined in the document.

• Completeness: It should encompass all features requested by the client.

• Consistency: Consistent use of abbreviations and conventions throughout the document is essential.

• Verifiability: Each requirement stated in the SRS should be verifiable, meaning there should be a quantifiable method to determine if the final software meets that requirement.

• Modifiability: The SRS should systematically identify each requirement, allowing for easy modification of specific requirements and their dependencies without affecting others in case of changes.

• Traceability: The origin of each requirement should be clear, facilitating easy reference to each requirement for future development purposes.

4.4 Logical Design

The logical design of the machine service management web application defines the high-level structure and functionality of the system. It focuses on the logical flow of information and user interactions without delving into specific implementation details.

The key components of the logical design include:

1. User Interface: The application have an intuitive and user-friendly interface that allows users to access different features and functionalities easily. It provides clear navigation, visually appealing layouts, and responsive design to support various devices.

2. User Management: The system includes a user management module to handle user authentication, registration, and role-based access control. It allows administrators to manage user accounts and define user roles with specific permissions.

3. Doctors Assigning: The application provides functionality to assign doctors to patients. Doctors should be able to view the appointments assigned to them. 19

4. Appointments Tracking: The system gives access to doctors to mark appointments and keep a track of it

Chapter 5
Implementation of Project

5.1 Frontend Implementation:

5.1.1 UI/UX Design:

• Responsive Design: Employed a responsive design approach to ensure optimal user experience across various devices.

• Intuitive Interface: Designed a user-friendly interface with a focus on easy navigation and efficient task execution.

• Real-time Updates: Utilized capabilities to provide real-time updates, enhancing the overall user experience.

5.1.2 Components and Modules:

• Appointment Management: Implemented a component for adding appointments with input fields.

• Patients and Doctors Registration: Developed components to facilitate the registration of doctors and patients, linking them to respective appointment.

5.1.3 Appointment Management:

• Booking Appointment: Integrated a feature for patients to book appointment of nearest doctors.

• Viewing and Editing Appointment: Implemented functionalities for both doctors and patients to view and edit appointment records.

5.2 Backend Implementation :

5.2.1 Database Structure:

• Collections: Organized data into collections for appointments, patients, doctors, and appointment records.

• Document Structure: Maintained a structured document format within each collection for efficient data retrieval. 5.3 Authentication:

• Doctors Login: Implemented authentication mechanisms allowing doctors to log in using email and password credentials provided by administrators.

• Admin Access Control: Ensured secure access control for admin-specific functionalities.

5.3 CI/CD Implementation:

5.3.1 Continuous Integration (CI)

♣ Automated Testing: Implemented automated testing scripts to ensure the stability and reliability of the system during development.

♣ Code Quality Checks: Integrated tools to perform code quality checks as part of the CI pipeline.

5.3.2 Continuous Deployment (CD)

♣ Deployment Pipeline: Established a deployment pipeline for seamless and automated deployment of the application updates.

♣ Rollback Mechanism: Implemented a rollback mechanism to revert to the previous version in case of deployment issues.

5.4 Security Measures:

• Data Encryption:Implemented end-to-end encryption to secure sensitive data, such as login credentials and personal information.

5.5 Access Control:

• Utilized Firebase's authentication services to enforce role-based access control, ensuring that only authorized users access specific functionalities.

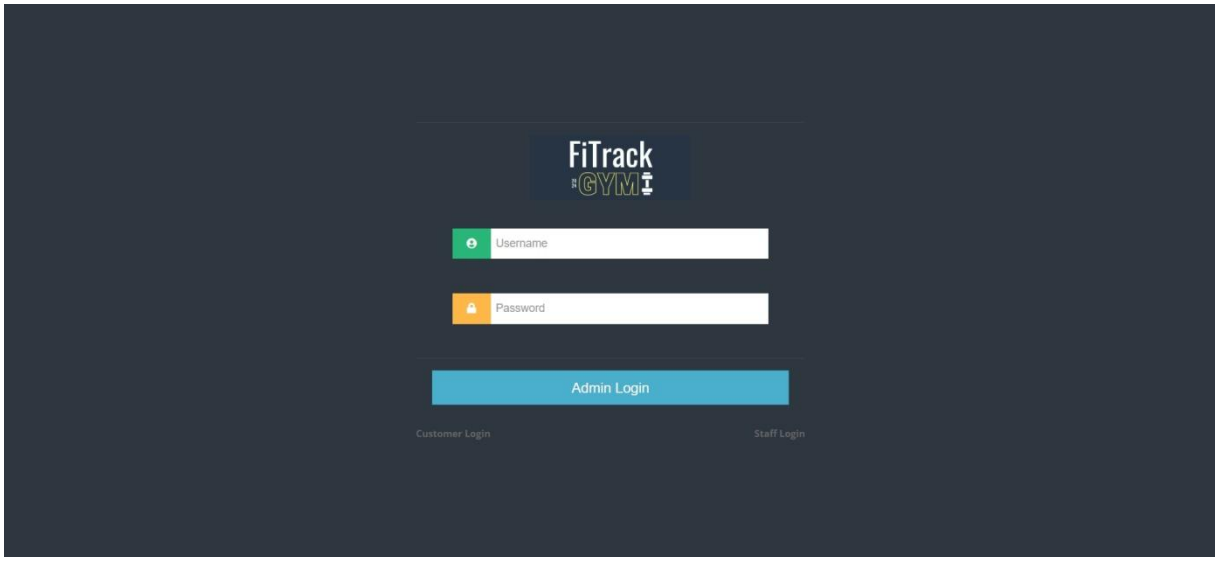
Chapter 6

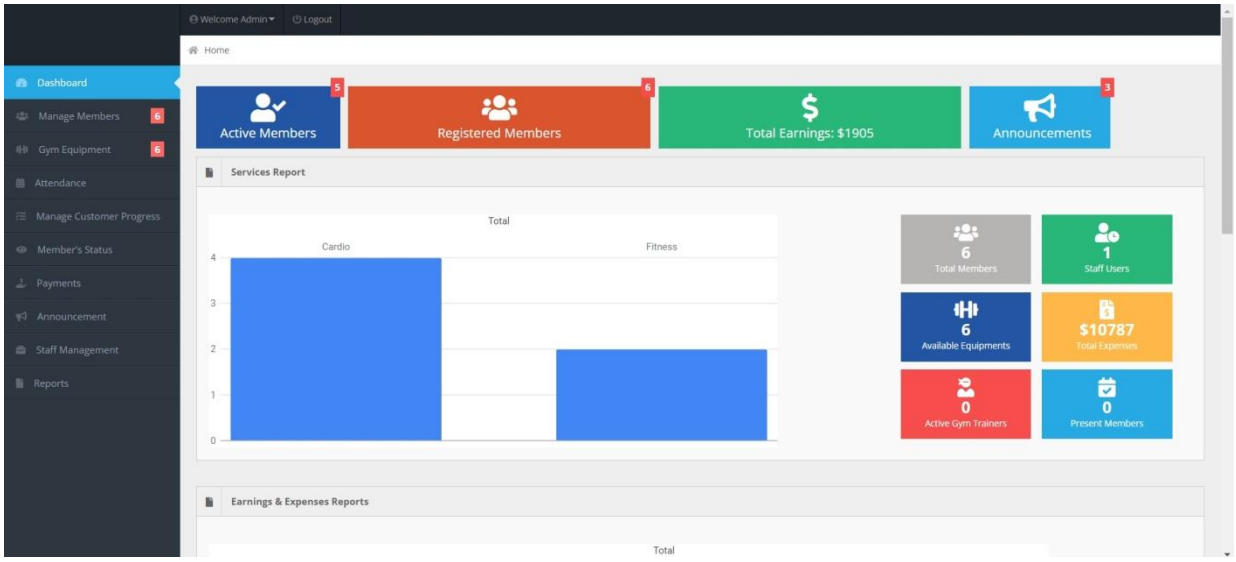
Results and Discussions

6.1 Website:

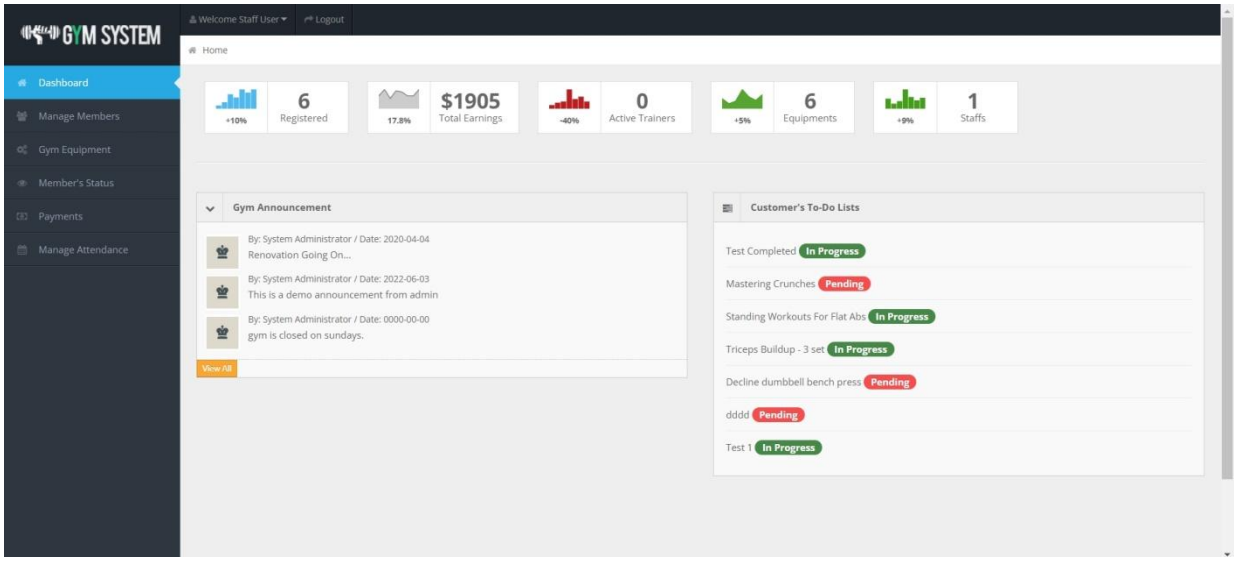
This user-friendly web application emerges as a groundbreaking solution in the realm of fitness tracking and management, redefining how individuals engage with their health and wellness goals. Through its user-centric design, advanced features, and seamless integration, FitTrack offers a holistic platform that empowers users, administrators, and trainers alike to optimize their fitness journey..

6.2 Admin Portal

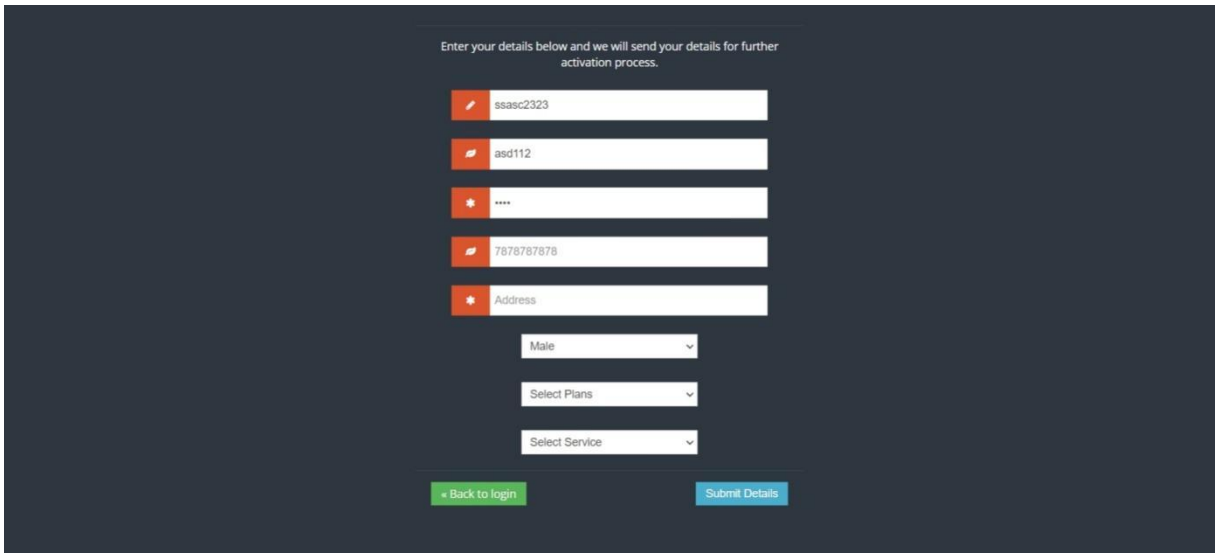


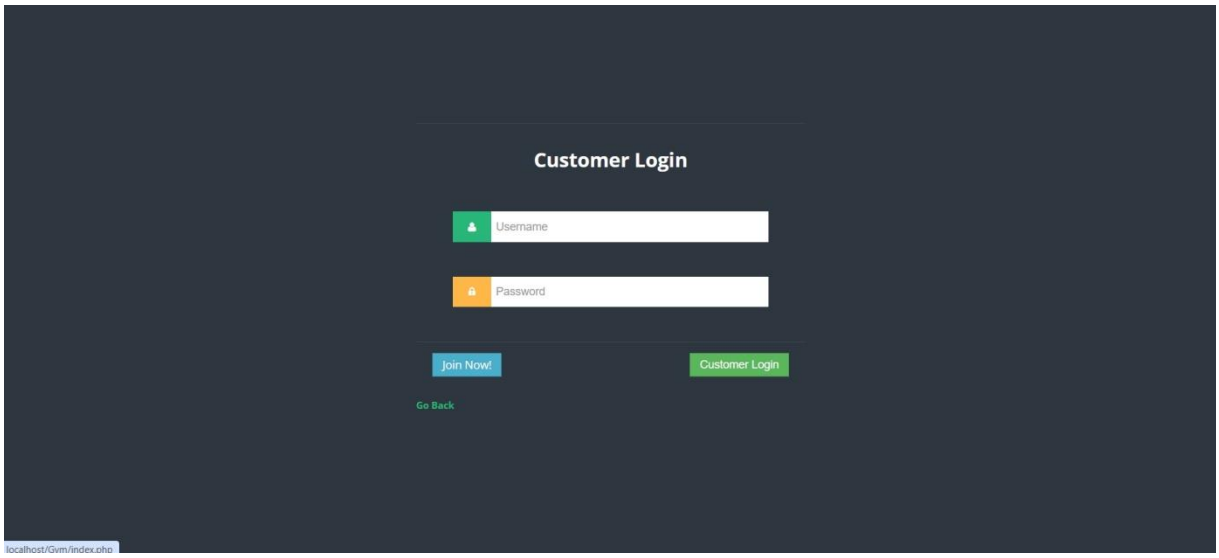


6.3 Staff Portal

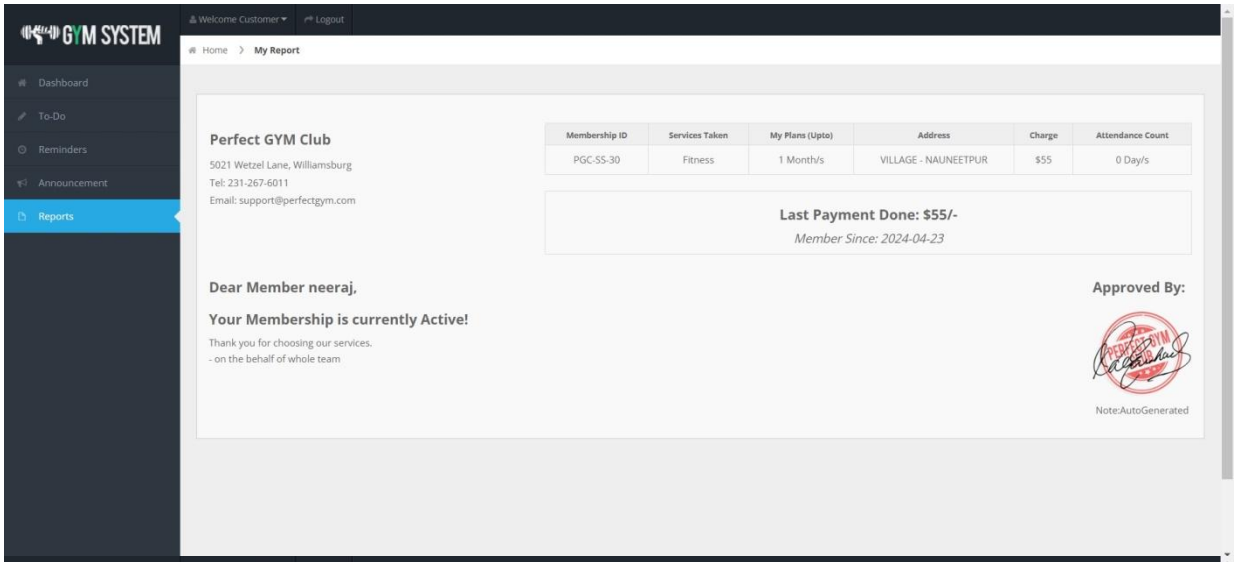


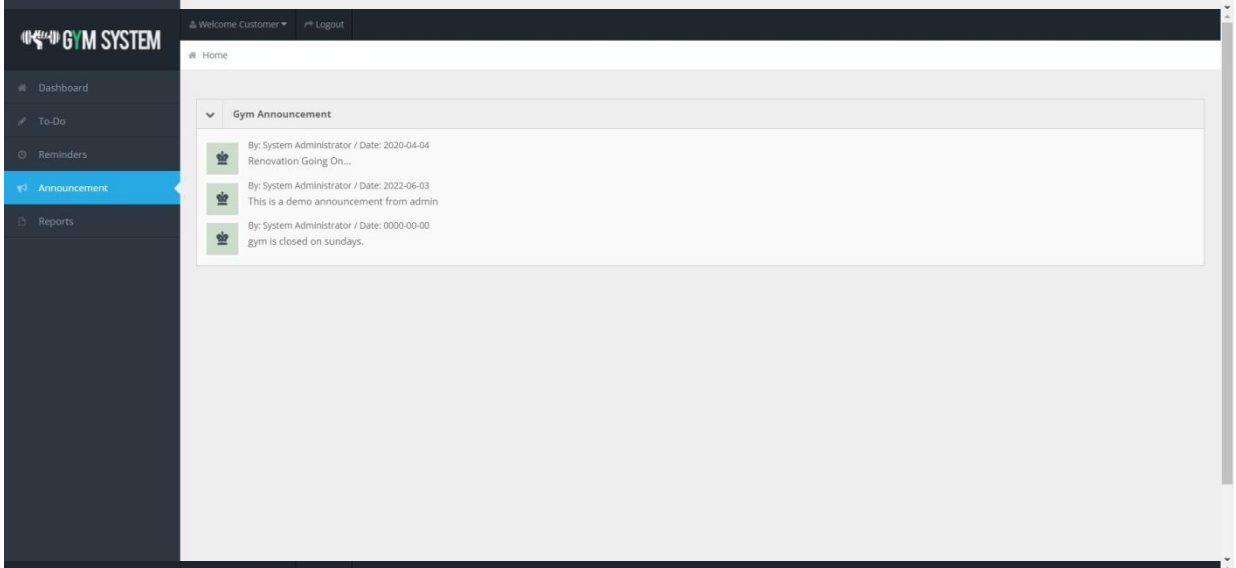
6.4 Customer Portal

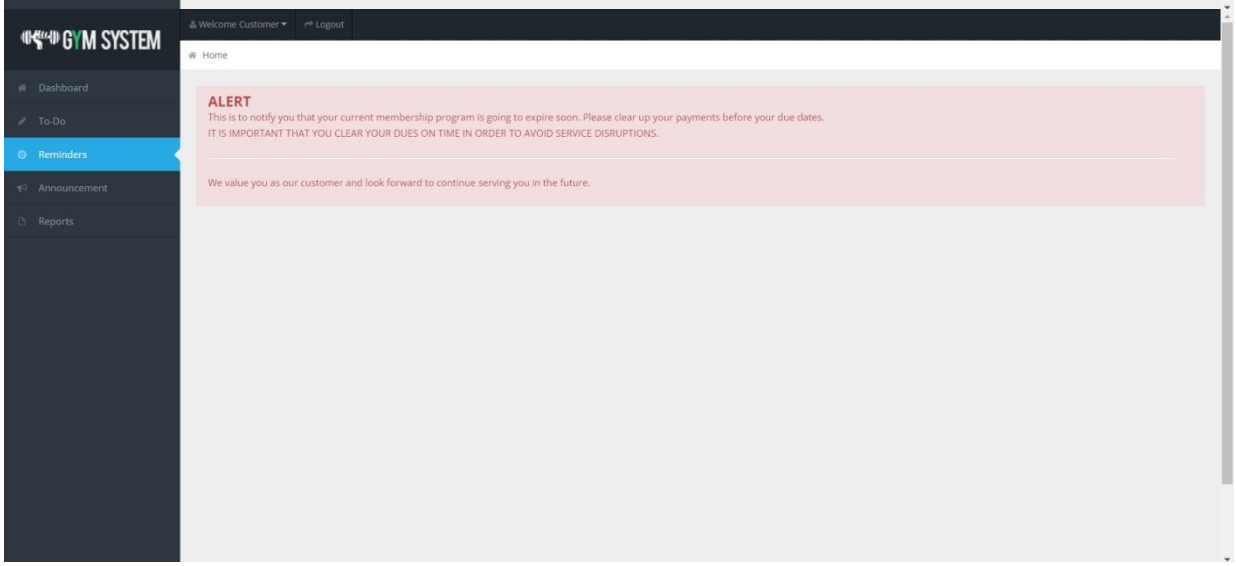


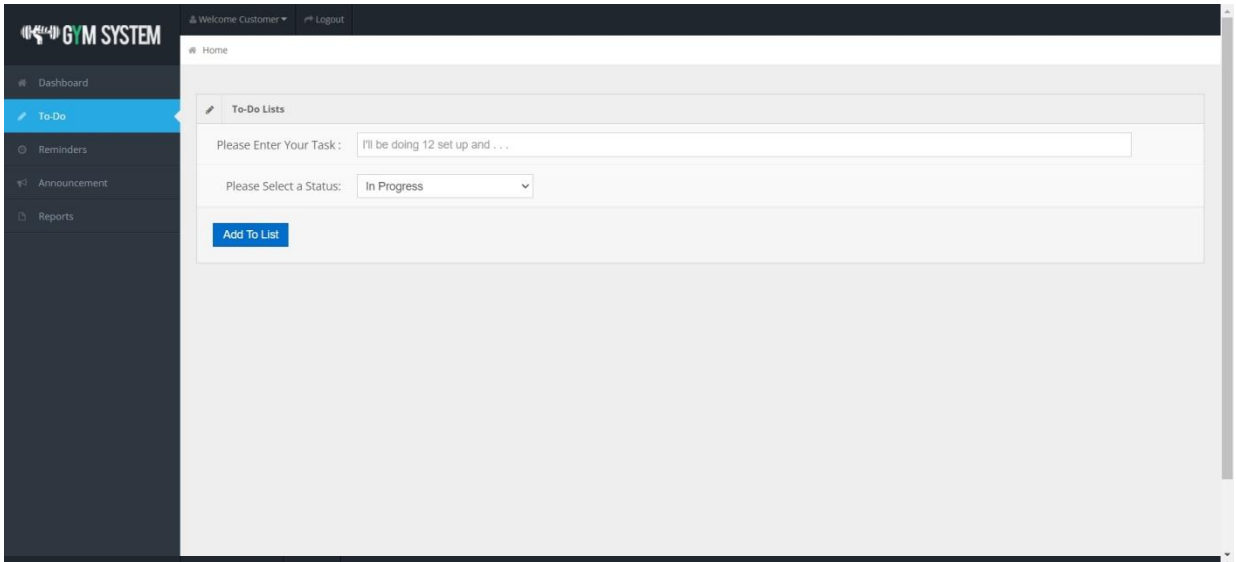


6.5 Other screenshots








GYM SYSTEM
Welcome Customer
Logout
Home
Dashboard
To-Do
Reminders
Announcement
Reports
To-Do Lists
Please Enter Your Task :
I'll be doing 12 set up and . . .
Please Select a Status:
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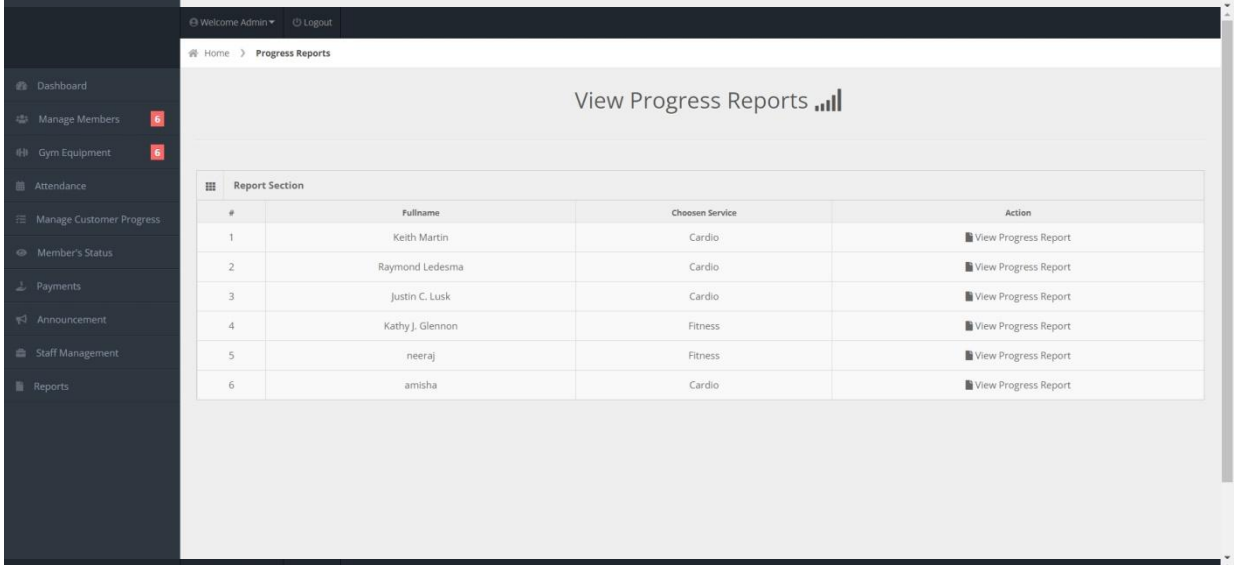
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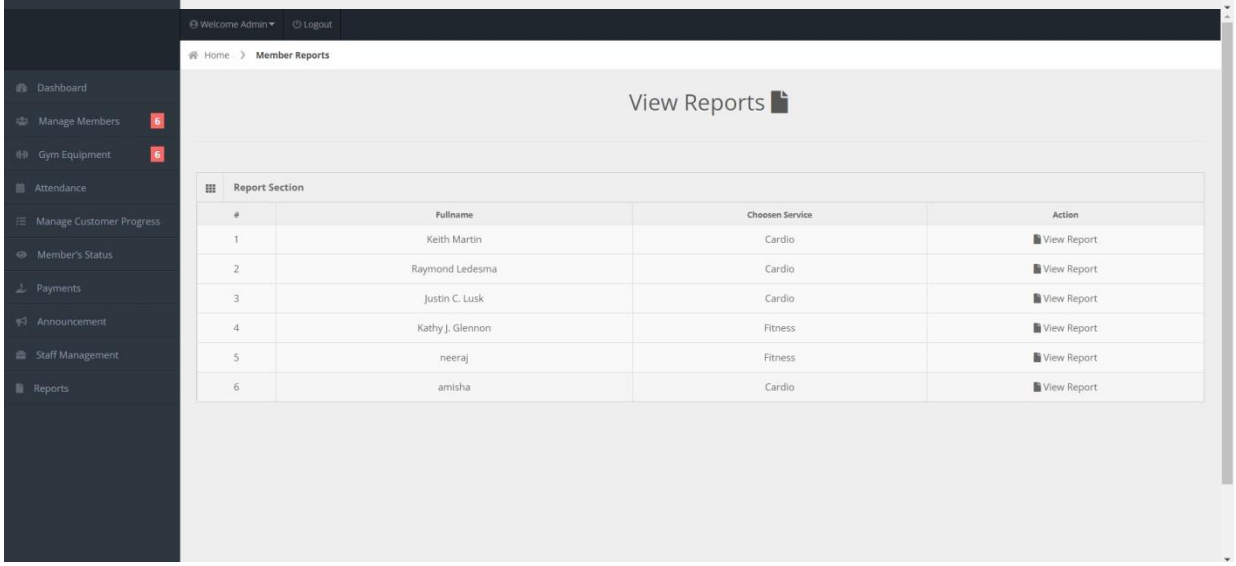
2 Raymond Ledesma Cardio View Progress Report
3 Justin C. Lusk Cardio View Progress Report
4 Kathy J. Glennon Fitness View Progress Report
5 neeraj Fitness View Progress Report
6 amisha Cardio View Progress Report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Payments
Announcement
Staff Management
Reports
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Report Section
Fullname Choosen Service Action
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5 neeraj Fitness View Report
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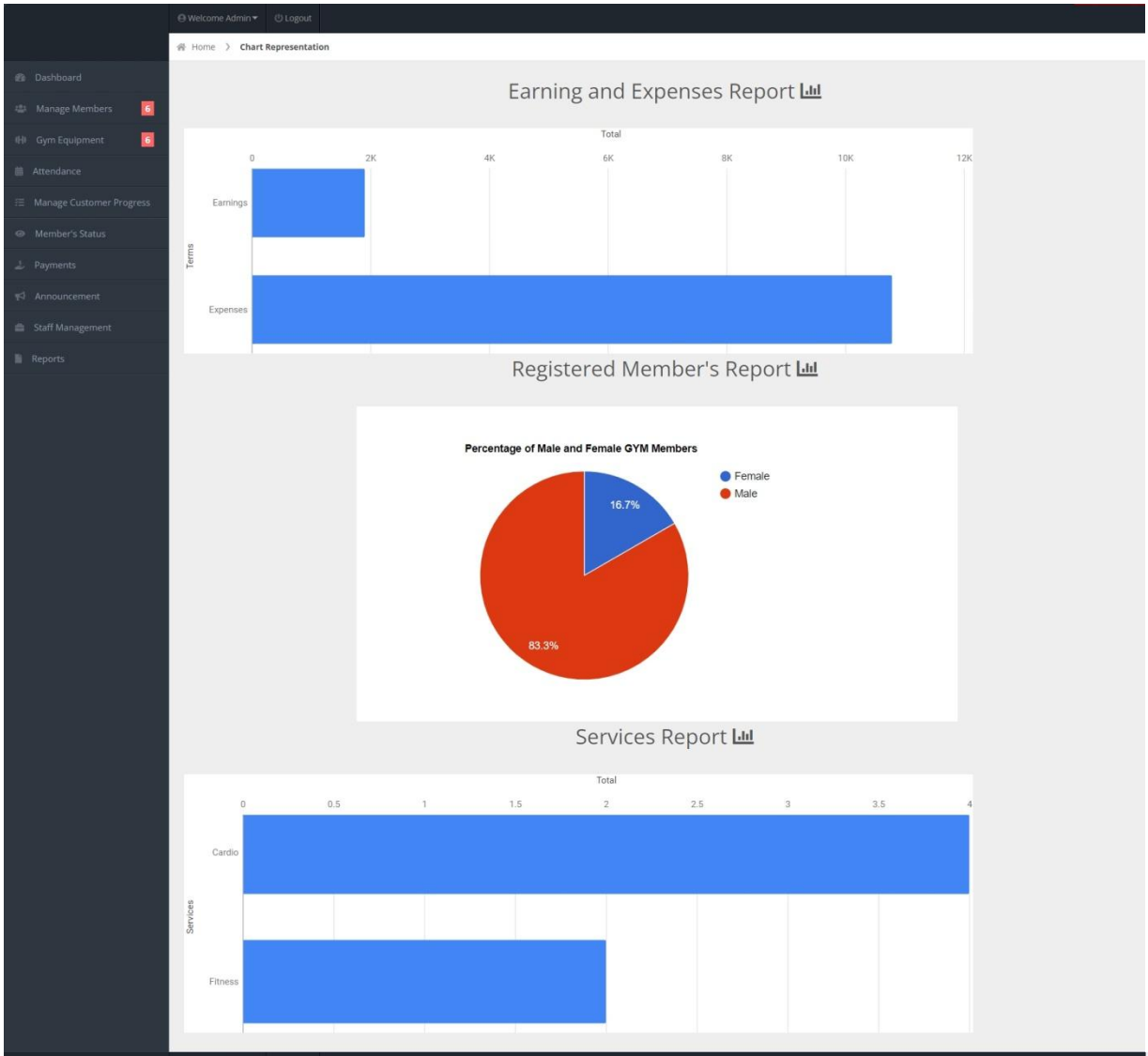
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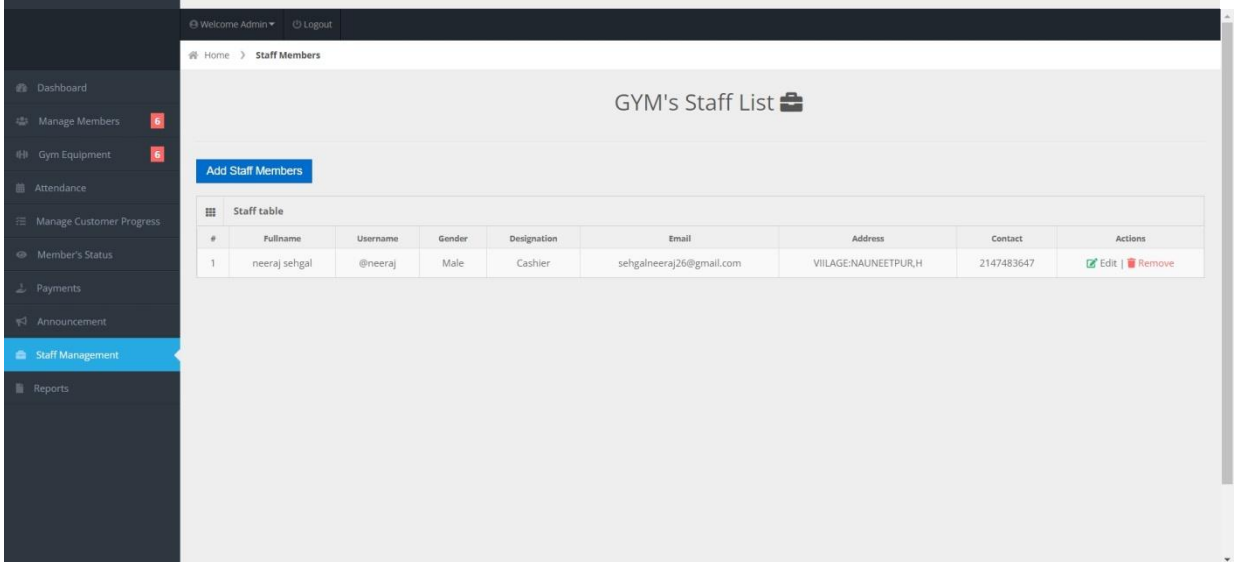
Earning and Expenses Report
Total
0
2K
4K
6K
8K
10K
12K
Earnings
Expenses
Terms
Registered Member's Report
Percentage of Male and Female GYM Members
Female
Male
16.7%
83.3%
Services Report
Total
0
0.5
1
1.5
2
2.5
3
3.5
4
Cardio
Fitness
Services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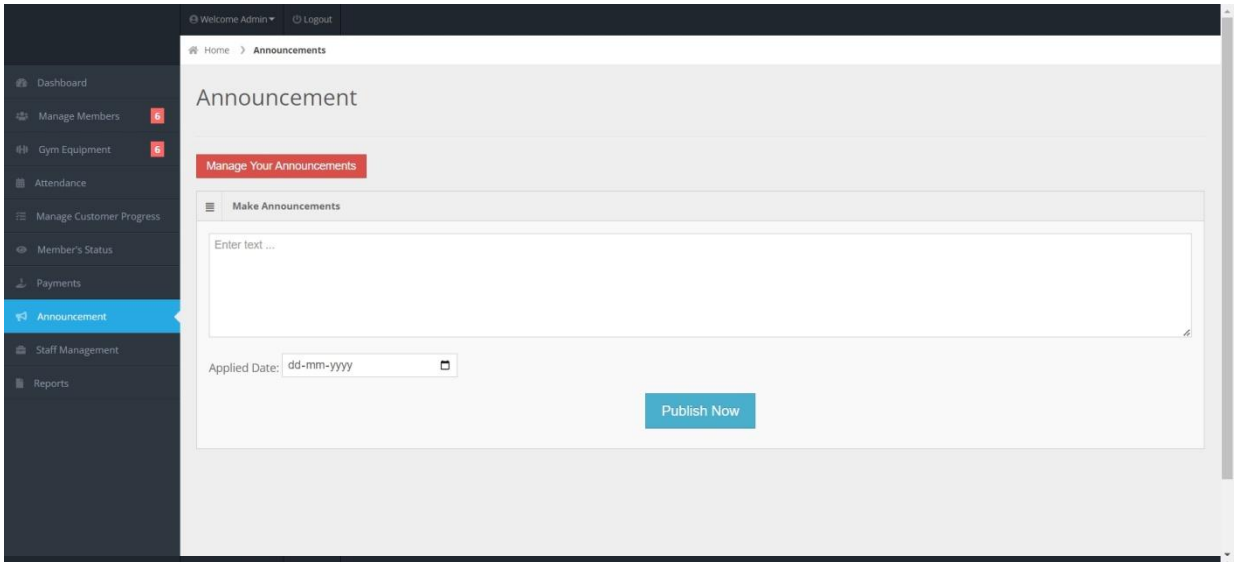
Staff Management
Reports
GYM's Staff List
Add Staff Members
Staff table
Fullname Username Gender Designation Email Address Contact Actions
1 neeraj sehgal @neeraj Male Cashier sehgalneeraj26@gmail.com VIILAGE:NAUNEETPUR,H 2147483647 Edit | Remove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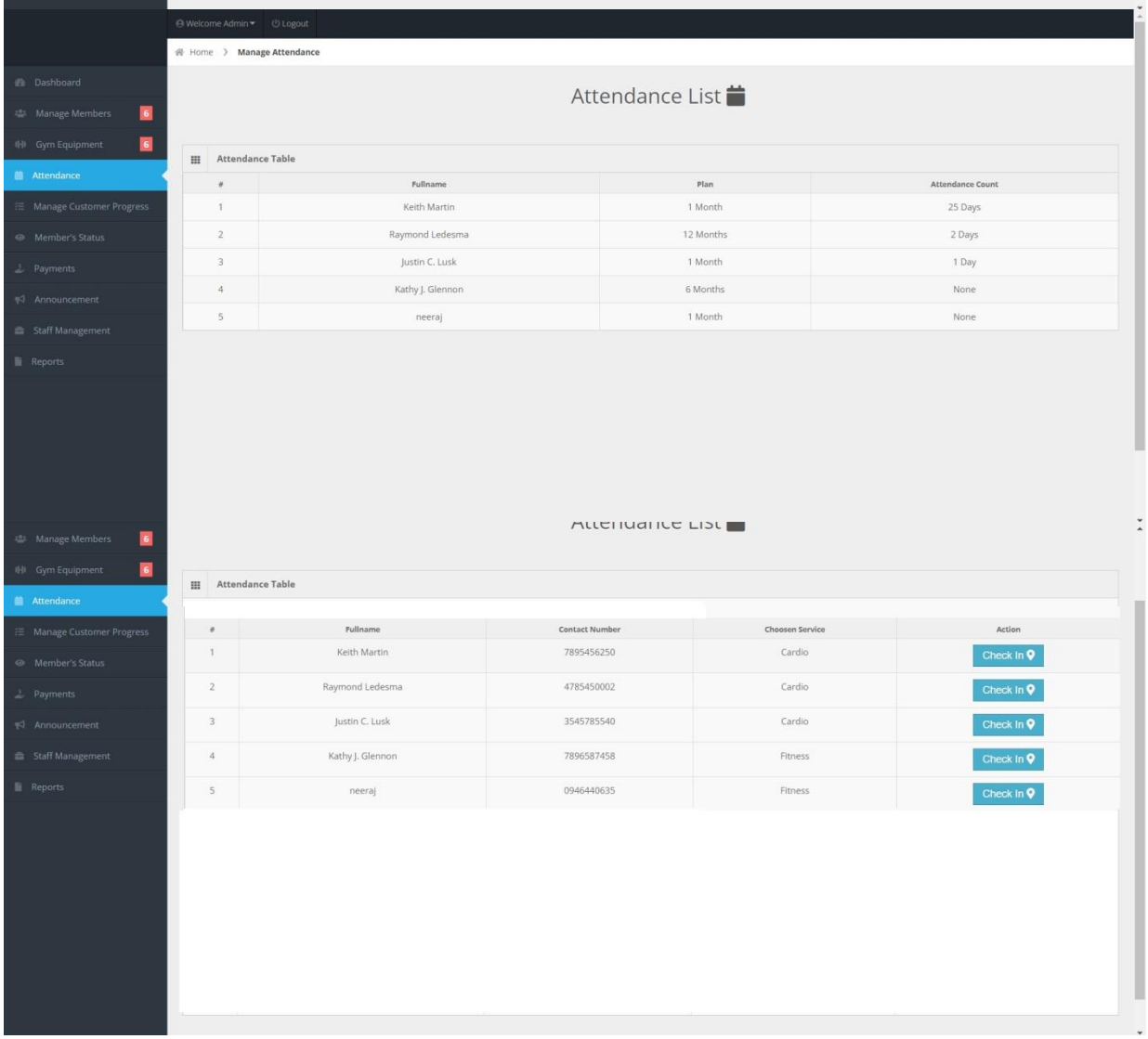
Reports
Announcement
Manage Your Announcements
Make Announcements
Enter text ...
Applied Date:
dd-mm-yyyy
Publish Now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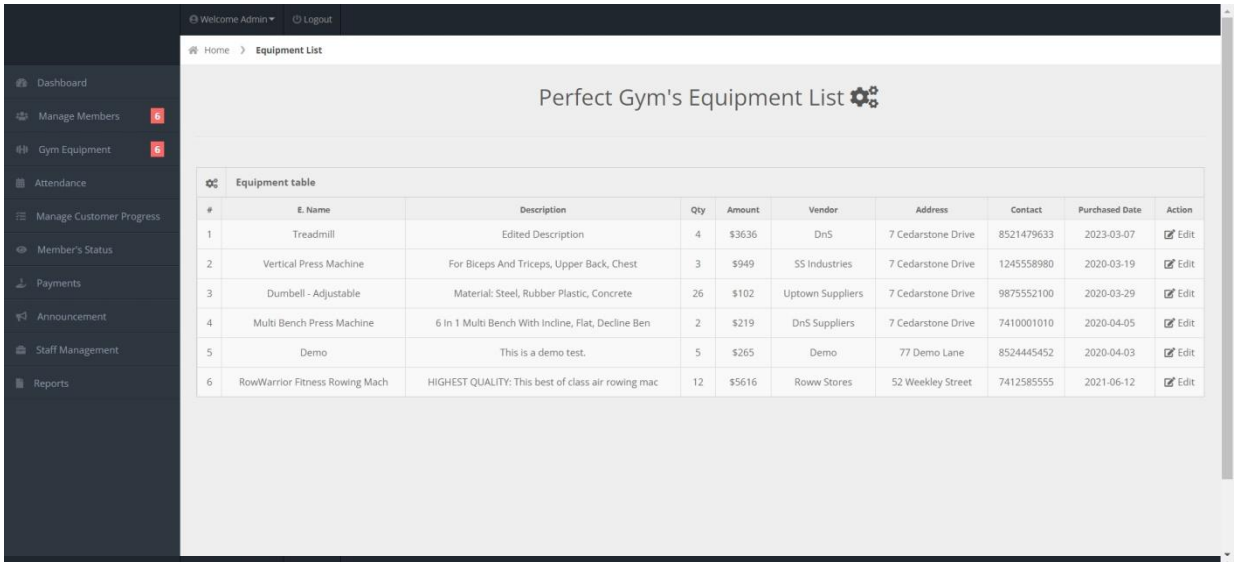
Manage Attendance
Dashboard
Manage Members
Gym Equipment
Attendance
Manage Customer Progress
Member's Status
Payments
Announcement
Staff Management
Reports
Attendance List
Attendance Table
Fullname Plan Attendance Count
1 Keith Martin 1 Month 25 Days
2 Raymond Ledesma 12 Months 2 Days
3 Justin C. Lusk 1 Month 1 Day
4 Kathy J. Glennon 6 Months None
5 neeraj 1 Month None

Attendance List
Attendance Table
Fullname Contact Number Choosen Service Action
1 Keith Martin 7895456250 Cardio Check In
2 Raymond Ledesma 4785450002 Cardio Check In
3 Justin C. Lusk 3545785540 Cardio Check In
4 Kathy J. Glennon 7896587458 Fitness Check In
5 neeraj 0946440635 Fitness Check In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Equipment List
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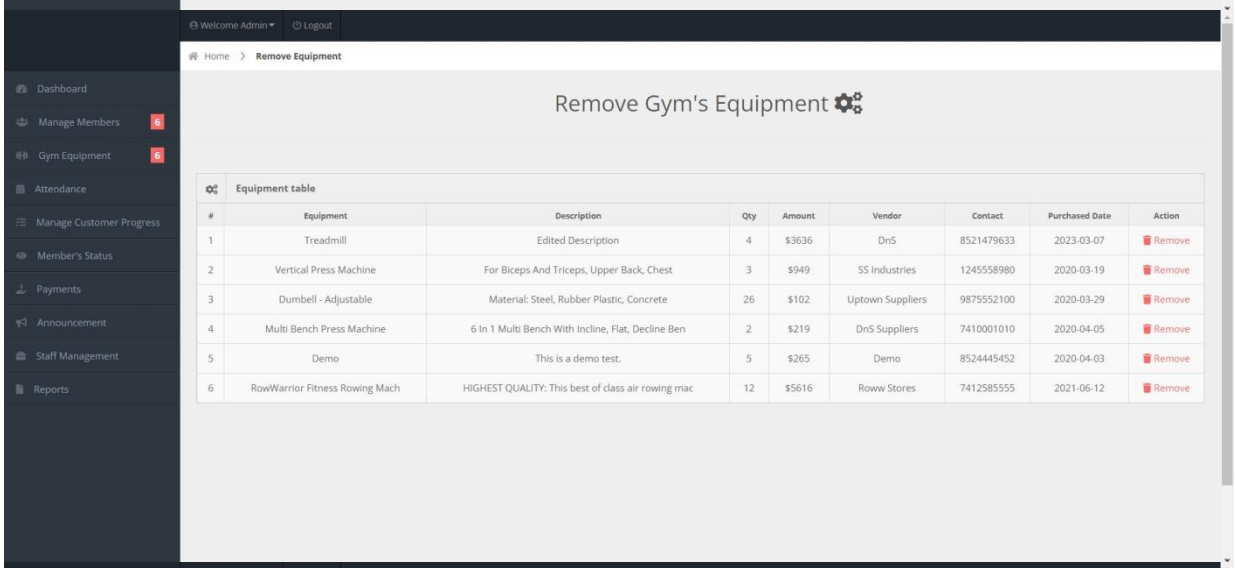
Gym Equipment
Attendance
Manage Customer Progress
Member's Status
Payments
Announcement
Staff Management
Reports
Perfect Gym's Equipment List
Equipment table
E. Name Description Qty Amount Vendor Address Contact Purchased Date Action
1 Treadmill Edited Description 4 $3636 DnS 7 Cedarstone Drive 8521479633 2023-03-07 Edit
2 Vertical Press Machine For Biceps And Triceps, Upper Back, Chest 3 $949 SS Industries 7 Cedarstone Drive 1245558980 2020-03-19 Edit
3 Dumbell - Adjustable Material: Steel, Rubber Plastic, Concrete 26 $102 Uptown Suppliers 7 Cedarstone Drive 9875552100 2020-03-29 Edit
4 Multi Bench Press Machine 6 In 1 Multi Bench With Incline, Flat, Decline Ben 2 $219 DnS Suppliers 7 Cedarstone Drive 7410001010 2020-04-05 Edit
5 Demo This is a demo test. 5 $265 Demo 77 Demo Lane 8524445452 2020-04-03 Edit
6 RowWarrior Fitness Rowing Mach HIGHEST QUALITY: This best of class air rowing mac 12 $5616 Roww Stores 52 Weekley Street 7412585555 2021-06-12 Edit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1 Treadmill Edited Description 4 $3636 DnS 8521479633 2023-03-07 Remove
2 Vertical Press Machine For Biceps And Triceps, Upper Back, Chest 3 $949 SS Industries 1245558980 2020-03-19 Remove
3 Dumbell - Adjustable Material: Steel, Rubber Plastic, Concrete 26 $102 Uptown Suppliers 9875552100 2020-03-29 Remove
4 Multi Bench Press Machine 6 In 1 Multi Bench With Incline, Flat, Decline Ben 2 $219 DnS Suppliers 7410001010 2020-04-05 Remove
5 Demo This is a demo test. 5 $265 Demo 8524445452 2020-04-03 Remove
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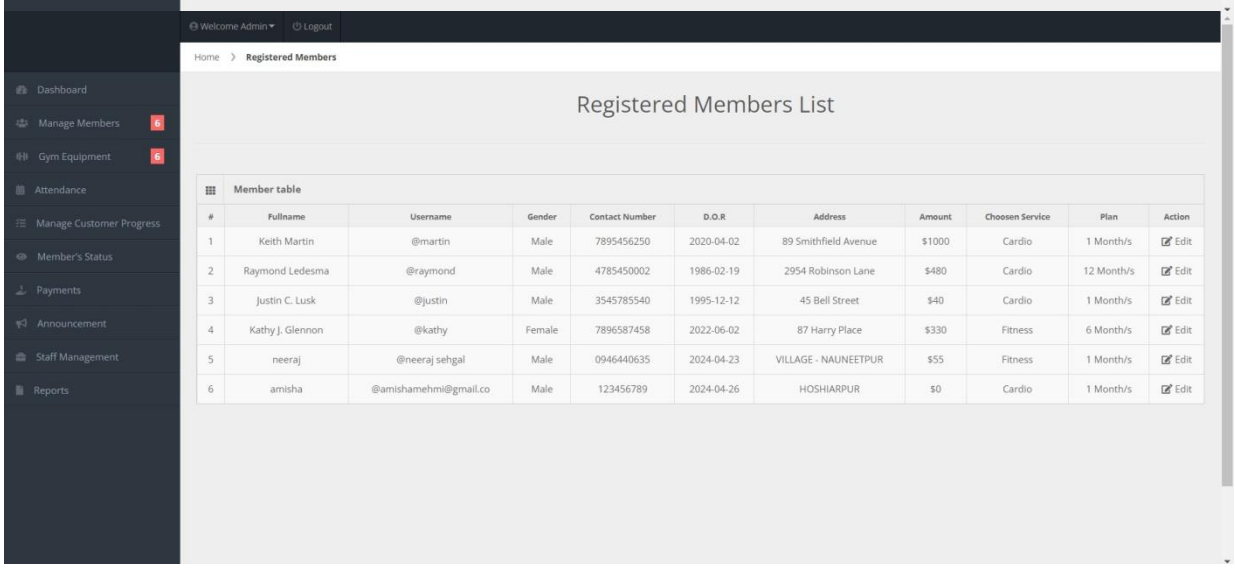
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Manage Customer Progress
Member's Status
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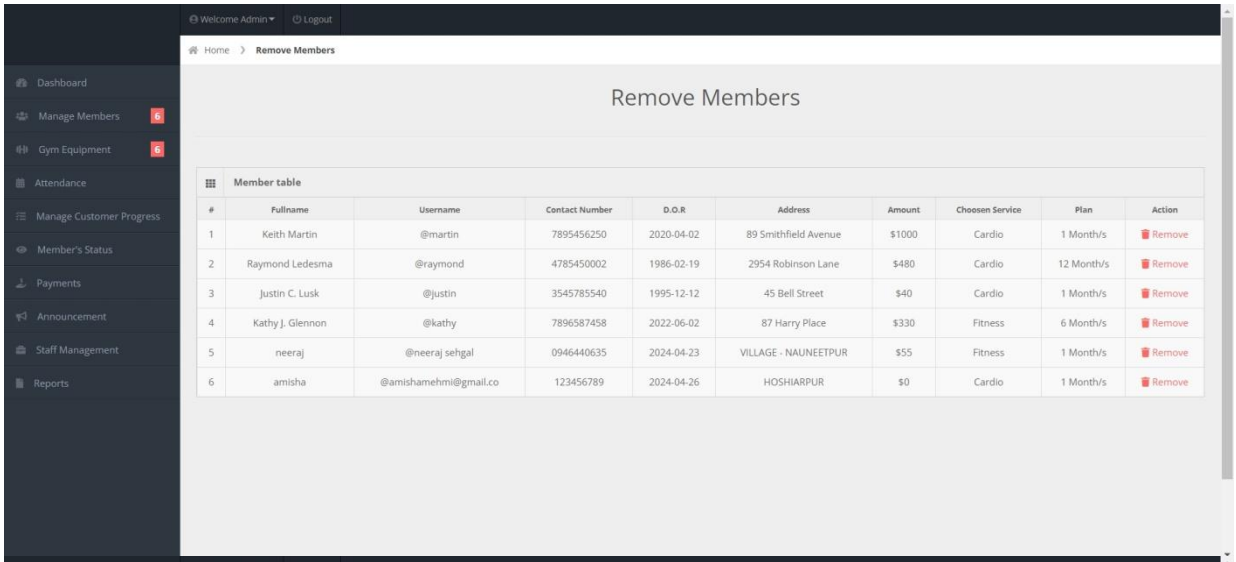
Announcement
Staff Management
Reports
Registered Members List
Member table
Fullname Username Gender Contact Number D.O.R Address Amount Choosen Service Plan Action
1 Keith Martin @martin Male 7895456250 2020-04-02 89 Smithfield Avenue $1000 Cardio 1 Month/s Edit
2 Raymond Ledesma @raymond Male 4785450002 1986-02-19 2954 Robinson Lane $480 Cardio 12 Month/s Edit
3 Justin C. Lusk @justin Male 3545785540 1995-12-12 45 Bell Street $40 Cardio 1 Month/s Edit
4 Kathy J. Glennon @kathy Female 7896587458 2022-06-02 87 Harry Place $330 Fitness 6 Month/s Edit
5 neeraj @neeraj sehgal Male 0946440635 2024-04-23 VILLAGE - NAUNEETPUR $55 Fitness 1 Month/s Edit
6 amisha @amishamehmi@gmail.co Male 123456789 2024-04-26 HOSHIARPUR $0 Cardio 1 Month/s Edit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1 Keith Martin @martin 7895456250 2020-04-02 89 Smithfield Avenue $1000 Cardio 1 Month/s Remove
2 Raymond Ledesma @raymond 4785450002 1986-02-19 2954 Robinson Lane $480 Cardio 12 Month/s Remove
3 Justin C. Lusk @justin 3545785540 1995-12-12 45 Bell Street $40 Cardio 1 Month/s Remove
4 Kathy J. Glennon @kathy 7896587458 2022-06-02 87 Harry Place $330 Fitness 6 Month/s Remove
5 neeraj @neeraj sehgal 0946440635 2024-04-23 VILLAGE - NAUNEETPUR $55 Fitness 1 Month/s Remove
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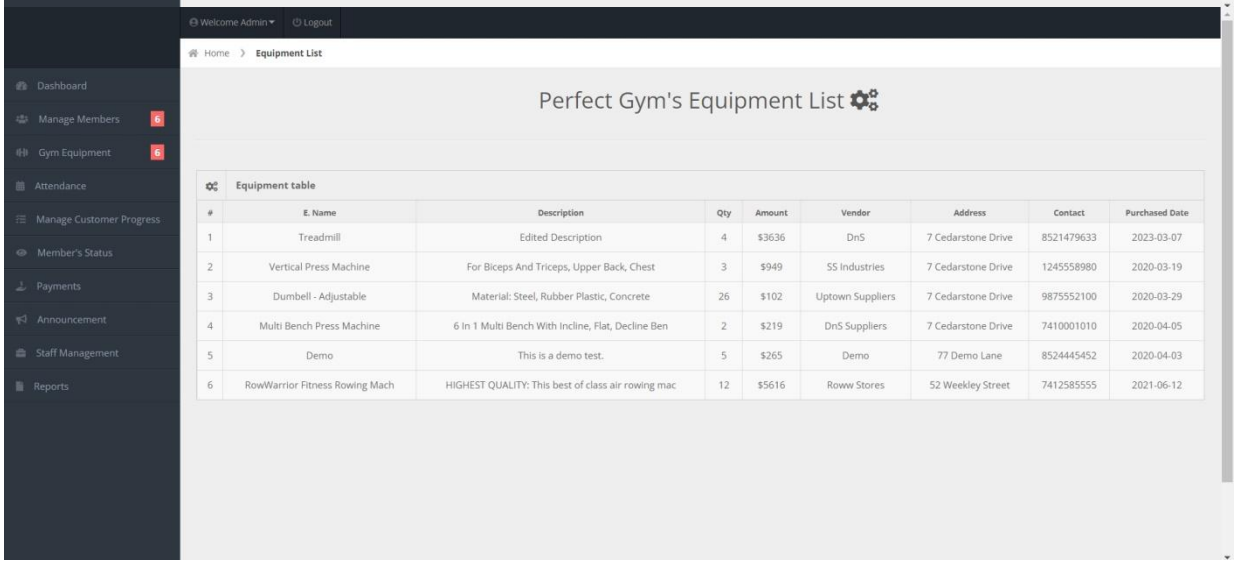
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Equipment table
E. Name Description Qty Amount Vendor Address Contact Purchased Date
1 Treadmill Edited Description 4 $3636 DnS 7 Cedarstone Drive 8521479633 2023-03-07
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4 Multi Bench Press Machine 6 In 1 Multi Bench With Incline, Flat, Decline Ben 2 $219 DnS Suppliers 7 Cedarstone Drive 7410001010 2020-04-05
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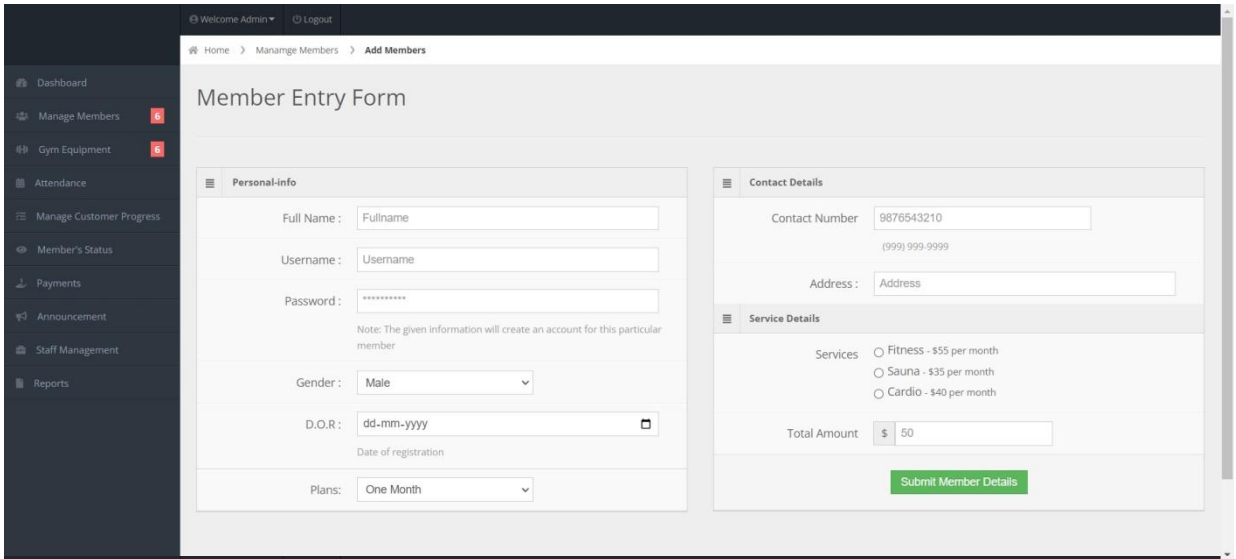
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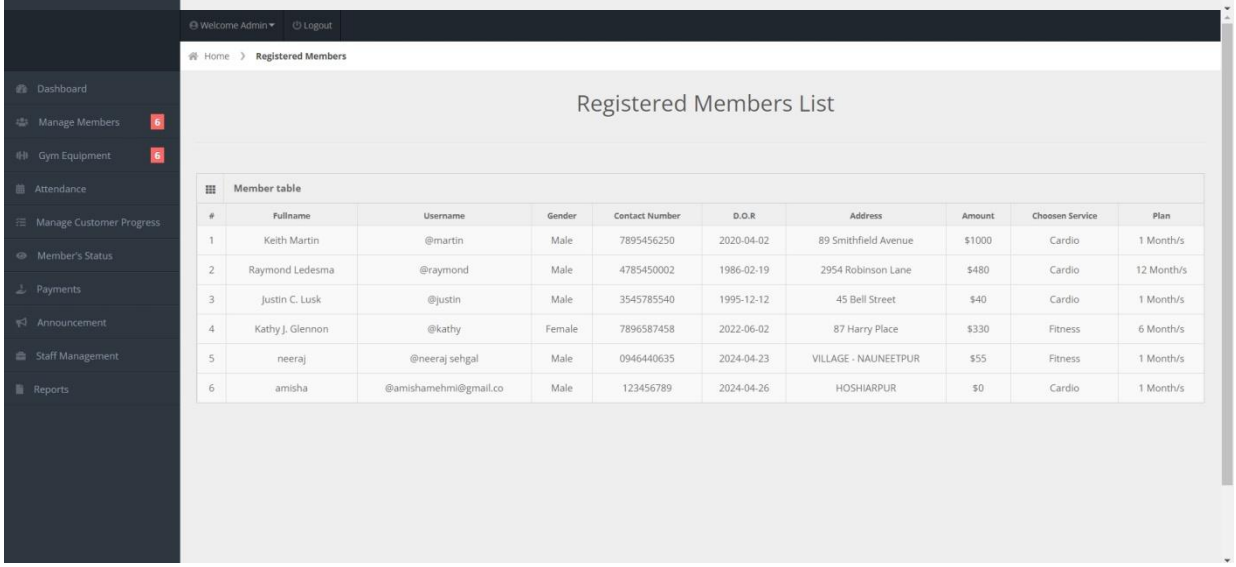
Add Members
Dashboard
Manage Members
Gym Equipment
Attendance
Manage Customer Progress
Member's Status
Payments
Announcement
Staff Management
Reports
Member Entry Form
Personal-info
Full Name :
Fullname
Username :
Username
Password :
Note: The given information will create an account for this particular member
Gender :
Male
D.O.R :
dd-mm-yyyy
Date of registration
Plans:
One Month
Contact Details
Contact Number
9876543210
(999) 999-9999
Address :
Address
Service Details
Services
Fitness - $55 per month
Sauna - $35 per month
Cardio - $40 per month
Total Amount
$
50
Submit Member Details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Registered Members List
Member table
Fullname Username Gender Contact Number D.O.R Address Amount Choosen Service Plan
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2 Raymond Ledesma @raymond Male 4785450002 1986-02-19 2954 Robinson Lane $480 Cardio 12 Month/s
3 Justin C. Lusk @justin Male 3545785540 1995-12-12 45 Bell Street $40 Cardio 1 Month/s
4 Kathy J. Glennon @kathy Female 7896587458 2022-06-02 87 Harry Place $330 Fitness 6 Month/s
5 neeraj @neeraj sehgal Male 0946440635 2024-04-23 VILLAGE - NAUNEETPUR $55 Fitness 1 Month/s
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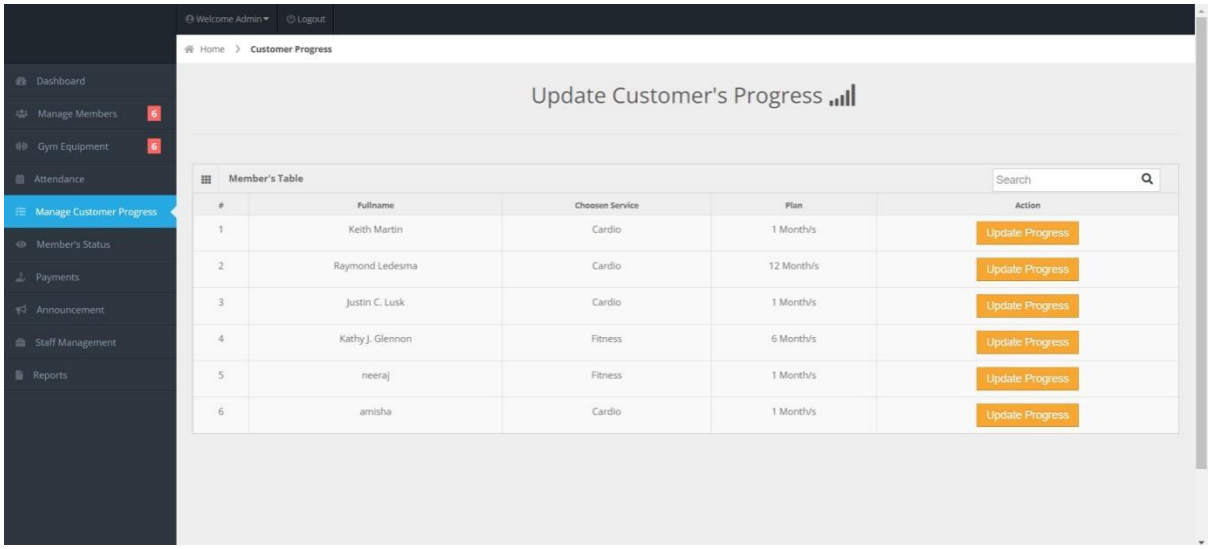
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Logout
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Customer Progress
Update Customer's Progress
Member's Table
Search
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2 Raymond Ledesma Cardio 12 Month/s Update Progress
3 Justin C. Lusk Cardio 1 Month/s Update Progress
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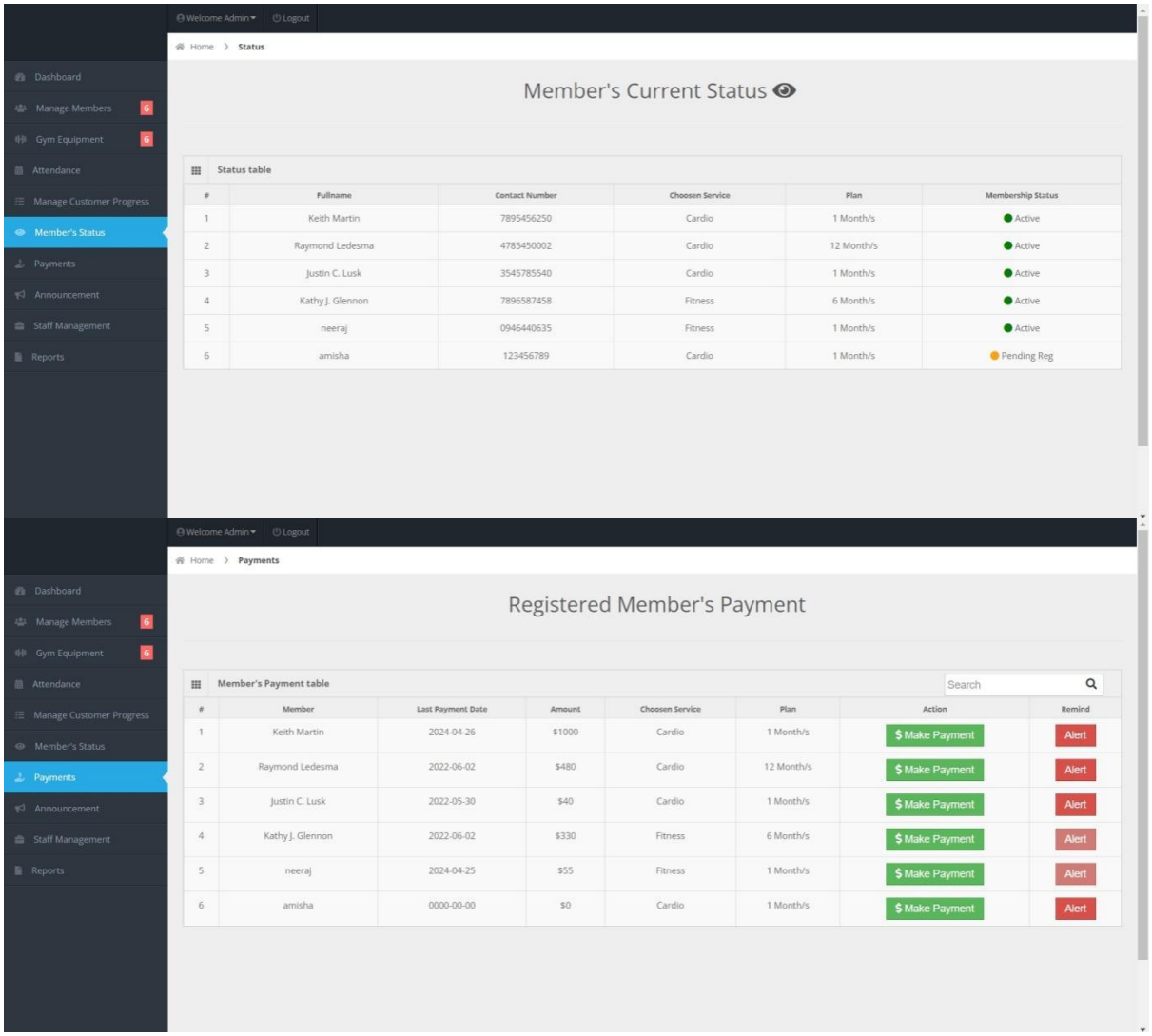
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Manage Customer Progress
Member's Status
Payments
Announcement
Staff Management
Reports
Member's Current Status
Status table
Fullname Contact Number Choosen Service Plan Membership Status
1 Keith Martin 7895456250 Cardio 1 Month/s Active
2 Raymond Ledesma 4785450002 Cardio 12 Month/s Active
3 Justin C. Lusk 3545785540 Cardio 1 Month/s Active
4 Kathy J. Glennon 7896587458 Fitness 6 Month/s Active
5 neeraj 0946440635 Fitness 1 Month/s Active
6 amisha 123456789 Cardio 1 Month/s Pending Reg

Welcome Admin
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Announcement
Staff Management
Reports
Registered Member's Payment
Member's Payment table
Search
Member Last Payment Date Amount Choosen Service Plan Action Remind
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3 Justin C. Lusk 2022-05-30 $40 Cardio 1 Month/s $ Make Payment Alert
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Chapter 7

Implementation and Testing

7.1 Implementation

Implementation marks the phase in a project's progression where conceptual designs are transformed into a functional system. It involves the transition of a newly revised system into an operational state, which is crucial for achieving project success. Implementation typically entails significant changes within the user department, necessitating careful planning and control to prevent disruptions. Besides planning, key tasks in preparing for implementation include educating and training users, as well as testing the system. User education ideally begins earlier in the project during investigation and design phases. Staff members are provided with necessary training to familiarize themselves with the system. Proper implementation is essential for the success of any system development endeavor..

7.2 Testing

Testing represents a significant challenge in system development. It involves the process of identifying errors within the system, as only a bug-free website can maintain stability over time. Various techniques exist for detecting bugs in websites, with system testing serving as a primary quality control measure during software development. This entails generating a series of test cases designed to uncover flaws in the software. Testing is a systematic activity that can be meticulously planned and executed. It commences at the module level and progresses towards integrating the entire computer-based system. The objective of testing is to execute a program with the aim of identifying errors. A valuable test case is one that has a high likelihood of discovering previously undetected errors. The success of a test case is measured by its ability to reveal such errors. Ultimately, testing is indispensable for ensuring the success of a system.

Testing Objectives

There exist several principles that function as testing objectives:

- Testing involves running a program with the aim of identifying errors.
- An effective test case is characterized by its high likelihood of discovering previously unnoticed errors.

- A successful test is one that reveals an error that was previously undiscovered.

If testing adheres to these objectives, it will expose software errors. Typically, testing verifies the following three elements:

- Assessing for accuracy
- Evaluating implementation efficiency

Chapter 8
Conclusion and future scope

8.1 Conclusion:

FitTrack emerges as a groundbreaking solution in the realm of fitness tracking and management, redefining how individuals engage with their health and wellness goals. Through its user-centric design, advanced features, and seamless integration, FitTrack offers a holistic platform that empowers users, administrators, and trainers alike to optimize their fitness journey.

FitTrack's comprehensive user portal enables individuals to set personalized goals, track progress, and engage with a supportive community, fostering motivation and accountability. Administrators benefit from streamlined operations, efficient membership management, and robust reporting capabilities, enhancing the overall efficiency of fitness facilities. Trainers can leverage FitTrack's tools for client management, appointment scheduling, and performance tracking to deliver personalized training experiences and drive client success.

By embracing innovative technologies such as wearable device integration, data analytics, and artificial intelligence, FitTrack delivers actionable insights and personalized recommendations, empowering users to make informed decisions and achieve lasting results. Moreover, FitTrack's commitment to security, scalability, and user experience ensures a reliable and sustainable platform that meets the evolving needs of the fitness industry.

In essence, FitTrack represents not only a fitness tracking platform but a catalyst for positive lifestyle changes and holistic well-being. With its transformative capabilities and unwavering dedication to user satisfaction, FitTrack stands poised to revolutionize the fitness landscape and inspire healthier, happier lives for individuals worldwide.

8.2 Future Scope:

FitTrack is positioned to evolve and expand in various ways, leveraging emerging technologies and responding to evolving user needs in the dynamic fitness industry. The future scope of FitTrack includes:

Enhanced Personalization: FitTrack will continue to refine its algorithms and machine learning capabilities to deliver even more personalized recommendations and insights to users. By analyzing user data, preferences, and behaviors, FitTrack will tailor its offerings to meet the unique needs and goals of each individual user.

Integration with Virtual Reality (VR) and Augmented Reality (AR): FitTrack will explore integration with VR and AR technologies to enhance the user experience. This could include immersive workout experiences, interactive training sessions with virtual trainers, and gamification elements to make fitness more engaging and enjoyable.

Expansion of Community Features: FitTrack will further develop its community features to facilitate greater interaction and collaboration among users. This may include virtual fitness challenges, group workouts, and social networking features to connect users with similar interests and goals.

Advanced Health Monitoring: FitTrack will integrate with advanced health monitoring devices and sensors to provide users with comprehensive health insights beyond traditional fitness tracking. This could include monitoring vital signs, sleep patterns, stress levels, and other indicators of overall well-being.

Partnerships and Integrations: FitTrack will explore partnerships with fitness brands, healthcare providers, and wellness platforms to expand its ecosystem and offer users a seamless experience across multiple touchpoints. Integrations with third-party services such as nutrition apps, telehealth services, and corporate wellness programs will enhance the value proposition for users.

Expansion into Corporate Wellness: FitTrack will target corporate wellness programs as a growth area, offering employers a comprehensive platform to promote employee health and productivity. This may include features such as employee challenges, corporate fitness challenges, and analytics tools to measure the impact of wellness initiatives.

Accessibility and Inclusivity: FitTrack will prioritize accessibility and inclusivity, ensuring that the platform is accessible to users of all abilities and backgrounds. This may include features such as voice commands, screen reader compatibility, and language

localization to cater to diverse user demographics.

Continuous Improvement: FitTrack will remain committed to ongoing improvement and innovation, soliciting feedback from users, administrators, and trainers to identify areas for enhancement. Regular updates and feature releases will ensure that FitTrack remains at the forefront of fitness technology and continues to meet the evolving needs of its user base.