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Web-based fitness trainer and client's management system

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Abstract

This is a full-stack Web-Based Fitness Trainer and Client Interaction System which is designed to bridge the gap between trainers and clients. This platform assures trainers to provide customized workout plans, monitor their client's progress, and provide real-time feedback while earning outside gyms. Clients can log their workout sessions in order to keep track of their fitness journey while can also follow remote training sessions. The system ensures efficiency, engagement, and accountability, making it a more reliable platform for both trainers as well as clients. This paper details the implementation, features, as well as advantages of this platform.

Keywords: Fitness; Trainer; Client; Web-Application; Full-Stack; Management-System

1. Introduction

With the rise in need for online fitness training as well as a proper exposure in the field of fitness training, an effective platform that satisfy those needs is not just another fitness application but a necessity. Most people struggle to get a tailored fitness plan that suits their individual conditions to meet their fitness goals while most trainers struggle to get a proper exposure in the field of fitness training and to meet their financial needs to make a decent wage. While conventional training in gyms is usually expensive and time demanding process, this project offers a flexible and curated alternative providing a smooth interaction and management system that both enables the client to reach their fitness goal on their own pace and helps trainers to gain experience as well as an extra earning.

2. System design and features

The system consists of several key features like communication between trainer and client, progress tracking, program's and management between trainers and clients:

- **User Registration & Role Selection:** Apart from accessing the homepage, users can proceed to choose whether they are trainer or client
- **Trainer Registration & Verification:** Trainers Should complete a Google form to provide their personal details and certification related to personal trainer courses. The admin will review the submission and verify the details and certifications, they will conduct an interview as well as a short-term in-field exposure and online personal training (PT) trial training before returning the access to the website.

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2.1. Trainer Dashboard

Trainer profile details will be displayed on the left side.

List of assigned clients with personal details, online progress tracking sheet (Diet, workout schedule, PT sessions, attendance) will be display on the right. Trainers should update Client progress aas well as attendance data using an Excel sheet accessible to both trainers and clients.

- **Client Registration & Goal Selection:** Clients can register through via the website and the users can their fitness goals. Furthermore, they can choose trainer based on their goal.
- **Trainer Confirmation & Payment Process:** Once the client's trainer selection is confirmed, and the clients should upload payment screenshots and mode of payment details through a dedicated Google form.

2.2. Client Dashboard

Profile details displayed on the left. Goal status and booked session details on the right. An google sheet file showcasing trainer-updated progress as well as attendance reports at the bottom.

Shared google sheet for Progress Tracking:

Trainer's update and track client progress, ensuring transparency and accountability.

3. Implementation and workflow

This platform follows a structured workflow to ensure smooth operations for both trainers and clients:

- Users can select their role (Trainer/Client) on the homepage.Trainers should submit a google registration form for admin verification.
- Admin verifies, interviews, and give an overview of online personal training (PT) trial training before assigning trainers to their specialized field.
- Clients register on the platform, select their preferred trainers, and set their fitness goals. To confirm their enrollment, they must submit payment details along with a screenshot of the transaction. Trainers verify the payments and confirm client assignments using a Google Form. Once assigned, clients can begin their fitness journey with personalized workout and nutrition plans.

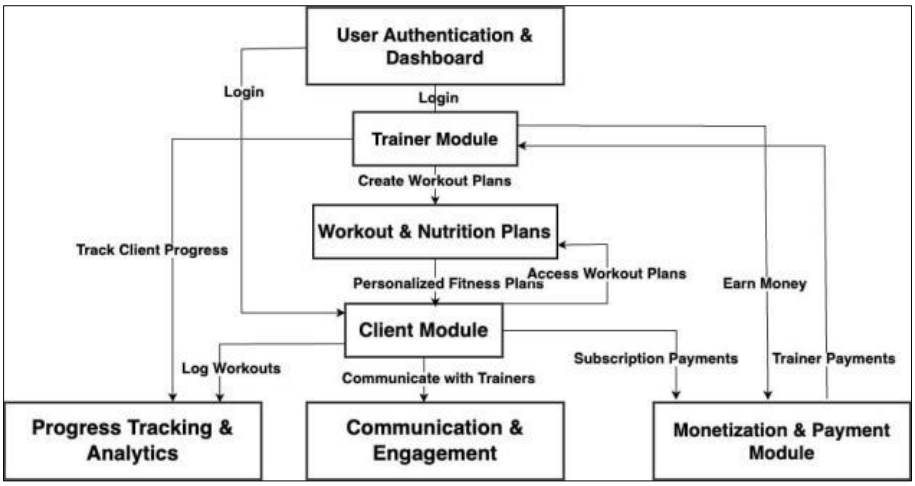

Figure 1 Proposed Work-Block Diagram of Trainer-Client Login Module

Both clients and trainers have access to dedicated dashboards for seamless progress tracking and communication. Trainers can monitor client performance, update progress reports, and provide necessary guidance. Clients can review their progress, interact with trainers, and stay motivated. This structured system ensures effective management of fitness plans and enhances engagement between clients and trainers.

Trainers should create and update an google sheet, accessible to clients for progress monitoring.

This website is implemented using full-stack web technologies, incorporating a secure database to store user credentials, workout plans, and progress data. This user enterprise is designed for easy navigation, ensuring a seamless user experience. Role-based access control ensures that sensitive information remains protected.

4. Modules and module description

"Web-Based Fitness Trainer and Client Management System" has various modules including login module, user module, admin module, user registration module and data handling module.

4.1. Login modules

Login module is used to let the user access their respective dashboard after authentication from the backend which runs on java spring boot. The login component is built using React hooks like UseState and UseNavigate. UseState handles credentials by users such as phone number and password. Axios is used to handle HTTP request for user authentication. Navigate which is from react-router-dom is used for redirection after successful login. Axios is used to handle HTTP request for user authentication. The login request is sent to Rest APIs, then Spring Boot verifies the user's phone number and password in the MySQL database.

4.2. User module

User's dashboard displays workout plans, trainer's details and the user's progress. This module uses local storage to store the phone number for session persistence. This module displays user's data on left hand side of screen and has a Google Sheet on the middle of the dashboard. Client uses this sheet to enter notes on their progress on each session. This Google sheet is to be assigned to the user by their trainer to effective track the progress of their clients so that they can train them accordingly. When the user log in React, Router handles routing to user specific pages. The personal data displayed in dashboard is fetched from MySQL. User selects a trainer while registering and their details are also displayed on the dashboard on the right-hand side of the screen.

4.3. Admin module

Admin dashboard is a secure page where only admin users can log in to as admin authentication is required. Admin can view all registered users and all of their data which the user input during registration. The registered users are shown in a table format. Admin has ability to remove any user from the system. This page also have a form to add trainers. The admin fills out the form after verifying the applied trainer by interviewing and making sure they are legitimate. After clicking submit, the newly added trainer's data is included in the data base. the new trainer's data are displayed in table format right below the form for the admin to view. All functionality in agent dashboard is integrated with data base using JDBC.

4.4. User register module

User registration module is used by the user to register into a particular program out of the total four programs. The selected program is already filled in when opening this page. This module captures user data such as user's name, email address, a valid password, user's age, gender[Male, Female, Other], phone number, current weight in Kg, any medication, their blood group, emergency contact, any Workout experience, fitness goals for motivation, living location, preferred trainer, and package[for 6 Sessions INR 6,000, for 12 Sessions INR 12,000, for 24 Sessions INR 24,000 and finally for 36 Sessions INR 36,000]. Form validation is implemented in order to get correct input (e.g., valid email, phone number format). When clicking submit API call to the back end submits the form data via axios.post(). All registrations are stored in MySql users table.

4.5. Data handling module

Data handling module stores all the user data in MySql Database. These data includes user's name, email address, a valid password, user's age, gender[Male, Female, Other], phone number, current weight in Kg, any medication, their blood group, emergency contact, any Workout experience, fitness goals for motivation, living location, preferred trainer, and package[for 6 Sessions ₹6,000, for 12 Sessions ₹12,000, for 24 Sessions ₹24,000 and finally for 36 Sessions ₹36,000] and the preferred trainer. The trainer's data preset in the data base includes trainer's name, contact number, email id, a brief introduction about them, the languages that they speak and their work experience. This module uses JDBC for queries and prevents SQL injection.

5. Technology stack

"Web-Based Fitness Trainer and Client Management System" is a full stack project.

5.1. Front End

On the front end it runs on React.js for building interactive user interface and Vite is used as the fast development server and build tool for React. It also uses Axios for making HTTP requests to the back-end API and React Router is used for navigating between different pages.

5.2. Back End

As far as back end is concerned Java Spring Boot is used for RESTFul APIs and handling business logic. Spring MVC is used for handling API endpoints and request processing.

5.3. Database

MySQL data base is used to store user and trainer data and also JDBC(Java Database Connectivity) is used for connecting the Spring Boot back-end with MySQL.

5.4. API Handling

In order to exchange data from front end to back end REST API is used and also JSON is used for data formatting in API responses.

5.5. Development and deployment tools

- Spring Initializer – For setting up the Spring Boot project.
- Eclipse/IntelliJ IDEA – IDEs for backend development.
- VS Code – For front-end development.
- Postman – For API testing.

6. Results and benefits

This platform provides several benefits for both fitness trainers and clients:

6.1. Trainers

- They can get a wide exposure and financial
- independence without relying on gym affiliation.
- They can able to manage multiple clients through remotely and track their fitness progress efficiently.
- Trainers can also provide online progress tracking sheet Diet, workout schedule according to their medication body structure, PT sessions, attendance and nutrition guidance to clients.

6.2. Clients

They will receive a customised workout, plan, diet and physio, according to their previous medication, Workout experience Body structure, muscle imbalance, do/ don't on food and they can able to track their progress in real-time and stay accountable to their trainer.

They can able to access professionalized And well trained personal trainers from Anywhere, any place, reducing gym dependency.

This platform provides a collaborative approach where trainers and clients can inter Seamlessly, ensuring well structure, fitness program and Positive outcomes.

6.3. Future enhancements

- This system further enhances the website with functional and interactive features can be integrated:
- It also enables WhatsApp chatting communication where trainers can communicate with their clients For real-time guidance.
- Additionally, Client can get a Personalised workout plan, diet, Physio therapy (if any injury), Do/don't on food.

- Moreover, trainers can Able to monetise, according to their experience and Certification,
- Furthermore, Client Can get an aware of fitness and How to lead a healthy lifestyle. Mainly, they can get a aware of their body in future, on training on their own without relying on trainer and Gym.

7. Implementation

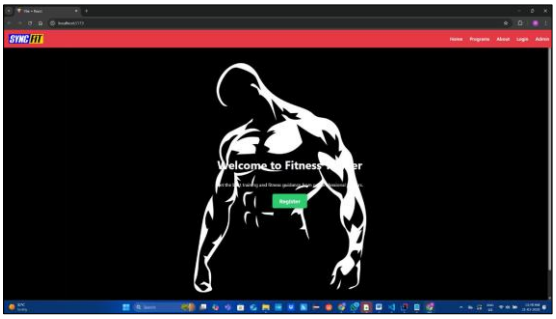

Figure 2 Program Home Page

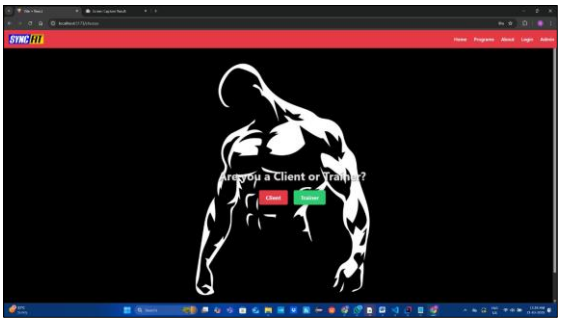

Figure 3 User-type selection page

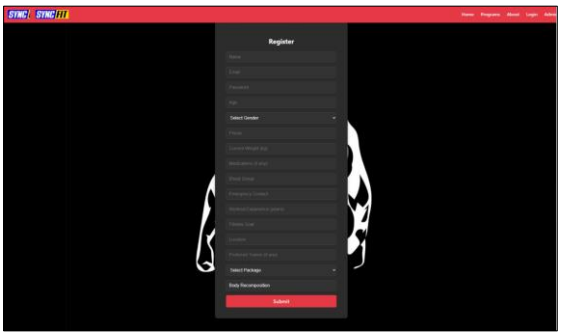

Figure 4 Client Registeration page

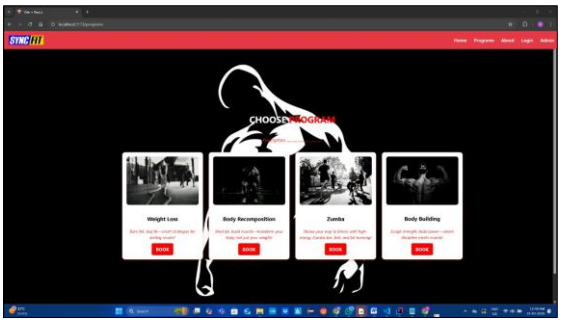

Figure 5 Program selection page

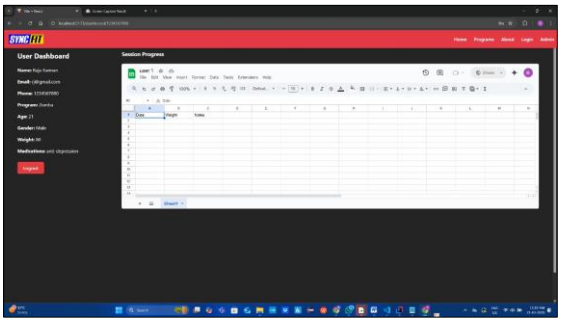

Figure 6 Client Dashboard page

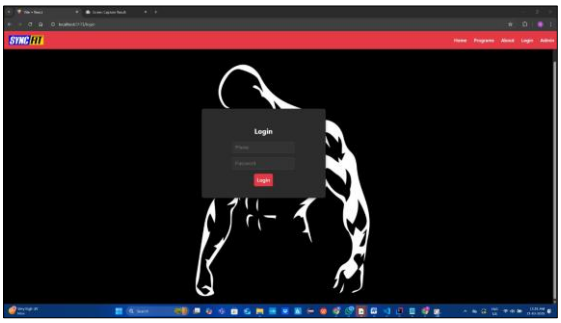

Figure 7 User Login page

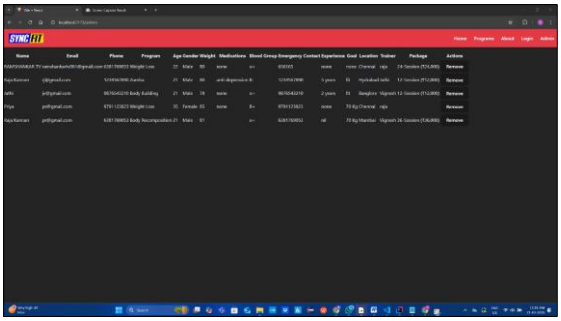

Figure 8 Admin page

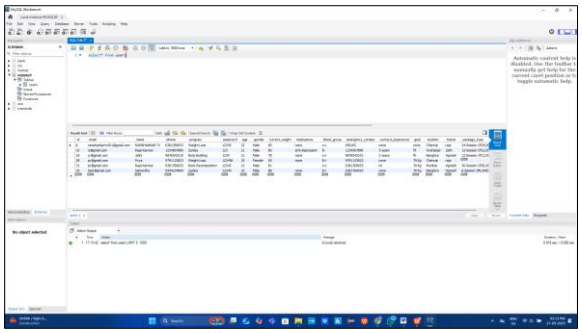

Figure 9 MySQL Database

8. Conclusion

This Web-Based Fitness platform will prove to greatly benefit both clients and trainers. For clients, they will not only be able to achieve their fitness goal but they will also achieve it with plans that are created based on an assessment took by the clients themselves to know about their fitness history, medication, food style, food preference and, any injuries that they might have. And based on those parameters a tailored plan will be provided for them along with the knowledge which will ensure them a sustained fitness journey in the long run. As for the trainer, they will not only be able to make a decent wage to meet their financial needs that is difficult when depending completely on a gym. But they also gain the required experience as well as recognition they deserve.

Compliance with ethical standards

Disclosure of conflict of interest

The authors declare no conflict of interest.

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