FitFlex - Frontend Development with React.js

Project Documentation

Project Title: FitFlex (Fitness Tracker)

Team Members:

Divya.S– Frontend Developer

Harini.S – API Integration & Data Handling

Pavithra.S– UI/UX & Styling

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Project Description:

FitFlex is an interactive and user-friendly web application that provides fitness enthusiasts with an easy way to explore exercises, create personalized workout plans, and stay engaged with the fitness community. It focuses on helping users find the right workouts tailored to their needs.

FitFlex is a fitness-focused web application designed to help users discover exercises, create personalized workout plans, and stay engaged with a fitness community. Built with React.js, the application provides an intuitive and user-friendly interface for fitness enthusiasts of all levels.

Project Overview

Purpose of the Project

The main goal of FitFlex is to offer users a digital fitness companion where they can:

✓ Search and explore different exercises using advanced filters.

✓ View instructional videos or step-by-step images for each exercise.

✓ Customize and manage their workout routines.

✓ Engage with a fitness community to share progress and seek motivation.

Key Features in Detail

1. **Exercise Search & Management:** Users can explore exercises based on categories like muscle groups, difficulty levels, and equipment requirements.

2. **Visual Exercise Exploration:** Each exercise includes a description, image, or video demo for better understanding.

3. **Advanced Search Filters:** Users can filter exercises based on their body goals and available equipment.

4. **Personalized Workout Plans:** Users can create, edit, and track their workouts efficiently.

5. **Community Engagement (Future Enhancement):** A forum or social space where users can share fitness journeys.

Architecture & Technology Stack

Architecture Overview

The application follows a component-based architecture, making it modular and scalable. **The main sections include:**

Frontend: Developed using React.js for interactive UI.

State Management: Uses Context API for global state sharing.

Routing: Managed using React Router for seamless navigation.

API Handling: Uses Axios to fetch and manage data from external fitness APIs.

Technology Stack

Setup Instructions

Prerequisites

Before running the project, ensure you have:

✓ Node.js (v16 or later) installed.

✓ npm or yarn as the package manager.

Installation Steps

```
# Clone the repository
git clone https://github.com/your-repo/fitflex.git
# Navigate to the project directory
cd fitflex
# Install dependencies
npm install
```

Running the Application

```
npm start
```

This command starts the development server, which can be accessed at http://localhost:3000/.

Folder Structure

A well-structured project helps with maintainability and scalability.

Here’s the FitFlex folder structure:

FitFlex/

```
├── src/
│   ├── components/   # Reusable UI components (e.g., Navbar, ExerciseCard, SearchBar)
│   ├── pages/        # Main application pages (Home, Exercises, Workout Plans)
│   ├── api/          # API call handlers using Axios
│   ├── styles/       # CSS and styling files (Tailwind CSS & custom styles)
│   ├── App.js        # Root component managing layout and routing
│   ├── index.js      # Application entry point
```

Each folder serves a specific function, making it easier for developers to collaborate and extend the project.

Component Documentation

Key Components Explained

1. ExerciseCard – Displays exercise details like name, target muscle, equipment, and an image.

2. SearchBar – Allows users to search exercises dynamically.

3. WorkoutPlanner – Manages user-created workout plans.

Reusable Components

Button: A customized button component that can be reused across the application.

Modal: Displays pop-ups for interactions like adding an exercise to a workout plan.

User Interface & Styling

User Interface Features

1. Homepage: Includes a search bar and trending exercises.

2. Exercise Details Page: Displays a step-by-step guide for each exercise.

3. Workout Plan Page: Helps users manage their saved workouts.

Styling Approach

❖ Tailwind CSS is used for a responsive design and consistent styling.

- ❖ Custom Styles are applied for additional visual improvements.
- ❖ Frameworks & Technologies Used – Tailwind CSS, custom styles, Flexbox, Grid, and media queries.
- ❖ Design Principles – Minimalistic UI, responsive design, and consistent color palette.
- ❖ Styling Implementation – How global styles, component-specific styles, and animations are handled.
- ❖ UI Enhancements (Planned Features) – Dark mode, microinteractions, and theme customization.

Testing Strategy

Testing Tools & Frameworks

✓ Jest & React Testing Library – Used for unit testing core components.

✓ Cypress (Planned) – End-to-end testing framework to validate full user flows.

Testing Approach

Unit Tests: Ensure individual components work as expected.

Integration Tests: Validate API responses and user interactions.

UI Responsiveness Testing: Ensure compatibility across different screen sizes.

Known Issues & Future Enhancements

Current Limitations

✓ API rate limits may affect search functionality.

✓ Mobile UI optimizations are needed for better experience.

Planned Enhancements

1. User Authentication: Allow users to sign up and log in.

2. Progress Tracker: Help users track fitness progress.

3. Enhanced UI: Add animations and transitions for better engagement

Screenshots & Demo

Screenshots of Key Features

✓ Homepage with search bar and exercise categories

✓ Detailed exercise information page

✓ Workout plan customization screen

Live Demo

https://drive.google.com/file/d/1gEbgzRH3cOuksWABhXFqIkudrk70B2dT/view?usp=sharing

Conclusion

FitFlex is designed to be a comprehensive fitness tracker that allows users to discover exercises, create plans, and interact with the fitness community. With a structured frontend architecture, modern state management, and future-ready enhancements, FitFlex aims to be a versatile fitness solution for users of all experience levels.