Frontend Development with React.js

Project Documentation for Fitflex

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1. Introduction

- **Project Title**: **Fitflex**
- **Team Members**:

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2. Project Overview

- **Purpose**:
  FitFlex is a comprehensive bodybuilding program designed to help individuals build muscle, increase strength, and enhance overall fitness. The program combines expert-designed workout routines, personalized nutrition plans, and advanced recovery techniques to maximize gains efficiently.
- **Features**:
  - **Structured Workout Plans**: Progressive resistance training with hypertrophy-focused routines.
  - **Personalized Nutrition**: Macronutrient-based meal plans tailored to muscle growth.
  - **Tracking & Progress**: Strength and physique tracking through structured milestones.
  - **Recovery & Optimization**: Sleep, mobility, and supplementation strategies for peak performance..

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3. Architecture

- **Component Structure**:
  The application is built using React.js with a component-based architecture. Major components include:

  - **Workout Plans** (Customized for Beginner, Intermediate, Advanced)
  - **Exercise Library** (Proper form, video tutorials, modifications)
  - **Progressive Overload Tracking** (Weight, sets, reps tracking)
  - **Periodization Model** (Strength, Hypertrophy, Cutting, Maintenance phases).

- **State Management**:
  A fitness app needs an efficient **state management strategy** to handle user data, workouts, progress tracking, nutrition, and real-time updates. Below is a structured approach to **state management** for a FitFlex fitness app.

- **Routing**:
  In a fitness app, routing plays a key role in **navigating between screens**, handling authentication, and managing deep links for features like workout sessions, progress tracking, and community challenges.

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4. Setup Instructions

- **Prerequisites**:
  - Node.js (v16 or higher)
  - npm (v8 or higher)
  - Git

- **Installation**:
  1. Clone the repository: git clone https://github.com/Bharath1619/Fitflex.git
  2. Navigate to the client directory: cd Fitflex/client
  3. Install dependencies: npm install
  4. Configure environment variables: Create a .env file in the client directory and add the necessary variables (e.g., API keys).
  5. Start the development server: npm start

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5. Folder Structure

- **Client**:
    - **src/components:** # Reusable components (weight, height, etc.)
    - **src/pages:** # Page components (HomePage, SearchPage, etc.) ○ **src/assets:** # Images, icons, and other static files ○ **src/redux:** # Redux store, actions, and reducers ○ **src/utils:** # Utility functions and helpers ○ **App.js:** # Main application component ○ **index.js:** # Entry point
- **Utilities**:
    - **api.js**: Handles API requests to the backend.
    - **auth.js**: Manages user authentication and token storage.
    - **hooks**: Custom hook for managing the fitflex exercise.

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6. Running the Application

Frontend:

- To start the frontend server, run the following command in the client directory: npm start
- npm install ○ npx json-server ./db/db.json ○ npm run dev
- The application will be available at http://localhost:3000

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7. Component Documentation

- **Key Components**:

◇ **User Profile** → Name, age, weight, height, fitness goals.
◇ **Authentication** → Login, Signup, Social OAuth (Google, Apple, Facebook).
◇ **Subscription Management** → Free & premium plans, billing integration.
◇ **Settings & Preferences** → Dark mode, notifications, measurement units.

- **Reusable Components**:
    - **Button**: A customizable button component.
        - Props: text, onClick, disabled.
    - **Input**: A reusable input field for forms and search.
        - Props: type, placeholder, value, onChange.

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8. State Management

- **Global State**:
  The Redux store manages the following global states:
  - **user:** Current authenticated user.
  - **Exercise:** Dummbbells ,Chest,Cardio
  - **searchResults:** Results from the search functionality.
- **Local State**:
  Local state is managed using React's useState hook within components. For example, the SearchPage component manages the search query input locally.

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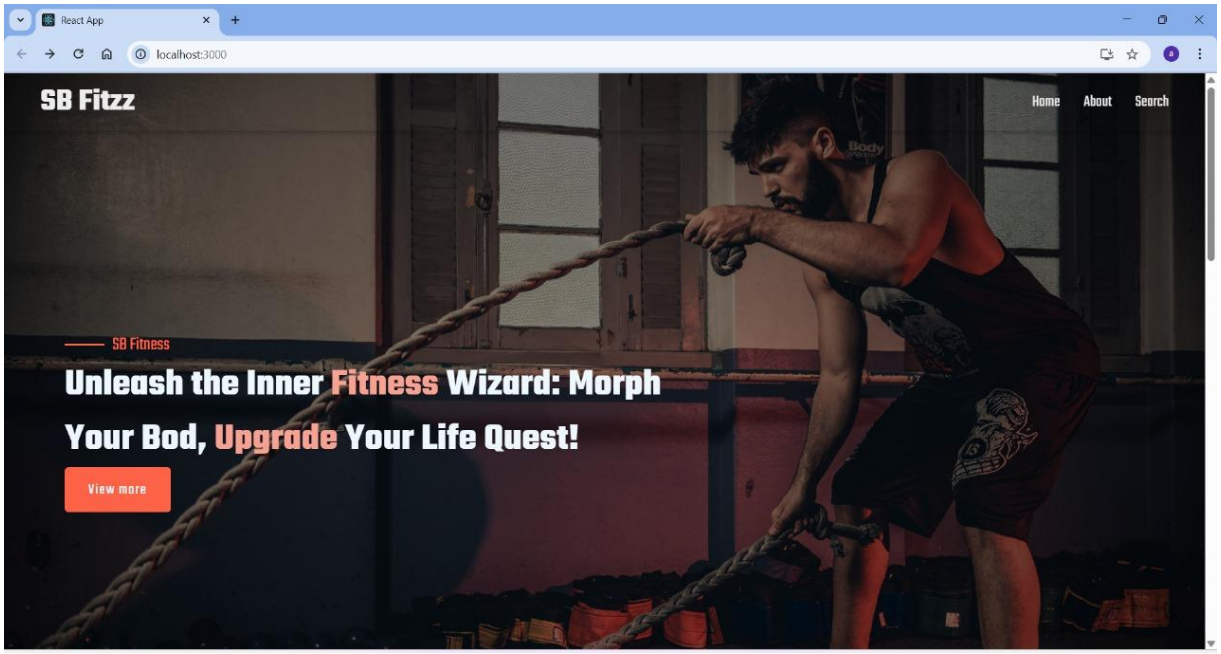
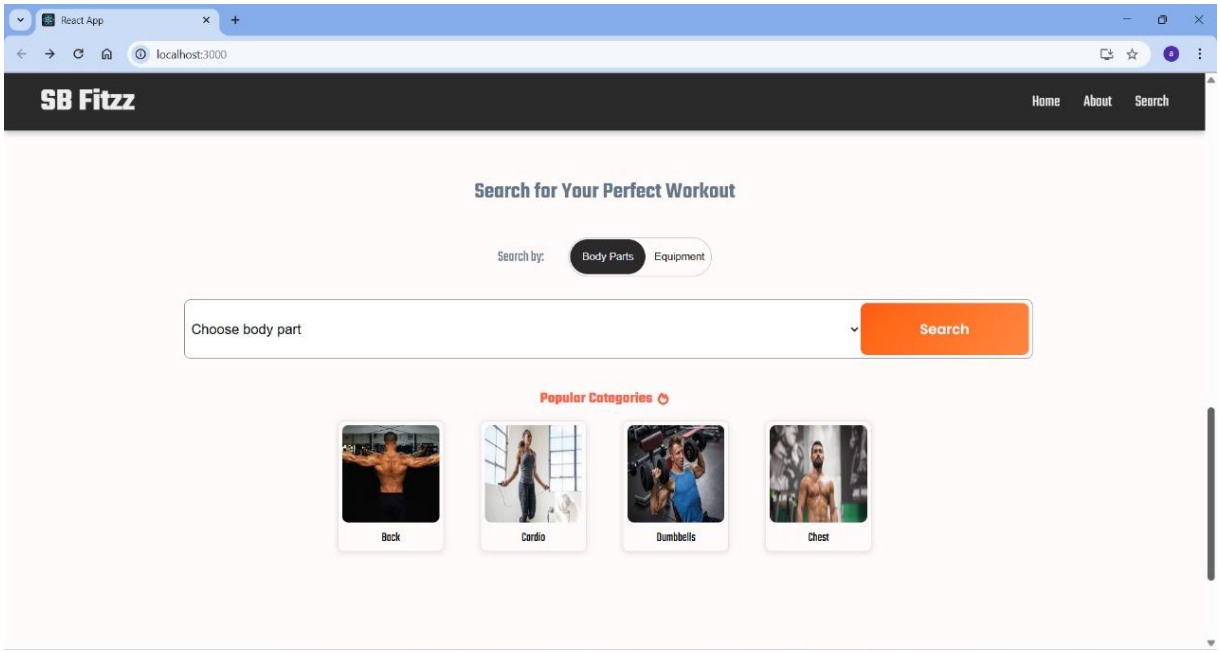
9. User Interface

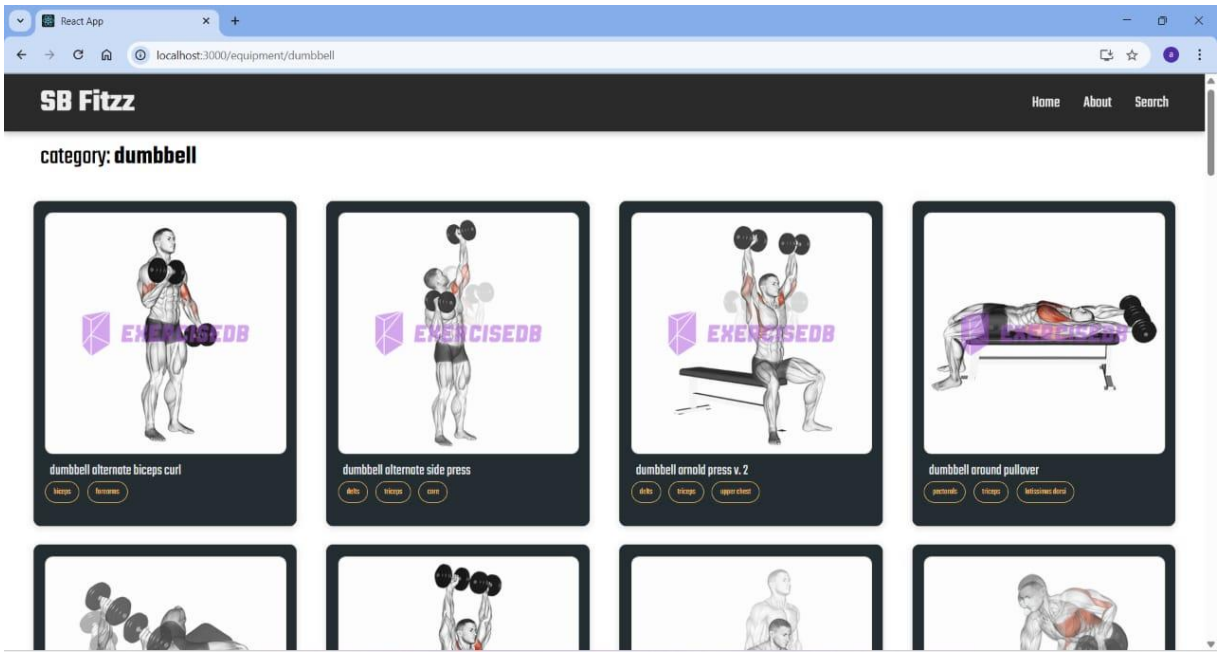
- **Screenshots ○ Home Page:**



  - **Search Page:** Allows users to search for Dummbbells ,Chest, and Cardio.



- **Dummbbells:** Displays user-created Dummbbells Exercise Management.



- **CSS Frameworks/Libraries**:
  The application uses **Styled-Components** for styling. This allows for modular and scoped CSS within components.

- **Theming**:
  A custom theme is implemented using Styled-Components, with support for light and dark modes.

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11. Testing

- **Testing Strategy**:
    - **Unit Testing:** Using **Jest** and **React Testing Library**.
    - **Integration Testing**: Is performed to ensure that components work together as expected.
    - **End-to-End Testing: Cypress** is used for end-to-end testing of user flows.
- **Code Coverage**:
    - Code coverage is monitored using Jest's built in coverage tool. The current coverage is 85%.

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12. Screenshots or Demo

- **Demo Link:**
- https://drive.google.com/file/d/17t_KQszALGdGVblHBtZA9N3glE9EWl2u/view?usp=drivesdk
- **Screenshots:** See section 9 for UI screenshots.

13. Known Issues

- **Issue 1**: Building a **fitness app** comes with challenges in **user engagement, data accuracy, security, and scalability**. Below are some **common issues** along with possible solutions.
- **Issue 2**: The search functionality is slow with large datasets.

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14. Future Enhancements

- **Future Features**:
    - Add support for user profiles and social sharing. ○ Implement a recommendation engine for personalized music suggestions.
    - Add animations and transitions for a smoother user experience.

This documentation provides a comprehensive overview of the **Fitflex** project, including its architecture, setup instructions, and future plans.