**Project Documentation**

**FITFLEX  
  
  
1. Introduction**

**• Project Title: FitFlex: Your Personal Fitness Companion**

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**2. Project Overview**

**Purpose:**

FitFlex is a health and fitness platform designed to provide users with personalized, flexible workout and nutrition plans that adapt to their lifestyle. The project focuses on combining AI-driven workout routines, customizable diet guidance, and real-time progress tracking to help individuals achieve their fitness goals effectively. With features such as home or gym-based workout options, wearable device integration, community challenges, and insightful progress reports, FitFlex aims to make fitness more accessible, engaging, and sustainable for people of all fitness levels.

**Features:**

– User registration and fitness profile setup

– Personalized workout and diet plans

– Real-time activity tracking (steps, calories, heart rate)

– Progress dashboard with charts and analytics

– Community space for challenges and group activities

– Admin dashboard for content moderation and trainer management

**3. Architecture**

Frontend: React.js with Material-UI for interactive dashboards and fitness tracking views

Backend: Node.js + Express.js for APIs and logic

Database: MongoDB (stores users, workouts, meals, progress history)

Optional Integrations: Fitness API for wearables (Google Fit, Apple Health, Fitbit)

**4. Setup Instructions**

**Prerequisites:**

– Node.js

– MongoDB

– Git

– Visual Studio Code

**Installation Steps:**

# Clone the repository

git clone

# Install client dependencies

cd client

npm install

# Install server dependencies

cd ../server

npm install

**5. Folder Structure**

**fitflex/**

├── client/ # React frontend

│ ├── components/

│ ├── pages/

│ └── assets/

├── server/ # Node.js backend

│ ├── routes/

│ ├── models/

│ ├── controllers/

│ └── middleware/

└── README.md

**6. Running the Application**

**rontend:**

cd client

npm start

**Backend:**

cd server

npm start

**Access: Visit** [**http://localhost:5173**](http://localhost:5173)

**7. API Documentation**

**User:**

POST /api/user/register – Create account

POST /api/user/login – Log in

**Workouts:**

POST /api/workouts/add – Add workout routine

GET /api/workouts/:id – Get workout details

**Nutrition:**

POST /api/nutrition/add – Add meal/diet plan

GET /api/nutrition/:userId – Get meal plans

**Progress:**

POST /api/progress/update – Log progress

GET /api/progress/:userId – Get progress history

**8. Authentication**

JSON Web Token (JWT) for secure login sessions

Role-based access (User, Trainer, Admin)

**9. User Interface**

Landing Page with fitness highlights

Workout Dashboard with routines and tracking

Nutrition Page with meal planning

Progress Page with visual analytics

Community Challenges Page

Admin Panel for trainers and content moderation

**10. Testing**

Manual testing for workout logging, meal tracking, and progress updates

Tools: Postman, Chrome DevTools, Jest for frontend unit tests

**11. Known Issues**

Limited offline access

Wearable integration still in development

Some analytics charts may load slowly on older devices

Community features under beta testing

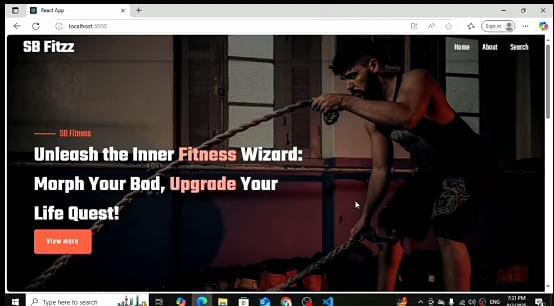
**12. Future Enhancements**

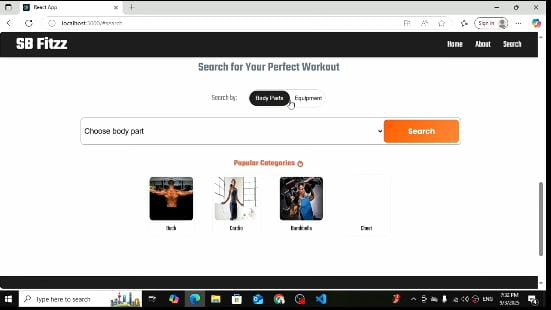
AI-powered fitness recommendations

Full wearable device integration

Voice-assisted workout guidance

**13. Screenshots or Demo**

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