Project Documentation

1. Introduction

Project Title: Fit Flex

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2.Project Overview

Purpose:

FitFlex is a fitness web application designed to help users manage workout plans, track progress, access diet recommendations, and connect with trainers in real time.

Key Features:

1. User Authentication
   - Secure login and registration system.
   - Profile creation with personal details (age, weight, height, fitness goals).
2. Workout Management
   - Predefined workout routines (beginner, intermediate, advanced).
   - Custom workout creation by users.
   - Exercise details with step-by-step instructions.
3. Diet & Nutrition Tracking
   - Daily meal plans and calorie tracking.
   - Suggestions for balanced nutrition.
   - Option to customize diet according to fitness goals (weight loss, muscle gain, etc.).
4. Progress Tracking & Dashboard
   - Monitor calories burned, time spent on workouts, and progress graphs.
   - Set fitness goals and track achievements.
5. Video Tutorials & Guide
   - Exercise demonstration videos.
   - Yoga, cardio, and strength training tutorials.
6. Responsive User Interface
   - Works smoothly on desktop, tablet, and mobile devices.
   - Clean and user-friendly design.
7. Notifications & Reminders
   - Daily workout reminders.

- ❖ Meal and hydration alerts.

8. Community & Motivation (Optional Feature)
   - ❖ Connect with other fitness enthusiasts.
   - ❖ Share progress and motivate each other.

3.Architecture

- **High-level components**

Web (React / Vue) and Mobile (React Native / Flutter).

Responsible for UI, local validation, offline caching, media playback for videos.

- **API Server (Backend)**

RESTful or GraphQL API (Node.js/Express, Django/DRF, or Spring Boot).

Handles authentication, business logic, validation, and orchestrates other services.

Database:

- Primary relational DB (PostgreSQL / MySQL) for users, plans, logs.
- Optional NoSQL (MongoDB) for flexible documents (custom workout templates).

Media Storage / CDN

Store videos/images in S3-compatible storage + CDN (CloudFront, Cloudflare) for fast delivery.

Background Jobs / Worker Service

For sending notifications, processing uploaded videos, generating analytics (Celery / Sidekiq / Bull).

4.Authentication & Authorization

JWT / OAuth2, with refresh tokens and role-based permissions (user, trainer, admin).

Push & Email Notification Service

FCM / APNs for mobile push; SendGrid or SES for emails.

Third-party Integrations

Nutrition API (optional), Payment gateway (Stripe / Razorpay), Analytics (Mixpanel / Firebase).

Monitoring & Logging

Prometheus + Grafana or cloud metrics; central logging (ELK / CloudWatch).

CI/CD

GitHub Actions / GitLab CI to run tests, lint, build containers and deployment

5.Setup Instructions

- **Prerequisites**
- **Node.js**

- **MongoDB**
- **Git**
- **React.js**
- **Express.js – Mongoose – Visual Studio Code**

Installation Steps:

```
# Clone the repository

Git clone <repo-link>

# Install client dependencies

Cd client

Npm install

# Install server dependencies

Cd ../server

Npm install
```

6.Folder Structure

```
FitFlex/

│

 ├── client/            # React frontend

│   ├── public/          # Static files (index.html, favicon, images)

│   ├── src/           # React source code
```

│ │ ├── components/ # Reusable UI components (Navbar, Footer, Cards)

│ │ ├── pages/ # Page components (Home, Dashboard, Login, Register)

│ │ ├── services/ # API calls (Axios functions for user, workouts, diets)

│ │ ├── context/ # React Context API (Auth context, Theme context)

│ │ ├── assets/ # Images, icons, CSS files

│ │ ├── App.js # Main R

7.Running the Application

Frontend:

Cd client

Npm start

Backend:

Cd server

Npm start

Access: Visit http://localhost:3000

8.Statement management

1. **Global State:**

   “FitFlex aims to provide a global fitness platform that helps users maintain a healthy lifestyle through personalized workout plans, diet tracking, and progress monitoring, accessible anytime and anywhere.

2. **Local State:**

   “The workout management module of FitFlex ensures that users can create, modify, and track their daily exercises effectively with real-time progress updates.”

Global Statement : Overall project vision/mission.

Local Statement : Specific objectives of a feature/module.

9.Component Document :

1. User Component – Manages registration, login, and user profiles.
2. Workout Component – Provides workout plans and exercise details.
3. Diet Component – Suggests meal plans and tracks calories.
4. Progress Component – Tracks fitness goals and shows progress reports.
5. Video Component – Offers tutorials and exercise demonstrations.
6. Notification Component – Sends reminders and motivational alerts.

7. Admin Component – Controls content and manages system operations.

10.Authentication

Overview:

Authentication ensures secure access to the application by verifying the identity of users before granting access.

Features:

- ➢ User registration with unique credentials (email/username & password).
- ➢ Secure login with encrypted password storage (e.g., bcrypt/hashed).
- ➢ Session/token-based authentication (JWT).
- ➢ Role-based access control (admin, trainer, user).

11.User Interface & Styling

Design Principles:

Clean, minimal, and fitness-inspired theme.

Responsive design for mobile, tablet, and desktop.

Easy navigation with clear icons and labels.

Styling:

CSS/SCSS/TailwindCSS used for styling.

Color theme: energetic tones (green, blue, orange).

Typography: bold for headings, simple for content.

UI Components:

Dashboard for workouts, progress, and nutrition.

Forms for login, signup, and tracking.

Cards for displaying workout plans.

Navigation bar & footer

12.Testing

Testing Methods:

Unit Testing: Validating each function (e.g., login, BMI calculator).

Integration Testing: Ensuring frontend & backend work together.

UI Testing: Checking responsiveness and cross-browser compatibility.

User Testing: Collecting feedback from real users.

Tools Used:

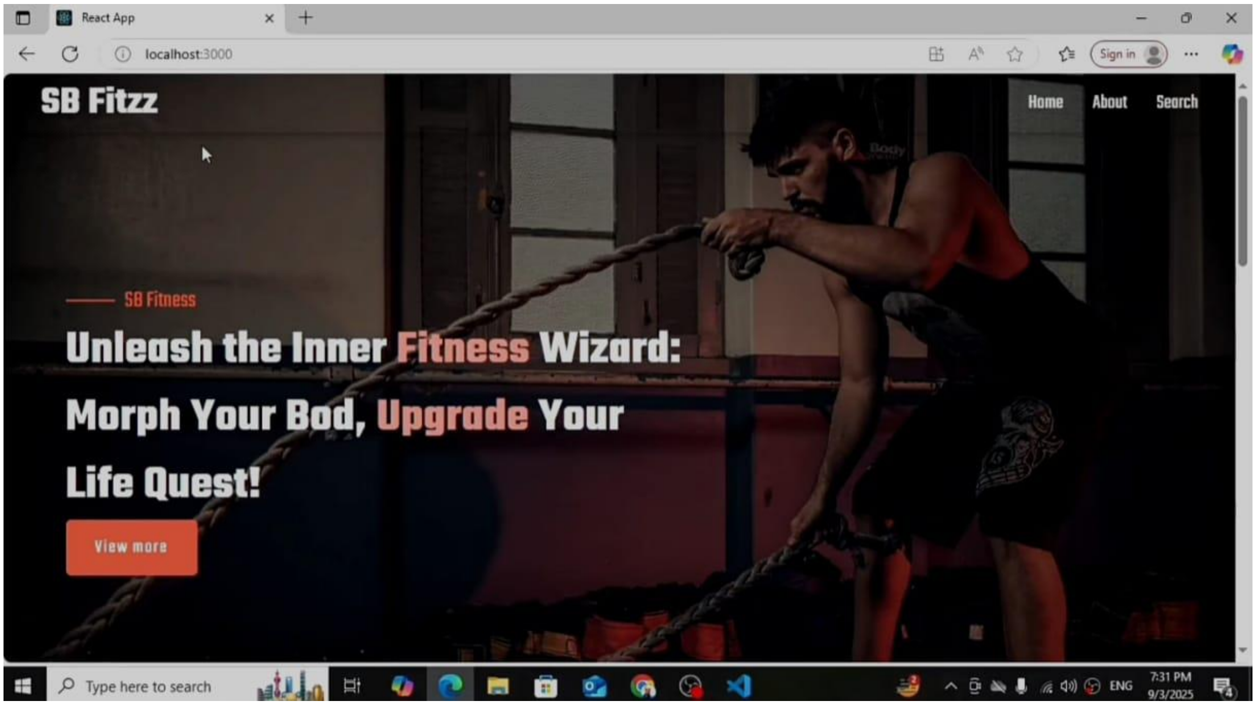
Jest / Mocha (for backend).

Selenium / Cypress (for UI automation).

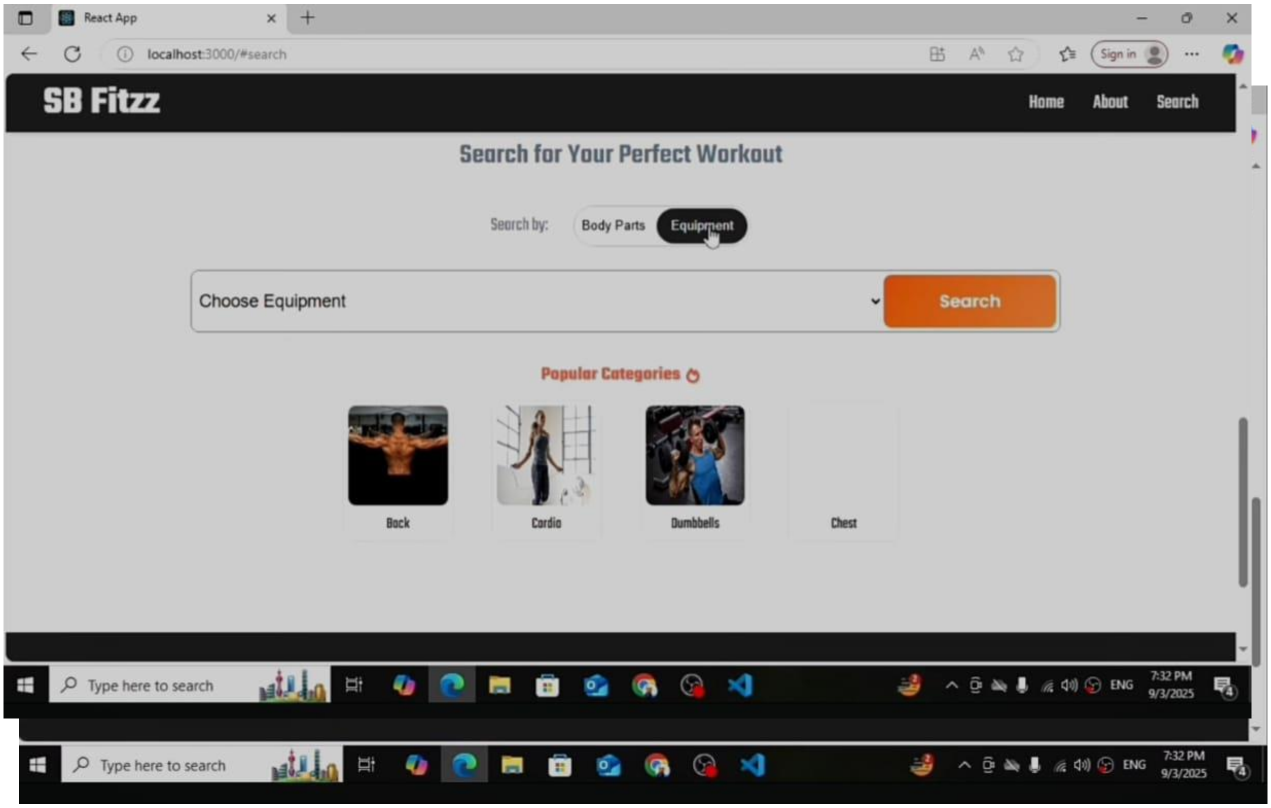
Manual testing on multiple devices.

13.Screenshot :

Home page

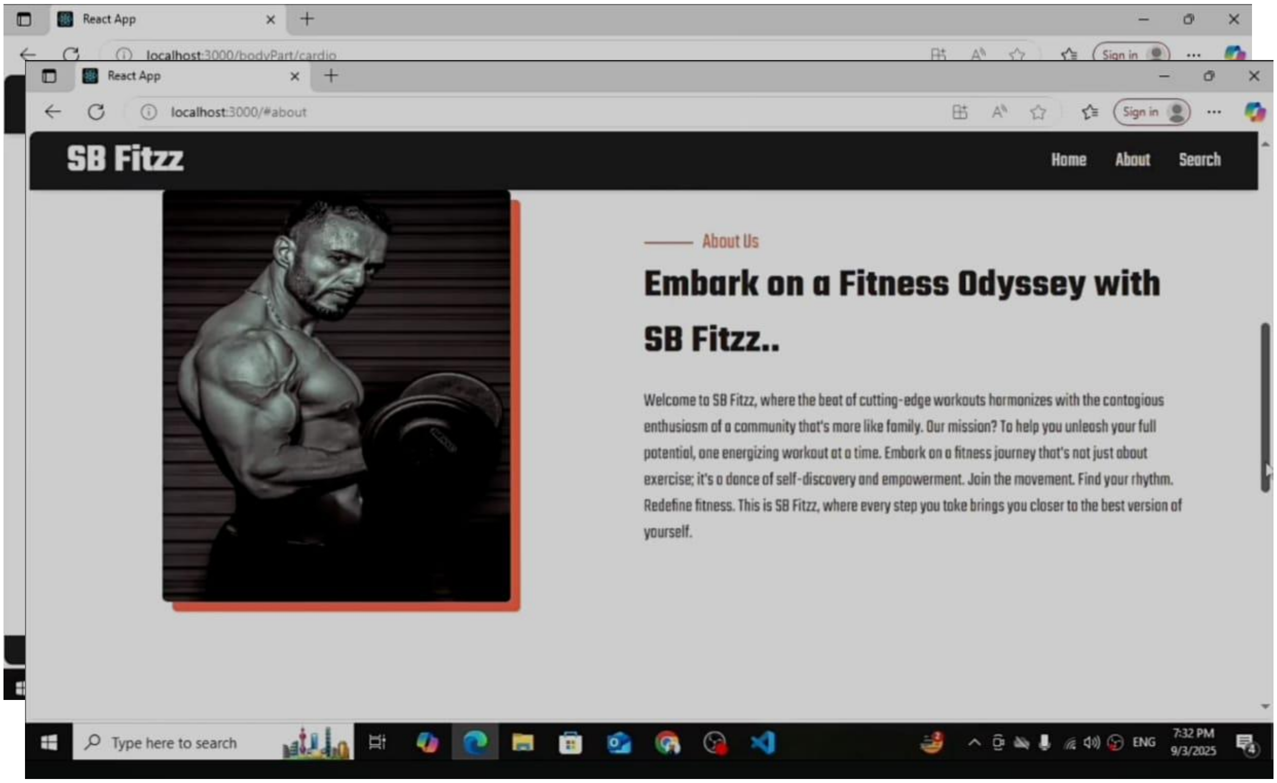


Search page



Catorgies

About page



About Us

Embark on a Fitness Odyssey with SB Fitzz..

Welcome to SB Fitzz, where the beat of cutting-edge workouts harmonizes with the contagious enthusiasm of a community that's more like family. Our mission? To help you unleash your full potential, one energizing workout at a time. Embark on a fitness journey that's not just about exercise; it's a dance of self-discovery and empowerment. Join the movement. Find your rhythm. Redefine fitness. This is SB Fitzz, where every step you take brings you closer to the best version of yourself.

14.Known Issues

Password reset feature not yet fully implemented

Some minor UI inconsistencies on smaller screen devices.

Limited workout plan recommendations (static, not AI-powered).

API response time may lag with poor network connectivity.

15.Future Enhancements

- ➢ Password Reset & OTP Verification: For better security.
- ➢ Personalized AI-based Workout Recommendations.
- ➢ Integration with Wearable Devices (smartwatch, fitness band).
- ➢ Offline Mode: Allowing users to access saved plans without internet.
- ➢ Push Notifications: Workout reminders, health tips.
- ➢ Gamification: Badges, challenges, leaderboards.