

NAAN MUDHALAVAN PROJECT FITFLEX

1. Introduction

Project Title: FitFlex

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2. Project overview

Purpose:

FitFlex is a fitness and wellness web application built with React.js that helps users track workouts, monitor nutrition, and achieve health goals.

Features:

- Personalized workout plans;
 - Nutrition tracking dashboard;
 - Progress graphs and statistics;
 - Integration with wearable devices
- (future enhancement).

3. Architecture

Component Structure:

- Header – Navigation bar;
- Dashboard – Displays user workouts, calories, and goals;
- WorkoutPlanner – Allows creating and editing workout plans;
- NutritionTracker – Logs meals and shows calorie intake;
- ProgressCharts – Shows progress with charts;
- Footer – Static links and info.

State Management:

- Uses React Context API for global state (user data, workouts, and nutrition logs).
- Local state for form handling and input validation.

Routing:

- React Router v6. Routes:

/dashboard,

/workouts,

/nutrition,

/progress,

/profile.

4. Setup Instructions

Prerequisites:

Node.js v18+; npm or yarn; Git.

Installation:

git clone <https://github.com>

/yourrepo/fitflex.git

cd fitflex/client

npm install

Configure .env variables:

REACT_APP_API_URL=https://api.fitflex.com

5. Folder Structure

Client:

/client

/public

/src

/components

/pages

/contexts

/hooks

/utils App.js index.js

Utilities:

- auth.js – helper for authentication;

api.js – API call wrapper;

-formatters.js – utility for formatting data.

6. Running the Application

To start the frontend server locally:

- npm start (This runs the React development server at http://localhost:3000).

7. Component Documentation

Key Components:

-Dashboard.js – Displays overview of workouts & nutrition;

WorkoutForm.js – Create/edit workouts

(props: onSave, initialData);

- NutritionTracker.js – Logs meals & calories (props: userId).

Reusable Components:

- Button.js – Styled button component;
- Card.js – Reusable card container;
- Chart.js – Reusable chart wrapper.

8. State Management

Global State:

Managed via Context API:

- UserContext, WorkoutContext, NutritionContext.
- Stores user profile, workout lists, and nutrition logs.

Local State:

- Form input states for workout and nutrition forms;
- UI toggles (modal open/close, dark mode).

9. User Interface

Screenshots/GIFs showing:

- Dashboard with summary stats;
- Workout planner interface;
- Nutrition logging form;
- Progress chart view.

10. Styling

CSS Frameworks/Libraries:

- Tailwind CSS for utility-first styling;
- Styled Components for isolated styling.

Theming:

- Dark and Light themes implemented using CSS variables and Context.

11. Testing

Testing Strategy:

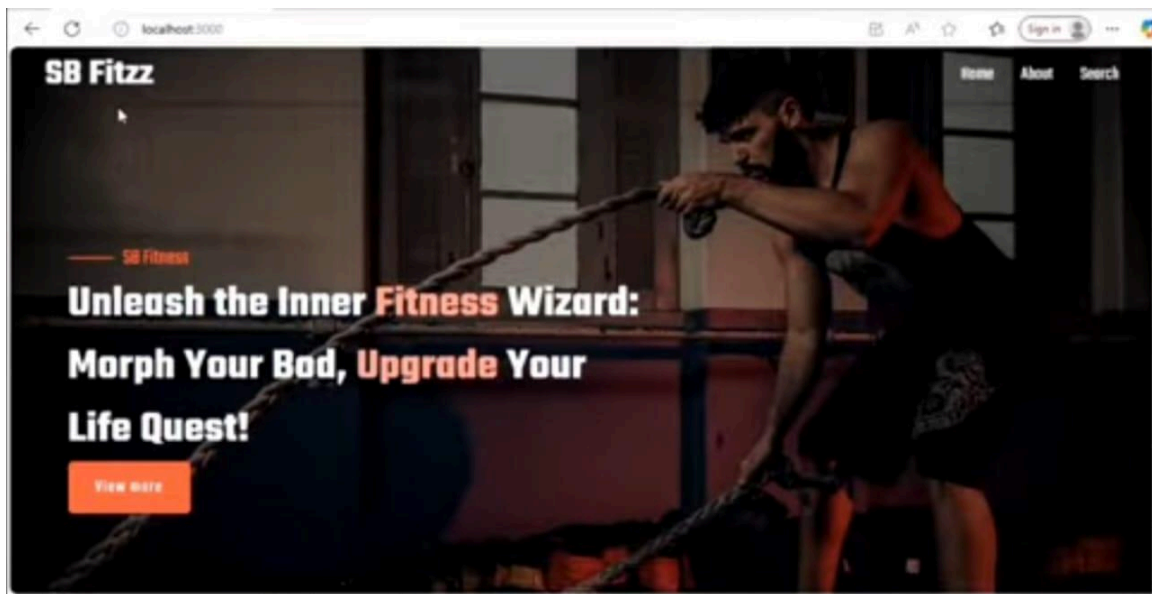
- Unit testing with Jest and React Testing Library;
- Integration tests for forms and API calls; End-to-end testing with Cypress (planned).

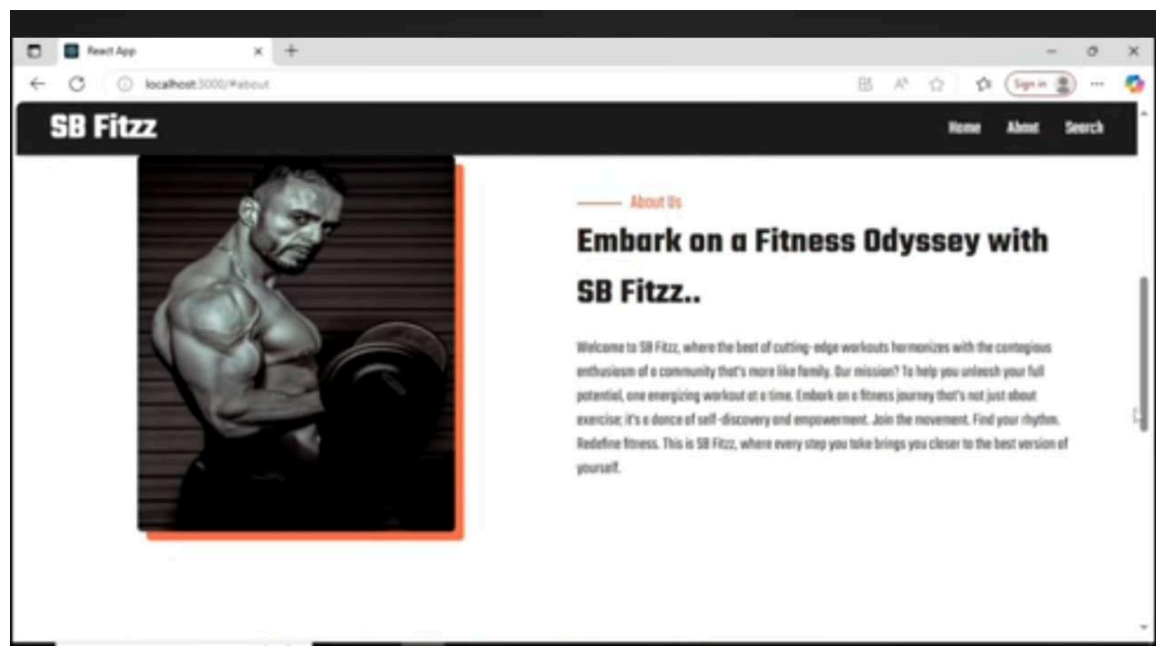
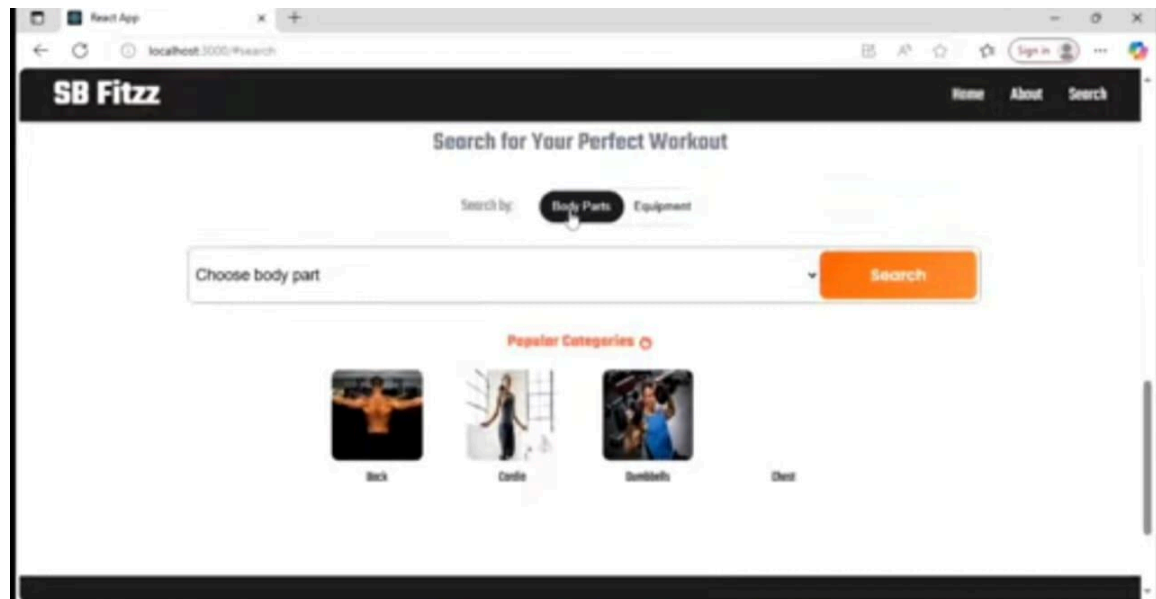
Code Coverage:

- Uses Jest coverage reports;
- Ensures >80% coverage on critical components.

12. Screenshots or Demo

Demo link: <https://fitflex-demo.netlify.app>; Screenshots folder: /assets/screenshots.





13. Known Issues

API rate limit may cause occasional delays;

-Wearable device integration not yet implemented.

14. Future Enhancements

Add AI-based workout recommendations;

-Integration with Apple Health/Google Fit;

-Gamification features (badges, challenges).