# CoachGPT Pro - Project Documentation

### 1. Project Goals

CoachGPT Pro is an Al-powered fitness assistant designed to:

- Generate personalized 4-week workout plans.
- Allow users to customize and track their plans.
- Manage users, exercises, and plan history.
- Integrate with LLM (e.g., OpenAI) for contextual feedback.

#### 2. Microservices Architecture

The architecture includes the following services:

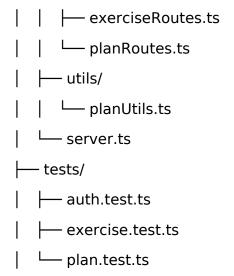
- 1. Frontend Service: React-based UI.
- 2. Backend Service: Node.js + TypeScript core logic.
- 3. LLM Service: Handles communication with OpenAI/GPT APIs.
- 4. PostgreSQL DB Service: Centralized database accessed by the backend.

#### 3. Services Interaction

```
Frontend <--> Backend <--> LLM Service | +--> PostgreSQL DB
```

#### 4. Backend Folder Structure

# CoachGPT Pro - Project Documentation



## 5. Unit Testing

Unit tests using Jest are implemented for all major features:

- Auth Controller
- Plan Controller
- Exercise Controller

### 6. Security Practices

- Passwords hashed with bcrypt
- JWT used for authentication
- Helmet and CORS middleware for security

## 7. Deployment

Docker Compose manages all services.

Each microservice is built and deployed independently.