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# Project Proposal: Fitness Tracker Application

**Introduction**

The Fitness Tracker application aims to help users manage their health and fitness by tracking their activities, diet, and fitness goals. This backend-focused application will be developed using Java and Spring Boot, following RESTful principles. The project will integrate various technologies covered in the course, including software development practices, database management, and CI/CD automation.

**Problem Statement**

With the increasing focus on health and fitness, individuals often struggle to keep track of their workouts, diets, and personal fitness goals. The Fitness Tracker application addresses this need by providing a comprehensive solution that allows users to monitor their physical activities, manage their dietary intake, and set achievable fitness goals.

**Objectives**

1. Implement a backend application using Spring Boot.
2. Develop a RESTful API to manage user activities, diets, and goals.
3. Use SQL databases for data persistence.
4. Ensure application security through proper authentication and authorization.
5. Automate the build and deployment process using GitHub Actions.
6. Containerize the application with Docker.
7. Deploy the application on Microsoft Azure.
8. Implement unit tests to ensure code quality.

**Key Features**

- **User Management:** Allow users to register, login, and manage their profiles.
- **Activity Tracking:** Enable users to log their workouts, including exercise type, duration, and calories burned.
- **Diet Tracking:** Allow users to track their daily food intake and nutritional information.
- **Goal Management:** Provide functionality for users to set and track their fitness goals.

**Technologies**

- Java 23
- Spring Boot
- Maven
- SQL Database (e.g., PostgreSQL)
- Docker
- Microsoft Azure
- GitHub Actions for CI/CD
- JUnit for unit testing

**Implementation Plan**

1. **Set Up Development Environment:** Configure the project with Spring Boot and necessary dependencies.
2. **Database Design:** Design the database schema for users, activities, diets, and goals.
3. **Develop RESTful API:** Create endpoints for user management, activity tracking, diet tracking, and goal management.
4. **Security Implementation:** Implement security measures using Spring Security.
5. **Unit Testing:** Write unit tests for key functionalities.
6. **Containerization:** Use Docker to containerize the application.
7. **Deployment:** Deploy the application on Microsoft Azure.
8. **Documentation:** Create comprehensive documentation, including the README file.

**Conclusion**

The Fitness Tracker application will provide a robust solution for users looking to manage their health and fitness efficiently. By integrating various technologies and methodologies covered in the course, this project will serve as a comprehensive demonstration of the skills acquired throughout the program.