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# Project background

In today's health-conscious world, fitness enthusiasts and athletes rely on precise tracking to optimize their nutrition and workouts. This project aims to develop a mobile application that enables users to log and monitor their daily macronutrient intake, including calories, protein, fats, and carbohydrates. By providing a structured approach to nutrition tracking, the app allows users to make informed dietary decisions and align their intake with their fitness goals. Additionally, the app supports workout logging, enabling users to start a session, record their exercises, and track key metrics such as weight, sets, and repetitions. This data will be stored and accessible at any time, allowing users to review their progress, identify trends, and make data-driven adjustments to their training and diet.

A unique feature of the application is the automatic estimation of the user’s one-rep max (1RM) after each set, offering valuable insights into strength progression. This calculation, based on weight lifted and repetitions completed, will help users gauge their performance and set realistic strength goals. At the end of each workout, the total duration and all recorded sets will be stored, enabling users to compare past and future sessions. With an intuitive interface and seamless data visualization, the app aims to enhance user engagement and consistency in fitness tracking. By integrating nutrition and workout monitoring into a single platform, this project seeks to provide a comprehensive tool for individuals looking to optimize their training and achieve their health and fitness objectives.

# Project requirements

**1. Core Features**

**Nutrition Tracking:**

* Allow users to log daily calorie, protein, fat, and carb intake
* Display a breakdown of macronutrient consumption
* Store and retrieve past nutrition logs for comparison

**Workout Tracking:**

* Enable users to start a workout session
* Allow users to log exercises with weight, sets, and reps
* Store total workout duration and all logged sets
* Provide an estimated 1-rep max (1RM) after each set
* Display past workouts for progress tracking

**2. Backend Development**

**Database Design:**

* Create tables for users, workouts, exercises, and nutrition logs
* Implement relations between users and their workout/nutrition data
* Ensure efficient data retrieval and storage

**API Development (Java Backend):**

* Develop RESTful API endpoints for data retrieval and updates
* Implement authentication and user session management
* Optimize API performance for fast data processing

**3. Frontend Development**

**React Frontend (Mobile UI):**

* Create an intuitive user interface for logging food and workouts
* Design dashboards for displaying nutrition and workout history
* Implement a progress comparison feature with charts and insights

**Workout Timer & Interaction:**

* Display total workout duration
* Allow users to pause/resume workouts if needed

**4. Additional Features & Enhancements**

**Data Analysis & Insights:**

* Implement 1RM calculations based on weight and reps per set
* Provide graphical comparisons of workout progress
* Show trends in nutrition intake over time

**User Preferences & Customization:**

* Allow users to set fitness goals (e.g., calorie intake, strength targets)
* Provide customizable workout and diet plans

**Notifications & Reminders:**

* Send reminders for workouts and meal logging
* Notify users of performance improvements (e.g., new 1RM records)

**5. Deployment & Maintenance**

**Backend Deployment:**

* Deploy Java backend with API endpoints
* Ensure database security and backup mechanisms

**Frontend Deployment:**

* Package the React app for Android deployment
* Optimize UI/UX for mobile responsiveness

**Testing & Debugging:**

* Perform unit tests on backend API functions
* Conduct UI/UX testing for a smooth user experience
* Fix any bugs or performance issues before release