Problem Statement and Goals AI-Driven Workout Planner App SFWRENG 4G06

Team #7, Team FAAM, SweatSmart

Daniel Akselrod
Jonathan Avraham
Sophie Fillion
Sam McDonald

Table 1: Revision History

Revision Version	Date	Developer(s)	Change
1	Sep 25, 2023	Daniel, Sam, Sophie, Jonathan	First draft of Document
1.1	Apr 3, 2024	Sophie	Update change from ML to standard algorithm

1 Problem Statement

In our current fast-paced world, it has become increasingly difficult for people of all fitness levels to maintain a healthy and active lifestyle without investing significant time into creating a plan and routine. Consequently, many individuals struggle to establish and follow personalized workout plans that match their experience, preferences, goals, and tight schedules. Market-available options often fail to provide adaptive and evolving workouts, leading to stagnation, reduced motivation, and boredom. Addressing these challenges, our team proposes the development of an evidence-based workout planner app.

1.1 Problem

The prevailing issue is the absence of effective, customizable solutions that allow individuals to generate and adhere to fitness plans tailored to their unique goals, experience, preferences, and schedules. Current workout planners tend to be generic and rigid, resulting in suboptimal fitness outcomes and dwindling user motivation.

1.2 Inputs and Outputs

Inputs:

- User profile information
- Fitness goals
- Fitness experience level
- Workout preferences
- Questions/prompts from users

Outputs:

- Customized workout plans
- Recommended exercises with set counts
- Workout intensity and duration guidelines
- Progress monitoring and user-specific workout statistics
- Motivational features
- Tailored responses to user queries

1.3 Stakeholders

- **Users:** Individuals with diverse athletic experiences seeking personalized workout strategies and specific guidance to realize their fitness aspirations.
- **App Developers:** Our team, which oversees the design, development, implementation, and maintenance of the application.
- **Fitness Experts:** Authorities or researchers contributing expertise in formulating the workout plans and AI algorithms.
- **Medical Professionals:** Healthcare practitioners involved in ensuring that the app promotes safe and health-conscious fitness and nutritional practices, especially when users provide medical data.

1.4 Environment

Hardware:

- Primarily smartphones and tablets.

Software:

- The application employs algorithms for user data processing and workout plan creation.
- Compatibility with Android and iOS platforms.
- Database servers to securely archive user profiles and workout blueprints; certain app-specific data is saved locally.

2 Goals

- **Personalized Workout Plans:** Generate individualized workout plans for users by considering various user profile elements like fitness level, fitness goals, time availability, equipment availability, progress, etc.
- **Progress Tracking:** Allow users to monitor their progress to detect areas for enhancement and, ultimately, meet their fitness objectives.
- **Live Workout Sessions:** Allow users to start a live workout session and track their progress as they complete sets of exercises.
- **Virtual Personal Trainer Interaction:** Integrate a chatbot that functions as a personal trainer, allowing users to maintain round-the-clock communication with this bot, guiding them towards their fitness milestones.
- **Ease of Use:** Ensure a user-friendly experience with an intuitive interface, facilitating smooth navigation, effortless modification of workout plans, and a comprehensive, responsive design.

3 Stretch Goals

- **Enhanced AI User Interaction:** Venture into superior natural language processing capabilities to foster improved user engagement with the AI, simulating real-life fitness coach dynamics.
- **Advanced Workout Enhancement Algorithm:** The algorithm should be able to modify existing regimens based on users' history and progression to update a user's workout plans.
- **Sharing Platform:** Architect a robust platform where users can connect with friends and share their progress and achievements.
- **Social and User Engagement:** Enrich the app with advanced social utilities, including user profiles, networking features, and challenge-posting capabilities to inspire and boost user motivation.