Fitness App Documentation

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1 Outline

Many people have the ambition to work out or get fit, but most unfortunately give up after a few weeks. This fitness application aims to address the most common reasons why people quit by gamifying the workout experience and by providing exercises and diet guidance based on the expertise of physiotherapists.

Beginners can answer a brief questionnaire and the app will automatically generate a suitable workout and diet plans for them. Advanced users can tweak existing workout plans or create their own.

For now, the application is aimed towards individual and personal use. However, it could be extended for physiotherapists to help patients and to monitor their progress.

1.1 Workout Plans

The workout plan is the central idea in this application. It is a sequence of steps, each of which describe the execution of an exercise. These plans are created based on the user's preferences and owned equipent.

Exercise Set

Users develop muscles by doing exercises that provide some kind of resistance. This resistance can come in the form of weights (weight training), or by doing the exercise for a prolonged period of time (cardio) or even by the literal resistance of an elastic band that is stretched. Each workout plan step tells the user to execute an exercise with an assigned resistance.

1.2 Equipment

Certain exercises require equipment, such as barbells, dumbbells, a treadmill, etc. The app should provide a default set of equipment that accommodate the most common exercises. This way, the user can customise their own equipment inventory to get access to a broader range of exercises.

Sometimes the app will suggest buying specific equipment to the user so that they can access a specific exercise that would align particularly well with their fitness goals.

1.3 Exercises

There is a huge variety of exercises in the fitness world. The app should provide an extensive catalogue of potential exercises to accommodate practitioners of all levels. Users should also be able to define their own exercises, which muscles they train and what material is required for doing the exercises.

1.4 Diet Plans

Diet plans are just as important as workout plans for certain fitness goals, such as weight loss or muscle mass gain. These plans are saved separately from the workout plans and aren't as closely tracked, but they are equally important. Users can configure their meal times so that the app can remind them to eat and drink using push notifications.

1.5 Meals and supplements

The app should provide a baseline catalogue of meals for different types of diets (e.g. vegetarian, halal, etc.) with custom variations to spice things up. These recipes can be used for home cooking.

Supplements should also be included in the app. Protein shakes are popular supplement among fitness enthusiasts, for example. Unlike meals, supplements aren't necessarily to be consumed at specific times. Depending on the supplement, there could be a daily, weekly, monthly, ... consumption limit.

2 Gamification

Users will develop stronger muscles when they exercise by completing their customised workout plans. The physical progress is rather slow, so the app should encourage users to keep working out even when they don't immediately notice any changes in their physique.

2.1 Experience points

Many games use an *experience* mechanic to give the players a tangible representation of their progress. A similar mechanic could be used for the fitness app, where completing exercises and workout plans increase a user's *fitness score* or *muscle score*. Consistently following recommended diets should also

contribute to the user's experience points, although this will be a more passive mechanic.

To avoid the risk of overexertion, the application will recommend a maximum resistance for each exercise depending on the user's stats. Going over the recmomended maximum would have real-life consequences, so the "experience gain" should be reduced when users consciously endanger themselves.

2.2 Levelling up

A static progress bar that gradually fills up over time is a good way to visualise progress, but it gets pretty boring rather quickly. A levels system gives more context to the user's experience, and it could integrate well with personal goals and milestones.

Levelling up muscles

As a user develops their muscles more, they will be able to lift heavier weights or run for longer periods of time. The fitness app should implement a system to track a user's muscle and fitness development. When a muscle develops sufficiently, it *levels up*. This increases the user's maximum resistance for all exercises pertaining to that muscle.

Levelling up entire physique

If a user sufficiently levels up muscles within specific limbs (e.g. the whole arm or leg) or specific muscle groups, their global physique level should also increase. This will encourage users to exercise their entire bodies, not just individual muscles.

Levelling up from diets

If a user consistently follows their diets, they should be awarded experience points for persevering. Users should be rewarded for showing discipline, but they should explicitly **not** be rewarded for losing weight as to not cause eating disorders.

2.3 Rewards

TODO: rewards? (beyond developing a better physique)

3 Modelling the domain

TODO: domain modelling and context mapping