# Get Fit Right: Final Summary

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## Product Description

Get Fit Right is a product that consists of a fitness simulator where the main goal is to be a "virtual spotter". This is done by notifying users when working out if they have an improper posture, and then provide them with recommendations based on various factors. The recommendations and feedback are a way to help the user avoid any unnecessary injuries and to provide a better, more right way of getting fit. The application will be supported on both Android and iOS across the various different version to ensure most people in the market will be able to use the application. The application will accomplish these tasks by maintaining the users workout log and associating the workouts performed to that particular user. All data, recommendations, feedback regarding the user's workouts will be available to the user whenever they would like to see it. This way they can track their performance and improvement over a period of time and see real life change to their lifestyle.

The application will allow the user to select a workout and will notify the user to place their phone in an optimal location to capture the user's workout and provide real time analysis using the user's body data points. The application will perform the analysis by comparing the user's captured data points with posture data points with that of the workout database, to see if the workout is being performed correctly. Based on that analysis the application will then notify the user through his/her screen whether or not they are performing that exercise correctly. Additionally, the user will be given articles and videos related to that exercise to provide more information. The overall purpose of this application is provide a holistic view on working out.

## Requirements

The requirements for this product are very clear. There is a clear emphasis on accuracy and efficiency. The application needs to process the user's request in real time as they cannot be sitting around the gym waiting for feedback as this also impacts other people in the gym. Accuracy needs to be of top priority as well since the feedback given to the user has to correct. If the feedback is incorrect, this may cause potential harm to the user and will inhibit further growth of the application as well as go against the main goal of the application which is to prevent injury. Users should be given accurate feedback on exercises in more than 95% of the time. This level of accuracy is only possible due to the medical experts that have provided the application with their expertise in the exercise realm.

The application also needs to be very user friendly. The target audience has a vast range in ages, and level of knowledge on the subject matter. Words used in the application should be easily understood by anybody, and links should be provided for concepts that aren't very obvious. 95% of the users should be able to follow the feedback given by the app. The application should also allow easy access to all data. The average user should be able to view their past workout data in less than five clicks. Additionally the user should be able to access all features of the application without any assistance in the first ten uses of the app.

## Design

As there is currently no system design the application will implement a system where there are four major subsystems. The user subsystem handles user information like email, name, and password and allows the user to use all functionality of the application. Along with that there is an analysis subsystem which uses the camera and the workout data to analyze the user videos. The third subsystem is the user interface subsystem. This subsystem is used to handle user input and display all information to the user. The last subsystem in the exercise subsystem which uses the composite pattern to create the hierarchical structure of all the exercises. This allows the application to increase the reuse of code as much as possible, and have an organized way of adding new exercises when needed.

The application will also follow Model View Controller architecture. This is necessary for this application as there is a lot of user involvement. With this architecture the control flow of the application can be monitored well. Multithreading can also be set up well with this architecture as we have many application functions going on at the same time.

## Project Concerns

There a couple concerns at this time. Due to the application being computationally intensive it may be a struggle for it to run on older devices. It is one of our goals to reach as many users as possible, and the application would need to be very efficient to make sure it can be run on all devices. Another concern of this application is if the video recordings are enough for proper feedback. Getting all the relevant data from a video might not be possible. In order to tackle this special hardware might need to be developed to make sure the application can function for its intended purpose.