Workout Movement Tracker App Development Project Summary

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The Workout Movement Tracker App is an application that supports and promotes health and fitness. The application will track the user's movements in real-time during exercising and analyze their form. The user will be able to receive feedback from the application. This will ensure that they are performing the exercises correctly, which will help prevent injury and maximize the benefits of the exercise. The application will also give the user personal recommendations based on their stated fitness goals, body type, and exercise preferences. This would allow the user to gain access to a personalized workout that is exactly suited to their needs. The main purpose of this project is to help people who are interested in leading a healthier and more active lifestyle. The primary businesses that would benefit from this application are businesses that regularly interact with people who regularly exercise - gyms, personal training businesses, and sportswear companies. The scope of the work is described as providing a personal trainer/guide service that the users need to pursue their fitness goal. The work generates recommendations and feedback for exercise and nutrition guides based on the user's performance and goal. The context of work includes the user, nutrition, exercise performance and finance. These environments interact with the application to create a beneficial result for the user. The scope of our product is to provide a convenience and affordable "personal trainer" application that can guide the users throughout their fitness journey. The application can generate a personalized plan based on the user's goal and information. During the exercise, the application tracks the user movements to provide guidance. The application can analyze user progression to update the user's plan. The application can extract exercises and meals from the databases.

The Workout Movement Tracker App is an application that helps users develop a workout plan and get feedback on their form. The main use cases are creating and updating a user profile with fitness level and goals, finding personal recommendations, checking form, and receiving feedback. All requirements of the application are created to support these use cases. The functional requirements are requirements for the functions that must be present: creation of the user profile, personalized recommendations, real-time tracking, and progress tracking. The data requirements are that the app must track user data such as body type, fitness level, exercise/training progress. The performance requirements are that the app must respond within 10 seconds with appropriate recommendations when the user inputs information, that the app must track the user's movement in real-time with at least a 95% accuracy level, and that the app must be able to handle at least 100 simultaneous users. The reliability requirements are that the app must not fail to load user data, the app should have some functionality even while offline, and the app must provide users with basic safety information. The maintainability and support requirements are that the app must provide the users with adequate support in the form of new/improved features, the app must work on the latest versions of iOS and Android, and that the app must be able to support tens of thousands of users. The security requirements are that the users' data is protected from unauthorized actors, the app adheres to current privacy laws, and the app must protect against cyber attacks. The usability and humanity requirements are that the app is intuitive and easy to use, the user must be able to change their language preferences, and the user must be provided with necessary instructions. The look and feel requirements are that

the app should have an attractive appearance and mimic the essence of a personal trainer. Additional requirements include operational and environmental requirements, cultural and political requirements, and legal requirements, which essentially ensure that the application follows all relevant laws and does not discriminate against any users.

Since the primary goal of the application is to provide a personal trainer service for users, it is necessary to prioritize accuracy over speed for effective and safe results. This ensures that users can trust the system to provide accurate feedback, preventing potential injuries and promoting long-term progress. The proposed system is an addition to the existing ones, adding features like tracking user movements and generating personalized workout plans. This approach maximizes the utility of the current system while offering more features that enhance the user experience. A Model View Controller (MVC) architecture allows for real-time analysis of the user's form during exercises, generates personalized recommendations based on their body type and goals, and handles progress tracking information to keep them on track with their fitness goals. This model is also recommended for easier organization, future maintenance, and problem-solving. The Model subsystem handles data and logic, the View subsystem represents the user interface, and the Controller subsystem mediates between the two subsystems.

Additional design considerations include hardware/software mapping, persistent data management, access control, security, and global software control. These aspects ensure a well-rounded and secure system, addressing various concerns that may arise during the development process. The final system design ensures secure storage and retrieval of user data, incorporating data encryption in transit and at rest, and subsystems for database management and security to prevent unauthorized access. Furthermore, the system must address startup and shutdown procedures, handling cleanup or termination processes in case of abnormal situations, resulting in a powerful and user-friendly application.

There are many issues the project might face. This includes user satisfaction, strain on the system the application is downloaded on, physical factors in the usage, and application failure due to incorrect use. While there are solutions to some problems, like using a tripod to capture the best angle, there are still many issues with no solutions the programmers have to figure out. A potential help would be to use other similar applications on the market to create solutions. Also, it is estimated that the cost of building the application could be up to $200,000. So, the applications creators would need to find investors to make this project a reality.