**FitnessBro: A Comprehensive web Application System for Optimistic Health and Development**

**IT3A- SOFTWARE DESIGN**

**Software Requirements Specification**

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1. **Project Description**

FitnessBro is a website and mobile application that people use to track their fitness, dietary habits, and general health and wellness goal. It gives users the ability to track their physical activity, keep updated on their food intake, create customized objectives, and get insights and feedback based on their accomplishments.

* 1. **Introduction (Product Overview)**

Setting priorities when it comes to fitness and health objectives can be difficult in the fast-paced world of today. But because of technological improvements, people now have access to a huge selection of fitness applications that can be quite helpful on the path to living a healthy lifestyle. These apps provide individualized advice, tracking features, and a friendly community to keep user accountable and inspired. One of the best tools for tracking fitness and health, FitnessBro helps users stay on top when it comes to fitness, nutrition, and general wellness objectives. With a focus on ease of use, efficacy, and accessibility, emerged as the preferred choice of people to enhance their lifestyle and general health.

Furthermore, FitnessBro offers an extensive feature set with the goal of enabling users to make well-informed decisions regarding their physical activity and diet. The software gives users the ability to monitor their food intake, keep an eye on the number of calories consumed, document workouts, and create individualized health goals by utilizing technology and data.

In terms of nutrition the application helps user in recording meals, snacks, and beverages by accessing an extensive database of food products containing nutritional data and serving sizes. Additionally, it also helps user to stay throughout the selected calorie range by calculating their daily targets based on their specific profile and weight loss/gain objectives as well as providing comprehensive dietary assessments which involve important components including vitamins, minerals, and macronutrient ratios including fat, protein, and carbs.

When it comes to training purposes, the application is essential in the overall fitness improvement, where in users can log sessions using the app, including cardio, weight training, and other types of exercise. Furthermore, user of FitnessBro may communicate with others, share advice and ideas, take part in forums and challenges, and find inspiration and encouragement to continue on their path to wellness in this dynamic community.

Whether people are looking for improvement of overall well-being, reduce weight, or develop nutrition, FitnessBro is dedicated to assisting people with reaching their fitness and health goals with its user-friendly interface, effective features, and large database of foods and workouts. FitnessBro customized and data-driven approach to wellness allows users to adopt healthy lifestyle choices and lead happier, healthier lives.

Though this application is very essential due to the provided features it can offer, users may encounter various issues or problems while using the app as well. Certain users may encounter challenges with account verification, password resets, or login authentication errors that prevent them from accessing specific features or authenticating into their accounts. This may make it impossible for users to use the app's functions and access their data. Additionally, upon contacting FitnessBro’s customer support team for help with app-related or technical issues, users could experience delays or a lack of response. Prolonged delays in resolving concerns reported by users can negatively affect their entire experience.

Importing and exporting date might come into difficulties as well, when attempting to sync their data between devices or with other platforms. This may lead to inconsistencies in recorded data, including meal entries, exercise routines, and weight assessments. Occasionally, the app also becomes unresponsive or collapses particularly while users are switching between screens, logging in, or using specific features. Confusion and an interruption in the user experience may result through this. Some users may be worried also about the security and privacy of their data, especially in light of data sharing policies, the gathering and use of personal information, and safeguards against data breaches and unauthorized access. In terms of food intake, database may contain inconsistencies or mistakes that users may run into, such as missing items, duplicate entries, or inaccurate nutritional data. This can make it difficult to properly measure calorie intake and precisely log meals.

Users may attempt troubleshooting techniques such as updating to the most recent version of the app, cleaning data and cache, restarting the device, verifying internet access, or contacting FitnessBro’s customer care for help to resolve these issues. Furthermore, the development team will be able to find and fix issues more quickly in future updates if users provide comments and report concerns directly through the app.

* 1. **Product Purpose**

FitnessBro’s purpose is to provide users a complete tool for tracking their health and wellness objectives, with a focus on diet, exercise, and weight management. The software seeks to enable users to track their progress toward their fitness goals, make educated decisions about their nutrition and exercise, and uphold a healthy lifestyle. This application firstly assesses the user determining the needs and achievable platform or program to a certain goal effectively by providing different strategies and techniques that the users need and at the same time the app is also helps the user to save money, time and effort.

* 1. **Intended Audience**

A wide range of people who are interested in enhancing their fitness and health make up the target audience for FitnessBro’s. People who care about their health and are looking for resources and techniques to maintain or enhance their general well-being is also, one of the possible users for the app. Exercise enthusiasts with a strong desire to track their workouts, create objectives, and track their progress and Nutrition devotees with an interest to learn about eating well, aided with features for meal planning and educational materials may also be part or target for the app. Beginners in fitness and health who require direction, encouragement, and support to begin their journey toward wellness as well as fitness experts, instructors, personal trainers, and athletes who want to maximize training plans, track performance, and keep an eye on nutrition and people who are struggling with particular health objectives or conditions like managing diabetes or improving their heart health and who gain from specific characteristics and resources may also be the audience.

* 1. **Intended Use**

The general purpose of the product is to manage physical activity, dietary habits, and overall health goals using the assistance of the app. Users can monitor workout routines, set individual goals, keep track on food intake, and interact with a supportive community. The software has a simple user interface for seamless navigation, incorporates with other fitness applications and gadgets, and provides nutritional insights. The objective of the app is to enable users achieve their fitness goals, make educated lifestyle decisions, and cultivate a sense of accountability and motivation along their health journey.

* 1. **User Class and Characteristics**

The FitnessBro app covers a diverse user base with a range of goals and characteristics pertaining to nutrition, exercise, and general health. FitnessBro serves a wide range of user needs, from general users looking to improve their fitness habits to fitness enthusiasts aiming for performance gains, wellness-focused health-conscious people prioritizing wellness, weight management seekers seeking specific outcomes, and fitness professionals helping people. The application helps people on their path to better health and fitness and enhances user satisfaction by acknowledging and aiding expected user groups.

Additionally, because of the app's adaptability and flexibility, it may change to accommodate users' evolving needs and preferences. FitnessBro is an adaptable devicefor monitoring, evaluating, and improving health behaviors that can be used by anyone, regardless of their fitness level, chronic condition management, athletic performance goals, or role as a fitness expert instructor.

In the end, FitnessBro promotes a holistic approach to health and wellbeing by encouraging balance, sustainability, and community involvement. It is more than just a tool for tracking calories. FitnessBro continues to be a useful tool for people all around the world who want to live healthier, happier lives as technology develops and our knowledge of health changes.

1. **System Features and Requirements**

Through the assistance of the all-inclusive health and fitness app FitnessBro, users are able to track users’ wellness, exercise, and diet objectives. FitnessBro gives consumers an easy-to-use platform to efficiently manage their health with features like nourishment logging, activity monitoring, personalized goal setting, community support, data synchronization, interaction with wearable devices, and strong security measures hence FitnessBro make possibility to track health and fulfill goals in a comprehensive and personalized way by providing these features and adhering to system specifications.

**2.1 Functional Requirements and Non- functional Requirements**

1. **Functional Requirements**

**User Registration & Authentication**

* Register using an email address and social media platforms.
* Authentication ensures account information protection.

**Profile Management**

* Add and edit personal details (age, gender, height, weight, degree of exercise).
* Set and adjust daily caloric intake, activity objectives, and target weight.

**Activity Tracking & Food Monitoring**

* Search meals, choose portions, and record a daily food diary.
* Compute and display nutritional data (calories, macronutrients, vitamins, minerals).
* Provide real-time updates and feedback on dietary goals.

**Workout Tracking**

* Record workout type, dimension, and intensity.
* Compute and display calories burned during each session.

**Integration with External Devices**

* Sync with smartwatches, fitness trackers, and other health-related apps.
* Reflect data like step counts, heart rates, and sleep patterns.
* Support two-way synchronization.

**Community Features**

* Join groups, connect with friends, and participate in conversations and challenges.
* Share accomplishments, progress, and advice on social networks.

**Continuous Monitoring & Insights**

* Access reports and insights on fitness and health progress.
* Provide personalized recommendations for diet and activity modifications based on user goals, preferences, and past data.

**Alerts & Reminders**

* Receive alerts and reminders to record meals, monitor exercise, fluid intake (specifically water level), and maintain health regimens.
* Customize the quantity and types of notifications received.

**Overall Experience**

* FitnessBro offers a comprehensive and user-friendly experience.
* Aids in managing food, exercise routine, and general well-being by meeting these functional requirements.

1. **Non- functional Requirements**

**Performance**

* + Prioritizes quick and responsive performance.
  + Allows users to record meals, track workouts, and monitor progress in real-time without delays.
  + Optimized performance enhances the overall user experience.

**Security**

* + Emphasizes user data protection with strict security measures.
  + Implements secure authentication methods, encryption techniques, and frequent security audits to protect sensitive data from unauthorized access and breaches.

**Usability**

* + Features an intuitive design with clear navigation.
  + Incorporates accessibility features to cater to users with different levels of tech proficiency and accessibility needs.
  + Enhances user interaction and overall experience through ease of use.

**Scalability & Reliability**

* + Ensures smooth scalability to handle an increasing number of users and data volume without compromising functionality.
  + Maintains high reliability, providing continuous access to the app whenever needed.

**Compliance & Accessibility**

* + Adheres to data privacy laws and industry standards.
  + Prioritizes accessibility by including features designed to accommodate users with disabilities, ensuring everyone can benefit from FitnessBro’s features.

**Overall Experience**

* FitnessBro's commitment to non-functional requirements ensures an exceptional user experience.
* Usability, security, and performance come together to help users confidently and effortlessly manage their health and wellness journey.

**2.2 System Features**

An innovative app termed FitnessBro was developed to assist users on their journey to improve fitness and health. FitnessBro enables it easier to track diet, activity, and progress all on one platform with a variety of user-friendly tools. Everything you need to keep motivated and on track towards your wellness goals is available on FitnessBro, from goal setting and community support to calorie counting and nutritional insights. FitnessBro is a reliable guide at every turn, whether the goal is to improve your health, gain muscle, or reduce weight. For food tracking it will be very easy for users to track their meals, snacks, and drinks by scanning barcodes or looking through a large database of foods. For foods that have been logged, detailed nutritional data is given, including calories, macronutrients (protein, fat, and carbs), vitamins, and mineral as well as in monitoring the amount of water to drink each day to stay hydrated and maintain good health. Users have the ability to establish objectives for their water intake and get daily reminders to stay hydrated.Personalized health and fitness objectives, including weight loss, increase, or maintenance, can be specified by users, and they will receive coaching to help them reach these objectives.

Moreover, in the area of exercise logging and tracking fitness progress and calories expended, users can enter their exercises and physical activity. The application also provides an extensive selection of workouts and allows users to create personalized workouts to precisely monitor their physical activity. Social features also have active role where users may join groups, connect with friends, and exchange encouragement, advice,

and progress.Users have the opportunity to take part in discussions, undertake challenges, and encourage one another to reach their fitness and health objectives.

To ensure that the goal was effectively followed Tracking Progress and Gaining insights has a essential feature of the app through charts and graphs that show variations in body dimensions, weight, and other health parameters, users can monitor their progress over time.Utilizing user data, FitnessBro offers insights and suggestions to empower users to make well-informed decisions and maximize their journey towards health and fitness.

In a nutshell, for anyone looking to improve their health and fitness, FitnessBro is a great resource for advice and support. The software generates individuals all the tools needed to monitor their progress, diet, and exercise, empowering make wise decisions and hold them accountable. Additionally, the app promotes a culture of encouragement and camaraderie through its user-friendly interface and strong community support, promoting positive change and fostering healthier lifestyles globally.

**2.3 Hardware Requirements**

FitnessBro is a very versatile system that can adopt in any specification in the present time, the user must only need a enough amount of internal storage to be able to use this application system.

**2.4 Software Requirements**

For iOS the requirement is iOS 13.0 or later which is compatible with iPhone, iPad, and iPod touch while for android there will be a variation depending upon devices. In general terms, most mobile devices which meet these system requirements should be able to use FitnessBro. But to ensure optimal performance and the best possible user experience, make sure your gadget is reasonably new in terms of technical specifications and has a sufficient quantity of free storage space. One of the best recommendations is to keep device's operating system updated to the most recent version available from the relevant app store (the Google Play Store for Android devices, and the App Store for iOS devices) to guarantee compatibility and optimal performance. It's also advised to keep FitnessBro updated to the most recent version because the program changes frequently to fix bugs, add features, and enhance speed.

**2.5 Performance Requirements**

The FitnessBro app's performance requirements usually center on making sure that the app will run smoothly, responds quickly, and utilizes device resources as effectively as possible. While certain data may change based on things like network factors and device capabilitiess. There are lots of general performance requirements that this application offer.

Firstly, is the reactivenesss where in user clicks a button, scrolls through a list, or enters data, the application should react quickly and anticipate a lag-free, effortless experience, while in opening the app or navigating between its various areas, like the workout tracker, publication, and community features, it should load quickly which is beneficial on reducing loading times promotes user retention.

Secondly is the stability where there are few malfunctions or unplanned shutdowns of the application, making it dependable and stable. Users may become frustrated and lose faith in the app's functionality as a result of stability concerns.

Thirdly is the compatibility and scalability, FitnessBro ought to work with a variety of gadgets, screen sizes, and resolutions that its intended user base frequently uses. It should efficiently modify its functionality and layout to offer a consistent user interface on all platforms and devices. Furthermore, the app expanded with its user base and customized with new features and updates. It should be able to handle more traffic, data volumes, and usage patterns without negatively affecting reliability or efficiency.

Thirdly is the network performance the application should be able to manage network connections well since the app depends upon using its large food database and synchronizing data with other services, such as fitness trackers. This entails controlling the speed at which data

is transferred, addressing irregular connectivity, and giving users the proper feedback while synchronization procedures are occurring.

Lastly is the battery efficiency, the software should be designed to use as little battery life as possible, particularly for functions like step tracking and data syncing with fitness gadgets that need to run continuously in the background. Particularly on mobile devices, excessive energy drain might restrict the app's usability and cause customer dissatisfaction.

**2.6 Safety Requirements**

In order to ensure user privacy and data protection, the FitnessBro app must meet strict safety standards. Essential component is to protect user accounts by activating protections against unwanted access, such as rate-limiting login attempts, looking for and stopping suspicious login behavior, and alerting users to any odd account access. Next is data minimization where the app only gathers and saves the necessary amount of information required to run the program. Make sure users have the ability to remove or anonymize their data, and refrain from keeping sensitive information longer than necessary. Security of Third-Party interfaces is also one of the security feature of the application to ensure  that interfaces with third parties, including social media sharing or fitness device syncing, follow stringent security guidelines to avoid account compromise or unwanted access to user data.For the security of users' financial information,the application ensure that any in-app purchases or premium services offered by the app are processed securely and in conformance with the Payment Card Industry Data Security Standard (PCI DSS). FitnessBro may improve its security posture and reinforce that consumers trust in the app's dedication to maintaining privacy and data protection by implementing these extra safety measures into its operations.

**2.7 Security Requirements**

The FitnessBro app's security requirements cover a range of precautions to safeguard user information and guarantee the app's integrity. Sensitive data encryption, secure authentication methods, authorization controls, input validation, timely security patching, secure third-party integrations, secure configuration, logging and monitoring, frequent security audits, and user education on security best practices are a few of these. FitnessBro can preserve user confidence in the security of the program, protect user information, and reduce potential risks by putting certain security measures in place.

**2.8 Software Quality Attributes**

Flawless user experience, credibility, efficiency, and security are all ensured the FitnessBro app is constructed. These qualities include security measures like authentication and encryption, compatibility with a variety of devices and systems, maintainability through clean code and documentation, scalability to accommodate growth, and accessibility for users with disabilities. Usability features include an intuitive interface and customization options.

Reliability is demonstrated by stability and consistent performance. FitnessBro prioritizes these features in order to provide users with an efficient and accessible platform that makes it easy for them to track their fitness and health objectives.