



Electronic Assignment Cover Sheet

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Report

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1. Overview

WellnessHub, our health and fitness app, emerges as a transformative force in the wellness landscape, embracing a holistic approach to empower individuals on their fitness journeys. With a user-centric design and a commitment to personalized well-being, WellnessHub aims to redefine the way users engage with their health, seamlessly integrating fitness tracking, personalized workout plans, nutrition insights, and social connectivity into a single, intuitive platform. At the heart of WellnessHub's business perspective is the unwavering commitment to delivering unparalleled value to users. The app's overarching vision is rooted in the belief that every individual's fitness journey is unique, and as such, the platform endeavours to cater to a diverse audience, ranging from fitness enthusiasts seeking advanced training regimens to beginners taking their first steps toward a healthier lifestyle.

One of the key pillars of WellnessHub's value proposition lies in its emphasis on personalization. Understanding the diversity of user goals, fitness levels, and preferences, the app leverages advanced algorithms to analyse user data comprehensively. This analysis results in the generation of bespoke workout plans and nutrition recommendations, ensuring that each user's journey is tailored to their specific needs, fostering a sense of ownership and commitment to their well-being.

WellnessHub distinguishes itself by offering a comprehensive fitness tracking experience, transcending the conventional step-counting approach. Users can effortlessly monitor their daily activities, including steps taken and calories burned, through an intuitive dashboard that provides a detailed overview of their fitness progress. This real-time feedback serves as a motivational tool, enabling users to set and achieve realistic goals, thereby contributing to a sense of accomplishment and sustained engagement.

The app's commitment to a holistic wellness journey extends beyond exercise, incorporating nutrition tracking as an integral component. Users can log their meals, receive nutritional insights, and access a curated database of recipes designed by nutrition experts. This fusion of fitness and nutrition guidance reinforces a balanced and sustainable lifestyle, positioning WellnessHub as a comprehensive wellness companion.

Social engagement stands as another cornerstone of WellnessHub's design philosophy. Recognizing the importance of community support in achieving fitness goals, the app provides users with a platform to connect with friends, participate in fitness challenges, and share their achievements. The social feed fosters a sense of camaraderie, turning individual fitness pursuits into a collective and motivating experience.

WellnessHub places a premium on delivering an intuitive user experience. The interface is meticulously crafted to be user-friendly, ensuring accessibility for individuals of all fitness levels. Clear navigation, engaging visuals, and straightforward features are employed to

enhance usability, making the app an inclusive and welcoming space for users embarking on diverse fitness journeys.

In essence, WellnessHub transcends the conventional boundaries of a fitness app, aspiring to be a comprehensive wellness ecosystem. By combining personalization, comprehensive fitness tracking, nutrition guidance, and social connectivity, WellnessHub endeavours to be more than a tool; it aspires to be a supportive companion empowering users to take charge of their well-being and embark on a sustainable and enjoyable path to health. This business perspective underscores WellnessHub's commitment to creating a positive and transformative impact on the lives of its users.

2. Business Requirements

A. Scope of the System:

WellnessHub, as a comprehensive health and fitness app, aims to address key aspects of users' wellness journeys. The scope of the system includes the following core functionalities:

a. User Registration and Onboarding:

Users should be able to create accounts securely, providing essential information such as age, gender, fitness goals, and dietary preferences during the onboarding process.

b. Personalized Profiles:

Each user will have a personalized profile dashboard that acts as a central hub for their fitness journey. This dashboard will display key metrics, progress visuals, upcoming workouts, and nutritional insights.

c. Fitness Tracking:

The app will automatically track users' daily activities, including steps taken and calories burned, using smartphone sensors. Users should be able to view historical data and set daily targets.

d. Workout Plans:

WellnessHub will generate personalized workout plans based on user profiles, goals, and preferences. These plans will include a variety of exercises with step-by-step instructions suitable for different fitness levels.

e. Nutrition Tracking:

Users can log their meals, track nutritional intake, and access a database of healthy recipes. The app will provide insights into the nutritional value of foods and offer recommendations based on user preferences.

f. Social Engagement:

The app will facilitate social interactions, allowing users to connect with friends, join fitness challenges, and share achievements. A social feed will display user milestones and foster a sense of community.

g. Intuitive User Experience:

The user interface will be designed for accessibility and user-friendliness, ensuring that users of all fitness levels can navigate the app seamlessly. Clear navigation, engaging visuals, and straightforward features will enhance usability.

B. Inclusions and Exclusions:

a. Inclusions:

- User Registration and Onboarding: The process of creating an account and providing essential information during onboarding is a crucial inclusion to personalize the user experience.
- Personalized Profiles: Each user having a personalized dashboard is a central inclusion to allow users to track their progress and access tailored insights.
- Fitness Tracking: Automatic tracking of daily activities, including steps and calories burned, is a fundamental inclusion for users to monitor their overall fitness progress.
- Workout Plans: The generation of personalized workout plans is a core inclusion, aligning with the app's commitment to individualized fitness journeys.
- Nutrition Tracking: Allowing users to log meals, track nutritional intake, and access healthy recipes is a vital inclusion, promoting a holistic approach to wellness.
- Social Engagement: Facilitating social interactions, challenges, and achievements is an essential inclusion to create a supportive community within the app.
- Intuitive User Experience: Designing a user-friendly interface with clear navigation and engaging visuals is an overarching inclusion to ensure accessibility for all users.

b. Exclusions:

- Chat Functionality: While social engagement is a key feature, detailed chat functionality will be out of scope for this project. The focus is on achievements, challenges, and a social feed.
- Wearable Device Integration: Integrating with wearable devices for advanced fitness tracking is out of scope for this project. The primary focus is on smartphone-based tracking.

C. Functional and Quality Requirements:

a. Functional Requirements:

- Usability: The app should be easy to navigate, ensuring that users can quickly access key features such as tracking, workout plans, and social engagement.
- Performance: The app should provide a seamless and responsive experience, with minimal loading times for various functionalities.
- Security: User data, including personal information and fitness metrics, should be stored securely. The registration and login processes should be protected against unauthorized access.

b. Quality Requirements:

- Reliability: The app should consistently provide accurate fitness tracking and deliver reliable workout plans and nutritional insights.
- Scalability: The system should be designed to accommodate a growing user base without compromising performance.
- Maintainability: The app should be easily maintainable, allowing for future updates, bug fixes, and improvements without significant disruptions to users.

D. User Interaction and Engagement:

To enhance user interaction and engagement, WellnessHub will incorporate features that encourage regular usage and sustained interest. Interactive elements such as push notifications for upcoming workouts, personalized achievements, and reminders for nutrition tracking will be integrated. The app will also offer a variety of customizable challenges, allowing users to set fitness goals and compete with friends. Additionally, a feedback system will be implemented to gather user input on workout plans and app features, fostering a sense of user involvement in the platform's evolution. A user support system, including FAQs and in-app assistance, will contribute to a positive and supportive user experience.

E. Accessibility and Inclusivity:

WellnessHub is committed to inclusivity, ensuring that the app is accessible to users of diverse abilities and backgrounds. The user interface will adhere to accessibility standards, supporting features like voice commands and screen readers. Language preferences will be accommodated, and the app will offer content in multiple languages, broadening its user base. The inclusion of diverse fitness routines and nutritional options will cater to various dietary preferences, making the app adaptable to individual wellness journeys.

F. Data Analytics and Insights:

WellnessHub will leverage data analytics to provide users with meaningful insights into their health and fitness progress. Advanced analytics tools will process user data, offering personalized recommendations for workout adjustments and nutritional enhancements. Machine learning algorithms will be employed to refine the accuracy of workout plans over time, ensuring continuous improvement based on user feedback and outcomes. An anonymized and aggregated data option will be available for users willing to contribute to research and development, further enriching the app's capabilities.

In summary, WellnessHub is not only focused on fundamental functionalities but also on creating a dynamic and engaging ecosystem that caters to user preferences, promotes inclusivity, and harnesses data analytics for continuous improvement. These additional features contribute to a holistic and forward-thinking approach to health.

3. Agile Epics and User Stories

1. User Onboarding Epic:

- **Epic Explanation:**

The User Onboarding Epic focuses on the initial interaction users have with WellnessHub, ensuring a seamless and personalized account creation process.

- **User Stories:**

As a new user, I want to create an account using my email and set up a password to start my wellness journey.

As a user, I want to provide basic information about my age, gender, and fitness goals during the onboarding process to receive personalized recommendations.

As a user, I want the onboarding process to be intuitive and straightforward, guiding me through the essential steps without overwhelming details.

- **Relation to Business Requirements:**

This Epic aligns with the business requirement of User Registration and Onboarding. It ensures that users can seamlessly create accounts, providing vital information for a personalized experience.

2. Fitness Tracking Epic:

- **Epic Explanation:**

The Fitness Tracking Epic concentrates on automating the tracking of users' daily activities, including steps taken and calories burned, and presenting this data in a user-friendly dashboard.

- **User Stories:**

As a user, I want the app to automatically track my steps using smartphone sensors without manual input.

As a user, I want to set daily step goals, receiving notifications and visual feedback when I reach or surpass them.

As a user, I want to view historical data of my daily activities, providing insights into my overall fitness progress.

- **Relation to Business Requirements:**

This Epic directly addresses the Fitness Tracking business requirement. It ensures that users have a convenient and automated way to monitor their daily activities and set achievable goals.

3. Personalized Workout Plans Epic:

- **Epic Explanation:**

The Personalized Workout Plans Epic focuses on generating tailored workout plans based on user profiles, fitness goals, and preferences.

- **User Stories:**

As a user, I want to input my fitness goals during onboarding, and receive a personalized workout plan catered to my objectives.

As a user, I want a variety of exercises in my workout plan, with step-by-step instructions to ensure proper execution.

As a user, I want the option to adjust my workout plan based on my preferences and changing fitness levels.

- **Relation to Business Requirements:**

This Epic directly aligns with the Workout Plans business requirement. It ensures that users receive dynamic and personalized workout plans to enhance their fitness journey.

4. Use Case Model



Figure 4.1- Use Case Model of WellnessHub

The use case model presents a comprehensive overview of the interaction between user, admin, and the system.

1. Actor: User

- **Use Case 1:** Register Account

Description: The user creates a new account by providing necessary information during the registration process.

Goal: To establish a personalized account for accessing the app's features.

- **Use Case 2: Log In**

Description: Users securely log into their existing accounts using provided credentials.

Goal: To access their personalized profile and engage with the app's functionalities.

- **Use Case 3: View Dashboard**

Description: Users view their personalized dashboard, displaying fitness metrics, progress visuals, upcoming workouts, and nutritional insights.

Goal: To have a centralized view of their wellness journey.

- **Use Case 4: Track Physical Activities**

Description: Users allow the app to automatically track their daily activities, including steps taken and calories burned.

Goal: To monitor and analyse overall fitness progress.

- **Use Case 5: Generate Workout Plan**

Description: Users input their fitness goals and preferences to receive a dynamically generated, personalized workout plan.

Goal: To engage in tailored exercise routines based on individual objectives.

- **Use Case 6: Log Meals and Nutrition**

Description: Users log their meals, track nutritional intake, and access healthy recipes and recommendations.

Goal: To maintain a balanced and informed dietary lifestyle.

- **Use Case 7: Social Engagement**

Description: Users connect with friends, join fitness challenges, and share achievements within the app's social feed.

Goal: To foster a sense of community and motivation.

2. Actor: Admin

- **Use Case 8: Manage and Update Content**

Description: Admins curate and manage content, including workout plans, nutritional information, and challenges.

Goal: To ensure the accuracy and relevance of information presented to users is up to date.

- **Use Case 9: Resolve Issues**

Description: Admin addresses and resolves user-reported issues, ensuring a smooth user experience.

Goal: To enhance user satisfaction and app performance.

5. Context Model

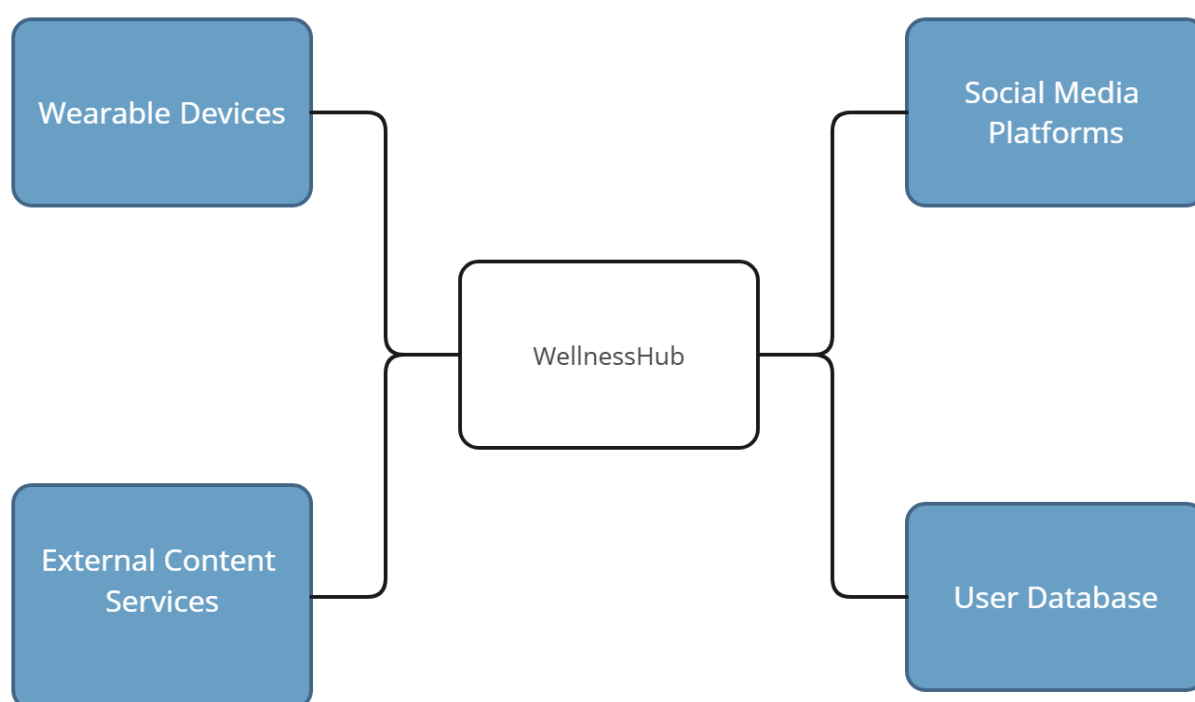


Figure 5.1- Context Model for WellnessHub

The Context Model for WellnessHub gives us an overview of where the health and fitness app fits into a larger ecosystem, showcasing key external components and their interactions:

1. Wearable Devices:

Description: External devices such as fitness trackers and smartwatches that users may integrate with WellnessHub for enhanced fitness tracking capabilities.

Functionality:

- Provides real-time data on physical activities like steps and heart rate.

2. External Content Services:

Description: Third-party services that contribute to WellnessHub's content, such as nutritional databases, workout plan libraries, and recipe repositories.

Functionality:

- Supplies up-to-date nutritional information.
- Contributes to the diversity of workout plans and exercises.
- Offers a variety of healthy recipes.

3. Social Media Platforms:

Description: Integration with popular social media platforms, allowing users to share their fitness achievements and engage with the community.

Functionality:

- Facilitates the sharing of workout progress and challenges on external social media channels.

4. User Database:

Description: A database storing user profiles, preferences, and activity history.

Functionality:

- Stores and retrieves user information for a personalized experience.

The Context Model highlights the relationships and interactions that contribute to the overall operation of WellnessHub by exhibiting these external components. Integration of the app with wearables, external content providers, social media platforms, and analytics services enhances the user experience and assures the app's continual improvement within a larger digital ecosystem.

6. Entity Relationships

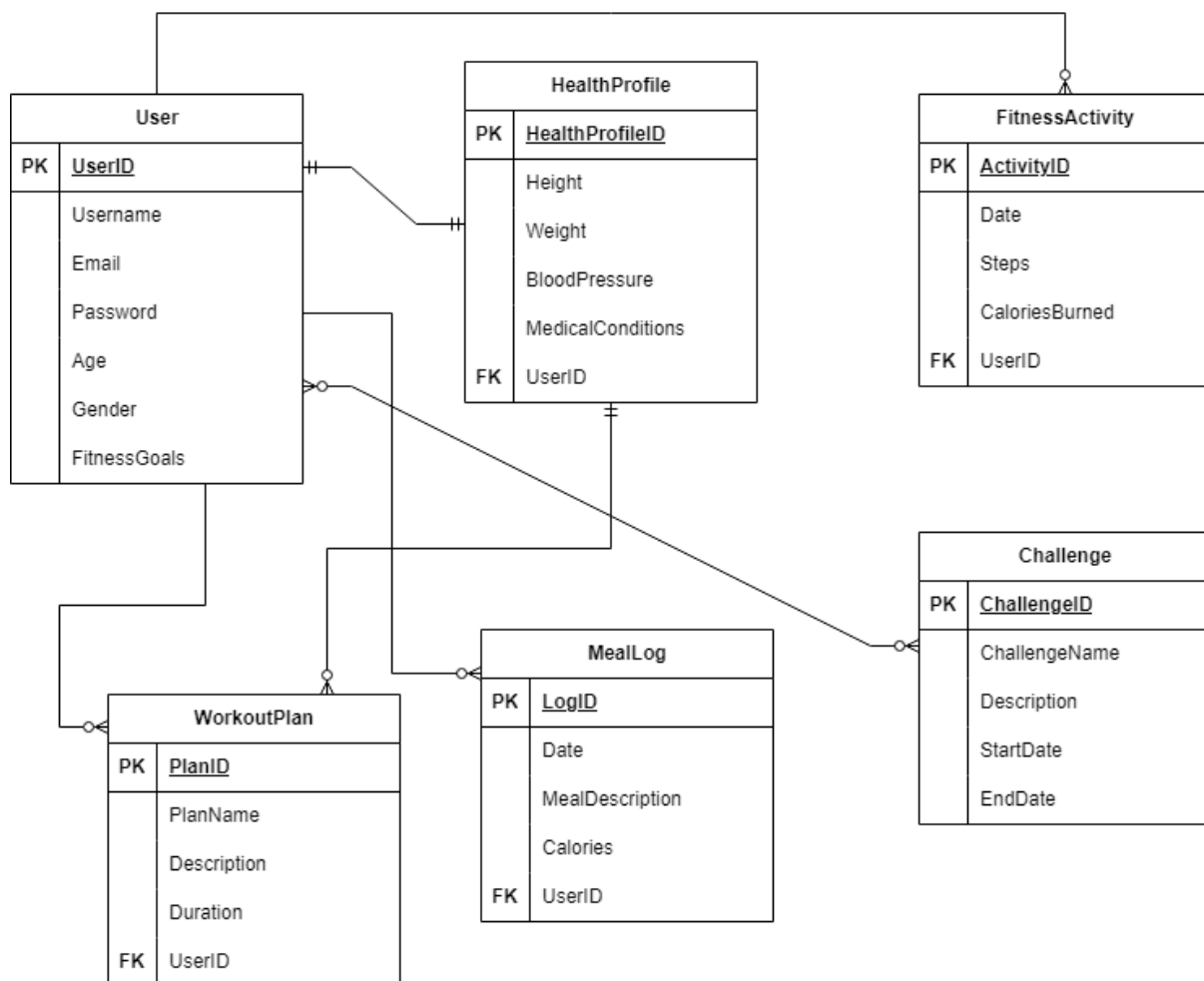


Figure 6.1- Entity Relationships Diagram for WellnessHub

The Entity Relationship Diagram for WellnessHub illustrates the key entities and their relationships within the system. Entities represent objects or concepts in the database, and relationships depict how these entities are associated. Let's delve into the details of the diagram:

1. Entities:

a. User:

- **Attributes:** UserID (Primary Key), Username, Email, Password, Age, Gender, Fitness Goals.
- **Explanation:** The User entity represents individuals using the WellnessHub app. The UserID serves as the primary key for uniqueness. Attributes like age, gender, and fitness goals are crucial for tailoring the user experience.

b. FitnessActivity:

- Attributes: ActivityID (Primary Key), UserID (Foreign Key), Date, Steps, CaloriesBurned.
- Explanation: The FitnessActivity entity tracks users' daily activities. The ActivityID serves as the primary key, and UserID is a foreign key establishing a link to the User entity. This relationship supports a 1-to-many connection, as one user can have multiple fitness activities.

c. WorkoutPlan:

- Attributes: PlanID (Primary Key), UserID (Foreign Key), PlanName, Description, Duration.
- Explanation: The WorkoutPlan entity represents the personalized exercise plans generated for users. Each plan is uniquely identified by PlanID, and the UserID establishes a link to the User entity. This is a 1-to-many relationship as a user can have multiple workout plans.

d. MealLog:

- Attributes: LogID (Primary Key), UserID (Foreign Key), Date, MealDescription, Calories.
- Explanation: The MealLog entity records users' logged meals. LogID is the primary key, and UserID is a foreign key linking to the User entity. This relationship is 1-to-many, as a user can log multiple meals.

e. Challenge:

- Attributes: ChallengeID (Primary Key), ChallengeName, Description, StartDate, EndDate.
- Explanation: The Challenge entity represents fitness challenges within the app. ChallengeID is the primary key, and users can join multiple challenges. This is a many-to-many relationship, implemented through a junction table (not shown for simplicity).

f. HealthProfile:

- Attributes: HealthProfileID (Primary Key), UserID (Foreign Key), Height, Weight, BloodPressure, MedicalConditions.
- Explanation: The HealthProfile entity represents the user's health-related information, including physical attributes, blood pressure, and any medical conditions. HealthProfileID is the primary key, and UserID is a foreign key linking to the User entity. Each user has a single associated health profile.

2. Relationships:

- **User - FitnessActivity (1-to-many):**

Explanation:

Each user can have multiple fitness activities recorded in the FitnessActivity entity. The relationship is 1-to-many as one user can have many recorded activities over time.

- **User - WorkoutPlan (1-to-many):**

Explanation:

A user can have multiple personalized workout plans stored in the WorkoutPlan entity. The relationship is 1-to-many as one user may have various workout plans based on changing fitness goals.

- **User - MealLog (1-to-many):**

Explanation:

Users can log multiple meals, recorded in the MealLog entity. The relationship is 1-to-many, as one user can log several meals on different dates.

- **User - Challenge (Many-to-many):**

Explanation:

Users can join multiple fitness challenges, and each challenge can have multiple participants. This is a many-to-many relationship, implemented through a junction table (not shown for simplicity).

- **User - HealthProfile (1-to-1):**

Explanation:

Each user has a unique health profile recorded in the HealthProfile entity. This is a 1-to-1 relationship, indicating that each user has precisely one health profile, and each health profile corresponds to a specific user.

- **HealthProfile - WorkoutPlan (1-to-Many):**

Explanation:

Each user has a unique health profile recorded in the HealthProfile entity which corresponds to the exclusive workout plan. The workout plan will be beneficial and appropriate for the health profile.

3. Choices and Rationale:

- **Primary and Foreign Keys:**

Choosing appropriate primary keys ensures uniqueness and efficient data retrieval. UserID is the primary key in the User entity, linking to foreign keys in related entities to establish relationships.

- **Relationship Types:**

1-to-many relationships are chosen where one user can have multiple fitness activities, workout plans, and logged meals. Many-to-many relationships are implemented for users participating in challenges, as each user can join multiple challenges, and each challenge can have multiple participants.

1-to-1 Relationship: The 1-to-1 relationship between User and HealthProfile entities is established to maintain a concise and direct association between a user and their health-related information. This ensures that each user has a single health profile, avoiding redundancy and maintaining data integrity.

- **Attributes:**

Attributes are chosen based on their relevance to each entity. For example, FitnessActivity includes attributes like Date, Steps, and CaloriesBurned for comprehensive fitness tracking. The HealthProfile entity includes attributes such as Height, Weight, BloodPressure, and MedicalConditions to capture essential health-related details. This information provides a more holistic view of the user's well-being within the app.

In summary, the ERD for WellnessHub is designed to capture the relationships and dependencies between key entities, supporting the system's functionality in tracking user activities, providing personalized workout plans, logging meals, and facilitating participation in fitness challenges. The choices made in defining primary keys and relationship types aim to ensure data integrity and optimal system performance.

7. Conclusion

In crafting the design for WellnessHub, the primary goal is to create a seamless and user-centric health and fitness app. The design intricately weaves together features like personalized wellness tracking, social engagement, and integration with external services to provide users with a holistic and enriching experience.

Through entities such as FitnessActivity, WorkoutPlan, MealLog, and HealthProfile, users can effortlessly monitor their fitness activities, follow tailored workout plans, log meals, and

maintain comprehensive health records. This approach ensures a personalized journey for each user, fostering a sense of individualized care.

The envisioned social engagement features, including User-Achievement relationships and challenges, aim to cultivate a vibrant community within the app. Users can celebrate achievements collectively and partake in challenges, enhancing the social fabric of WellnessHub. In the next phase of implementation, a notification system for achievements and challenges will be developed, providing users with timely updates and further enhancing their interaction.

Integration with external services, as depicted in the Context Model, adds a layer of richness to the app. Wearable devices, external content services, social media platforms, and analytics services are seamlessly integrated, elevating the overall functionality of WellnessHub. Further strengthening API integration for wearables and refining analytics will be focal points for the next phase.

The introduction of the HealthProfile entity establishes a one-to-one relationship between users and their health-related information, delivering a comprehensive view of each user's wellness journey. In the upcoming stages, expanding health-related metrics and refining the user interface for detailed health tracking will be pivotal.

As the project moves into the next implementation phase, the emphasis will be on developing an intuitive user interface, fortifying backend infrastructure, and conducting thorough testing to ensure a seamless user experience. The launch will be followed by user feedback collection, allowing for iterative improvements and adaptations based on real-world usage.

In conclusion, the proposed design for WellnessHub is poised to fulfil the outlined requirements by providing a user-centric and feature-rich health and fitness app. The next phase of implementation will refine these features, gather valuable user insights, and ensure the app's scalability for a growing user base. The iterative development approach ensures WellnessHub remains adaptive and responsive to the dynamic needs of its users.