

CoHabit Application

CCSW 223 Lab Project Report
IT

2024 - 2025

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Nuha Alberaiki	2411956	<ul style="list-style-type: none"> • Interview description and questions and 2 interview analysis • Background of the Project Effort, Content Motivation, and Cost & schedule estimates • Alternative Solutions, Cost and Benefits of Alternatives, and Project plan • Stockholder Definition and The Current Situation • Use Case Diagram, List of Scenarios, and Functional and Non-functional Requirements • Scenario and Sequence Diagram • Class Diagram
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1. INTRODUCTION

Our project, CoHabit, aims to revolutionize the way people build and maintain habits by integrating social support, gamification, and AI-driven personalization. Unlike traditional habit-tracking apps, CoHabit emphasizes community engagement to make habit formation more enjoyable, collaborative, and sustainable. By connecting users with similar goals, the app fosters accountability and shared motivation, encouraging users to stick to their habits.

The development of CoHabit followed a structured software development lifecycle, progressing through several key phases:

1. Planning Phase: We identified the challenges faced by users in building habits and defined the goals and scope of the app.
2. Analysis Phase: Functional and non-functional requirements were gathered, and a use-case diagram was created to outline the system's key features.
3. Design Phase: System architecture was designed, including sequence and class diagrams, to model the app's workflow and interactions.
4. Implementation Phase: Although this report focuses on the theoretical aspects, we explored how to build the app, integrating user-friendly and secure features.

This approach ensured that every phase built upon the previous one, ultimately creating a comprehensive and feasible solution.

2. PROBLEM DEFINITION

Building and maintaining new habits is challenging for many people due to a lack of motivation, responsibility, and support from others. Most existing habit-tracking apps are designed for only individual use, which can make habit formation feel boring and less engaging without emphasizing the social and communal aspects of formation. As a result, this can make the habit building process feel isolated, leading to lower engagement and higher dropout rates over time.

In order to overcome these challenges, CoHabit is focused on creating a social habit-building application that helps users to connect with others who share similar goals. By forming a group, users gain accountability and support from their peers. The app combines social interaction and customizable habit-building tools for habit formation, ensuring that users remain motivated and involved while making it easier to establish and more enjoyable to develop and maintain new habits.

3. INFORMATION GATHERING

3.1 Interview Description

This interview is designed to investigate the various challenges that individuals encounter when attempting to develop and maintain their habits. We will look into how they track their progress and whether they utilize any specific habit-tracking apps. Additionally, we will explore the significance of community support in motivating habit formation and maintenance.

The discussion will focus on the following questions:

1. **Challenges Faced:** What particular habits are you currently seeking to develop or maintain, and what challenges do you face in doing so?
2. **Tracking Progress:** How do you generally track your progress on these habits?
3. **Experience with Habit Tracking Apps:** Have you used any app specifically aimed for habit tracking and development? If so, what motivated you to try one? If not, what factors would encourage you to consider using an app for that purpose?
4. **Community Role:** How vital do you consider community interaction to be in motivating individuals to build and maintain their habits?
5. **Information Preferences:** What information or content types do you look for when trying to establish new habits?
6. **App Features:** In your opinion, what features make a habit-building app particularly effective?

Overall, this interview seeks to gather insights that can inform the development of a more effective application for individuals engaged in habit-building, ultimately promoting their personal growth.

3.2 Interview Analysis

Interviewer	Interviewee	Analyst Comment
Lamar Alharthi	Sarah, Student, Sep 5 th 2024	<p>Sarah is currently working on improving productivity habits such as daily exercise and time management, with the main challenge being consistency when motivation is low. She typically tracks her progress through journaling or to-do lists. She has tried a habit tracker app because it makes monitoring easier through visual reminders. She believes that community engagement is essential for motivation and looks for clear plans and success stories when building new habits. A good habit app should provide easy tracking, personalized reminders, and community support.</p>
	Remas, Student, Sep 7 th 2024	<p>Remas focused on building healthier eating habits and reducing screen time. Her biggest challenge is resisting distractions and cravings. She tracks her habits by setting daily reminders on her phone. She has not used a habit tracker app yet but would consider using one if it provided motivation through rewards or visuals of progress. She believes that community support can be very motivating because it creates accountability. When starting new habits, she looks for simple tips and an easy-to-follow routine. An effective habit app should include progress tracking, rewards, and social interaction features.</p>

TABLE 3.1

Interviewer	Interviewee	Analyst Comment
Nuha Alberaiki	Lama, Student, Sep 6 th 2024	<p>Lama desires to establish a consistent fitness program but often struggles with motivation. It would be helpful for her to use an app that allows her to track her training sessions and set specific goals. She believes that interaction with the community is crucial as participating in community challenges would promote friendships and accountability among members. Additionally, she values supportive chats where she can discuss her progress, get advice, and celebrate successes with others, which makes her fitness journey more enjoyable and connected.</p>
	Asmaa, Student, Sept 8 th 2024	<p>Asmaa aspires to read regularly but struggles to maintain interest in her reading materials. She envisions utilizing an app to log the books she reads along with her thoughts on them, enabling her to track her progress. She believes that community interaction is essential for maintaining motivation, as connecting with fellow readers through discussions and sharing insights can make the experience more enriching. Furthermore, she would value supportive discussions that could enhance her reading experience by sharing book recommendations and celebrating her reading achievements.</p>

TABLE 3.2

Interviewer	Interviewee	Analyst Comment
Mayar Algahtani	Haya, Student, Sep 7 th 2024	Haya shared that she strives to interpret regular reading, healthy eating, and physical exercise into her daily life, but often struggles to maintain these habits due to time constraints and distractions, leading to procrastination and loss of motivation. She primarily relies on her memory but also uses lists and reminders on her notes app and physical planner. Influenced by her siblings and online figures who seem to have everything together, she acknowledges that everyone faces challenges with motivation and purpose, especially due to stress. However, observing others develop their own habits inspires her to work on improving herself. To stay motivated, she engages in reading about the science behind habits and their benefits, listens to success podcasts, watches inspiring movies, and reads self-help books. She values a clean, straightforward design for tracking progress, with streaks showing her achievements, reminders, and positive messages.
	Jana, Student, Sep 8 th 2024	Jana, a medical student, focuses on building a healthier lifestyle to both improve her own well-being and promote health awareness among high school girls. Balancing med school demands with habits like regular exercise, better nutrition, and adequate sleep is challenging, but she remains committed. She tracks her progress using apps like MyFitnessPal and sleep trackers, setting specific goals and managing stress through journaling. Community support plays a crucial role for her, providing accountability and motivation. To establish new habits, she relies on practical tips, success stories, and evidence-based information. She finds habit-building apps most effective when they offer clear goal setting, personalized reminders, progress tracking, and community features for added support.

TABLE 3.3

Interviewer	Interviewee	Analyst Comment
Rahaf Aljedaani	Manar, Student, Sep 7 th 2024	Manar is working on making reading on her Kindle a daily habit. Finding time to read regularly in the middle of other responsibilities has been a challenge for her. She used tracking apps to stay motivated, as these apps provide reminders and help visualize progress. For her, an effective app is simple, offers streaks or visual progress, and sends reminders at just the right time without being overwhelming.
	Noura, Student, Sep 8 th 2024	Noura is currently focused on achieving a structured morning routine that includes hydration, and light stretching. To keep on track, she uses a daily journal to check off each activity. She has used some of the popular tracking apps, but they weren't as efficient as using a manual method.

TABLE 3.4

Interviewer	Interviewee	Analyst Comment
Ruaa Alberaiki	Deena, Student, Sep 6 th 2024	Deena is seeking to improve her time management skills, but she finds it difficult to be consistent and stay motivated. She has tried time management and habit-tracking apps, but she quickly grows bored with them. She tried to monitor her progress using apps and written techniques such as planners, but she finds it difficult to stick to a schedule. She wants to strike a balance between the support of her community and her own advancement, even though she is aware of the potential advantages of community interaction for accountability and motivation. She searches for doable advice, detailed instructions, and entertaining content to help her form new routines. Deena feels that customized goals, flexible scheduling, and interesting features like gamification or rewards would make a habit-building app more successful in keeping her engaged.
	Rawan, Student, Sep 7 th 2024	Rawan is trying to learn archery on her own, but she is having trouble keeping organized and sticking to a regular practice schedule. She plans her sessions with sticky notes, but she doesn't have a formal method to monitor her development over time. Moreover, she doesn't use any habit-tracking apps, but she might give one a try if it could provide useful advice and help her stay on track. She believes that a supportive community could keep her involved because She finds inspiration in watching others on social media improve their archery skills. Also, she searches YouTube and other websites for beginner-friendly video tutorials because they provide clear, step-by-step instructions. From her perspective, an efficient app for creating habits should be user-friendly and incorporate features of goal setting, educational materials, and a community component to sustain her motivation.

TABLE 3.5

Interview summary

The interviews indicate that participants encounter significant obstacles in establishing and maintaining habits, primarily due to inconsistent motivation, time limitations, and distractions. They highlight the crucial role of community support, noting that peer interaction boosts both motivation and accountability. Additionally, participants express a strong interest in a habit-building app that includes community features, allowing them to connect with others for support and shared experiences. They also desire habit-tracking tools that are simple, customizable, and visually appealing, incorporating professional assistance, and adjustments goal-setting. By integrating these insights, a habit-building app can effectively assist users in overcoming challenges, nurturing a sense of community, and encouraging sustainable habit development.

4. PLANNING PHASE

4.1 Project Goals

CoHabit is a social-driven habit-building app that connects users with shared goals, offering personalized tools and group accountability to make forming and maintaining habits more enjoyable and motivating.

4.2 Cost and schedule estimation

Project Estimated Costs

Resources	Estimated cost	Resources	Estimated cost
App Store Fees	\$299 per year	Third-Party Integrations (Wearables, APIs)	\$10,000
Data Security	\$1,000	Design	\$15,000
Maintenance	\$2,000	User Research & Usability Testing	\$15,000
Marketing	\$3,000	Content Creation	\$18,000
QA Testing	\$5,000	Professional Advice	\$20,000
Legal & Compliance	\$5,000	Post-Launch Support	\$25,000
Customer Support	\$7,000	AI Development & Machine Learning Integration	\$30,000
Cloud Services	\$10,000 per year	Server Infrastructure	\$35,000
App Development	\$10,000	Project Management	\$40,000
Cross-Platform Support	\$10,000	Partnerships and Sponsorships	\$50,000

TABLE 4.1

Project Estimated Schedule

Tasks	Estimated duration	Start date	End date
Planning	2 weeks	3/21/46 8:00 AM	4/11/46 5:00 PM
Requirements Specification	1 week	3/28/46 8:00 AM	3/27/46 5:00 PM
Requirements Elicitation	1 week	3/21/46 8:00 AM	3/27/46 5:00 PM
UI/UX Design	4 weeks	4/12/46 8:00 AM	5/9/46 5:00 PM
Content Creation	4-5 weeks	5/10/46 8:00 AM	6/15/46 5:00 PM
Development (Overall App)	8 months	6/16/46 8:00 AM	12/6/46 5:00 PM
Habit Tracking Algorithm	2-3 weeks	3/21/46 8:00 AM	6/15/46 5:00 PM
Community and Socializing Features	3-4 weeks	3/21/46 8:00 AM	4/18/46 5:00 PM
Third-Party Integration	4 weeks	3/21/46 8:00 AM	4/18/46 5:00 PM
AI & Machine Learning Integration	6 weeks	3/21/46 8:00 AM	5/2/46 5:00 PM
Security & Data Protection Implementation	4-5 weeks	12/7/46 8:00 AM	1/12/47 5:00 PM
User Research & Usability Testing	2-3 weeks	1/13/47 8:00 AM	2/3/47 5:00 PM
Testing and Quality Assurance	7 weeks	2/4/47 8:00 AM	7/23/47 5:00 PM
Marketing & Pre-Launch	3 weeks	7/24/47 8:00 AM	8/14/47 5:00 PM
Beta Launch & Feedback	2 weeks	8/15/47 8:00 AM	8/28/47 5:00 PM
Official Launch	1 week	8/29/47 8:00 AM	9/6/47 5:00 PM
Post-Launch Support	1 month	9/7/47 8:00 AM	10/4/47 5:00 PM

TABLE 4.2

4.3 The Feasibility Study

Problem Definition

The process of building and maintaining habits is a challenge for many individuals, primarily due to a lack of consistent motivation, accountability, and support. Existing habit-tracking apps focus predominantly on individual progress, which often makes the journey of habit formation isolating and monotonous. This isolation can lead to decreased engagement and higher abandonment rates over time. The absence of a social or community-driven aspect makes it difficult for users to stay motivated, share progress, and receive support from others facing similar challenges.

Scope Objectives of “new system”

Proposed name of the new system: CoHabit+

The Objective of the New System: The primary goal of CoHabit+ is to change habit-building from a solitary, individual endeavor to a collaborative, community-driven endeavor by enhancing habit tracking through gamification, social interaction, and AI-driven personalization. In order to assist users in forming and sustaining healthy habits in an inspiring and dynamic setting, it provides customized habit support, community involvement, and seamless wearable integration.

Concepts of the system: The CoHabit+ system will utilize technology and social interaction to provide an enjoyable and highly successful habit-forming experience for users. This platform will combine advanced AI, gamification, real-time tracking of habits, and community features to help users establish and manage habits efficiently. By transitioning from individual, manual habit tracking to an interactive, automated system, CoHabit+ ensures that users stay motivated, receive prompt assistance, and easily adapt their habits based on real-time data.

The CoHabit+ system is designed to meet user requirements by:

- **Enhanced Social Engagement:** By providing an engaging environment for users to connect, share experiences, and offer support to one another, community features like group challenges, peer mentoring, and public forums help to add a social component to the formation of habits.
- **Personalization and AI Support:** By utilizing algorithms driven by AI, habit tracking becomes more user-friendly and customized. These algorithms provide habit recommendations, reminders, and intervention strategies that are customized to individual progress, behavior patterns, and preferences.

- **Gamification and Motivation:** Integrated gamification features, such as leaderboards, badges, streaks, and surprise rewards, encourage competition and offer encouragement to users to stay committed to their goals.
- **Seamless Wearable Integration:** When wearable devices are synchronized in real-time, users can track their habits with minimal manual input, which improves accuracy and convenience.
- **Habit Science and Educational Resources:** An integrated multimedia library offers materials with scientific backing, such as podcasts, videos, and articles, equipping users with the knowledge they need to comprehend the psychology of habit formation.
- **Advanced Analytics and Reporting:** Users can track their successes and failures with weekly progress reports that include data visualizations and tailored guidance, offering practical suggestions for enhancement.

What distinguishes our system:

1. Social and Community Integration: What distinguishes CoHabit+ from other communities is its dynamic, peer-driven environment, which includes peer support and real-time group challenges. This collaborative platform encourages motivation and personal responsibility.
2. AI-Powered Adaptivity: In contrast to other systems, CoHabit+ leverages AI to anticipate possible habit relapses and provide prompt interventions to keep users on track.
3. Gamification for Long-Term Engagement: With a wide variety of gamified components, users stay engaged in the process of forming habits, getting motivated by daily accomplishments, leaderboards, and incentive programs.

CoHabit+ stands out by combining social support, AI-powered insights, and gamification into a single, integrated platform that enables users to create and maintain productive habits in an easy and enjoyable way.

Alternative Solutions

- Standalone Habit-Tracking App
- Social Media Integration
- Do Nothing

Cost and Benefits of Alternatives

Alternatives	Cost	Benefits	Drawbacks
Standalone Habit-Tracking App	1000000	Simpler to develop, lower initial costs, and straightforward user experience.	Lacks social interaction, lower user engagement, and higher dropout rates.
Social Media Integration	50000	Leverages existing user base, enhances social interaction, and reduces development costs	Limited control over user experience, potential privacy concerns, and dependency on third-party platforms.
Do Nothing	None	No cost, no effort required	No tracking, no accountability, no progress insights, no motivation

TABLE 4.3

Software Impacts

- Motivation Features: Add rewards, achievements, and motivational reminders.
- Community Features: Create group challenges, discussion forums, and social feeds for user interaction.
- Customization: Provide flexible scheduling, goal customization, and adaptive reminders.
- Simple Interface: Design a clean and user-friendly interface with quick access to tools.
- Educational Content: Include articles, video tutorials, and habit-building tips.
- Advanced Progress Tracking: Track progress with analytics and streaks.
- App Integration: Support integration with other health and productivity apps.
- Reward Systems: Offer in-app rewards and real-life incentives for achieving goals.
- Professional Assistance: Provide expert consultations and goal adjustments based on performance.

Potential Changes in the Organization

To enhance CoHabit project, small changes may be required. It can introduce location-based challenges or events that could encourage local users to connect in person, fostering a stronger sense of accountability. Implementing a feature that allows users to share milestones and achievements publicly within the app could also enhance motivation by creating positive social reinforcement. Additionally, offering categorized difficulty levels for challenges and habits—such as beginner, intermediate, and advanced—would cater to users at different stages of their habit-building journey. Finally, providing users with the ability to create and lead their own group challenges would promote leadership.

Recommended Alternative of the Course of Action

The best alternative will be a Standalone Habit Tracking App. It offers a manageable development scope, is more affordable in the long run compared to social media integration, and provides full control over the user experience. Though it lacks social features, the app can be incrementally improved by adding features like reminders, gamification, or analytics to increase user engagement without the complexity and privacy risks of social media.

4.4 Project Plan

Specify

	Task Name	Resource Names	Duration	Start	Finish	Work	Predecessors	% Complete
1	■ Planning		15 days	3/21/46 8:00 AM	4/11/46 5:00 PM	160 hrs		0%
2	Planning	Project Manager	2 wks	3/28/46 8:00 AM	4/11/46 5:00 PM	80 hrs	4,3	0%
3	Requirement Elicitation	Business Analyst	1 wk	3/21/46 8:00 AM	3/27/46 5:00 PM	40 hrs		0%
4	Requirement Specification	Business Analyst	1 wk	3/21/46 8:00 AM	3/27/46 5:00 PM	40 hrs		0%
5	■ Design		45 days	4/12/46 8:00 AM	6/15/46 5:00 PM	360 hrs		0%
6	UI/UX Design	UI/UX designer	4 wks	4/12/46 8:00 AM	5/9/46 5:00 PM	160 hrs	2	0%
7	Content Creation	Content Writer	5 wks	5/10/46 8:00 AM	6/15/46 5:00 PM	200 hrs	6	0%
8	■ Development		180 days	3/21/46 8:00 AM	12/6/46 5:00 PM	1,640 hrs		0%
9	Development (Overall App)	Development Team	6 mons	6/16/46 8:00 AM	12/6/46 5:00 PM	960 hrs	7,6,10,11,12,13	0%
10	Habit Tracking Algorithm	Software Developer	3 wks	3/21/46 8:00 AM	4/11/46 5:00 PM	120 hrs		0%
11	Community and Socializing Features	Software Developer	4 wks	3/21/46 8:00 AM	4/18/46 5:00 PM	160 hrs		0%
12	Third-Party Integration	Software Developer	4 wks	3/21/46 8:00 AM	4/18/46 5:00 PM	160 hrs		0%
13	AI & Machine Learning Integration	Data Scientist / AI Engineer	6 wks	3/21/46 8:00 AM	5/2/46 5:00 PM	240 hrs		0%
14	■ Security		25 days	12/7/46 8:00 AM	1/12/47 5:00 PM	200 hrs		0%
15	Security & Data Protection Implementation	Security Specialist	5 wks	12/7/46 8:00 AM	1/12/47 5:00 PM	200 hrs	9	0%
16	■ Testing		135 days	1/13/47 8:00 AM	7/23/47 5:00 PM	1,080 hrs		0%
17	User Research & Usability Testing	UX Researcher	3 wks	1/13/47 8:00 AM	2/3/47 5:00 PM	120 hrs	15	0%
18	Testing & Quality Assurance	QA Tester	6 mons	2/4/47 8:00 AM	7/23/47 5:00 PM	960 hrs	17	0%
19	■ Marketing		15 days	7/24/47 8:00 AM	8/14/47 5:00 PM	120 hrs		0%
20	Marketing & Pre-Launch	Marketing Specialist	3 wks	7/24/47 8:00 AM	8/14/47 5:00 PM	120 hrs	18	0%
21	■ Launch		15 days	8/15/47 8:00 AM	9/6/47 5:00 PM	120 hrs		0%
22	Beta Launch & Feedback	Project Manager / Development Team	2 wks	8/15/47 8:00 AM	8/28/47 5:00 PM	80 hrs	20	0%
23	Official Launch	Project Manager /	1 wk	8/29/47 8:00 AM	9/6/47 5:00 PM	40 hrs	22	0%
24	■ Post-Launch		20 days	9/7/47 8:00 AM	10/4/47 5:00 PM	160 hrs		0%
25	Post-Launch Support	Support Team / Development Team	1 mon	9/7/47 8:00 AM	10/4/47 5:00 PM	160 hrs	23	0%

TABLE 4.4

5. ANALYSIS PHASE

5.1 Stakeholders

The Client

Invested Company: A company actively supporting CoHabit's growth and development through financial backing and strategic partnerships.

The Customer

End Users: Individuals facing challenges in maintaining habits, seeking motivation and self-improvement through the CoHabit platform.

Business Owners: Entrepreneurs interested in providing their tools or services through CoHabit to enhance user experience and engagement.

Other Stockholder

End Users: Individuals in need of habit-building support, motivation, and self-improvement opportunities within the CoHabit ecosystem.

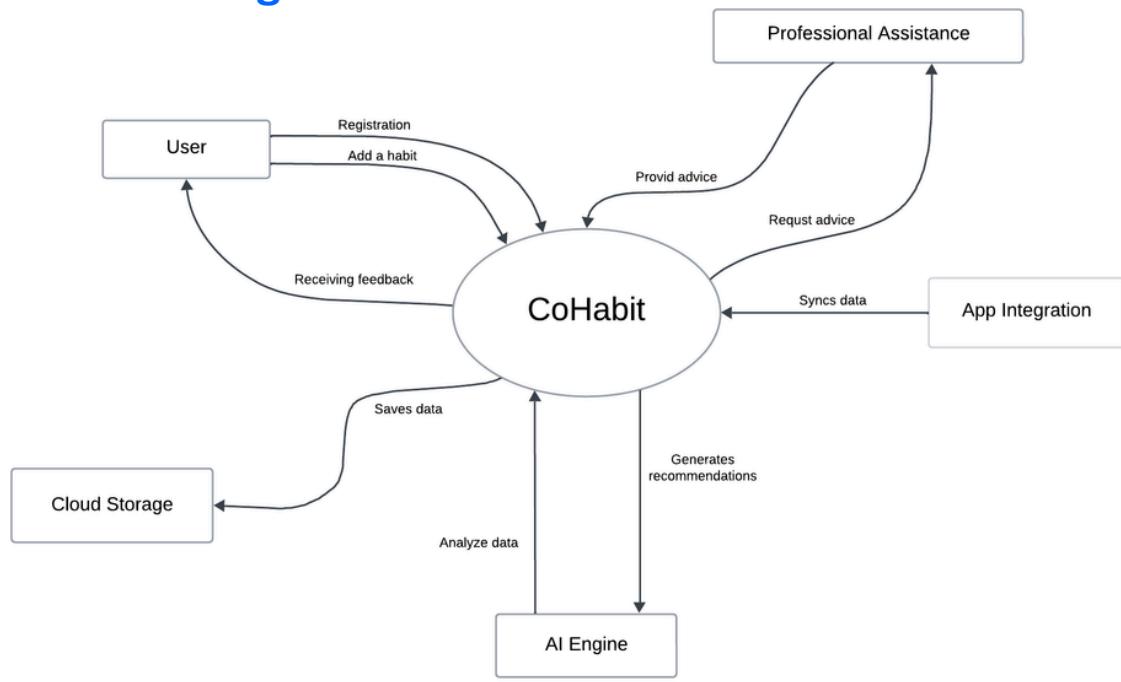
Professionals: Coaches, therapists, and trainers contributing expert advice, content creation, and guidance within the app to enhance user experience.

Developers and Designers: Technical experts responsible for app development, maintenance, and feature integration, focusing on user-centric design and continuous improvement.

Community Managers: Individuals managing group chats, community challenges, and user engagement to foster a vibrant and supportive CoHabit community.

Marketing Teams: Professionals promoting CoHabit, onboarding users, establishing partnerships, managing branding, and expanding the user base through strategic outreach and campaigns.

5.2 Context Diagram



5.3 Event Table

Event Name	Input and Output	Summary
User Registration	User Data (in)	User signs up to the app with their information
Adding a Habit	Habit Data (in)	User adds a new habit to track and improve
Receiving Feedback	Recommendations, Reports, and Reminders (out)	User receives personalized recommendations, reports, and reminders
Request for Professional Advice	User request (out)	User requests advice from professionals and CoHabit facilitates the response.
Provide Advice	Advice (in)	Professional provides advice to the user through CoHabit.
Data Sync with App Integration	Data (in)	CoHabit syncs user data with integrated apps for seamless experience.
Data Collection by AI Engine	User activity (in) Insights and suggestions (out)	CoHabit's AI engine collects user data and provides habit-building insights.
Cloud Data Storage	Data (out)	User data is saved or retrieved from the cloud storage for security.

TABLE 5.1

5.4 Functional Requirements

1. The app shall allow users to create accounts and log in using email, phone number, or third-party services (Google, Apple, etc.).
2. Users shall be able to create, update, and delete habits.
3. The system shall allow users to set and modify reminders for specific habits.
4. The AI Engine shall generate weekly reports for users with data visualizations and progress summaries.
5. The app shall allow users to join or create community challenges based on their shared interests and goals.
6. The app shall offer personalized habits based on the users' most recent searches or most liked interests

7. The app shall offer expert advice depending on what the user needs.
8. Users shall be able to give and receive feedback through comments, reactions and so on.
9. Users shall log their daily progress and track habit completion rates.
10. The app shall allow integration with wearables like Fitbit, Google Fit, and Apple Health to automatically track physical activities.
11. Users shall join challenges with other users, track their participation, and view leaderboards.
12. The app shall allow users to customize habit trackers with categories, colors, and icons.
13. Users shall receive motivational notifications, including quotes and success stories.
14. The app shall support goal setting by breaking down long-term goals into smaller milestones.
15. The app shall use gamification (badges, points, levels) to reward consistency and achievements.
16. The app shall include a user-friendly onboarding process that guides new users through account setup, habit creation, and customization options.
17. Users shall be notified when they miss a habit for a certain period, encouraging them to get back on track.
18. Users shall be able to view their habit history, including successful and missed days, with detailed logs.

5.5 Non-Functional Requirements

1. Usability:

- The app should have an intuitive interface that is easy to navigate.

2. Performance:

- The app should load within 4 seconds for all major screens.
- The app should handle up to 100,000 active users simultaneously without performance degradation.'
- The app should support offline mode for habit tracking to allow users to log activities even without an internet connection.

3. Security:

- User data should be encrypted at rest and in transit.

4. Adaptability:

- The AI should adapt habit recommendations and reminders based on user behavior changes within a week.
- The app should support adaptive algorithms that improve with user data over time.

5. Compatibility:

- The app should load within 4 seconds for all major screens.
- The app should handle up to 100,000 active users simultaneously without performance degradation.'
- The app should support offline mode for habit tracking to allow users to log activities even without an internet connection.

6. Privacy:

- User data should not be shared with third parties without consent.
- The app should allow users to delete their accounts and all associated data.
- Location data and sensitive personal information should only be collected with explicit user permission.

5.6 Use case Diagram

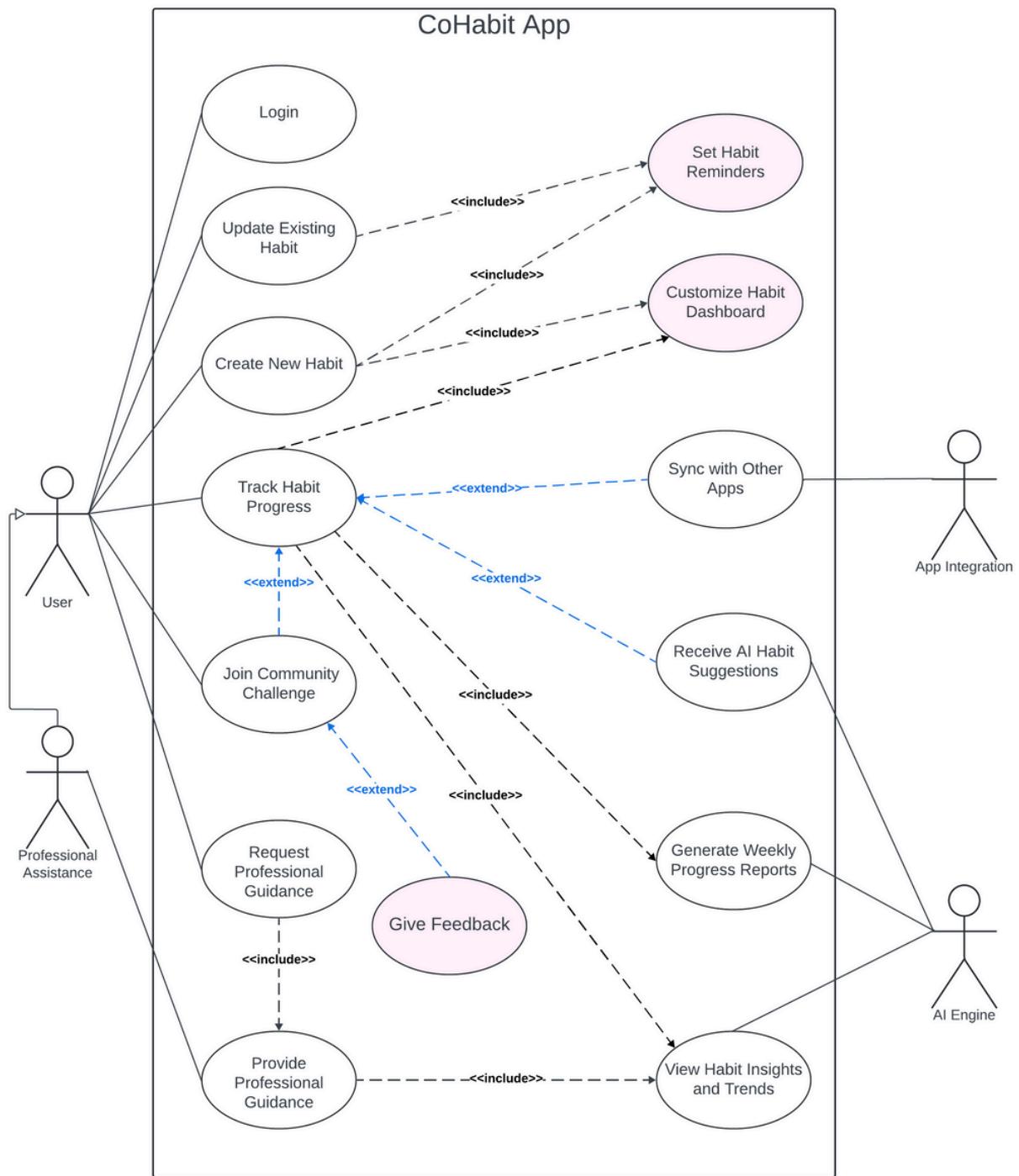


FIGURE 5.2

5.7 Scenarios

Scenario 1: for use case "Create New Habit":

Name	Create New Habit
Id	UC01
Actors	User
Precondition	The user is logged into the CoHabit app.
Path	<ol style="list-style-type: none">1. The user selects "Create New Habit."2. The system displays a form for habit details.3. The user enters and confirms the habit name, frequency, and goals.4. The system validates the data:<ul style="list-style-type: none">• If invalid, the user corrects the errors.• If valid, the system saves the habit and updates the dashboard.5. The system shows a confirmation message.

TABLE 5.2

Scenario 2: for use case "Update an existing habit"

Name	Update Existing Habit
Id	UC02
Actors	User
Precondition	The user is logged into the CoHabit app and has an existing habit.
Path	<ol style="list-style-type: none">1. User selects an existing habit.2. The system displays the habit details.3. User updates the frequency or goals.4. The system saves the changes and updates the dashboard.5. A confirmation message is shown.

TABLE 5.3

Scenario 3: for use case "Join Community Challenge"

Name	Join Community Challenge
Id	UC04
Actors	User
Precondition	The user is logged into the app and has an active habit.
Path	<ol style="list-style-type: none">1. The user selects the "Join Community Challenge" option.2. The system displays a list of available challenges.3. The user selects a challenge.4. The system checks user eligibility (Skill Level, Challenge Capacity, Previous Participation, Account Status).5. A confirmation message is displayed to the user.6. The system updates the challenge participants list and challenge leaderboard.

TABLE 5.4

Scenario 4: for use case "Professional guidance request"

Name	Provide Professional Guidance
Id	UC06
Actors	Professional Assistance, User
Precondition	<ol style="list-style-type: none"> 1. The user is logged into the CoHabit app. 2. The user has a habit or challenge in progress for which they seek guidance. 3. The user has requested professional guidance.
Path	<ol style="list-style-type: none"> 1. The user navigates to the habit dashboard and selects "Request Professional Guidance" for a specific habit or challenge. 2. The request is sent to the Professional Assistance actor, who is notified of the user's request. 3. Professional Assistance reviews the user's habit details, progress, and any relevant data provided by the app, including weekly progress reports, insights, and trends. 4. Professional Assistance provides personalized advice, suggestions, or recommendations based on the user's specific habit and progress. 5. The user receives the guidance within the app and can choose to implement the suggestions. 6- The requested guidance may be unavailable. 7- User could request follow up questions and receive other responses.

TABLE 5.5

Scenario 5: for use case "Sync with Other Apps"

Name	Sync with Other Apps
Id	UC07
Actors	Primary Actor: User Secondary Actor: App Integration
Precondition	<p>The user is logged into the CoHabit app.</p> <p>The user has an existing account on the external app being integrated.</p>
Path	<ol style="list-style-type: none"> 1. User initiates the sync process. 2. CoHabit App sends an authentication request to the App Integration system. 3. The App Integration system responds with successful authentication. 4. CoHabit App starts a loop for each data type to sync: <ul style="list-style-type: none"> • Send a data request to the App Integration. • Receives the requested data from the App Integration. • Processes the data internally. • Updates the user's habit dashboard. 5. After syncing all data types, CoHabit App displays a "Sync Complete" message to the user.

TABLE 5.6

6 . DESIGN PHASE

6.1 System Sequence Diagram

Sequence Diagram 1: For use case "Create New Habit"

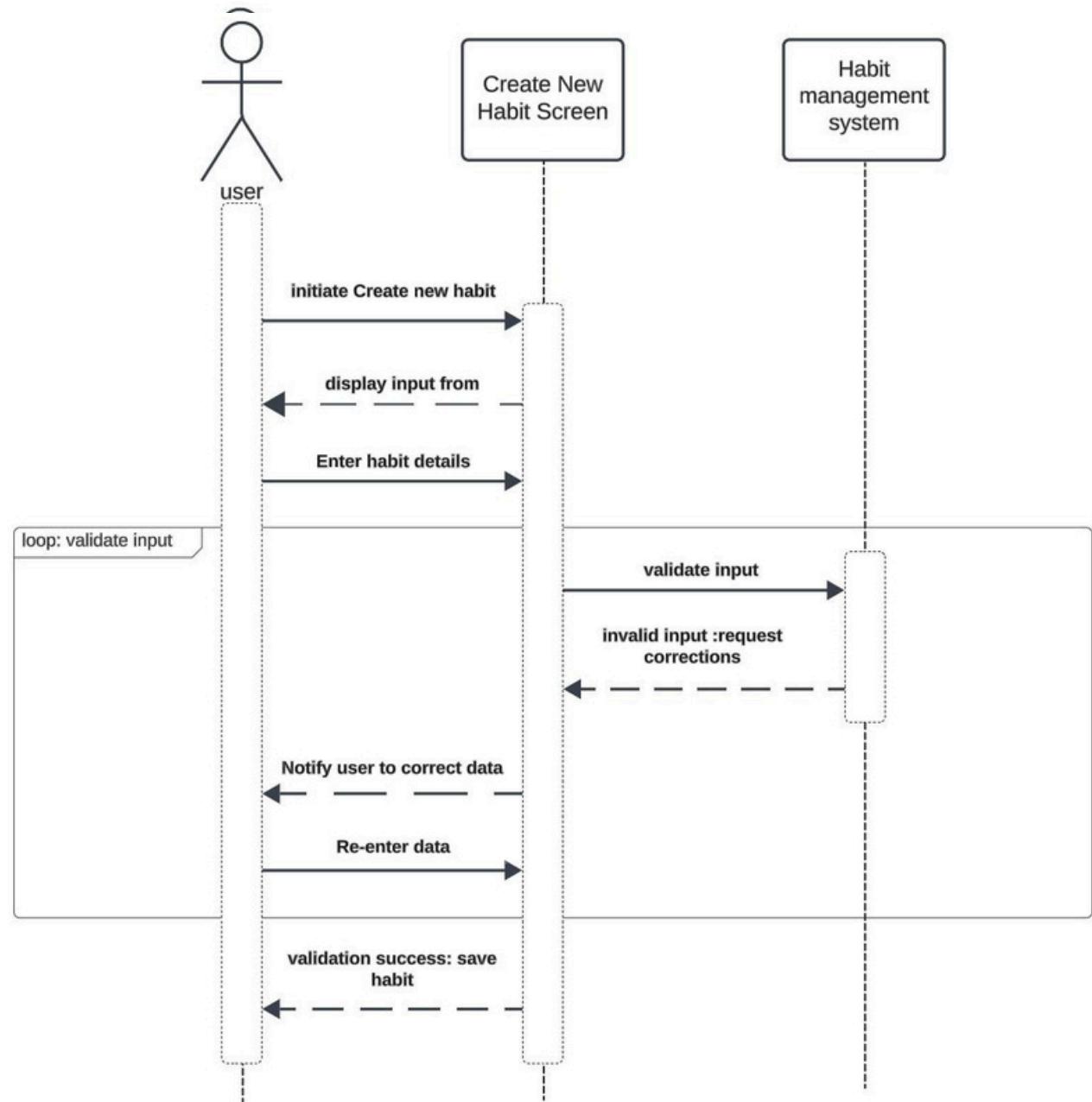


FIGURE 6.1

Sequence Diagram 2: For use case "Update an Existing Habit"

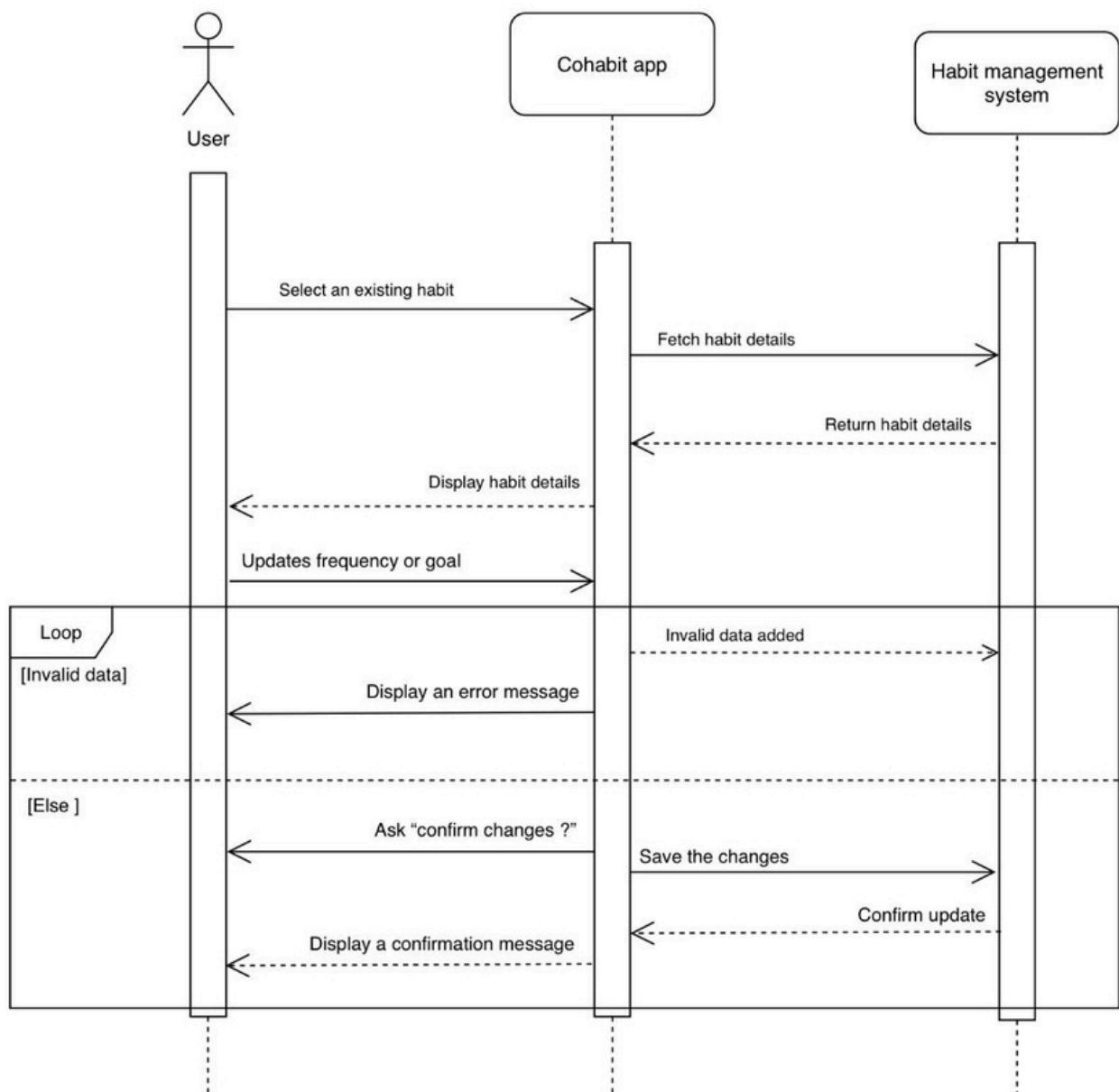


FIGURE 6.2

Sequence Diagram 3: For use case "Join Community Challenge"

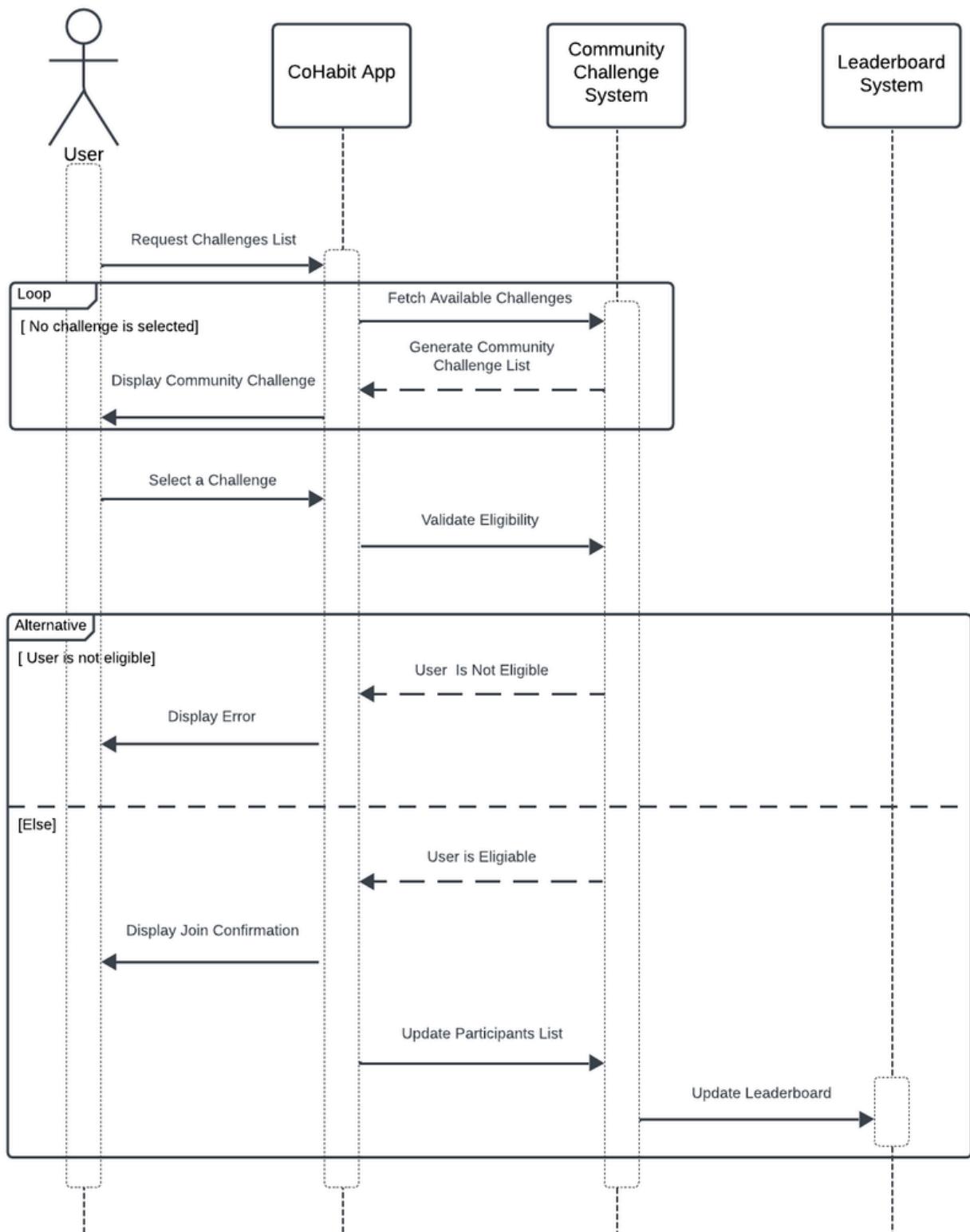


FIGURE 6.3

Sequence Diagram 4: For use case "Professional Guidance Request"

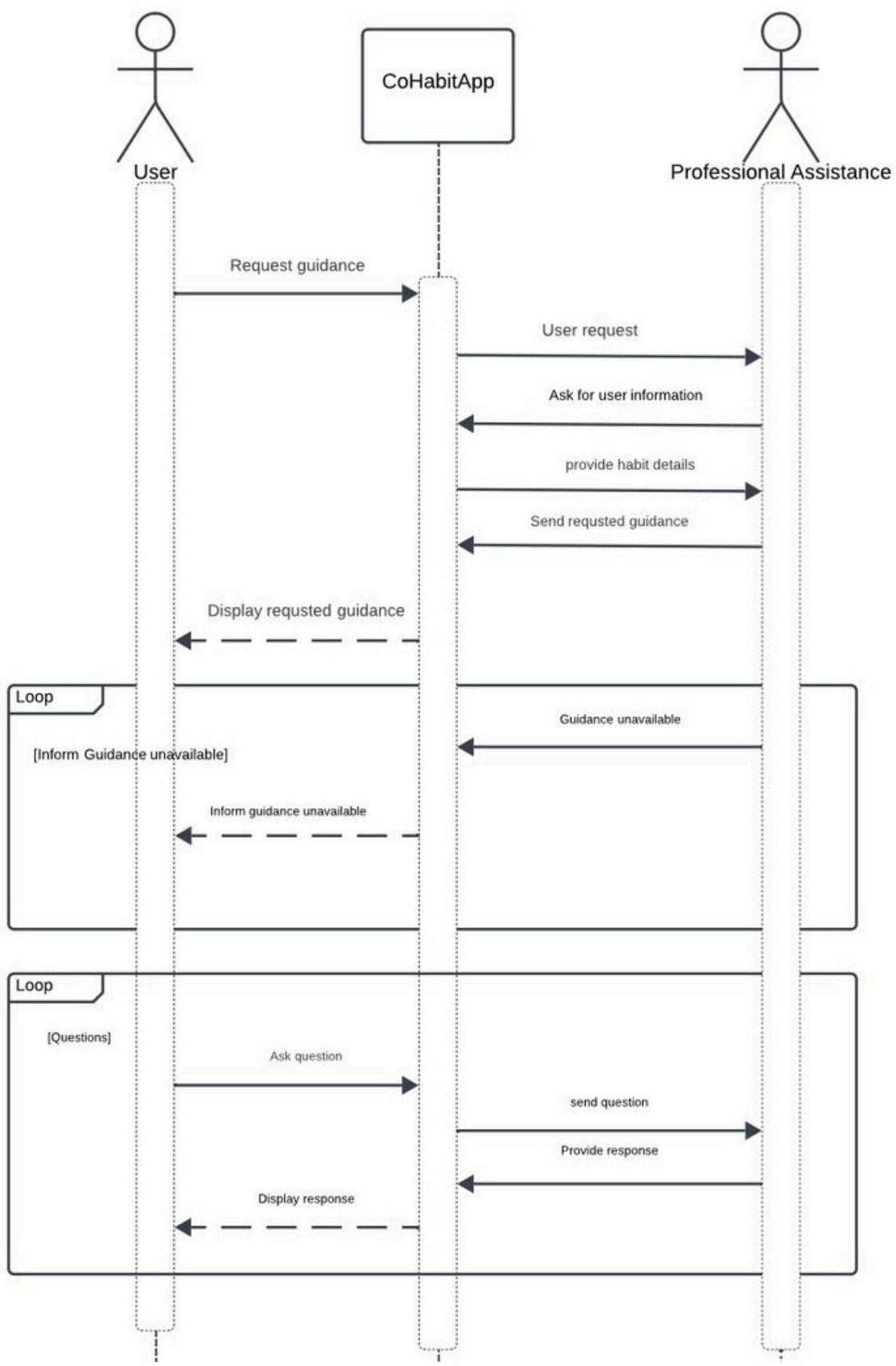


FIGURE 6.4

Sequence Diagram 5: For use case "Sync with Other Apps"

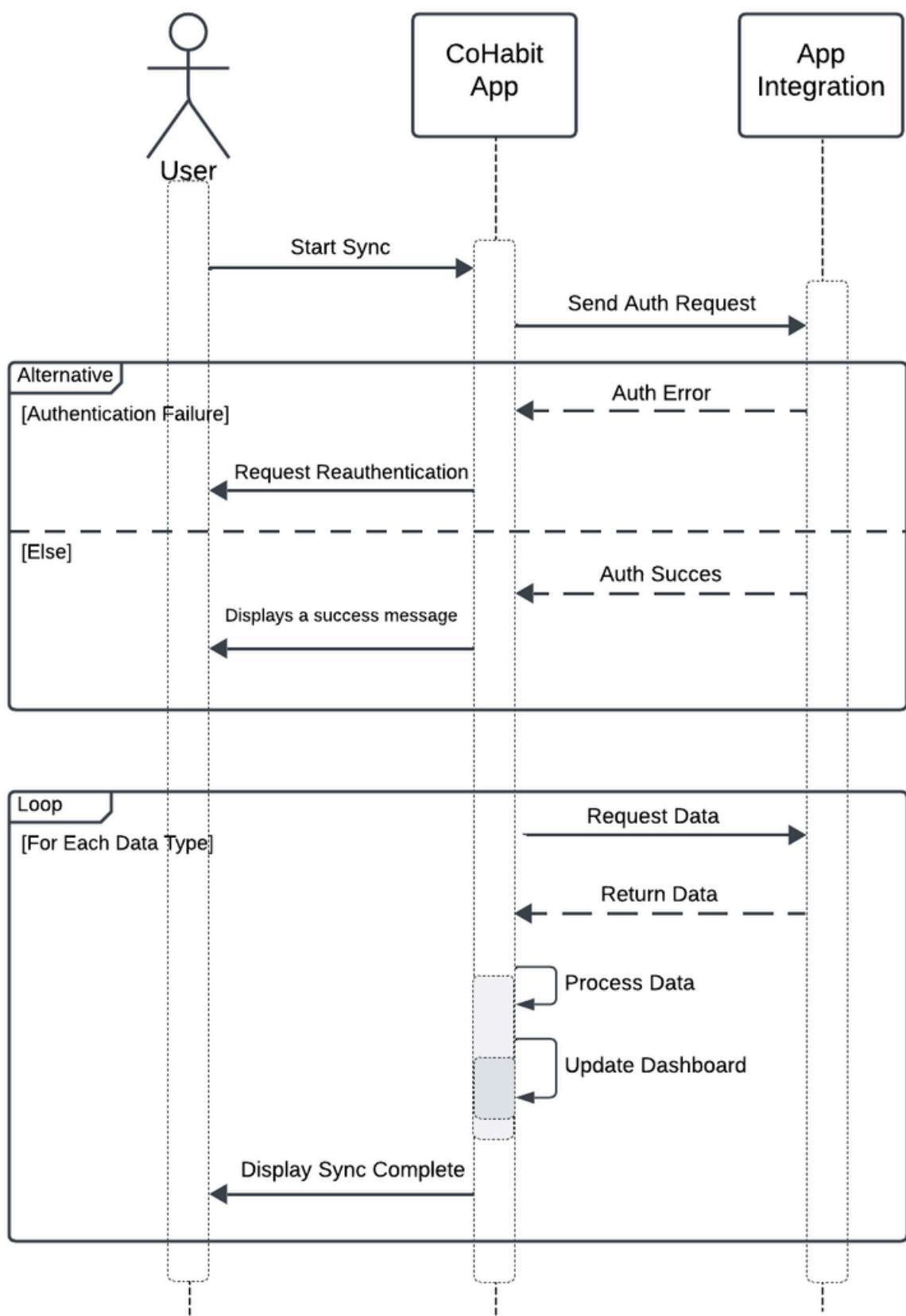


FIGURE 6.5

6.2 Class Diagram

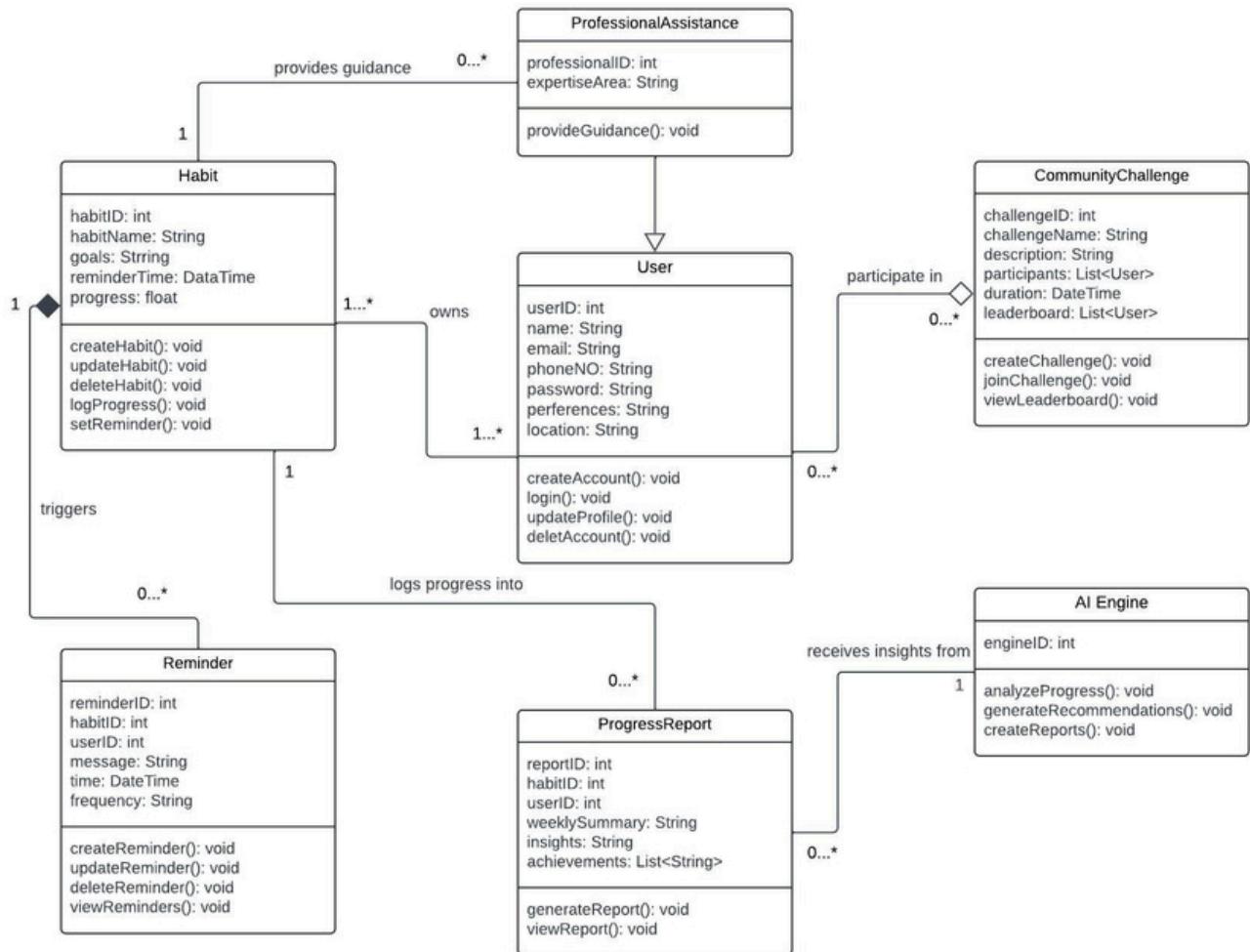


FIGURE 6.6

7 . CONCLUSION

In this lab project, we successfully designed a solution that addresses the common challenges of habit-building by prioritizing community engagement and personalization. By working through each development phase, we gained valuable insights into project planning, requirement gathering, and system design.

Difficulties Faced:

- Balancing the scope of features with the project's constraints was challenging. It required us to prioritize essential functionalities over additional enhancements.
- Designing an intuitive yet functional interface while ensuring usability for diverse user groups was another hurdle.
- Ensuring data security and privacy compliance in the app required extensive research into encryption and consent management.

Lessons Learned:

Through this project, we learned how to:

- Conduct comprehensive requirement analysis to address user needs effectively.
- Use diagrams and models like sequence and class diagrams to visualize and refine system workflows.
- Collaborate effectively as a team to address complex challenges and find innovative solutions.

This experience has enhanced our technical skills and our understanding of the software development lifecycle, preparing us for future real-world projects.