Requirements Document Version 2

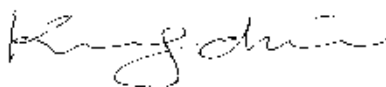## 11/12/2025

Team Hive Thrive

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Dec 5, 2025

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Client Signature   Date

Elijah Sprouse   12/5/2025

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Team Lead Signature   Date

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1. Introduction

Loneliness has become one of the most significant challenges facing young people today; studies show that nearly three out of four individuals between the ages of 16 and 24 regularly experience feelings of isolation or disconnection. For a generation that has grown up constantly connected online, this trend is both surprising and concerning. It represents more than just a social issue; it is a growing threat to mental health, motivation, and overall well-being.

Many tools claim to help people feel more connected, yet they often fall short of creating real change. Social media platforms and messaging apps make it easy to stay in touch, but they rarely provide the sense of community or support that people truly need. What is missing are digital tools that encourage healthy habits, promote consistency, and make positive behavior feel rewarding. Technology should not only allow people to communicate; it should help them grow.

Our team, Hive Thrive, is partnering with Dr. Okim Kang to create a progressive web application that helps users, especially teens and young adults, build and maintain better wellness routines. The system encourages small but meaningful actions, using features such as progress tracking, gamification, and feedback to make personal development engaging and achievable.

This Requirements Specification describes what our application will do, how it will perform, and the expectations that guide its design. It defines both the functional and non-functional requirements that will serve as the foundation for development and as a reference for validation when the project is complete. The goal is to ensure that everyone involved in the process shares a clear understanding of what success looks like and how it will be measured.

Ultimately, our objective is to build an application that feels encouraging, intuitive, and genuinely useful. By turning self-improvement into an interactive and enjoyable experience, our project aims to help users feel more connected, more confident, and more capable of maintaining positive habits in their daily lives.

2. Problem Statement

Young people often struggle to stick to healthy routines, motivation fades, there's no clear plan, plus they rarely get real encouragement. A bunch of wellness apps rely on stiff numbers or rigid timetables that feel overwhelming, like way too much effort. Because of this, users bail quickly, often before the week even really starts.

Young people today might be online all the time, yet many still feel lonely, worn out, or just not doing well mentally. Instead of helping them grow in real ways, endless scrolling tends to fuel stress and feelings of falling short. Even though tons of apps promise better mental health, hardly any actually offer a mix of connection, interaction, and tailored guidance needed to truly stick.

People usually do better when they get light nudges, tiny wins, set by step, plus something that feels like a payoff along the way. Still, today's tools barely deliver any of this stuff in ways that actually stick. When there's no steady push or response showing how things are going, folks check out fast - slipping right back into old habits without meaning to. That loop keeps breaking tries to grow or change, piling on annoyance while killing drive every time.

Folks often skip wellness apps because they're hard to reach or use, some don't have steady Wi-Fi, others just hate clunky designs. When a platform needs constant connection, it shuts out people in slow zones. Interfaces that feel cold or robotic turn users off real quick. Without ease or warmth, even helpful tools get ignored.

This widening space between wanting to act and actually doing it shows we need an app for well-being that's relatable, changes with you, yet still enjoyable. What's tough is building something that does more than track what people do, it pushes them forward, turning personal care from a boring task into something satisfying, worth sticking with.

To address these challenges effectively, our solution must confront several critical issues:

- Users need accessible and engaging tools that encourage consistent participation rather than overwhelming them with rigid tracking systems.

- The platform must support balanced mental, physical, and social well-being, rather than focusing on a single factor of health.

- Users require personalized, adaptive feedback that changes with their progress and emotional state rather than overly generic or clinical advice.

- The system should provide clear motivation and visible rewards that reinforce positive behaviors and maintain momentum over time.

- Finally, the application must be reliable and usable, be easy to navigate, handle data securely, and be accessible across all devices.

These issues form the foundation of the problem our solution aims to solve and directly inform the features outlined in the next section.

3. Solution Vision

Hive Thrive aims to create a web app you can use like a phone app, making everyday well-being feel fun, doable. This setup helps people stick to good routines by using game-like rewards, custom tips from coaches and instant cheerleading when they make progress.

Our solution focuses on three core objectives:

- **Engagement:** Make self-care enjoyable by integrating elements of play, such as a virtual pet that reflects user progress.

- **Personalization:** Use an AI wellness coach to deliver individualized feedback, motivation, and suggestions based on user behavior and mood.

- **Accessibility:** Ensure users can access their progress anytime, anywhere, even offline, through responsive design and caching functionality.

Instead of creating a strict tracker, the goal is to create an environment that feels like a helpful friend. Daily reflections, straightforward check-ins, and practical insights that encourage modest but steady progress will be provided to users.

In the end, Hive Thrive will enable young adults to develop long-lasting wellness practices while encouraging personal development, responsibility, and self-compassion. Personal improvement will be rewarding and achievable thanks to the app's human-centered design and clever feedback features.

Overall, our main planned features include:

- Daily Interactive Wellness Surveys
  - **Addresses:** Lack of balanced well-being tracking; difficulty recognizing progress.
- AI Wellness Coach
  - **Addresses:** Need for personalized guidance; lack of emotional support.
- Gamification System
  - **Addresses:** Motivation problems; need for positive reinforcement and visible progress.
- Virtual Pet Companion
  - **Addresses:** Emotional disengagement; desire for friendly, non-judgmental support.
- Accessible, Intuitive Design
  - **Addresses:** Usability and accessibility challenges.

4. Project Requirements

To design these features we've outlined, our team has identified several key project requirements. These requirements were decided through intensive discussions amongst ourselves and our client. Ultimately, these requirements inform the biggest features and problem solutions that our application must implement:

Domain Requirements

- 4.1 Domain Requirement - Personalized Coaching
- 4.2 Domain Requirement - Daily Wellness Tracking
- 4.3 Domain Requirement - Accessibility and UI Design
- 4.4 Domain Requirement - Mobile/Offline Functionality
- 4.5 Domain Requirement - Security and Privacy

Functional Requirements

4.1.1 (Must) Functional Requirement - Artificial Intelligence Chatbot

Our system will include an artificial intelligence chatbot that can provide supportive, dynamic feedback to the users based on their daily check-ins, progress, and other history provided. Our chatbot will act as each user's personal wellness coach, being encouraging yet educational. It must be interactive and personalized and able to help users reflect on their habits and emotions.
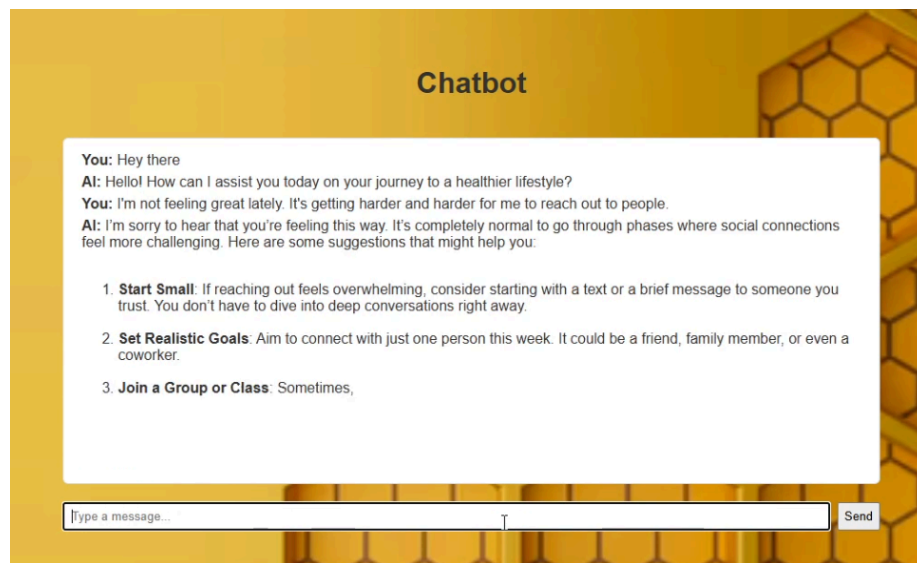
User Story

"As a user, I want to talk to a wellness coach that understands my mood and habits so that I can get personalized guidance, encouragement, and small suggestions that are easy to act on so I can take steps to improve my wellbeing."

4.1.2 (Should) Functional Requirement - User Wellness Feedback

Our system will take inventory on user wellness through surveys and other actionable goals. Healthy habits and routines will be another benchmark for tracking a user's wellbeing. This is why it's also important that every user can view their history and progress in a way that is simple and easy to digest.

"As a user, it's important to me that I can see how far I've come since using the application. I also want the application to be able to provide feedback based on my progress."

4.2.1 (Must) Functional Requirement - Health Displayed As A Pet

One of the ways our system will display a user's progress is through a virtual pet that changes appearance based on whether or not the user is improving habits. When the user is making unhealthy choices, their virtual pet will reflect that (i.e., not drinking enough water throughout the day will result in a thirsty pet). This maintains an emotional connection to the user's own wellbeing, and should motivate them to improve.

User Story

"As a user, I want to have a virtual pet that I can customize, care for, and interact with, where the pet's status reflects my progress/wellness."

4.2.2 (Should) Functional Requirement - Interactive Survey System

The system will track consecutive days of completed check-ins and display a streak counter to motivate consistent wellness habits. Missing a day will reset the user's streak.

User Story

"As a user, I want a streak counter that rewards me for checking in every day so that I stay motivated to build healthier habits."

4.2.3 (Could) Functional Requirement - Daily Logged Entries

Our system will allow users to complete daily wellness check-ins through predefined categories involving health such as mood, social & physical activity, sleep quality, and water intake. Each category will use icon-based responses instead of text fields, aimed to simplify data entries and improve accessibility. This requirement will ensure user motivation by reducing input effort and provides the data needed to track overall health progress.

User Story

"As a user, I want to log my daily habits including mood, exercise, sleep quality, and water intake using simple icons instead of typing so that I can check in quickly and easily track my overall wellbeing."

4.5.1 (Must) Functional Requirement - User Authentication

Our system will provide a secure authentication process that will allow users to register, log in, and manage their accounts before they are able to access their personal wellness data. Each user will maintain their own unique profile, ensuring their data is distinct and remains private from other users. This will protect sensitive health information and maintain data integrity.

<u>User Story</u>

"As a user, it is important that my health information is kept private and secured. Therefore, I want to create an account and securely log in/out so that I can access my check-ins and personal progress safely."

Performance Requirements

4.3.1 (Should) Performance Requirement - Interface Usability

The UI will be intuitive, easy to navigate, and visually appealing, ensuring users can complete their daily check-ins without confusion or assistance. The layout will be simplified, clear icons, and involve minimal steps to perform certain actions.

<u>User Story</u>

"*As a user of this app, I want the interface to be simple, clear, and easy to navigate so that I can complete my daily check-ins without confusion.*"

4.4.1 (Could) Performance Requirement - Survey Results Calculated Quickly

The system will process daily check-in responses and compute wellness insights in under 3 seconds, even on low-performance mobile devices. This ensures the user does not wait long for results and maintains a smooth, responsive experience.

<u>User Story</u>

"*As a user, I want the app to calculate my wellness results instantly so that I don't get frustrated waiting for feedback.*"

Environmental Requirements

4.5.1 (Must) Environmental Requirement - Standard User Privacy Regulations

Our system must adhere to standard user privacy regulations. As an application that contains users' health information, if it is to be released to the public, it must follow guidelines from organizations like HIPAA.

User Story

"*As a user, I want the application I use to be compliant with standard privacy regulations.*"

4.3.2 (Could) Environmental Requirement - Color Blind and Vision Friendly UI

The interface will follow accessibility standards such as high-contrast themes, color-blind-safe palettes, and large tap-targets to ensure all users, including those with visual impairments, can navigate and interact with the app comfortably.

User Story
"*As a user with potential vision difficulties, I want the app to use clear colors and readable visuals so that I can understand and use every feature without strain.*"

5. Potential Risks

In this section, we focus on the risks that affect the functionality, reliability, and trustworthiness of the system, analyzing how potential system failures could impact users, data integrity, and the project's core health objectives. It is of mention that the project risks that are documented here considers the likelihood of occurring during the project life cycle.

Input Validation

Input validation is a technique used to ensure that data entered into the system is valid and meets specific criteria. This technique is typically implemented when receiving and processing data, such as forms, to check properly formatted data. If input validation fails, user health data could be corrupted or miscalculated. This directly impacts user trust and ethical practices related to data integrity. Since form handling is a common issue in the early stages of development, the risk is moderately likely to occur. Implementing a plan for both frontend and backend validation, along with regular testing can significantly reduce the chance of data errors. We will minimize this risk by implementing strict server-side validation using typed input constraints, SQL constraints, and node libraries to reject unsafe data. We will also be conducting testing on each input form created to ensure it formulates the correct user response and compiles with data validation.

Offline Functionality

Offline functionality is a core requirement of our PWA. If this feature fails, users may lose unsynced entries or experience dissatisfaction with the applications offline reliability. Data loss or failure to sync once a connection has been restored can harm user motivation, as progress and streaks are of priority to the app's purpose. Because implementing service workers and caching involves multiple layers, the risk is highly likely. To mitigate this risk, our plan involves developing a mobile application and caching data locally to user's devices. Second, we will be conducting cross-platform testing to verify the offline functionality feature performs well on all devices. Third, we will use clear sync-status messages including "Offline" and "Synced". Lastly, we'll verify that each offline check-in entry created by the user is synced correctly once a stable connection has been restored.

Scope Creep

Scope creep occurs when new features or objectives are added beyond the original project plan. New ideas tend to arise during the development phase from both the client and development team. Since the project is open-ended and research-driven, the risk of expanding the scope is high. If this is not managed properly, scope creep could lead to delays, unfinished features, or reduced quality in the core components such as the health tracking or gamification.

Displaying clear communication and maintaining a structured list of feature implementations will help to prevent this issue. We plan to minimize this risk by checking against our previously outlined documents to remind ourselves of our planned scope. We will also establish clear communication with our client, as well as with our team members, through consistent check-ins so the plans for development remain to minimal changes.

Server Stability

The system depends on a stable server to store and retrieve user health data and user progress. If the server experiences downtime or latency issues, users could lose access to the services and disrupt user engagement. These issues often arise during testing or under an increased load of users, therefore the likelihood of the risk is moderately likely to occur. To minimize this risk, the team will choose reliable hosting, backup data regularly, and monitor consistently to ensure availability and protection against data loss.

AI Reliability

As a part of the future development of our application, an AI-driven virtual coach will serve to provide wellness feedback and motivation. However, there is a potential risk of the AI producing inaccurate or misleading information. This could misinform users and influence their perception on the system's trustworthiness and accuracy. The likelihood of this risk is low if maintained properly, however the impact is high as it affects user trust and ethical integrity. To reduce this risk, AI responses will be used for general engagement only, with disclaimers indicating that the virtual coach does not provide medical advice.

While technological challenges arise in software development, identifying the risks early on allows the team to construct strategies for prevention and reduction of its likelihood. Addressing potential issues such as scope creep, data integrity, server stability, offline usability, and AI reliability ensures the system is secure, functional, and engaging.

6. Project Plan

A plan is an essential part to a project. Whether it be to help team members stay on track or to keep the client in the loop, the project plan is an important device used in a project's success.

To finish this semester, we plan to have 3 prototypes started and ready for the tech demo. Our first would be a prototype for the AI Chatbot. This is already currently prototyped, but additional prototyping might include setting better barriers to make sure that it cannot say anything wrong and only to give wellness advice. Introducing these guardrails will be an important step to meeting our desired goal with it. In addition, processing this data using AI to give other aspects of the user experience a more personal connection is also a goal of ours.

Our second prototype planned is the addition of the virtual pet. This virtual pet will have some sort of AI that will be able to read the user's experiences and display itself similarly. This dynamic pet behavior will lead to better user engagement, as we feel users will feel the need to keep the pet healthy, thus keeping themselves healthier. The design process of the pet for the prototype might be rough, but we plan on at least implementing the ideas and seeing how our client likes it.

Our third prototype planned is an overhaul of the current surveys, making them more interactive. Currently, they seem more clinical and research-like. We want the users to feel comfortable answering the questions without feeling like they are being studied. This will help drive user engagement if they feel like it is a good product.

Around March, we will be discussing the feasibility of the Mobile Application with our client. Our client has expressed interest, but has said that the features being implemented is much more important. If she feels we have met her goals for the feature implementation and that we have enough time to develop the mobile app, she will give us the green light to implement it. Until then, it is currently up in the air and a plan has been made to discuss the feasibility later on.

Beyond the tech demo, we plan to have all our other planned requirements implemented and tested in the Spring semester. UI and scalability are requirements that will be worked upon as the project grows with no real timeline, as they are utilized for every other requirement.

Semester Course Schedule

Spring Semester 2026 - Start Date:	1/12/2026
Course:	CS 476

Item No	Task/Activity Name	November	December	January	Febuary	March	April	May
	Requirements Documents	▓						
	Requirements Documents Final	▓						
	AI ChatBot Implementation	▓						
	Tech Demo #2	▓						
	Tech Demo #3	▓						
	Market your Project		▓					
	User Wellness Feedback			▓				
	Health Displayed as Pet				▓			
	Interactive Survey System				▓	▓		
	Daily Logged Entries				▓	▓		
	Accessibility and UI Design			▓	▓	▓		
	Mobile/Offline Functionality					▓	▓	▓
	Security and Privacy			▓	▓	▓		
	Testing						▓	▓

7. Conclusion

The development of our system represents more than just a technical project; it is an opportunity to create something that can genuinely improve users' lives. Throughout this document, we have outlined the requirements that define how our application will function, how it will perform, and how it will meet the expectations of our client and users. By translating our understanding of the problem into clear, measurable requirements, we have built a foundation that will guide every stage of development.

Our goal has always been to design a tool that helps young people feel more connected and motivated to build better habits. The features described in this specification are not arbitrary; each one exists to support that mission. From gamification to progress tracking, every component contributes to a system that feels supportive, engaging, and easy to use.

As we move forward, this document will serve as both a reference and a roadmap. It captures what success looks like from a user's perspective and provides the criteria we will use to verify that success during testing and client evaluation. The process of developing this application will continue to evolve through feedback, prototyping, and collaboration; however, the goals and principles outlined here will remain constant.

In conclusion, our requirements specification reflects not only what we plan to build but why we are building it. By combining technical precision with a strong focus on user well-being, we are confident that the final product will meet both the client's expectations and the needs of its users.