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Knight's Foundation School of Computing and Information Sciences

Software Engineering Focus

Final Deliverable

Project Documentation

Stress and Anxiety Management Application

Summer 2025

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Abstract

This document serves as an informative presentation to understand the tenth iteration of the Stress and Anxiety Management App.

For this iteration, the goal was to continue working on the mobile application and update the infrastructure of the application using Jetpack Compose. We added more of the Android features to the mobile application, including the Strategies and Actions, View Details Screen, and a rating system. Most of the effort for the Android application, was allocated to creating a more robust infrastructure to potentiate the efficiency of the app and facilitate the work of future developers by creating a cleaner codebase. The team made a heavy emphasis on developing a better system architecture that would make the app scalable, flexible, and maintainable.

The team was successful in achieving these goals during the Summer semester of 2025.

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Introduction

In today's fast-paced academic and professional environments, stress and anxiety have become common challenges, especially among computer science students who often face heavy workloads, tight deadlines, and high expectations. These pressures can significantly impact mental health, academic performance, and overall quality of life. To address this growing concern, our team has developed HowRu.Life, a mobile application designed to help students actively manage their stress and anxiety through personalized coping strategies, meaningful data tracking, and actionable insights.

The primary goal of HowRu.Life is to provide users with a simple yet powerful tool to log their daily coping activities—such as journaling, mindfulness practices, physical exercises, creative outlets, and social interactions—while rating the effectiveness of each activity. By collecting and analyzing this data, the app offers users a clear overview of which strategies work best for them over specific time periods. Features like frequency tracking, effectiveness ratings, first-time activity detection, and historical logs empower users to recognize patterns, adjust their coping habits, and make better informed-decisions about their emotional well-being.

To enhance engagement and self-awareness, HowRu.Life includes dynamic features such as activity comparisons (e.g., social vs. emotional strategies), consistency tracking over weeks or months, and the ability to review a personal history of all logged activities with timestamps and ratings. These insights not only promote self-reflection but also encourage sustainable mental health habits by showing tangible progress.

From a technical standpoint, the application leverages Kotlin, Jetpack Compose, and Firebase as its core technologies. Jetpack Compose is used to build a responsive and modern user interface, while the Firebase backend handles data storage, retrieval, and synchronization. The adoption of the Model-View-ViewModel (MVVM) architecture has provided a scalable and maintainable codebase by separating UI elements from business logic and data operations. This design ensures that future developers can easily extend the app's functionality without introducing unnecessary complexity.

This project was developed using agile methodologies, with features implemented incrementally across multiple sprints. Each sprint introduced new user stories—ranging

from the basic logging of coping activities to advanced analytics and reporting features. The tradition to Jetpack Compose during this iteration aimed to modernize the app's infrastructure, improve performance, and streamline the development process. Through collaborative planning, coding, and testing, our team has built a robust and intuitive platform that meets the need of the target audience.

Ultimately, HowRu.Life is more than just a mobile app—it is a self-improvement companion designed to support students' mental health through data-driven insights, intuitive design, and consistent usability. By combining technology with wellness principles, our project offers a practical solution to help users develop resilience and healthier stress-management habits.

Throughout the course of development, our team made steady measurable progress across multiple sprints. Early efforts focussed on setting up the technical foundation, defining core user stories, and enabling users to log and categorize their coping strategies. In later sprints, we implemented features that provided meaningful feedback—such as identifying first-time strategy use, calculating average effectiveness ratings, and generating visual summaries of behavioral trends. We also integrated filtering, sorting, and interactive history views to give users a complete picture of their mental wellness journey. These achievements reflect our commitment to usability, personalization, and data-driven design—principles that now define the current state of the HowRu.Life application.

Current System

As of the latest development cycle, the HowRu.Life application includes a fully functional logging system, analytics engine, and user-friendly interface designed to help students manage stress and anxiety through personalized coping strategies. The system enables users to log daily actions, evaluate their effectiveness, and explore trends over time—all within a visually clean and responsive Android app environment.

Core functionality

- Coping Strategy Logging
 - Users can select from predefined or custom coping strategies across categories such as emotional, physical, social, mental, and creative. Each activity log includes a timestamp, a 1-5 star effectiveness rating, and optional notes or emotion tags.
- Effectiveness Tracting
 - The app calculates average effectiveness scores for individual strategies across categories such as emotional, physical, social, mental, and

creative. Each activity log includes a timestamp, a 1-5 star effectiveness rating, and optional notes or emotion tags.

- Activity History & Filtering
 - Users can view a detailed history of all coping actions they've logged, complete with effectiveness ratings, timestamps, and category tags. Filters allow sorting by rating, date, or strategy type, and a "First Tried" indicator highlights new strategies used for the past 30 days.
- Analytics and Insights
 - The system provides data visualizations and summaries to help users understand their coping patterns.
 - Most frequently used strategies for anxiety and stress.
 - Social vs. emotional strategy usage comparisons.
 - Consistency tracking over time (e.g., daily logs across a month)
 - Highlighting previously used strategies that haven't been revisited recently.
- Users Interface Design
 - Built using Jetpack Compose, the app features a clean and dynamic UI with intuitive navigation. Design decisions prioritize readability, simplicity, and minimal friction, ensuring users can easily log and view data without being overwhelmed.

Technical Architecture

- Frontend: Kotlin with Jetpack Compose
- Backend: Firebase with Realtime Database
- Architecture Pattern: MVVM (Model-View-ViewModel)
- Data Model Objects: User, CopingStrategy, LogEntry, and computed summaries such as EffectivenessReport
- Platform Support: Android devices (focus on responsiveness for a range of screen sizes)

Progressive Enhancements

- Migration from XML layouts to Jetpack Compose improved UI responsiveness and code maintainability.
- Refactoring of backend queries allowed faster filtering and aggregation of user activity data.
- UI polishing and pagination addressed performance issues in long activity histories.

Purpose of New System

The primary purpose of the new system—HowRu.Life—is to provide college students, particularly those in computer science and other high-stress disciplines, with a structured yet flexible tool for managing stress and anxiety in a self-guided manner. While counseling services and mental health resources exist on many campuses, students often lack an accessible, personalized platform that helps them consistently track their emotional well-being and reflect on what coping strategies work best for them over time.

HowRu.Life addresses this gap by enabling users to log a variety of coping actions, rate their effectiveness, and identify behavioral trends through intuitive analytics and feedback. Rather than offering generic mental health tips, the system is designed to learn from the user's own habits and experiences, encouraging self-awareness, routine building and progress tracking. Through features like history logs, personalized charts, and category breakdowns, the app empowers users to make informed decisions about how they respond to stressors in their lives.

Additionally, the system seeks to solve several key problems:

- **Lack of structure in self-help approaches:** Many students try different coping techniques without tracking their outcomes or knowing which are most effective. HowRu.Life provides a clear framework for logging and reviewing these strategies.
- **Inconsistent self-monitoring:** By offering features like daily logging, summaries, and visual feedback, the app encourages more consistent user engagement.
- **Limited personalization in existing apps:** While other wellness apps may offer static recommendations, HowRu.Life tailors insights based on user data, such as their most frequently used or highest strategies.
- **Need for clarity and reflection:** The ability to look back at one's emotional journey—with timestamps, ratings, and categorized trends—offers meaningful reflection that helps users gain control over their stress and anxiety patterns.

Ultimately, The new system is not meant to replace professional mental health support but to serve as a practical, user-driven supplement that enhances mental wellness through structure, feedback, and data-informed self-care.

User Stories

The following section provides the detailed user stories that were implemented in this iteration of the Anxiety & Stress Self-Management project. These user stories served as the basis for the implementation of the project's features. This section also shows the user stories that are to be considered for future development.

Implemented User Stories

- User Story #1: "As a developer, I will read the documentation created by previous teams that have worked on the project."
- User Story #2: "As a developer, I want to learn how to use Figma so I can get a better understanding of the Figma project created by previous students who worked on the project."
- User Story #3: "As a developer, I want to get in contact with two members who worked on this project during the Spring semester."
- User Story #4: "As a team member, I will coordinate a consistent schedule for the entire team to meet with the product owner on a regular basis."
- User Story #5: "As a team member, I will organize with other team members to create a cloud storage to store the documentation."
- User Story #6: "Schedule meeting with Product owner either Thursday or Friday"
- User Story #7: "Create a Github and install Git on everyone's devices"
- User Story #8: "Brainstorm coding languages that work best for our goal"
- User Story #9: "Setting up coding environment"
- User Story #10: As a user I want to log a stretching session, a physical coping strategy that helps me deal with stress.
- User Story #11: As a user I want to log a meditation session, a physical coping strategy that helps me calm my thoughts.
- User Story #12: As a user I want to log a conversation with a friend, a social coping strategy that allows me to share my feelings with someone else.
- User Story #13: As a user I want to log Dance or Movement, a creative coping strategy that allows me to express my emotions through movement.
- User Story #14: As a user, I want to log Music Therapy, a creative coping strategy that allows me to use my self enjoyment of listening or creating music.

- User Story #15: As a user, I want to log Journaling, an emotional coping strategy that allows me to write my thoughts and feelings down.
- User Story #16: As a user, I want to log Mindfulness Practice, an mental coping strategy that helps me to become non judgemental
- User Story #17: As a user, I want to check the different logs I input while reflecting on my day.
- User Story #18: As a user, I want to check how many social coping strategies I logged in the previous week.
- User Story #19: As a user, I want to check how many mental coping strategies I logged in the previous 14 days
- User Story #20: As a user, I want to check how many emotional coping strategies I logged in the previous 30 days
- User Story #21: As a user, I want to check what is the coping strategy that I used the most to deal with stress in the past 7 days
- User Story #22: As a user, I want to check what percentage of the strategies I implemented in the past 14 days were physical.
- User Story #23: As a user, I want to check what coping strategy I used most frequently to manage anxiety in the past month.
- User Story #24: As a user, I want to check which type of coping strategy (emotional, mental, social, etc.) I relied on it the most this week.
- User Story #25: As a user, I want to check how many total coping strategies I logged in the last 7 days across all categories.
- User Story #26: As a user, I want to check how many new coping strategies I tried for the first time in the last 30 days.
- User Story #27: As a user, I want to compare my use of social and emotional coping strategies over the past two weeks.
- User Story #28: As a user, I want to check how consistent I've been with logging coping strategies daily over the past month.
- User Story #29: As a user, I want to check which coping strategy I haven't used recently but used often in the past.

- User Story #30: As a user, I want to check the rate of effectiveness of strategies I have chosen
- User Story #31: As a user, I want to check the rate of effectiveness of actions I have chosen
- User Story #32: As a user, I want the data of rate of effectiveness to be presentable
- User Story #33: As a user, I want to check the rate of effectiveness of the art therapy I took part in.
- User Story #34: As a user, I want to log a 30 minute run, and rate its effectiveness as a coping strategy from 1-5 stars.
- User Story #35: As a user, I want to view a history of all the coping activities I've tried, with their effectiveness ratings and timestamps.
- User Story #36: As a user, I want the data of rate of effectiveness to be presentable
- User Story #37: As a user, I want to view a history of all the coping activities I've tried, with their effectiveness ratings and timestamps.

Pending User Stories

- User Story #38: As a user, I want to see those features implemented on the App.

Project Plan

This section describes the planning that went into the realization of this project. This project incorporated agile development techniques and as such required the sprints to be planned. These sprint plannings are detailed in the section. This section also describes the components, both software and hardware, chosen for this project.

Hardware and Software Resources

- **GitHub:** A web-based version-control and collaboration platform for software developers.
- **GitHub Desktop:** Support application that enables Git collaboration.
- **Android Studio:** a source-code editor developed by Google for android app developers
- **Firebase:** A backend as a service platform that was used for authentication and to handle user data.
- **Figma:** A web-based design and prototyping tool that can be used to create mobile app interfaces, and websites.
- **Google Play Store:** A mobile app page so users can download the app.
- Jetpack Compose:

For Future Development:

- **Stripe:** Service payment provider to charge users membership fees.
- **Google AdMob:** A global ad network used to implement ads in the app.

Sprint Planning Meetings

Sprint 1 Planning Meetings:

Attendees: Alexander Coronel, Rubens Nicolas, Brian Rufin, Joshua Stone, William Garcia
Start time: 5:30

End time: 6:30

After discussion, the velocity of the team was estimated to be 1 hour/day.

The product owner chose the following user stories to be done during the next sprint. They are ordered based on their priority.

- User Story 1: Schedule meeting with Product owner either Thursday or Friday
- User Story 2: Create a Github and install Git on everyone's devices
- User Story 3: Brainstorm coding languages that work best for our goal.
- User Story 4: Setting up coding environment
- User Story 5: As a user, I want to track my daily stress levels so that I can identify patterns and triggers over time.
- User Story 6: As a user, I want to access guided breathing exercises to help me quickly reduce feelings of anxiety.
- User Story 7: As a user, I want to set personalized reminders for stress-relief activities to maintain a consistent relaxation routine.
- User Story 8: As a user, I want to log my mood and thoughts to better understand how certain events impact my mental state.
- User Story 9: As a user, I want to receive positive affirmations and calming prompts to help me refocus during moments of high stress.

The team members indicated their willingness to work on the following user stories.

- Alexander Coronel
 - User Story 2: Create a Github and install Git on everyone's devices
 - User Story 3: Brainstorm coding languages that work best for our goal.
 - User Story 4: Setting up coding environment
- Rubens Nicolas
 - User Story 1: Schedule meeting with Product owner either Thursday or Friday
 - User Story 2: Create a Github and install Git on everyone's devices
 - User Story 3: Brainstorm coding languages that work best for our goal.
 - User Story 4: Setting up coding environment
 - User Story 8: As a user, I want to log my mood and thoughts to better understand how certain events impact my mental state.
- Brian Rufin
 - User Story 5: As a user, I want to track my daily stress levels so that I can identify patterns and triggers over time.
 - User Story 6: As a user, I want to access guided breathing exercises to help me quickly reduce feelings of anxiety.
 - User Story 7: As a user, I want to set personalized reminders for stress-relief activities to maintain a consistent relaxation routine.
- Joshua Stone

- User Story 1: Schedule meeting with Product owner either Thursday or Friday
- User Story 3: Brainstorm coding languages that work best for our goal
- User Story 4: Setting up a coding environment.
- William Garcia
 - User Story 1: Schedule meeting with Product owner either Thursday or Friday
 - User Story 3: Brainstorm coding languages that work best for our goal.
 - User Story 4: Setting up a coding environment.

Sprint 2 Planning Meetings:

Attendees: Alexander Coronel, Rubens Nicolas, Brian Rufin, Joshua Stone, William Garcia

Start time: 5:00 PM

End time: 5:55 PM

After discussion, the velocity of the team was estimated to be 2 hour/day.

The product owner chose the following user stories to be done during the next sprint. They are ordered based on their priority.

- User Story 1: As a user I want to log a stretching session, a physical coping strategy that helps me deal with stress.
- User Story 2: As a user I want to log a meditation session, a physical coping strategy that helps me calm my thoughts.
- User Story 3: As a user I want to log a conversation with a friend, a social coping strategy that allows me to share my feelings with someone else.
- User Story 4: As a user I want to log Dance or Movement, a creative coping strategy that allows me to express my emotions through movement
- User Story 5: As a user, I want to log Music Therapy, a creative coping strategy that allows me to use my self enjoyment of listening or creating music.
- User Story 6: As a user, I want to log Journaling, an emotional coping strategy that allows me to write my thoughts and feelings down.
- User Story 7: As a user, I want to log Mindfulness Practice, an mental coping strategy that helps me to become non judgemental
- User Story 8: As a user, I want to log check the different logs I input while reflecting on my day.
- User Story 9: As a user, I want to check how many social coping strategies I logged in the previous week.
- User Story 10: As a user, I want to check how many mental coping strategies I logged in the previous 14 days
- User Story 11: As a user, I want to check how many emotional coping strategies I logged in the previous 30 days

- User Story 12: As a user, I want to check what is the coping strategy that I used the most to deal with stress in the past 7 days
- User Story 13: As a user, I want to check what percentage of the strategies I implemented in the past 14 days were physical

The team members indicated their willingness to work on the following user stories.

- Alexander Coronel
 - User Story 6: As a user, I want to log Journaling, an emotional coping strategy that allows me to write my thoughts and feelings down.
 - User Story 11: As a user, I want to check how many emotional coping strategies I logged in the previous 30 days
 - User Story 12: As a user, I want to check what is the coping strategy that I used the most to deal with stress in the past 7 days
- Rubens Nicolas
 - User Story 4: As a user I want to log Dance or Movement, a creative coping strategy that allows me to express my emotions through movement
 - User Story 5: As a user, I want to log Music Therapy, a creative coping strategy that allows me to use my self enjoyment of listening or creating music.
 - User Story 8: As a user, I want to check the different logs I input while reflecting on my day.
 - User Story 12: As a user, I want to check what is the coping strategy that I used the most to deal with stress in the past 7 days
- Brian Rufin
 - User Story 2: As a user I want to log a meditation session, a physical coping strategy that helps me calm my thoughts.
 - User Story 4: As a user I want to log Dance or Movement, a creative coping strategy that allows me to express my emotions through movement
 - User Story 1: As a user I want to log a stretching session, a physical coping strategy that helps me deal with stress.
 - User Story 13: As a user, I want to check what percentage of the strategies implemented in the past 14 days were physical
- Joshua Stone
 - User Story 3: As a user I want to log a conversation with a friend, a social coping strategy that allows me to share my feelings with someone else.
 - User Story 9: As a user, I want to check how many social coping strategies I logged in the previous week
 - User Story 12: As a user, I want to check what is the coping strategy that I used the most to deal with stress in the past 7 days

- William Garcia
 - User Story 1: As a user I want to log a stretching session, a physical coping strategy that helps me deal with stress.
 - User Story 2: As a user I want to log a meditation session, a physical coping strategy that helps me calm my thoughts.
 - User Story 12: As a user, I want to check what is the coping strategy that I used the most to deal with stress in the past 7 days

Sprint 3 Planning Meetings:

Attendees: Alexander Coronel, Rubens Nicolas, Brian Rufin, Joshua Stone, William Garcia

Start time: 5:00 PM

End time: 6:00 PM

After discussion, the velocity of the team was estimated to be 2 hour/day.

The product owner chose the following user stories to be done during the next sprint. They are ordered based on their priority.

- User Story 1: As a user, I want to check how many social coping strategies I logged in the previous week.
- User Story 2: As a user, I want to check how many mental coping strategies I logged in the previous 14 days
- User Story 3: As a user, I want to check how many emotional coping strategies I logged in the previous 30 days
- User Story 4: As a user, I want to check what is the coping strategy that I used the most to deal with stress in the past 7 days
- User Story 5: As a user, I want to check what percentage of the strategies I implemented in the past 14 days were physical
- User Story 6: As a user, I want to check how many physical coping strategies I logged in the previous 10 days.
- User Story 7: As a user, I want to check how many spiritual coping strategies I used in the last 21 days.
- User Story 8: As a user, I want to check how many creative coping strategies I logged in the past 14 days.
- User Story 9: As a user, I want to check what coping strategy I used most frequently to manage anxiety in the past month.
- User Story 10: As a user, I want to check which type of coping strategy (emotional, mental, social, etc.) I relied on the most this week.
- User Story 11: As a user, I want to check how many total coping strategies I logged in the last 7 days across all categories.
- User Story 12: As a user, I want to check how many new coping strategies I tried for the first time in the last 30 days.
- User Story 13: As a user, I want to compare my use of social and emotional coping

strategies over the past two weeks.

- User Story 14: As a user, I want to check how consistent I've been with logging coping strategies daily over the past month.
- User Story 15: As a user, I want to check which coping strategy I haven't used recently but used often in the past.

The team members indicated their willingness to work on the following user stories.

- Alexander Coronel
 - User Story 3: As a user, I want to check how many emotional coping strategies I logged in the previous 30 days
 - User Story 4: As a user, I want to check what is the coping strategy that I used the most to deal with stress in the past 7 days
 - User Story 9: As a user, I want to check what coping strategy I used most frequently to manage anxiety in the past month.
 - User Story 13: As a user, I want to compare my use of social and emotional coping strategies over the past two weeks.
- Rubens Nicolas
 - User Story 4: As a user I want to log Dance or Movement, a creative coping strategy that allows me to express my emotions through movement
 - User Story 5: As a user, I want to log Music Therapy, a creative coping strategy that allows me to use my self enjoyment of listening or creating music.
 - User Story 8: As a user, I want to check the different logs I input while reflecting on my day.
 - User Story 12: As a user, I want to check what is the coping strategy that I used the most to deal with stress in the past 7 days
- Brian Rufin
 - User Story 2: As a user, I want to check how many mental coping strategies I logged in the previous 14 days
 - User Story 3: As a user, I want to check how many emotional coping strategies I logged in the previous 30 days
 - User Story 4: As a user, I want to check what is the coping strategy that I used the most to deal with stress in the past 7 days
 - User Story 8: As a user, I want to check how many creative coping strategies I logged in the past 14 days.
- Joshua Stone
 - User Story 3: As a user I want to log a conversation with a friend, a social coping strategy that allows me to share my feelings with someone else.
 - User Story 9: As a user, I want to check how many social coping strategies I logged in the previous week

- User Story 12: As a user, I want to check what is the coping strategy that I used the most to deal with stress in the past 7 days
- William Garcia
 - User Story 1: As a user I want to log a stretching session, a physical coping strategy that helps me deal with stress.
 - User Story 2: As a user I want to log a meditation session, a physical coping strategy that helps me calm my thoughts.
 - User Story 12: As a user, I want to check what is the coping strategy that I used the most to deal with stress in the past 7 days

Sprint 4 Planning Meetings:

Attendees: Alexander Coronel, Rubens Nicolas, Brian Rufin, Joshua Stone, William Garcia

Start time: 4:50 PM

End time: 5:55 PM

After discussion, the velocity of the team was estimated to be 3 hour/day.

The product owner chose the following user stories to be done during the next sprint. They are ordered based on their priority.

- User Story 1: As a user, I want to check what coping strategy I used most frequently to manage anxiety in the past month.
- User Story 2: As a user, I want to check which type of coping strategy (emotional, mental, social, etc.) I relied on the most this week.
- User Story 3: As a user, I want to check how many total coping strategies I logged in the last 7 days across all categories.
- User Story 4: As a user, I want to check how many new coping strategies I tried for the first time in the last 30 days.
- User Story 5: As a user, I want to compare my use of social and emotional coping strategies over the past two weeks.
- User Story 6: As a user, I want to check how consistent I've been with logging coping strategies daily over the past month.
- User Story 7: As a user, I want to check which coping strategy I haven't used recently but used often in the past.
- User Story 8: As a user, I want to check the rate of effectiveness of strategies I have chosen
- User Story 9: As a user, I want to check the rate of effectiveness of actions I have chosen
- User Story 10: As a user, I want the data of rate of effectiveness to be presentable
- User Story 11: As a user, I want to check the rate of effectiveness of the art therapy I took part in.

- User Story 12: As a user, I want to log a 30 minutes run, and rate its effectiveness as a coping strategy from 1-5 stars.
- User Story 13: As a user, I want to view a history of all the coping activities I've tried, with their effectiveness ratings and timestamps.

The team members indicated their willingness to work on the following user stories.

- Alexander Coronel
 - User Story 4: As a user, I want to check how many new coping strategies I tried for the first time in the last 30 days.
 - User Story 9: As a user, I want to check the rate of effectiveness of actions I have chosen.
 - User Story 13: As a user, I want to view a history of all the coping activities I've tried, with their effectiveness ratings and timestamps.
- Rubens Nicolas
 - User Story 8: As a user, I want to check the rate of effectiveness of strategies I have chosen
 - User Story 9: As a user, I want to check the rate of effectiveness of actions I have chosen
 - User Story 10: As a user, I want the data of rate of effectiveness to be presentable
 - User Story 12: As a user, I want to log a 30 minute run, and rate its effectiveness as a coping strategy from 1-5 stars.
 - User Story 13: As a user, I want to view a history of all the coping activities I've tried, with their effectiveness ratings and timestamps.
- Brain Rufin
 - User Story 6: As a user, I want to check how consistent I've been with logging coping strategies daily over the past month.
 - User Story 7: As a user, I want to check which coping strategy I haven't used recently but used often in the past.
 - User Story 8: As a user, I want to check the rate of effectiveness of strategies I have chosen
 - User Story 9: As a user, I want to check the rate of effectiveness of actions I have chosen
- Joshua Stone
 - User Story 3: As a user, I want to check how many total coping strategies I logged in the last 7 days across all categories.
 - User Story 4: As a user, I want to check how many new coping strategies I tried for

the first time in the last 30 days.

- User Story 5: As a user, I want to compare my use of social and emotional coping strategies over the past two weeks.

- William Garcia

- User Story 1: As a user, I want to check what coping strategy I used most frequently to manage anxiety in the past month.

- User Story 2: As a user, I want to check which type of coping strategy (emotional, mental, social, etc.) I relied on it the most this week.

- User Story 5: As a user, I want to compare my use of social and emotional coping strategies over the past two weeks.

Sprint 5 Planning Meetings:

Attendees: Alexander Coronel, Rubens Nicolas, Brian Rufin, Joshua Stone, William Garcia

Start time: 4:40 PM

End time: 5:40 PM

After discussion, the velocity of the team was estimated to be 3 hour/day.

The product owner chose the following user stories to be done during the next sprint. They are ordered based on their priority.

- User Story 1: As a user, I want to check what coping strategy I used most frequently to manage anxiety in the past month.

- User Story 2: As a user, I want to check which type of coping strategy (emotional, mental, social, etc.) I relied on the most this week.

- User Story 3: As a user, I want to check how many total coping strategies I logged in the last 7 days across all categories.

- User Story 4: As a user, I want to check how many new coping strategies I tried for the first time in the last 30 days.

- User Story 5: As a user, I want to compare my use of social and emotional coping strategies over the past two weeks.

- User Story 6: As a user, I want to check how consistent I've been with logging coping strategies daily over the past month.

- User Story 7: As a user, I want to check which coping strategy I haven't used recently but used often in the past.

- User Story 8: As a user, I want to check the rate of effectiveness of strategies I have chosen

- User Story 9: As a user, I want to check the rate of effectiveness of actions I have chosen

- User Story 10: As a user, I want the data of rate of effectiveness to be presentable

- User Story 11: As a user, I want to check the rate of effectiveness of the art therapy I

took part in.

- User Story 12: As a user, I want to log a 30 minutes run, and rate its effectiveness as a coping strategy from 1-5 stars.
- User Story 13: As a user, I want to view a history of all the coping activities I've tried, with their effectiveness ratings and timestamps.
- User Story 14: As a user, I want to see those features implemented on the App

The team members indicated their willingness to work on the following user stories.

- Alexander Coronel

- User Story 4: As a user, I want to check how many new coping strategies I tried for the first time in the last 30 days.
- User Story 9: As a user, I want to check the rate of effectiveness of actions I have chosen.
- User Story 13: As a user, I want to view a history of all the coping activities I've tried, with their effectiveness ratings and timestamps.

- Rubens Nicolas

- User Story 9: As a user, I want to check the rate of effectiveness of actions I have chosen
- User Story 10: As a user, I want the data of rate of effectiveness to be presentable
- User Story 12: As a user, I want to log a 30 minute run, and rate its effectiveness as a coping strategy from 1-5 stars.
- User Story 13: As a user, I want to view a history of all the coping activities I've tried, with their effectiveness ratings and timestamps.
- User Story 14: As a user, I want to see those features implemented on the App

- Brian Rufin

- User Story 6: As a user, I want to check how consistent I've been with logging coping strategies daily over the past month.
- User Story 7: As a user, I want to check which coping strategy I haven't used recently but used often in the past.
- User Story 8: As a user, I want to check the rate of effectiveness of strategies I have chosen
- User Story 9: As a user, I want to check the rate of effectiveness of actions I have chosen

- Joshua Stone

- User Story 3: As a user, I want to check how many total coping strategies I logged in the last 7 days across all categories.
- User Story 4: As a user, I want to check how many new coping strategies I tried for the first time in the last 30 days.
- User Story 5: As a user, I want to compare my use of social and emotional coping strategies over the past two weeks.

- William Garcia
 - User Story 1: As a user, I want to check what coping strategy I used most frequently to manage anxiety in the past month.
 - User Story 2: As a user, I want to check which type of coping strategy (emotional, mental, social, etc.) I relied on it the most this week.
 - User Story 5: As a user, I want to compare my use of social and emotional coping strategies over the past two weeks.

System Design

This section contains information on the design decisions that went into this project. The architecture patterns are outlined and explained. The entire system is shown in a package diagram and the subsystems are explained. Finally, the design patterns used in the project are discussed.

Architectural Patterns

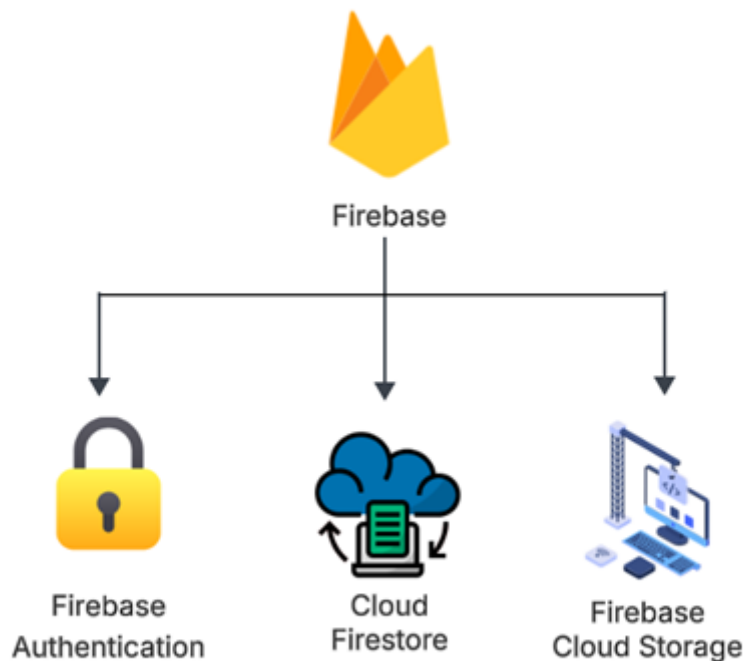
The application has been active for a few years now; it has been using the old view system. In this iteration of the project our group started the transition to Jetpack Compose using a Model-View-ViewModel (MVVM) pattern. The Model includes the Repository, Firebase API Service, and the Firestore. Its role is to handle data retrieval, storage, sync, and logic. The ViewModel manages UI-related data, exposes events and state. Lastly the View is created using Compose UI, it renders UI and observes state from the ViewModel. The addition of this architectural pattern to the application has been greatly beneficial to the project and it will continue to evolve. The implementation of MVVM has promoted separation of concerns, this allows future developers to work on the Compose UI without worrying about Firebase logic or data formats. It has expanded Reusability, the addition of the Compose components has reduced duplicate code and promoted consistency. Moreover, it has added Scalability, future developers will be able to introduce a local cache for mood entries or sync to Google Fit with

minimal code duplication. Lastly, there it added a significant boost to Maintainability, the codebase is easier to update and debug. The clean layering will allow future developers to fix issues without breaking unrelated parts.

System and Subsystem Decomposition

HOWRU.Life is composed of an Authentication module for user login and session management, a Mood Tracking sub-system for logging and analyzing emotional states, a Journaling sub-system for reflective questions, and a Strategy Manager for selecting or creating coping strategies. Additional sub-systems include the Dashboard Viewer, which visualizes user data through charts, and Breathing Exercises to distress the body. Each sub-system operates independently but works in coordination with others to deliver a seamless user experience. This decomposition not only supports parallel development and feature isolation but also sets a strong foundation for future scalability and modular growth.

Back-end architecture tools



Front-end architecture tools



Jetpack
Compose



Android
Studios

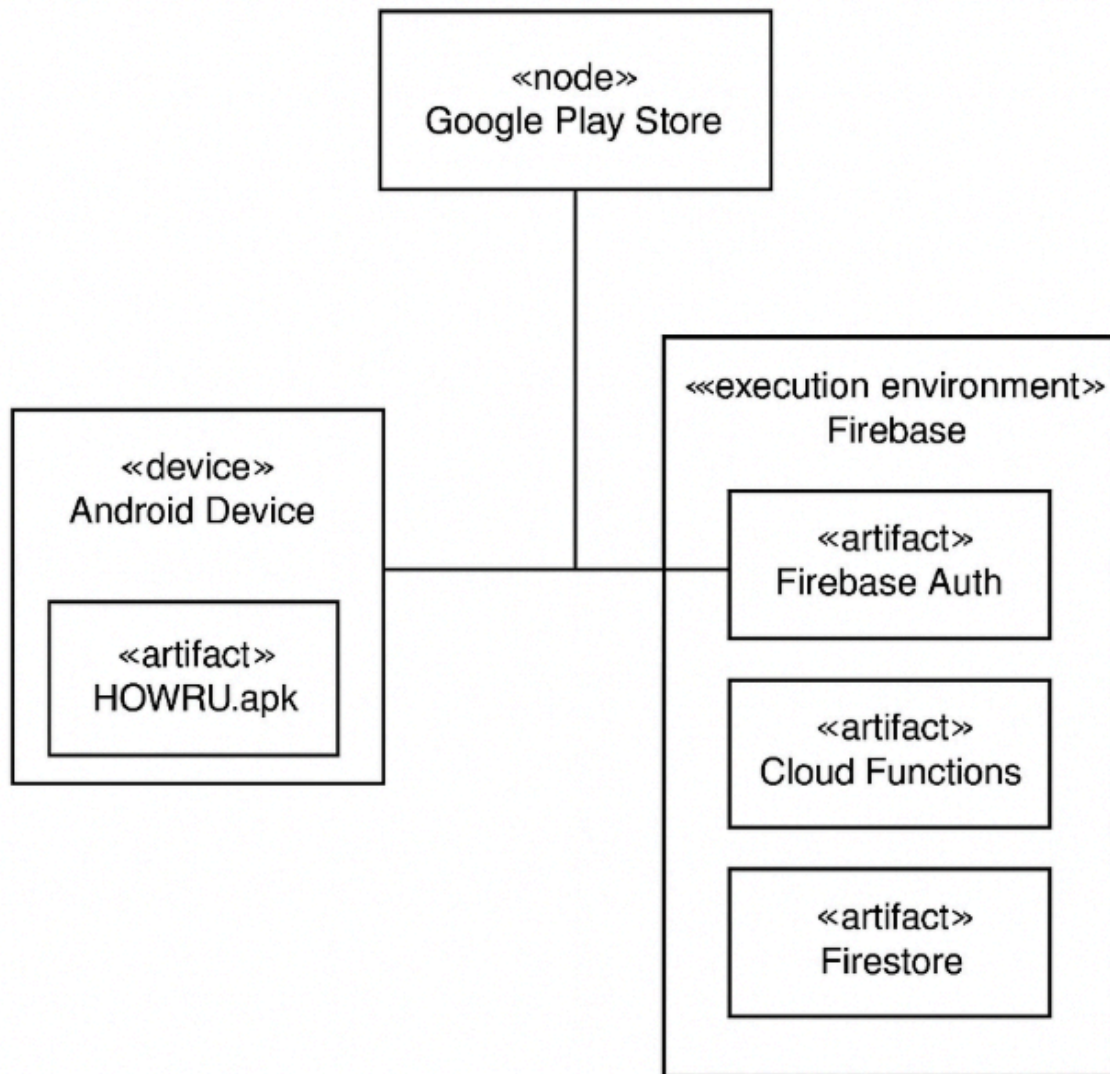


Kotlin

Databases

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  "users": [
    "_id": "MzRirZZ9rElYeEr51t7",
    "profile": [
      "name": "Robert Aguilar",
      "email": "robertA@gmail.com",
      "code": "seif3yb1",
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            "when": "",
            "why": "",
          ],
          "date": "04/18/2022",
          "intentionToChange": "4",
        ],
      ],
    ],
  ],
],
```

Deployment Diagram



Design Patterns

The HOWRU.Life app adopts the Repository design pattern to manage its data interactions cleanly and efficiently. In this pattern, the repository acts as a mediator between the ViewModel and the data sources, such as Firebase Firestore and Firebase Auth. This separation ensures that the ViewModel remains focused on UI logic and user interactions, while the repository encapsulates all the data access and retrieval operations. By doing so, the app achieves modularity, testability, and flexibility, making it easier to swap or extend data sources in the future without changing business logic. This design pattern also simplifies unit testing by allowing the use of mock repositories.

System Validation

To validate our system, we tested the app's core features such as login, mood tracking, and strategy selection across multiple emulated Android devices using Android Studio. Each feature was reviewed during weekly meetings and adjusted based on team and mentor feedback. The separation of data and UI using the MVVM architecture made debugging and testing more efficient. The use of mock data also helped validate functionality without depending on live backend services. Overall, the app performed as expected under typical usage.

Glossary

Jetpack Compose – A modern toolkit for building native Android UI using declarative code.

MVVM (Model-View-ViewModel) – An architecture that separates UI, business logic, and data handling.

Firebase – A Google platform that provides backend services like authentication and databases.

Firestore – A NoSQL database from Firebase used to store and sync user data in real time.

GitHub – A platform used for version control and team collaboration on code.

Android Studio – The official IDE for Android development, used to build and test the app.

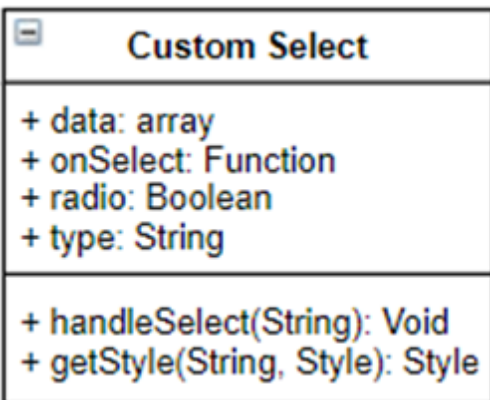
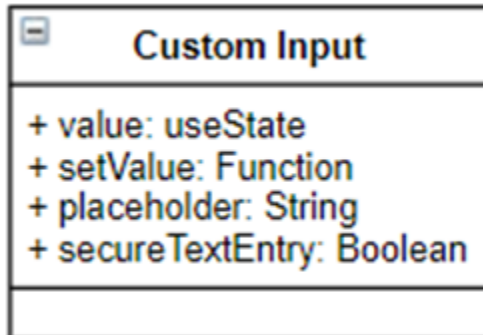
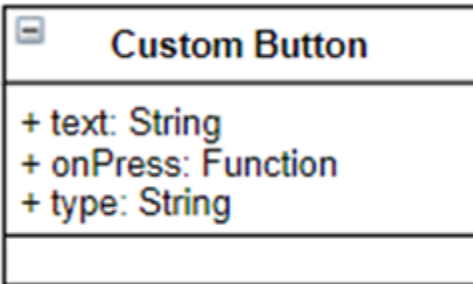
Figma – A collaborative design tool used for UI/UX prototyping.

Mock Data – Simulated data used for testing when real data is unavailable or unnecessary.

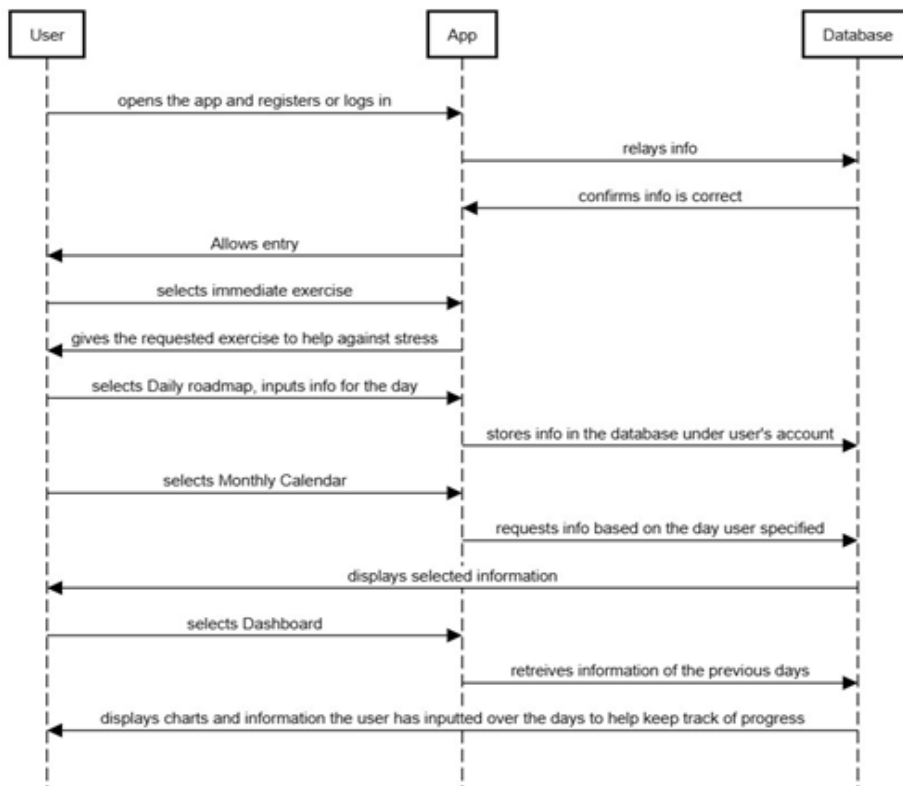
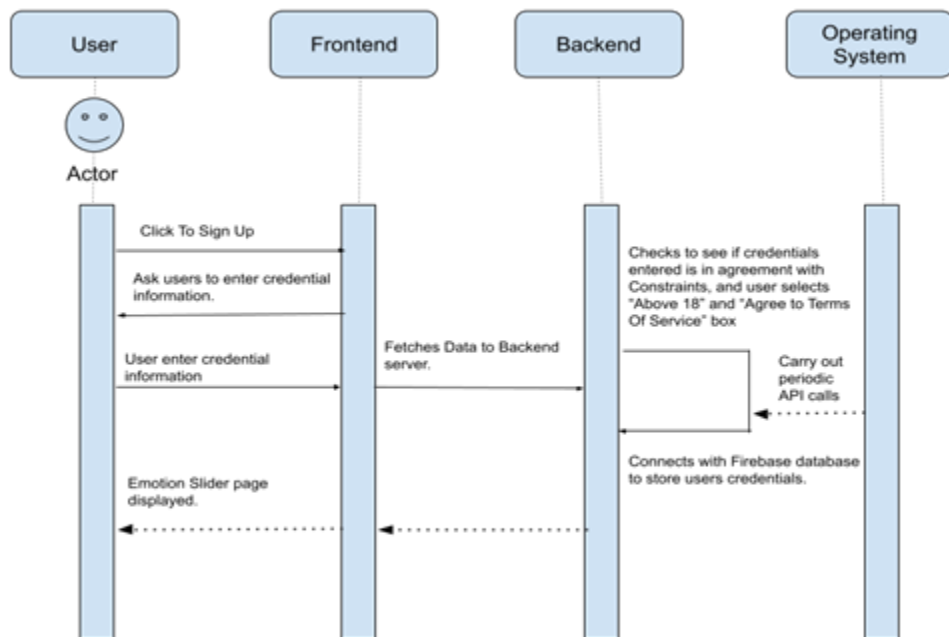
APK – The Android Package file format used to install applications on Android devices.

Appendix A - UML Diagrams

1. Class Diagram



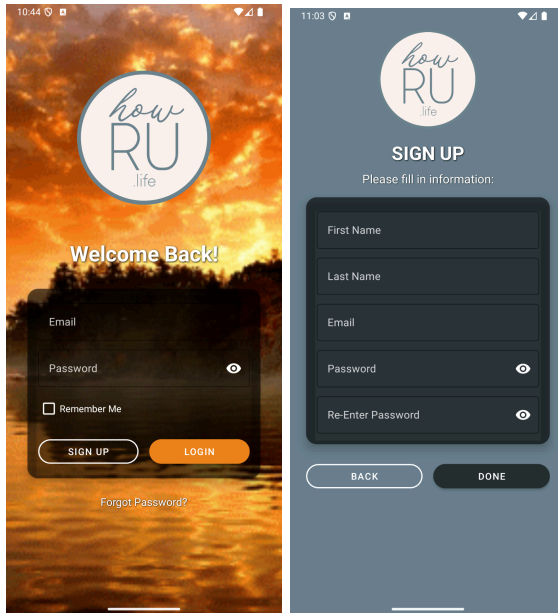
2. Use Case Diagrams



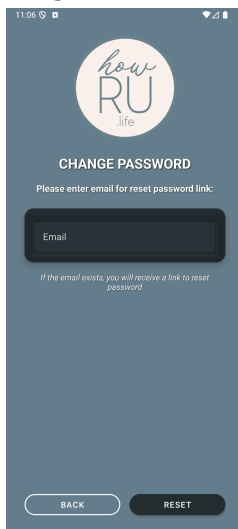
Appendix B - User Interface Design

Mobile Application

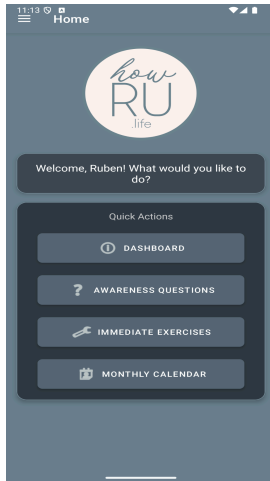
1. Login Page & Sign Up Page



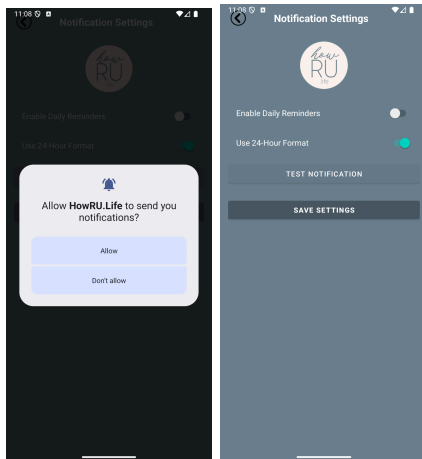
2. Forgot Password Page



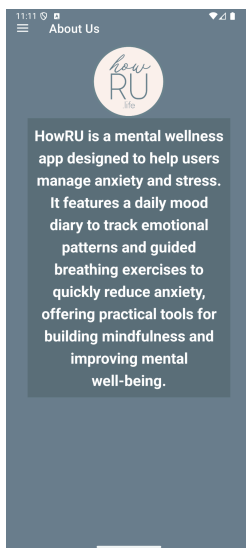
3. Home Page



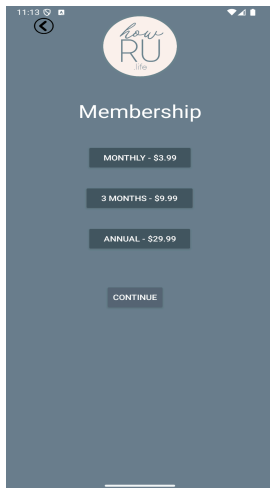
4. Notifications Screen & About Us Screen



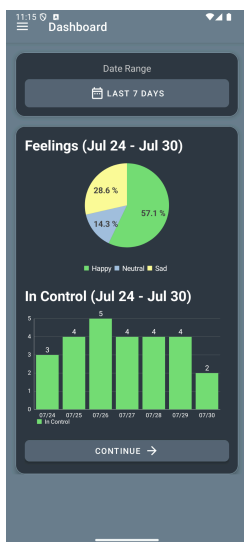
5. About Us



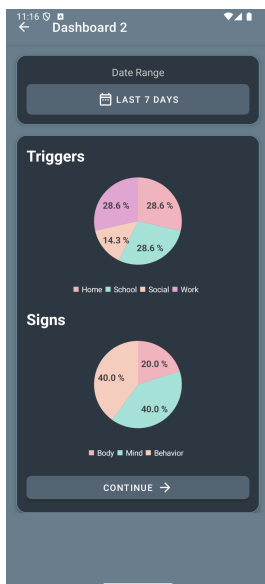
6. Membership Screen



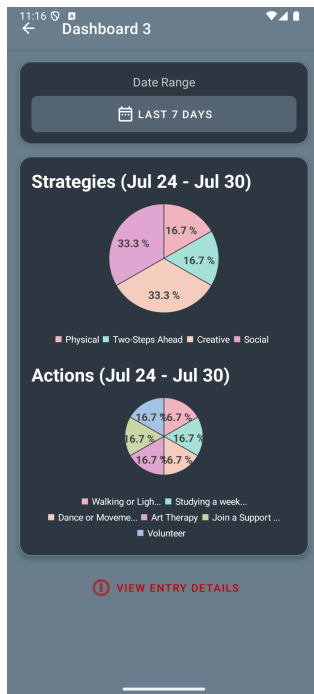
7. Dashboard Screen 1



8. Dashboard Screen 2



9. Dashboard Screen 3



10. Awareness Questions & Self-reflection

Self-Reflection

Take a moment for self-reflection
Select one question from each category that resonates with you today

Who?
Select a question...

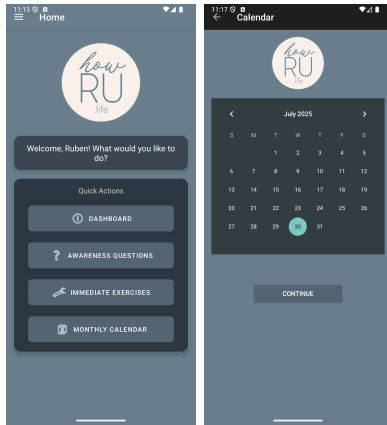
What?
Select a question...

Where?
Select a question...

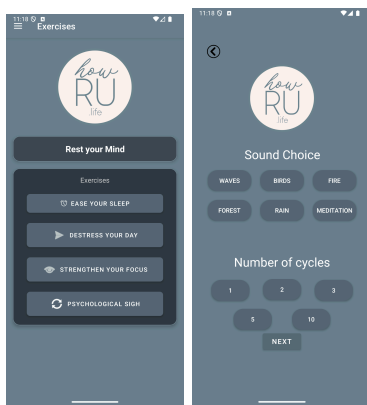
When?
Select a question...

Why?

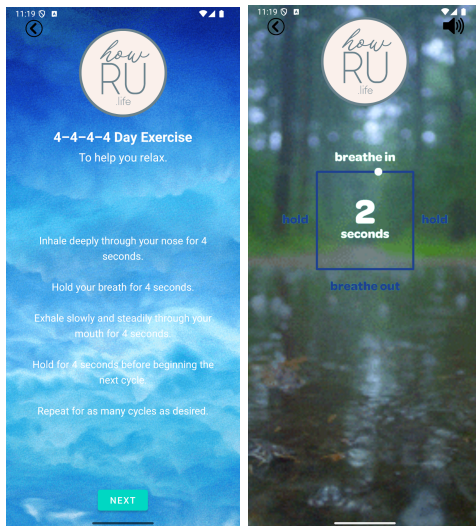
11. Menu Screen & Calendar Screen



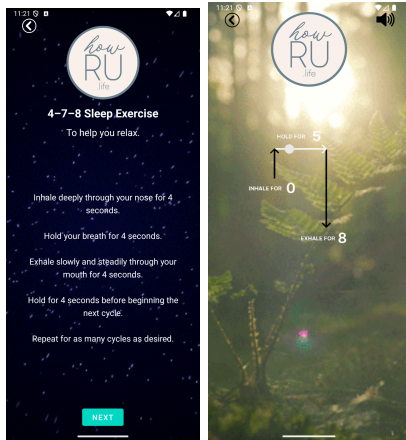
12. Exercises Screen & Music Selection Screen



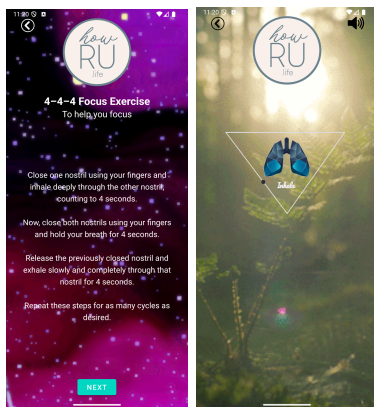
13. Day Exercise Screen & Day Timer Screen



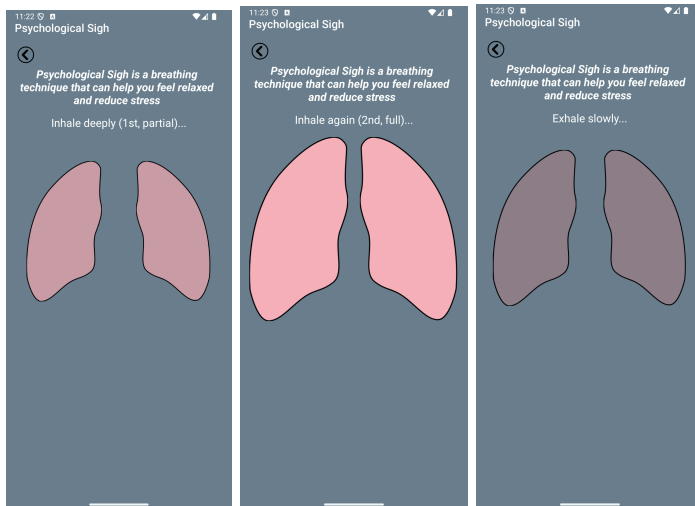
14. Sleep Exercise Screen & Sleep Timer Screen



15. Focus Exercise Screen & Focus Time Screen



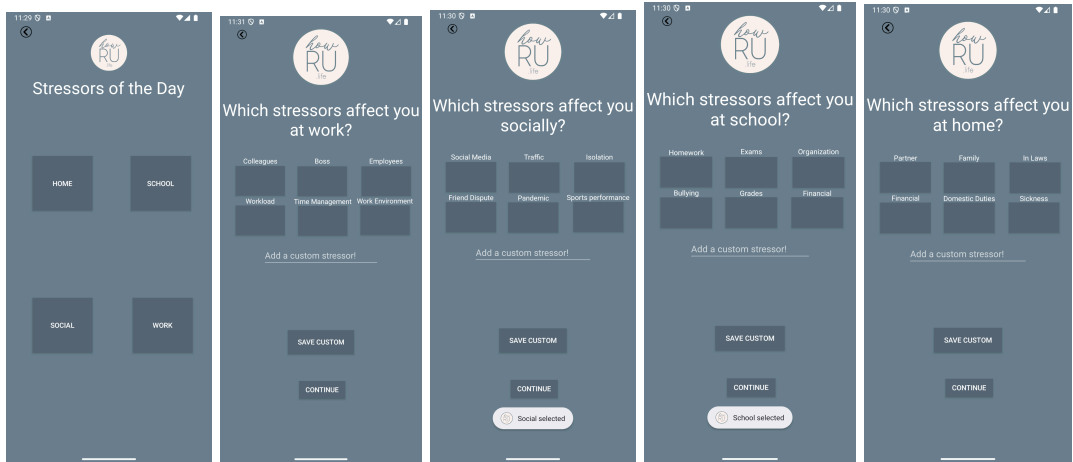
16. Psychological Sigh



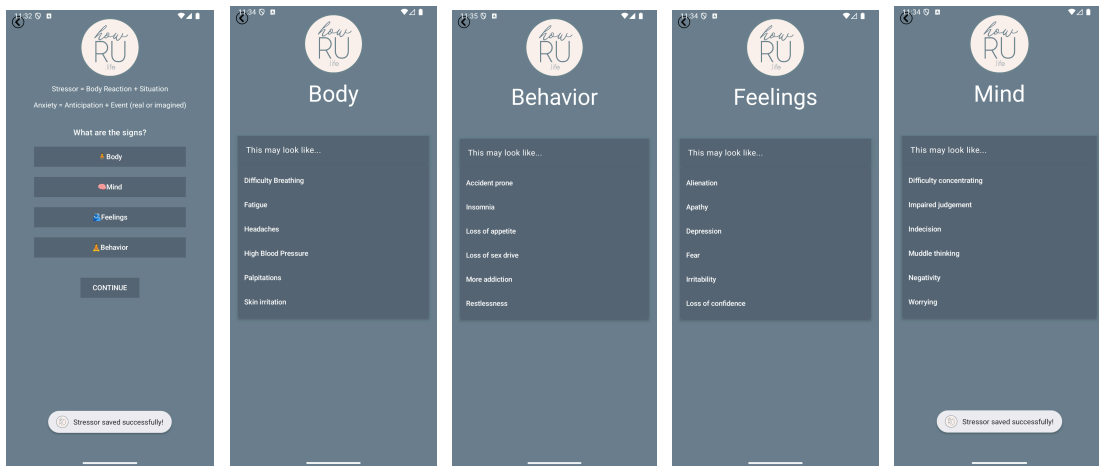
17. Feelings Screen & In Control Screen



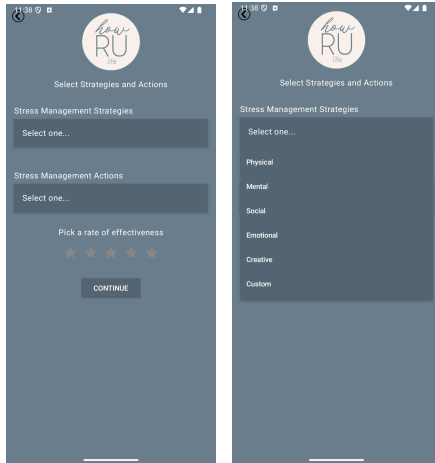
18. Stressor Screen & Reasons Screen



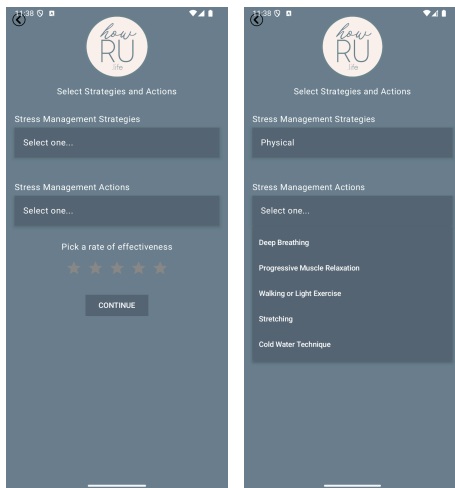
19. Awareness Screen & Awareness Screen Details



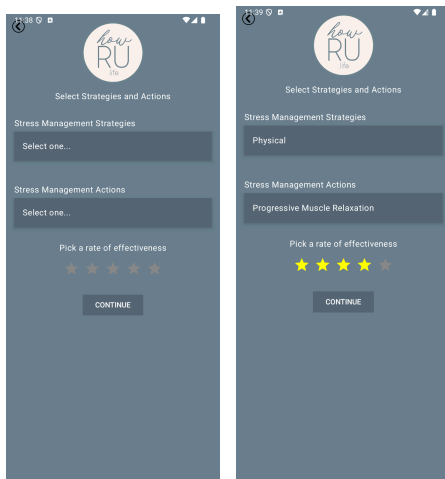
20. Select Strategies Screen and Details



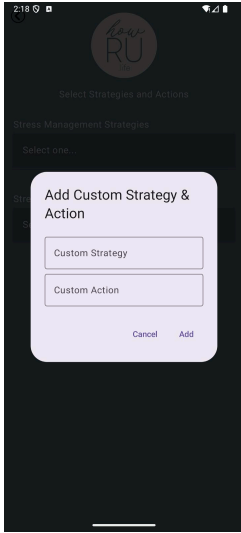
21. Select Actions Screen and Details



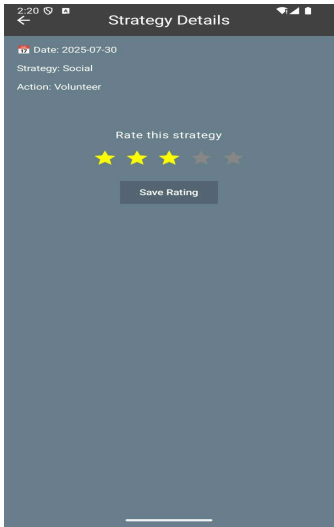
22. Select Rate of Effectiveness



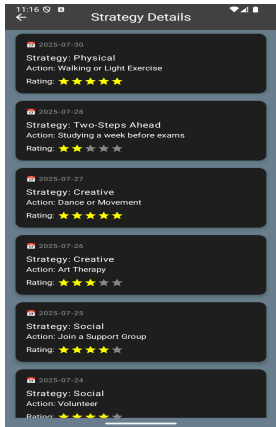
23. Custom Select Strategies and Actions



24. Custom Rate of Effectiveness



25. Daily Log Screen



Appendix C - Sprint Review Reports

Sprint #1 Review Meeting Minutes

Attendees: Alexander Coronel, Rubens Nicolas, Brian Rufin, Joshua Stone, William Garcia

Start time: 5:30

End time: 6:00

After a show and tell presentation, the implementation of the following user stories were accepted by the product owners: All.

- The implementation of the users stories was not possible, we had to fit the schedule of the database owner and the owner of the repository. They were available this weekend, which halted the progress of the project for this first sprint.
- User Story 1: Schedule meeting with Product owner either Thursday or Friday
- User Story 2: Create a Github and install Git on everyone's devices
- User Story 3: Brainstorm coding languages that work best for our goal.
- User Story 4: Setting up a coding environment.

The following ones were rejected and moved back to the product backlog to be assigned to a future sprint at a future Sprint Planning meeting.

- User Story 5: As a user, I want to track my daily stress levels so that I can identify patterns and triggers over time.
- User Story 6: As a user, I want to access guided breathing exercises to help me quickly reduce feelings of anxiety.
- User Story 7: As a user, I want to set personalized reminders for stress-relief activities to maintain a consistent relaxation routine.

- User Story 8: As a user, I want to log my mood and thoughts to better understand how certain events impact my mental state.
- User Story 9: As a user, I want to receive positive affirmations and calming prompts to help me refocus during moments of high stress
- How this should be reflected on the user story definition in Mingle:
 - This would make our goal more coherent to the Product owner goal for the project. And would help clear confusion made due to early planning without the product owner guidance, database owner access and github ownership access.

Sprint #2 Review Meeting Minutes

Attendees: Alexander Coronel, Rubens Nicolas, Brian Rufin, Joshua Stone, William Garcia

Start time: 5:30

End time: 6:00

After a show and tell presentation, the implementation of the following user stories were accepted by the product owners:

- User Story 1: As a user I want to log a stretching session, a physical coping strategy that helps me deal with stress.
- User Story 2: As a user I want to log a meditation session, a physical coping strategy that helps me calm my thoughts.
- User Story 3: As a user I want to log a conversation with a friend, a social coping strategy that allows me to share my feelings with someone else.
- User Story 4: As a user I want to log Dance or Movement, a creative coping strategy that allows me to express my emotions through movement

- User Story 5: As a user, I want to log Music Therapy, a creative coping strategy that allows me to use my self enjoyment of listening or creating music.
- User Story 6: As a user, I want to log Journaling, an emotional coping strategy that allows me to write my thoughts and feelings down.
- User Story 7: As a user, I want to log Mindfulness Practice, an mental coping strategy that helps me to become non judgemental
- User Story 8: As a user, I want to log check the different logs I input while reflecting on my day.

The following ones were rejected and moved back to the product backlog to be assigned to a future sprint at a future Sprint Planning meeting.

- User Story 9: As a user, I want to check how many social coping strategies I logged in the previous week.
- User Story 10: As a user, I want to check how many mental coping strategies I logged in the previous 14 days
- User Story 11: As a user, I want to check how many emotional coping strategies I logged in the previous 30 days
- User Story 12: As a user, I want to check what is the coping strategy that I used the most to deal with stress in the past 7 days
- User Story 13: As a user, I want to check what percentage of the strategies I implemented in the past 14 days were physical

How this should be reflected on the user story definition in Mingle:

- Reworking these user stories would greatly improve the vision of the team, aligning our work with the goals of the product owner. Some of the user stories are on the right path

but need some refinement.

Sprint #3 Review Meeting Minutes

Attendees: Alexander Coronel, Rubens Nicolas, Brian Rufin, Joshua Stone, William Garcia

Start time: 5:30

End time: 6:10

After a show and tell presentation, the implementation of the following user stories were accepted by the product owners:

- User Story 1: As a user, I want to check how many social coping strategies I logged in the previous week.
- User Story 2: As a user, I want to check how many mental coping strategies I logged in the previous 14 days
- User Story 3: As a user, I want to check how many emotional coping strategies I logged in the previous 30 days
- User Story 4: As a user, I want to check what is the coping strategy that I used the most to deal with stress in the past 7 days
- User Story 5: As a user, I want to check what percentage of the strategies I implemented in the past 14 days were physical
- User Story 6: As a user, I want to check how many physical coping strategies I logged in the previous 10 days.
- User Story 7: As a user, I want to check how many spiritual coping strategies I used in the last 21 days.
- User Story 8: As a user, I want to check how many creative coping strategies I logged in

the past 14 days.

The following ones were rejected and moved back to the product backlog to be assigned to a future sprint at a future Sprint Planning meeting.

- User Story 9: As a user, I want to check what coping strategy I used most frequently to manage anxiety in the past month.
- User Story 10: As a user, I want to check which type of coping strategy (emotional, mental, social, etc.) I relied on the most this week.
- User Story 11: As a user, I want to check how many total coping strategies I logged in the last 7 days across all categories.
- User Story 12: As a user, I want to check how many new coping strategies I tried for the first time in the last 30 days.
- User Story 13: As a user, I want to compare my use of social and emotional coping strategies over the past two weeks.
- User Story 14: As a user, I want to check how consistent I've been with logging coping strategies daily over the past month.
- User Story 15: As a user, I want to check which coping strategy I haven't used recently but used often in the past

How this should be reflected on the user story definition in Mingle:

- Reworking these user stories would greatly improve the vision of the team, aligning our work with the goals of the product owner. Some of the user stories are on the right path but need some refinement.

Sprint #4 Review Meeting Minutes

Attendees: Alexander Coronel, Rubens Nicolas, Brian Rufin, Joshua Stone, William Garcia

Start time: 8:15 PM

End time: 9:15 PM

After a show and tell presentation, the implementation of the following user stories were accepted by the product owners:

- User Story 1: As a user, I want to check what coping strategy I used most frequently to manage anxiety in the past month.
- User Story 2: As a user, I want to check which type of coping strategy (emotional, mental, social, etc.) I relied on the most this week.
- User Story 3: As a user, I want to check how many total coping strategies I logged in the last 7 days across all categories.
- User Story 4: As a user, I want to check how many new coping strategies I tried for the first time in the last 30 days.
- User Story 5: As a user, I want to compare my use of social and emotional coping strategies over the past two weeks.
- User Story 6: As a user, I want to check how consistent I've been with logging coping strategies daily over the past month.
- User Story 7: As a user, I want to check which coping strategy I haven't used recently but used often in the past.

The following ones were rejected and moved back to the product backlog to be assigned to a future sprint at a future Sprint Planning meeting.

- User Story 8: As a user, I want to check the rate of effectiveness of strategies I have chosen

- User Story 9: As a user, I want the data of rate of effectiveness to be presentable
- User Story 10: As a user, I want to check the rate of effectiveness of the art therapy I took part in.
- User Story 11: As a user, I want to log a 30 minutes run, and rate its effectiveness as a coping strategy from 1-5 stars.
- User Story 12: As a user, I want to view a history of all the coping activities I've tried, with their effectiveness ratings and timestamps
- User Story 13: As a user, I want to check how consistent I've been with logging coping strategies daily over the past month.
- User Story 14:: As a user, I want to check which coping strategy I haven't used recently but used often in the past

How this should be reflected on the user story definition in Mingle:

- Reworking these user stories would greatly improve the vision of the team, aligning our work with the goals of the product owner. Some of the user stories are on the right path but need some refinement.

Sprint # 5 Review Meeting Minutes

Attendees: Alexander Coronel, Rubens Nicolas, Brian Rufin, Joshua Stone, William Garcia

Start time: 12:30 PM

End time: 1:30 PM

After a show and tell presentation, the implementation of the following user stories were accepted by the product owners:

- User Story 1: As a user, I want to check what coping strategy I used most frequently to

manage anxiety in the past month.

- User Story 2: As a user, I want to check which type of coping strategy (emotional, mental, social, etc.) I relied on it the most this week.
- User Story 3: As a user, I want to check how many total coping strategies I logged in the last 7 days across all categories.
- User Story 4: As a user, I want to check how many new coping strategies I tried for the first time in the last 30 days.
- User Story 5: As a user, I want to compare my use of social and emotional coping strategies over the past two weeks.
- User Story 6: As a user, I want to check how consistent I've been with logging coping strategies daily over the past month.
- User Story 7: As a user, I want to check which coping strategy I haven't used recently but used often in the past.
- User Story 8: As a user I want to flexibility and adjustability with my rate of effectiveness rating
- User Story 9: As a user I want to have a rating system that rates the effectiveness of my strategies and actions chosen
- User Story 10: As a user I want to be able to visualize my rate of effectiveness selection
- User Story 11: As a user I want to have rate of effectiveness selection visualized within the log

The following ones were rejected and moved back to the product backlog to be assigned to a future sprint at a future Sprint Planning meeting.

- No User stories were rejected and moved back. No future sprint at a future sprint

planning meeting available

How this should be reflected on the user story definition in Mingle:

- Reworking these user stories has greatly improved the vision of the team, aligning our work with the goals of the product owner. Allowing the user stories to follow in lock step with our teams implementation

Appendix D - User Manuals, Installation/Maintenance Document, Shortcomings/Wishlist Document, and other documents

Mobile App (Android only)

Here are all the prerequisites and tools you need to run the Anxiety & Stress Management app application locally on your machine. Follow these steps to set up your development environment and get started.

Downloads:

- GitHub Desktop: Used for group work and version control.
<https://github.com/apps/desktop>
- Android Studio: IDE used to code/debug and run emulator
<https://developer.android.com/studio>

Note: Clone the repository to your local machine on GitHub Desktop (File -> Clone Repository...)

User Manual: Guide to Start the App

Step 1: Open GitHub Desktop

- Launch GitHub Desktop.
- Navigate to the desired repository and branch.

- Select the project and choose **"Open in Android Studio"** (or manually open the folder from Android Studio).
- Android Studio will automatically sync the Gradle files and dependencies.

Step 2: Launch Android Studio and Configure Project

- Open Android Studio and load the cloned project.
- Allow Gradle to sync and install any required plugins or libraries.
- Make sure the project contains a valid `google-services.json` file in the `app/` directory to connect to Firebase.
- If needed, sign in to Firebase via Android Studio to link the project properly.

Step 3: Run the App on Emulator or Device

- Click the green **Run** button (▶) in Android Studio.
- Choose either a connected physical Android device or a virtual emulator to deploy the app.
- Monitor Logcat for logs, errors, and debugging messages.

Shortcomings/Wishlist

1. Continuation with Jetpack Compose for better support from JetBrains and Google in future implementation of project
2. Continue to organize files within their viewmodel, repository, ui and model. Allow for better file traversal through the code files
3. Support both android and apple implementation of the app

