Stress Monitoring App

Amicia

Scott Berryman (19747176), Tanaka Chitete (20169321), Tui Warihana (19763703)

Team: P8

Tutorial: Monday, 3:00 PM

Human Computer Interfaces ICTE 3002 / Advanced Human Computer Interfaces ICTE 5001

School of Electrical Engineering, Computing and Mathematical Sciences, Curtin University

Table of Contents

1 Introduction

2 Project Description

3 Team

3.1 Team Members

3.2 Contribution Matrix

4 Software Development Lifecycle

4.1. Overview

4.2. Justification

4.3. Description of Usage and Evidence

5 Design Thinking

5.1 Design Thinking Process

5.2 User-Centred Design

5.3 User Interviews, Surveys, Questionnaires and Observations

5.4 Data Analysis

5.5 Personas

5.5.1 Jonus

5.5.2 Mina

5.5.3 Danielle

5.6 User Journeys, User Flows, and Empathy Maps

5.7 User Stories

5.8 Use Cases

5.9 Competitor Analysis

5.9.1 EDA Scan by Fitbit

5.9.2 Calm

5.9.3 Samsung Health by Samsung

5.10 Pain Points

5.11 Problem Statement and Solution Ideation

6 Requirements Specification

6.1 Functional Requirements

6.1.1 User Requirements

6.1.2 System Requirements

6.2 Non-Functional Requirements

6.3 Hierarchical Task Analysis

7 UI/UX Goals

7.1 Usability Goals

7.2 User Experience Goals

8 UI/UX Design Principles

8.1 Design Principles

8.2 Design Principles and Visual Design Principles

8.2.1 Layout

8.2.2 Hierarchy

8.2.3 Colour

8.2.4 Typography

8.2.5 Imagery and Copy

9 Usability Heuristics

10 Wireframe Prototypes

10.1 Design 1

10.2 Design 2

10.3 Design 3

11 Low-Fidelity Prototypes

11.1 Design 1

11.2 Design 2

11.3 Design 3

12 Expert Review

12.1 Performing Expert Review

12.2 Receiving Expert Review

13 High-Fidelity Prototypes

13.1 Design 1

13.2 Design 2

13.3 Design 3

14 Project Management

14.1 Meetings

14.2 Risk Management

14.3 Milestones

14.4 Problems Encountered

15 Conclusion

16 Acknowledgements

17 References

18 Glossary

19 Appendix

19.1 Record-Keeping

19.1.1 Google Drive Links

19.1.2 Evidence of Other Work

19.1.3 Figma Files

1 Introduction

In the current day everyone in the world has some level of stress, to many people this is manageable and not an issue in their day to day lives while to others it begins to have a negative impact on their work, education and social lives. Often people experiencing high levels of stress don't realise the impact their stress levels are having on their day to day lives. Our project is designed to help address the impact that stress is having on those people by allowing them to be mindful of their levels of stress while also helping them reduce the negative effects which stress is having on them.

2 Project Description

Our project is a mobile app which works in conjunction with a smart-watch to track the stress levels of a user at different times and in different locations. The user will be able to view their real time stress levels as well as retroactively look at what levels of stress they experience at different times and in different locations. The app will also have options for intervention when the user is experiencing high stress in the form of quick and simple activities designed for stress reduction such as breathing exercises.

The application will use a smart watch to monitor the current stress level of the user by employing different kinds of biofeedback such as temperature, sweat gland activity (Electrodermograph), heart rate and breathing. Should the application detect that the user is experiencing high levels of stress the integrated AI assistant will notify the user and provide an appropriate stress reduction exercise.

From a design perspective the application is intended to be user friendly as well as visually attractive/calming. The reason behind these choices is that the app is likely to experience most of its usage while the user is already stressed due to circumstance so the app must be as simple and easy to use as possible to avoid causing additional frustrations.

3 Team

3.1 Team Members

Student	Name	Number	Role
1	Tanaka Chitete	20169321	Project Manager Document Controller
2	Scott Berryman	19747176	Graphic Designer Usability Engineer
3	Tui	19763703	UI/UX Designer QA Engineer

3.2 Contribution Matrix

The contribution matrix for this report as well as design work for Amicia is at this link https://docs.google.com/spreadsheets/d/17dhjJDXF_cCLvICvlhHg_nd7bhDu6KBbCeENhTTc0RE/edit?usp=sharing

4 Software Development Lifecycle

4.1. Overview

The Software Development Life Cycle (SDLC) CPYou chose to utilise was the Agile SDLC. Agile is an approach to project management and software development which involves the completion of tasks in small, but consumable, increments. Objective setting, risk evaluation, development and planning are done iteratively so teams have the capability to adapt to change quickly. Ultimately, the objective is to deliver value to stakeholders–particularly, the end user–faster and with fewer difficulties (Atlassian, n.d. a).

4.2. Justification

With any software solution, catering to the user is essential. Regardless of whether a team is developing a mobile social media application or the autopilot functionality for a passenger aircraft, the solution will only be as successful as the end user considers it to be. *Why?* Well, if the end user considers a product as delivering an unpleasant experience, they would most definitely be on the lookout for an alternative–which could quite possibly be *a competitor's offering* (Technology Partners, n.d.). Therefore, with this consideration in mind, coupled with the

previously established fact that Agile is user-centric, CPYou concluded that it would be an appropriate life cycle.

4.3. Description of Usage and Evidence

CPYou utilised Agile to drive its work in all four areas of Interaction Design. Namely,

1. Discovering Requirements
2. Designing Alternatives
3. Prototyping
4. Evaluating.

Evidence of the influence of Agile in the design of Amicia is provided in numerous examples throughout this document as well as work done in an associated Google Drive–which will be mentioned in the upcoming sections (Sharp, Rogers, and Preece 2019).

5 Design Thinking

5.1 Design Thinking Process

Design thinking is a methodology for creative problem solving wherein the consumer's needs are prioritised above all else. It relies on observing, with empathy, how people interact with their environments, and employs an iterative, hands-on approach to creating innovative solutions (Hasso Plattner Institute of Design at Stanford University, n.d. a).

CPYou opted to use the Stanford University d.school Design Thinking Process. The below diagram outlines the five components–or, "modes"–of Design Thinking. Namely, Empathise, Define, Ideate, Prototype and Test (Hasso Plattner Institute of Design at Stanford University, n.d. b).

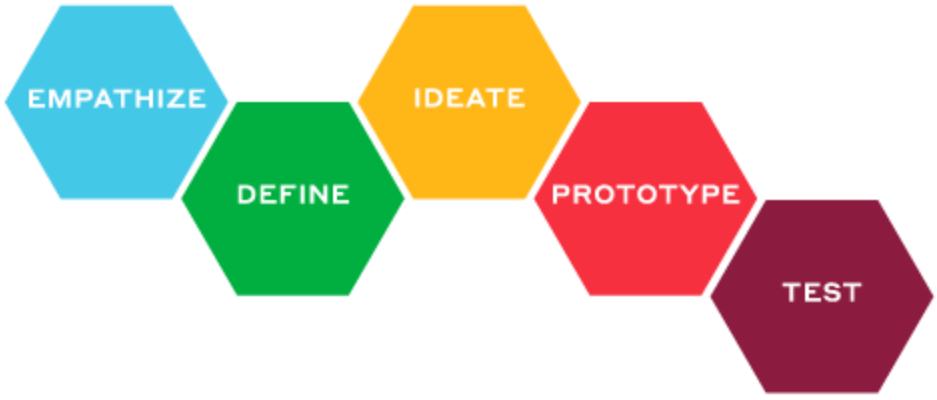


Fig. 1. Diagram of the Stanford d.school Design Thinking Process (Hasso Plattner Institute of Design at Stanford University, n.d. b)

1. **Empathise**

   As designers, the problems we seek to solve are very rarely our own, they are problems the user experiences. In order to build empathy towards the user, we need to learn their values (Hasso Plattner Institute of Design at Stanford University, n.d. b). CPYou empathised with the user through identifying their pain points, which we grouped through affinity mapping on a Figma whiteboard.

2. **Define**

   In this mode, we translated our empathy findings into insights about the user and also their needs from a stress monitoring app–Amicia (Hasso Plattner Institute of Design at Stanford University, n.d. b). Specifically, CPYou considered all of the user's pain points in order to define a number of problem statements to guide the design of the best UX possible, all on the same Figma whiteboard.

3. **Ideate**

   Here, the team proposed numerous design alternatives, discussing a multitude of novel and "out-there" features (Hasso Plattner Institute of Design at Stanford University, n.d. b). Specifically, CPYou proposed various solutions to the problem statements defined in the previous mode by adding sticky notes to the same Figma whiteboard.

4. **Prototype**

   CPYou designed multiple prototypes of varying degrees of resolution–low-fidelity and high-fidelity–in order to realise the solutions proposed.

5. **Test**

   In test mode, the low-fidelity prototype design was brought forth to another group for expert review. Upon the expert review, we began the design thinking process again in order to develop a high fidelity prototype.

5.2 User-Centred Design

In order to involve the user in the design process, CPYou conducted user interviews in order to uncover insights and convert those insights into greater value for the end user. The team conducted interviews of varying types depending on the intended purpose.

During the earlier stages, when the designers wanted to gain insight in regards to what potential users would like from a stress monitoring app, open-ended interviews were preferred since there was no specific purpose for the interviews themselves (Sharp, Rogers, and Preece 2019).

Whilst UI/UX design was taking place–in particular, prototyping–the purpose and questions of the user interviews centred around obtaining feedback about design features–colours, fonts, layouts, flows–CPYou opted to conduct structured interviews and questionnaires, due to their direct nature (Sharp, Rogers, and Preece 2019).

5.3 User Interviews, Surveys, Questionnaires and Observations

The typical demographic of our application is students and young-middle aged members of the workforce. While our application is usable for people outside of this demographic this is the group we believe will benefit most from the mindfulness provided by our application. Older people are also more likely to have become more self aware about their own stress levels and have developed their own ways to deal with it so such an application is less necessary.

Young people of today often feel overwhelmed by tasks that need to be done, large amounts of homework for students/young adults trying to balance work with home jobs and social lives, and they often struggle to stop, take a step back and take a moment to relax.

5.4 Data Analysis

From the data gathered, it was observed that the sample of testers was comprised of young adults (all of whom were between the ages of 15 to 35). 100% of our testers had or are going to pursue higher education. Specifically, our testers are as follows:

- 1 high school student (one third of testers)
- 1 university student (one third of testers)
- 1 accountant, with a higher education degree (one third of testers)

The user data led to some insights about participants' motivations and frustrations. It was discovered that all participants worry about where they see themselves in the future.

Additionally, it was also uncovered that all participants feel like they would benefit from some form of technological assistance in managing their stress and anxiety.

Moreover, most participants (two thirds) feel frustration from having to use products and services with poor user interfaces.

5.5 Personas

5.5.1 Jonus

Background

- Age: 22
- Occupation: University Student
- Location: Perth, Australia
- Education: Curtin University

Bio

Jonus is an avid basketball player hoping to make it onto the U25s WA state basketball team. He enjoys going to the beach with his girlfriend, hiking with his best mates and cooking with his mum and dad. As much as he loves being social, Jonus has been having difficulty finding time to connect with others as of late, and it is starting to feel overwhelmed juggling all of his commitments.

Frustrations

- Constant pressure to perform as an athlete, but also stay close to all of his loved ones
- Securing his future if his basketball dreams don't pan out how he hopes
- Needing to use apps with poor UI/UX for his studies

5.5.2 Mina

Background

- Age: 15
- Occupation: High School Student
- Location: London, United Kingdom
- Education: Morehouse High School

Bio

Mina is a true creative at heart–always drawing inspiration from her surroundings in order to create paintings of a variety of different mediums including oil, watercolour and charcoal. Her parents aspire for her to attend the Eton School of the Arts once she graduates from High School, however, as of late she has been feeling more and more stressed about whether or not she's good enough to get admitted.

Frustrations

- Feeling guilty for not being capable to pursue a life her parents have invested so much in
- No easy access to help when she starts feeling anxious during the day
- Being so connected to technology despite it doing very little for her mental well-being

5.5.3 Danielle

Background

- Age: 32
- Occupation: Lawyer
- Location: New York, USA
- Education: Yale University

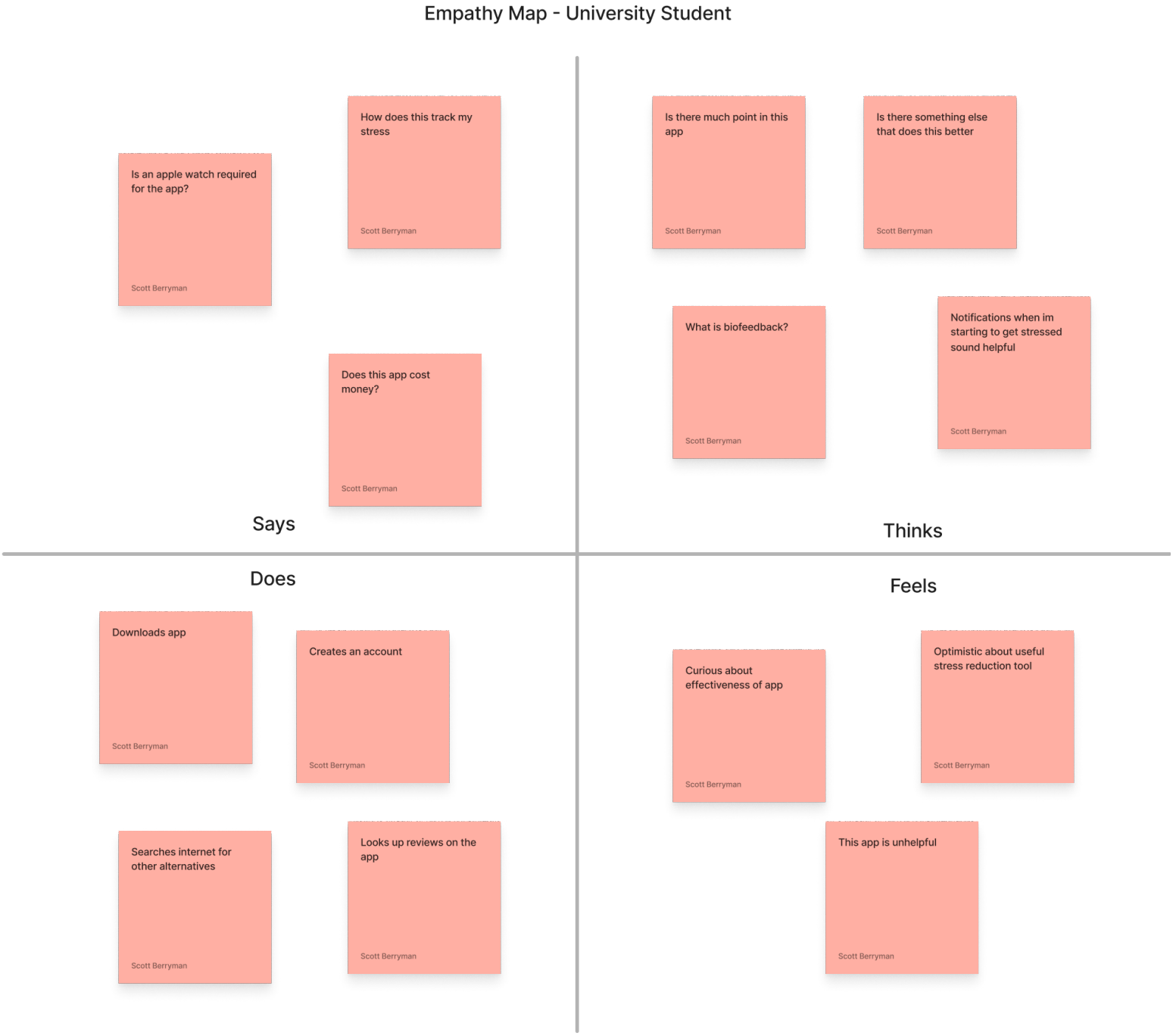
Bio

Danielle is a Corporate Lawyer and has been for nearly 11 years now–studying Business and Law at Harvard University. She currently works at Becker and Yanagiraha, perhaps the most prominent law firm in all of New York and has been quickly climbing up the ladder of Corporate America. She's had her sights set on becoming the firm's youngest partner ever since she first interned there while in Law School. However, due to her success at the firm, she's starting to feel the pressure of having all eyes on her.

Frustrations

- Not being able to succeed as a career-long Lawyer
- Constant need to present herself as strong and put together despite her work taking its toll on her from time to time

5.6 User Journeys, User Flows, and Empathy Maps



(StoryboardThat, n.d.)

5.7 User Stories

- As Mina, I want easily accessible tools to help lower stress and anxiety throughout the day to allow me to take a short break when I start to get anxious before getting back into whatever task is at hand.
- As Jonus, I want a simple application that is easy to navigate so that I don't need to spend time learning how to use it before I can actually benefit from it.
- As a user, I want to be able to disable all locational tracking so that my privacy concerns are met.
- As Danielle, I want to be able to monitor my level of stress at any given moment so that I can be aware of when stress is going to start having an adverse effect on my work.

5.8 Use Cases

Use Case 1	Check current and historical stress levels
Actor	User
Basic Flow	The user will open the application and read the stress graph on the home page. If they wish to see historical levels they will tap the graph to access the calendar, the user will then select the day they wish to see the stress levels of and it will display on the graph.

(usability.gov, n.d.)

Use Case 2	Access stress reduction exercises
Actor	User
Basic Flow	The user will open the application and tap the activities icon on the navigation bar. This option will link to a set of on-screen instructions detailing how to perform the activity while having monitors of their biofeedback metrics shown. After completing the activity the user can then select an option in the navigation bar to either return to the application homepage.

(usability.gov, n.d.)

Use Case 3	Find out high stress locations
Actor	User
Basic Flow	The user will open the application and tap the map icon on the navigation bar. This option will open a page showing a map with colour coded stress hotspots for their day. Key locations will be listed below the map for the user to quickly identify what locations are causing them the most stress. The user can then select either the locations or the time graph to get a more detailed look at their locational stress.

(usability.gov, n.d.)

Use Case 4	Acquire advice about dealing with stress and stressful situations
Actor	User
Basic Flow	The user will open the application and tap the chat icon on the navigation bar. The chat window will open and the user will have preset options to choose from. The user will select the ‘advice’ option and the AI assistant will give relevant advice based on the user's historical stress metrics.

(usability.gov, n.d.)

5.9 Competitor Analysis

5.9.1 EDA Scan by Fitbit

Advantages

- Gives the user a little bit of information about what EDA scans are
- Provides visual instruction as to how to use the app
- Displays countdown timer as scan is taking place
- Scan can pause and resume
- Allows user to reflect on their mood after each scan
- Records streaks of usage to encourage user to regularly conduct EDA scans

(Fitbit, n.d.)

Disadvantages

- Conducting a scan is a bit of an inconvenience–user must sit still for a 2 minutes, pinching the sides of the Fitbit or placing their palm over the screen (depending on the Fitbit model)

(Wearable Whisperer 2021)

Translations

- Provide user with information about how the app will measure their stress
- Provide user with visual instruction as to how to use the app
- Display countdown timer for breathing exercises–perhaps with some form of visualisation
- Allow user to reflect on their mood/emotional state periodically
- Record streaks of app interaction to encourage continual use by the user
- Ensure conducting stress level readings does not greatly inconvenience the user

5.9.2 Calm

Advantages

- Offers both iOS and watchOS apps
- Plays calming background sounds (creek, valley, rain etc.) on iOS

Disadvantages

- Subscription-based–costing $19.99 per month or $79.99 annually
- Cluttered iOS UI

Translations

- Implement an offerings on a particular phone OS and the OS of the associated wearable
- Consider playing background sounds while user is interacting with the app itself or its specific features (e.g. play the sound of a creek while conducting breathing exercises)
- Avoid making the app paid. However, if so, ensure all of the core functionality comes at a reasonable price
- Design a clean, somewhat minimalistic UI

5.9.3 Samsung Health by Samsung

Advantages

- Offers both Android OS and Wear OS apps
- Displays current stress level compared to weekly average stress level
- Allows user to start breathing exercises with a single click after measuring stress level
- Provides visual instruction for breathing exercises
- Allows users to tag stress level readings with their emotional state
- Attractive UI

(Samsung, n.d.)

Disadvantages

There are no apparent disadvantages

Translations

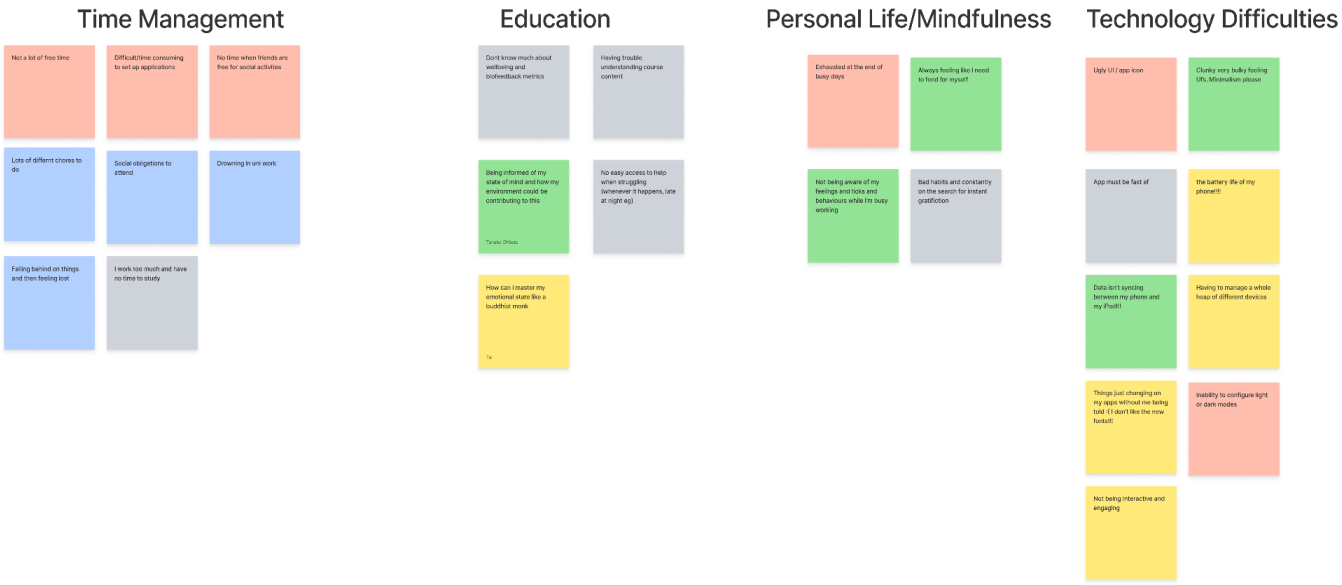
- Again, implement an offerings on a particular phone OS and the OS of the associated wearable
- Display some form of comparison between stress levels so user has an understanding of their relative wellbeing
- Ensure all of the core functionality can be interacted with in only a few clicks
- Provide visual instruction where beneficial to UX
- Allow users to reflect on their well-being periodically
- Pay close attention to designing an attractive UI–carefully consider colours, iconography, typefaces etc.

5.10 Pain Points

Initially we brainstormed many different issues/pain points users may have relating stress in their lives or usage of mobile applications using a Figma whiteboard. After this we looked at common factors to group these issues into categories giving us key areas to take into account.

From this process we created 4 categories that could be important to address in our app

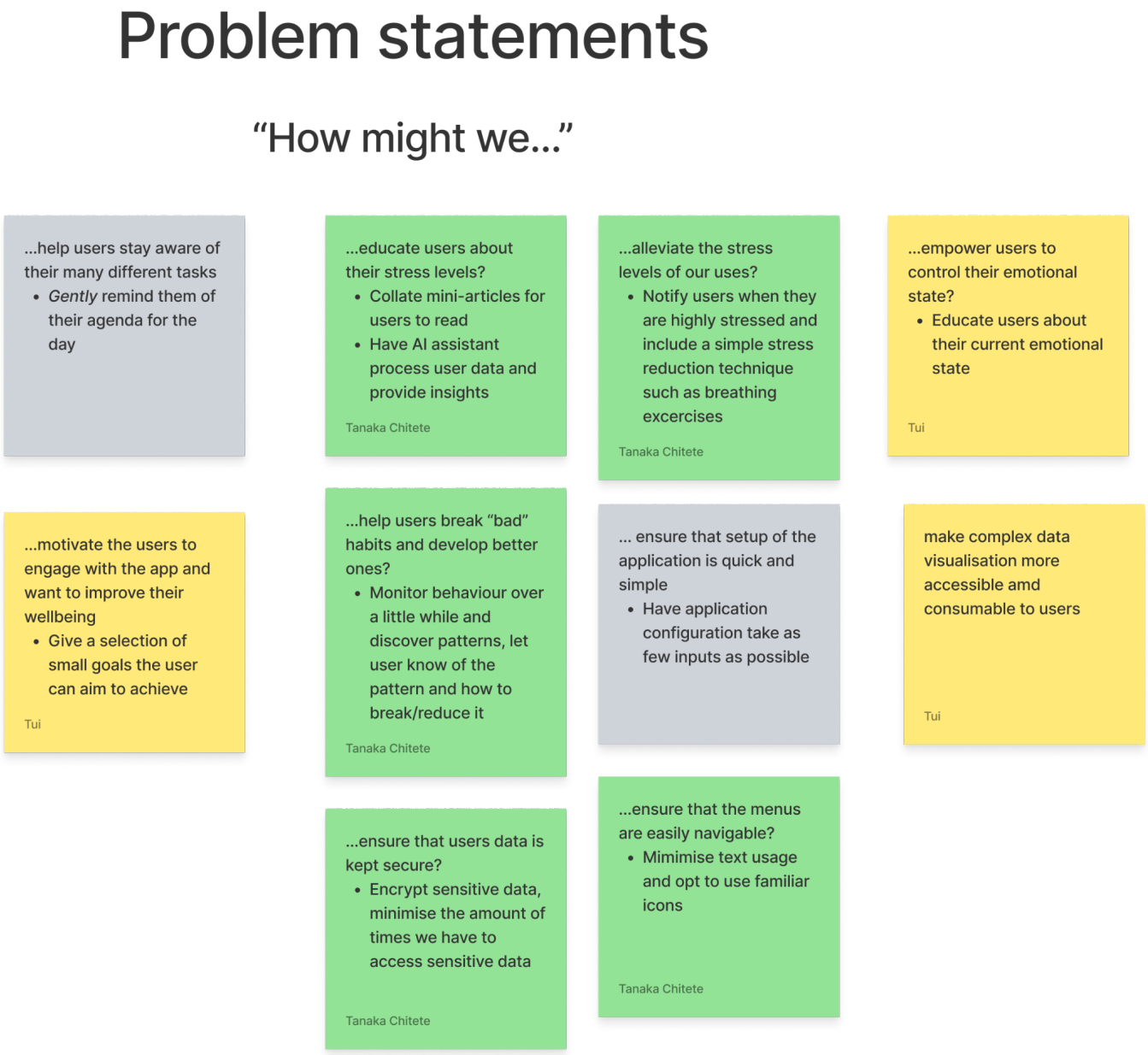
1. Time Management
2. User knowledge on stress effects
3. Mindfulness (The users self awareness of their personal stress and managing it)
4. Technology Difficulties (App usability and visual design)



From these categories mindfulness is where we ended up placing the major focus of the application, specifically on ensuring users are aware of the stresses they are experiencing and giving them tools to help moderate their stress.

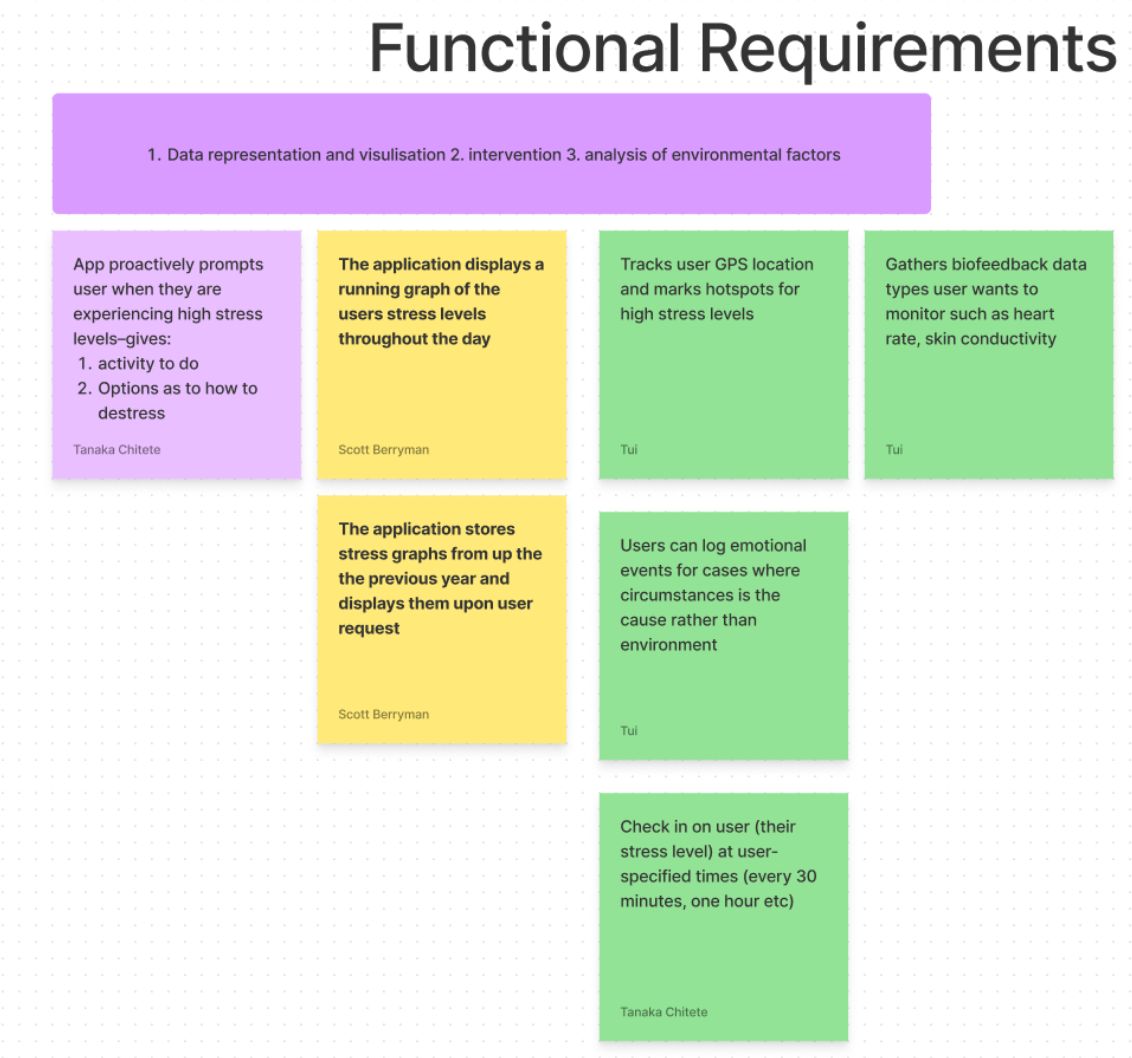
5.11 Problem Statement and Solution Ideation

In our design process we initially brainstormed some problem statements based on our user pain points. At this stage we had not decided on the mindfulness focus so we tried to have problem statements cover all 4 of our possible pain point categories. After the creation of these problem statements we attempted to think of possible solutions to address them and added them onto the problem statements as dot points to allow ourselves to come up with many alternative solutions to each problem statement.



6 Requirements Specification

6.1 Functional Requirements



6.1.1 User Requirements

The user must be able to:

- View their current stress level, heart rate, blood pressure and oxygen levels in real time.
- Participate in a guided breathing exercise by following the breathing instructions and viewing the breathing animation.
- Access advice, affirmations and breathing exercises from the chat with Amicia.
- Find timestamp and biofeedback statistics for specific points of interests in the stress hotspots.

- Scrub through the timeline of stress hotspots to see their stress journey throughout the day.

6.1.2 System Requirements

The system should:

- prompt users when they are experiencing high stress levels with a breathing exercise or advice.
- display a graph of the user's stress levels throughout the day.
- Construct hotspots using the user's GPS location and stress levels.
- Monitor heart rate, blood pressure and oxygen.
- Use heart rate, blood pressure and oxygen to calculate the user's stress levels.

6.2 Non-Functional Requirements

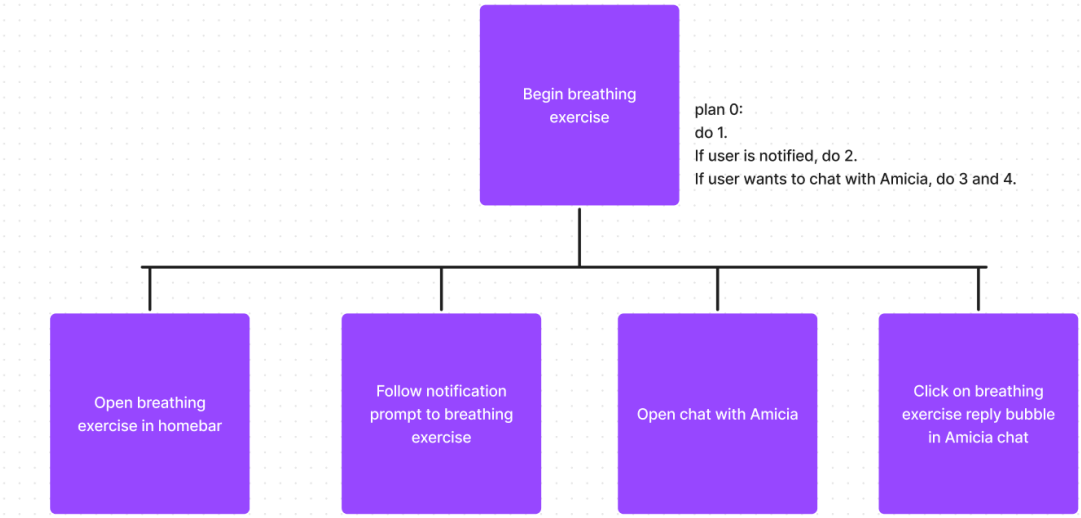
The user must:

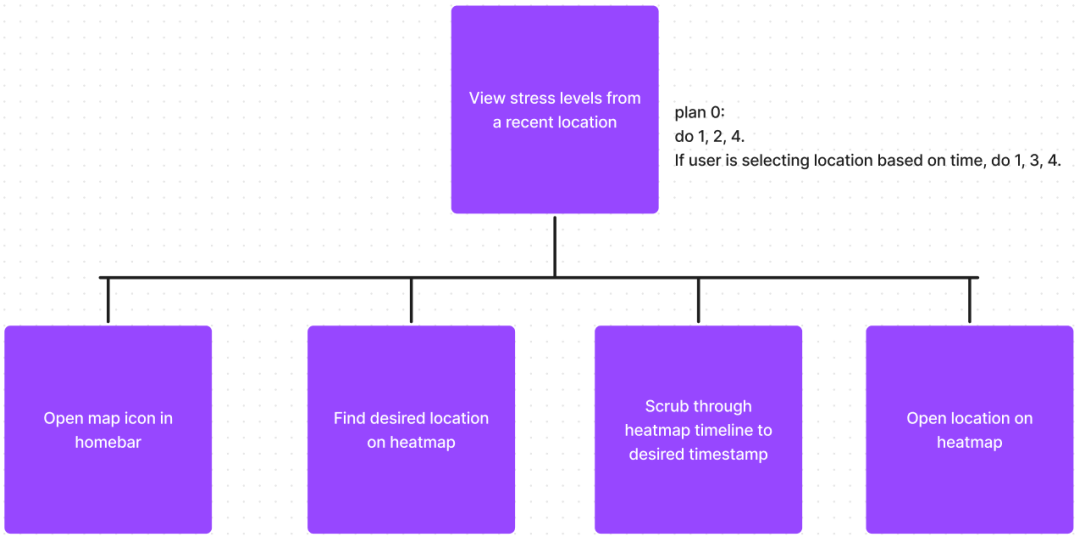
- Not reuse passwords.

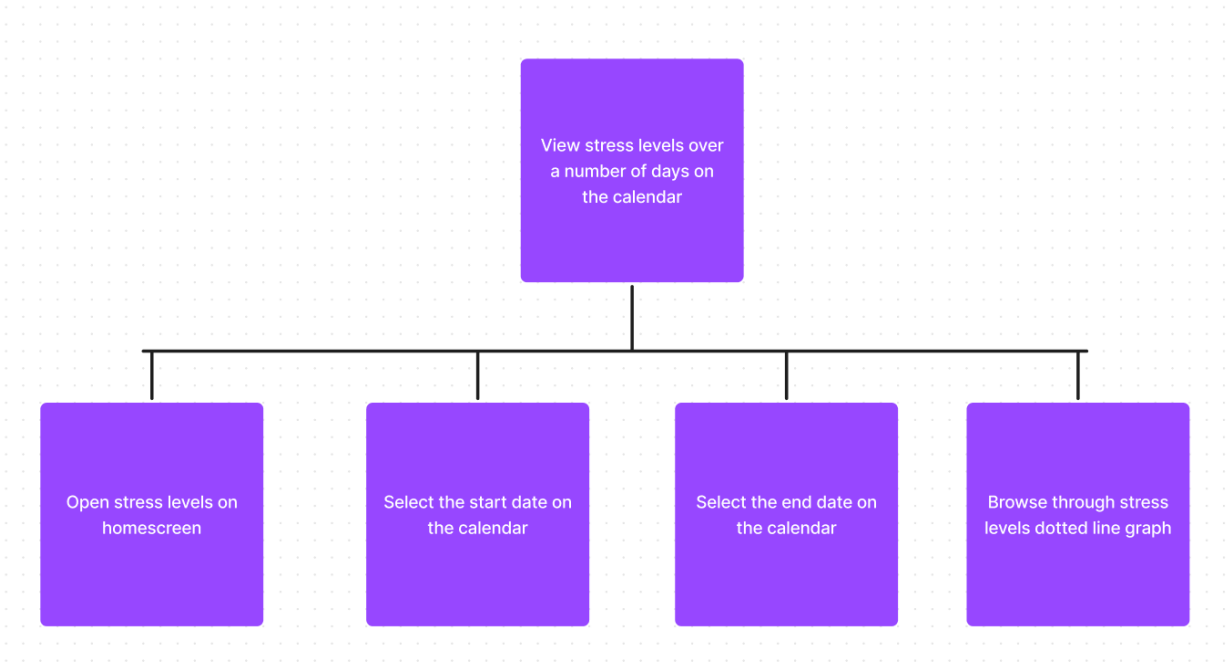
The system must:

- Store stress and biofeedback data for the past year.
- Allow the user to access the smart assistant's help options in 2 clicks.
- Make the user's data accessible on multiple devices through the cloud.
- Support iOS 14.3+ and Android devices 8+
- Be compatible with Samsung Galaxy Watch 4 and Apple Watch Series 7
- Backup user data every 24hrs.
- Calculate stress level from biofeedback in <1ms

6.3 Hierarchical Task Analysis







7 UI/UX Goals

7.1 Usability Goals

The usability goals CPYou is aiming to meet are:

1. Effectiveness
2. Efficiency
3. Safety
4. Utility
5. Learnability
6. Memorability

(Sharp, Rogers, and Preece 2019).

Now, to explore each goal in-depth

1. **Effectiveness**

   In general, the *effectiveness* of Amicia refers to how well it does what it is supposed to do. An associated question is *"Is the app capable of allowing people to manage their stress?"* (Sharp, Rogers, and Preece 2019).

2. **Efficiency**

   Efficiency refers to the way Amicia supports the user in managing their stress. An associated question is *"Once the user has learned how to use the app, can they manage their stress levels with a high level of access?"* (Sharp, Rogers, and Preece 2019).

3. **Safety**

   Safety is concerned with protecting the user from unsafe conditions and undesirable situations. An associated question is *"What are the errors possible from using Amicia, and what measures have been implemented so that users can recover easily?"* (Sharp, Rogers, and Preece 2019).

4. **Utility**

   Utility is concerned with the extent to which Amicia provides the right functionalities so that the user can do what they need and/or want to do. An associated question is *"Does the app provide an appropriate set of features that allows the user to manage their stress levels in the way they want to manage them?"* (Sharp, Rogers, and Preece 2019).

5. **Learnability**

   Learnability refers to how easy Amicia is to use. It is quite apparent that people don't like having to spend an extended period of time learning how to use an app, they want to become proficient as soon as possible with as little effort as possible. An associated question is *"Is it possible for the user to work out how to use Amicia by simply exploring the interface and clicking different objects? How hard will it be to learn all of the app's functionality this way?"* (Sharp, Rogers, and Preece 2019).

6. **Memorability**

   Memorability refers to how easy Amicia is to remember how to use, once learned. An associated question is *"What help has been provided to the user so they can remember how to use Amicia's features, especially those features which they use infrequently?"* (Sharp, Rogers, and Preece 2019).

7.2 User Experience Goals

Desirable Aspects

- Emotionally fulfilling
- Engaging
- Enhancing sociability
- Enjoyable
- Entertaining
- Experiencing flow
- Fun
- Helpful
- Motivating
- Pleasurable
- Rewarding
- Satisfying

(Sharp, Rogers, and Preece 2019).

Undesirable Aspects

- Annoying
- Boring
- Childish
- Frustrating
- Gimmicky
- Makes one feel guilty
- Makes one feel stupid
- Patronising
- Unpleasant

(Sharp, Rogers, and Preece 2019).

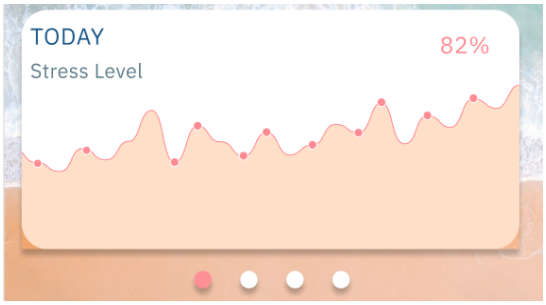
8 UI/UX Design Principles

8.1 Design Principles

Visibility

All options are available in a **tab-bar menu** to improve visibility of key experiences.

Pagination allows users to search for a specific biofeedback graph and lets them keep a mental location of the item. This panel is repeated in the calendar and the user can take their initial experience on the home screen to quickly locate their desired biometric.

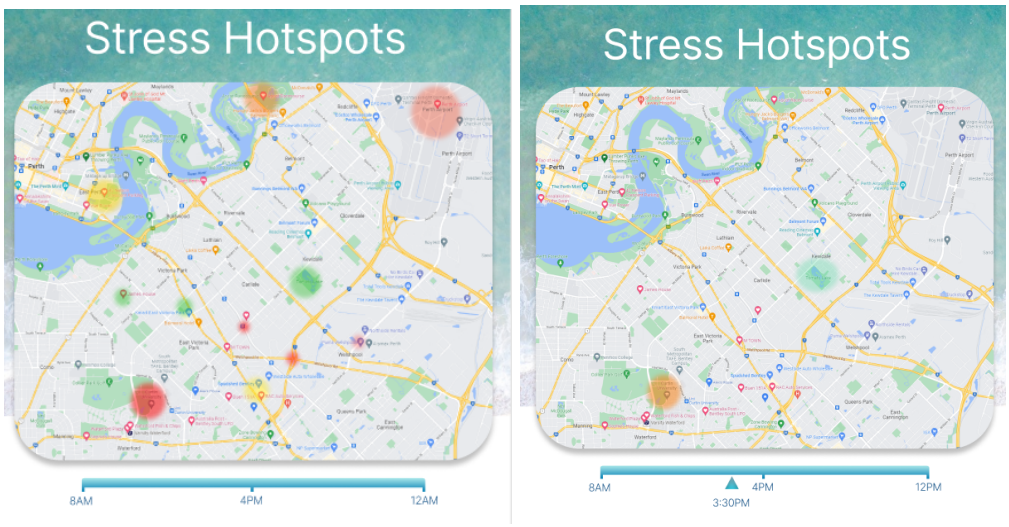


Feedback

Slide upwards transition animation for calendar is used as a behaviour feedback for clicking calendar in the tab-bar menu. Following the theme of the beach, it emulates the rising tide.

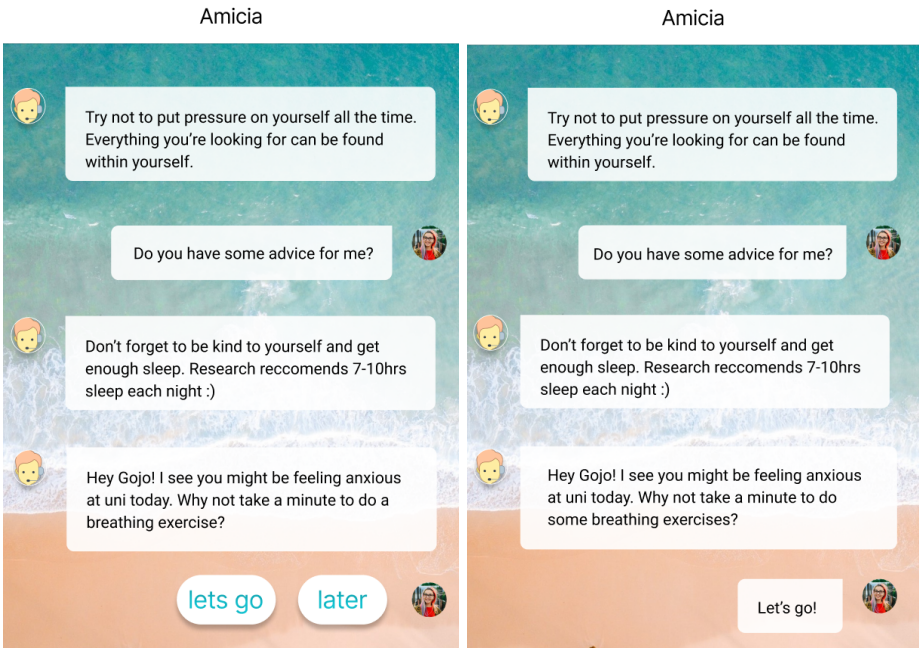
Affordance

Clicking and dragging along the timeline in the map page will transition the day heatmap to a timestamp heatmap. A cursor and timestamp emerges to help users search.



Metaphors

Messenger chat metaphor allows the user to interact with the virtual assistant in a predictable way. Several responses become available to the user and once one has been chosen, it is represented like they typed out a message in their conversation history. This is a familiar format making it more accessible to new users.

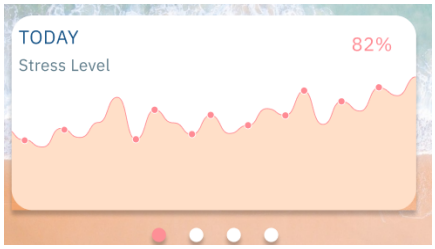


Constraints

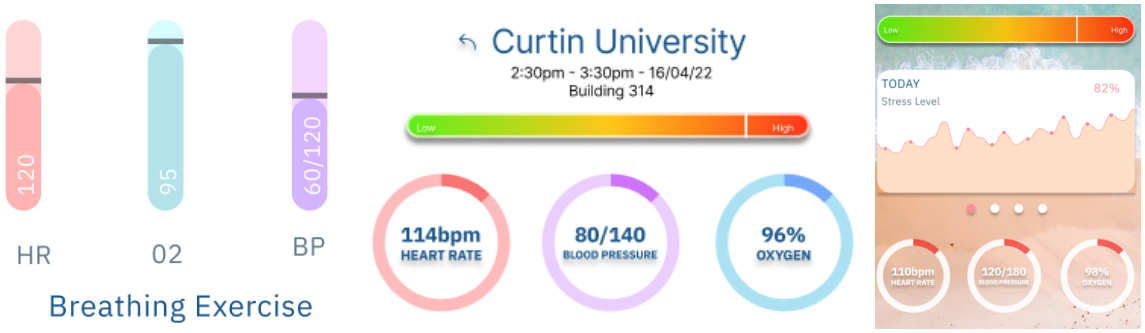
Greyed out options are displayed in the register and login pages.

Consistency

Colour palette is consistent across the pages. Elements have been matched with the colours of sandy brown, white water foam and sea blue. Even the dotted line graph on the home page has been coloured and smoothed to reflect the waves on the shore line.



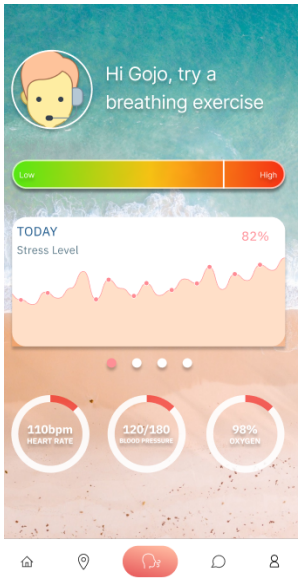
Dashboard layout of biofeedback status is repeated so the user can learn to quickly glance at the app and consume all the data at once. Colour coding different biofeedback inputs also makes it easier to learn.



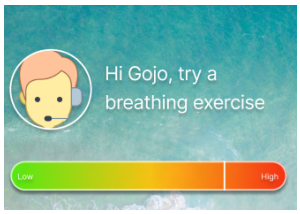
8.2 Design Principles and Visual Design Principles

8.2.1 Layout

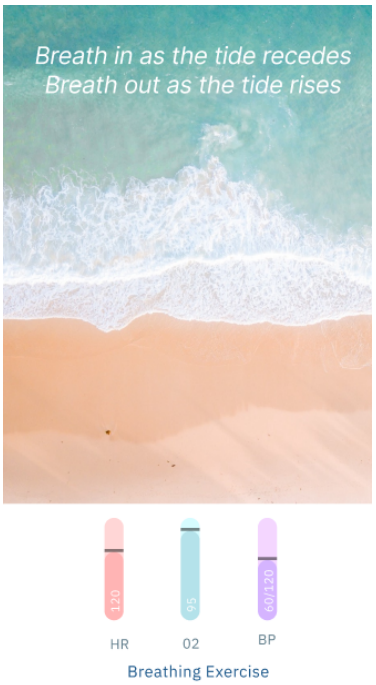
A **minimalist** design approach has been taken to make the user experience as clean, simple and decluttered as possible. There are few elements on each page and these elements are sparsely **distributed** and arranged **symmetrically** to convey **balance**.



Negative space has been used to draw attention to Amicia's individualised message on the homescreen. Amicia is a smart assistant whose advice is constructed from the user's biofeedback and location data. This personal care is at the heart of a highly targeted user experience

. 

Another instance of **negative space** can be found in the breathing exercise. The biofeedback display at the bottom and the instructions at the top **frame** the beach as the central focus. The negative space in the middle allows the user to observe and sync their breathing with the rising and falling of the waves. The absence of other elements contributes to a serene experience.



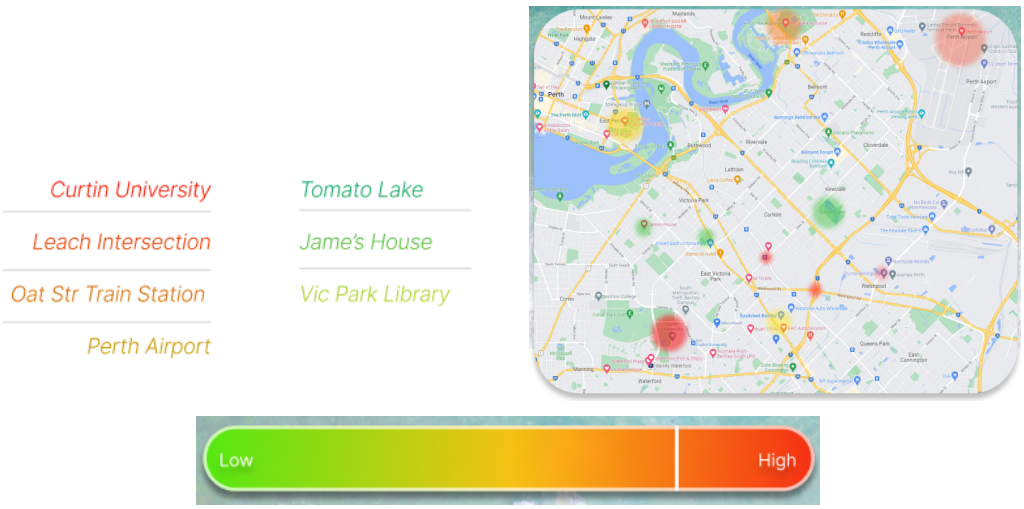
8.2.2 Hierarchy

Hierarchy of elements represents the importance of the data. The current relative stress measure is the highest priority and should be accessible to the user at a glance. This bar is also the most vibrant and captures the eye first. The next most frequently used feature is the daily stress dotted line diagram. Finally, a more macro inspection into the user's biofeedback inputs can be observed at the bottom of the page.

Calendar is positioned at the bottom of the screen because it has the **most interactivity** and is closer in proximity to the user's hand position on the mobile device. This makes it more **accessible** to interaction than the stress graph. The white back

8.2.3 Colour

The green to red gradient is a familiar and fairly well established **colour coded rating system**. It allows users to interpret the type of hotspots on their heatmap (whether it was stressful or not) without forcing a massive volume of data upon them at once. Points of interests they've visited are added to either the stressful or relaxing location list. These lists can be identified without headers due to the pre-established association between rating and colour.

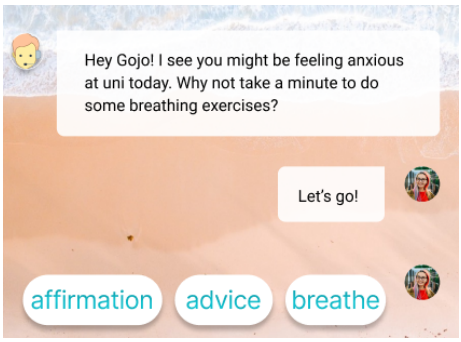


8.2.4 Typography

Colour, complexity, space font size, uppercase, alignment, line length etc.

Sans serif is more readable on digital screen as accents on fonts such as serif or times new roman inhibits the users ability to read clearly.

The saturated blue text in the word bubbles contrasts with the black text in the conversation history, indicating these are reply presets and **calling the user to action**.



8.2.5 Imagery and Copy

The background was selected to be familiar and simple as a busy background filled with icons or click art would cause cluttering and visual noise. Beaches are associated with recreation, relaxation and is a low stress environment.

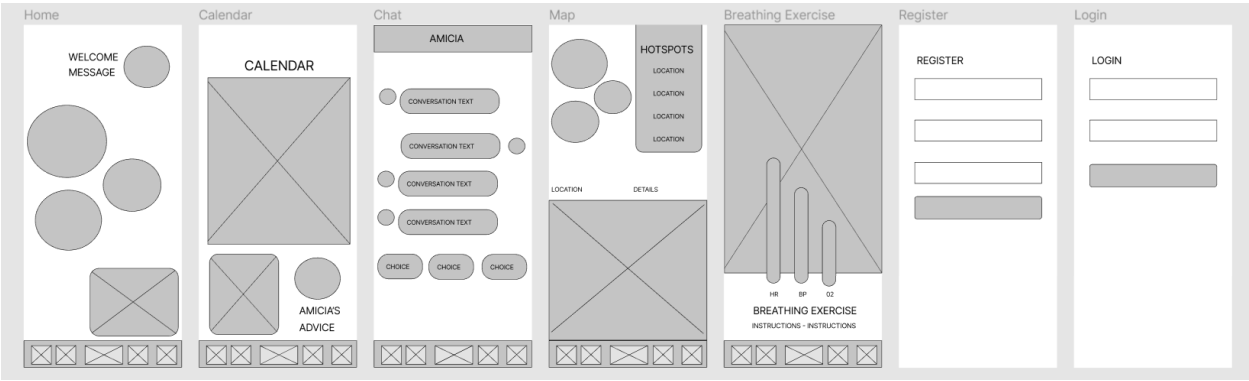
9 Usability Heuristics

User control and freedom - User freedom is an important consideration for us as having users locked into actions is going to cause frustration and due to the nature of our app minimizing any kind of usage frustration is very important. To this end every single screen in the app can return to the main home page in a single press either by using the navigation bar at the bottom of the app or, in the case of the login screens where an on-screen keyboard covers the bottom of the screen, a back button located at the top left.

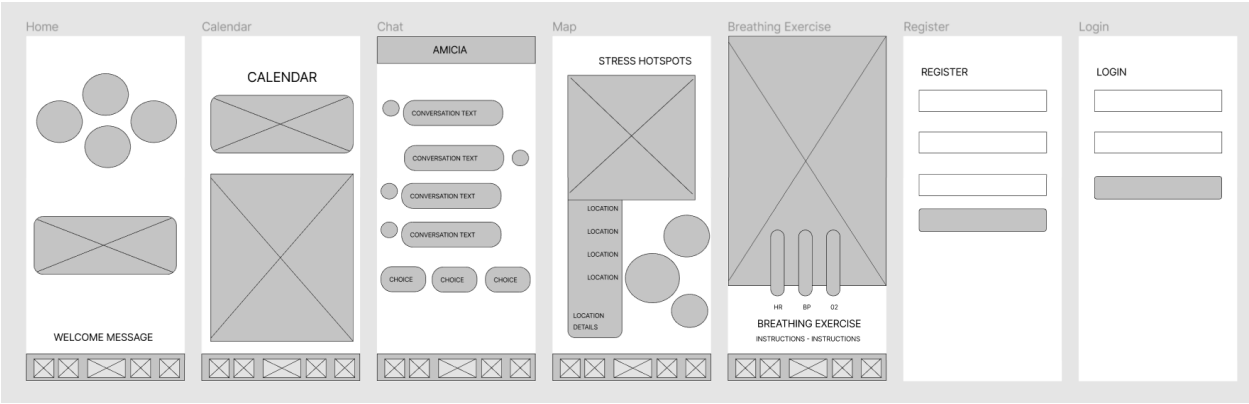
Aesthetic and minimalist design - Our design is intended to be as simplistic as possible in its usage and have a clean uncluttered aesthetic. This once again stems from the idea that users will likely already be stressed or frustrated when using our app so keeping things clean and simple is important to ensure the app does not end up adding to their frustrations.

10 Wireframe Prototypes

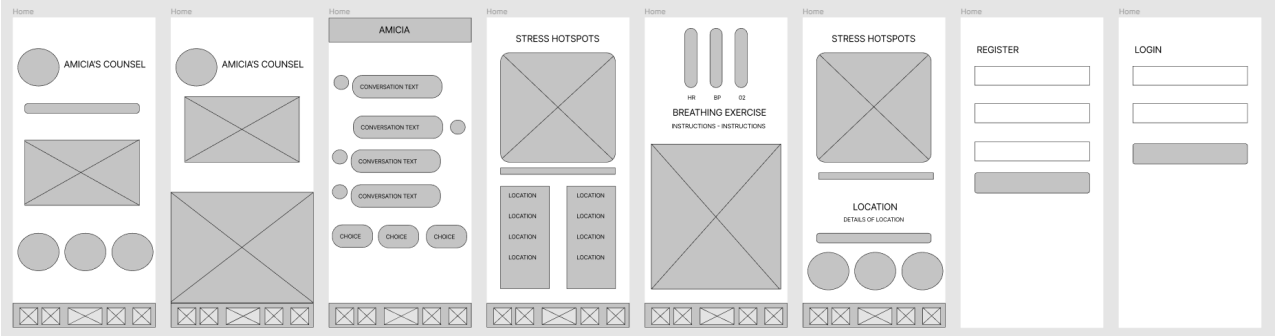
10.1 Design 1



10.2 Design 2

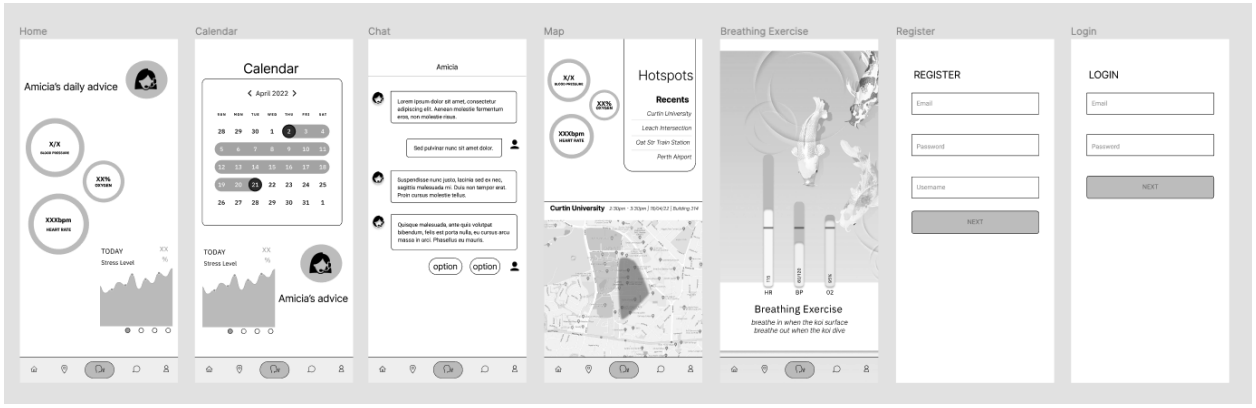


10.3 Design 3



11 Low-Fidelity Prototypes

11.1 Design 1



11.2 Design 2

11.3 Design 3

12 Expert Review

12.1 Performing Expert Review

Usability (strength/ weakness)	Issue being reviewed	Severity	Recommendation	Best practice example
Time based data, such as month to month pain measures, is not comparable easily on one screen.	Visual design of data representation	Medium	Representation of multiple months side by side using a line graph may give an intuitive comparison of pain changes over time.	
Iconography is good, it is easy to discern what a button will do from its design.	Design principles	N/A	N/A	
Despite many pages and functionalities, the app remains easy to navigate due to its friendly UI	UX Design	N/A	N/A	
User interaction system is simple and intuitive	UX Design	N/A	N/A	

12.2 Receiving Expert Review

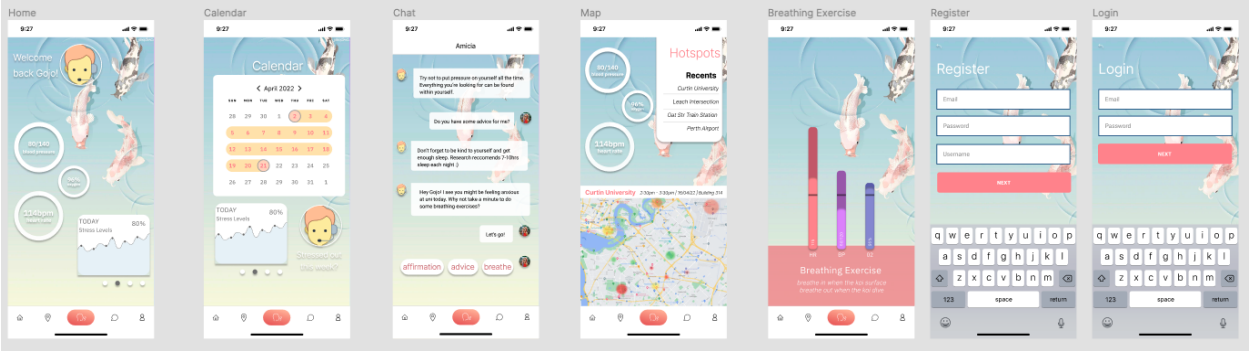
The Expert Review for Amicia, conducted by P6: Endometriosis App, is as follows:

Usability (strength/weakness)	**Describe the issue you are reviewing. What type of heuristic is applicable? • Usability heuristics • Design principles • Visual design fundamentals • Other (content, navigation)**	**Severity (high, medium, low)**	**Recommendation**	**Best practice example**
Strength – easy navigation	Very easy to navigate, pages are clearly labelled. Intuitive navigation around the app	High	Very clean and simple	
Strength – very simple and understandable layout	Usability – uses lots of visuals (graphs, calendar, buttons) In terms of design principles, it is evident that there is the user of a strong symmetrical balance. This is very visually pleasing and calming	High	Love the slider of different graph options	
Weakness – duplicate user flows	The issue involves the grouping of elements that facilitate the user's flow. On	Low	Simplify this user flow or distinguish the function of the navigation bar and chip bar	When grouping functional and data elements, consider how they should be arranged given

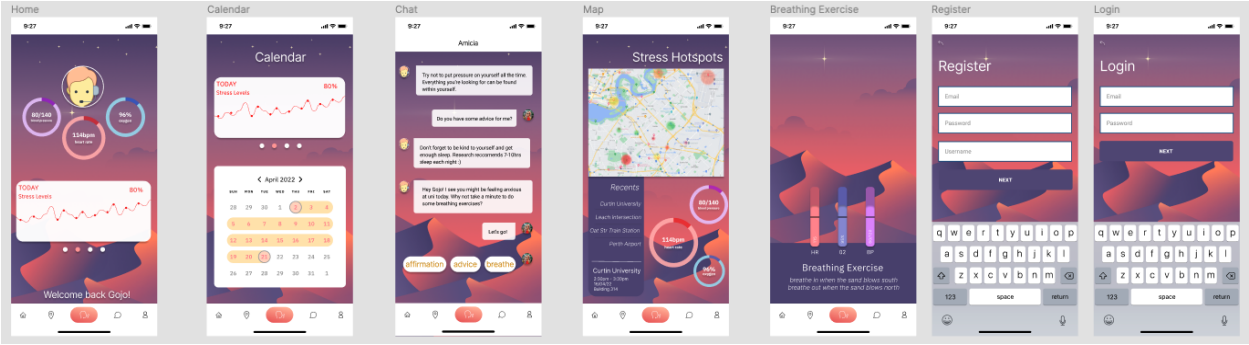
	the **Home Screen**, a persona may access the “map” in two options: (i) the chip bar (ii) the navigation bar			the product’s platform, posture, screen size, form factor, and input methods
Weakness – colours are slightly stress inducing	Design element – Colours are a little too bright, the red tones are not very calming	High	Use less intense colours–maybe different shades of blue	
Strength – prom pts and tips	Usability – chat bot with tips and check-ins	High	Keeps the user active, maybe could get goals/rewards for things completed	

13 High-Fidelity Prototype

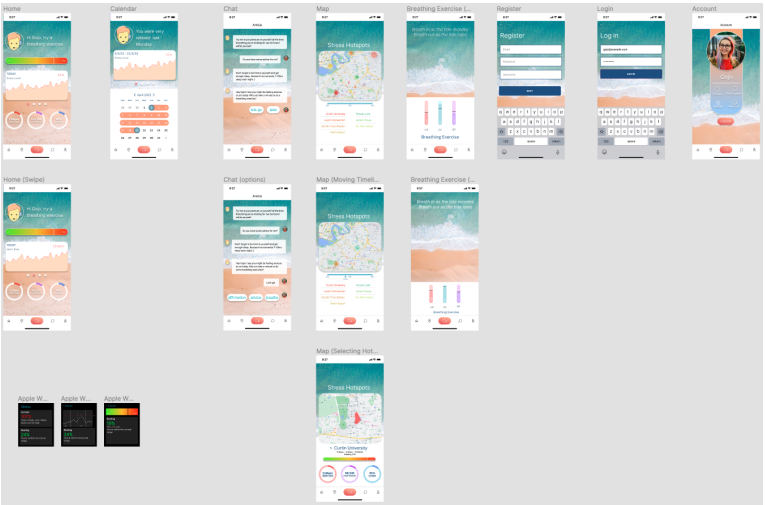
13.1 Design 1



13.2 Design 2



13.3 Design 3



14 Project Management

14.1 Meetings

In accordance with the Agile methodology, CPYou conducted Sprint Planning, Stand-up and Retrospective meetings.

Sprint Planning Meetings

- Frequency: Every Monday
- Duration: 15 minutes
- Platform: In-person tutorial
- Purpose: Positioning the team for success throughout the sprint. Coming into the meeting, CPYou had a backlog of tasks prioritised by importance. The team then discussed each item and made estimations as to the level of effort involved. Thereafter, the team made a forecast outlining the amount of work they could reasonably complete–called the *product backlog*, during the sprint (Atlassian, n.d. b). All of the work CPYou didn't deem could be completed in that sprint was placed on to the backlog for the next sprint.

Stand-up Meetings

- Frequency: Every three days
- Duration: 5 minutes
- Platform: Discord
- Purpose: During these meetings, each team member took turns to briefly inform the others the status of their work–(i) what they completed (ii) what they are working on (iii) what they will work on and (iv) any potential difficulties. Explicitly stating the status of each member's work brings forth a sense of accountability, encouraging continual work in order to meet our task goals .

Retrospective Meetings

- Frequency: Every Monday
- Duration: 10 minutes
- Platform: In-person tutorial
- Purpose: During retrospectives, CPYou reflected on what worked well and what didn't from the previous sprint. In discerning what aspects are working well, the team can continue to focus on those areas, delivering greater value to the user. Similarly, in uncovering the failing aspects, the team can make an effort to minimise doing what isn't benefiting the user (Atlassian, n.d. b).

14.2 Risk Management

- Capacity to determine stress from biofeedback - This application hinges on having a reliable measurement of user stress levels from smart watch biofeedback. If the feedback is difficult to measure properly or not able to be made into a generalised interpretation of the users stress level the application is not able to serve its purpose
- GPS Tracking - This project uses and stores GPS data which must be handled appropriately. Users should have the option to disable tracking functionality entirely if they do not wish to use it for privacy reasons.. The data should also need to be stored safely and securely as having knowledge of where a person often frequents is data that could potentially be used maliciously

14.3 Milestones

The milestones for the designing of Amicia are as follows:

1. **Project Description**

   Involved answering foundational questions about the project. These questions dealt with topics such as the following: project background, design thinking methodologies, user empathy, usability and user experience goals, glossary building and optional research into potential tech stacks.

2. **Pain Points and Solutions**

   Involved uncovering user pain points and engaging in affinity mapping. Once these problems were uncovered and grouped under specific categories, CPYou devised problem statements using the *“How can we…”* starter in order to address each of the users’ pain points.

3. **Functionality and Requirements**

   Involved ideating upon potential solutions to the problem statements the team devised during the previous week. Furthermore, CPYou also began defining a few key functional requirements and non-functional requirements for the application itself.

4. **Low-Fidelity Prototype**

   Upon ideating solutions, CPYou designed a few iterations of low-fidelity prototypes showcasing the app’s core functionality and additionally, potential flow of the app. The prototypes were made with the goal of conducting expert review in the following week.

5. **Expert Review**

   During that week's tutorial, CPYou solicited the review of Amicia from another group and similarly, we conducted a review of the other group's application. The review dealt with usability strengths and weaknesses–namely, the severity, potential recommendations and examples from well-established alternatives for inspiration.

6. **High-Fidelity Prototype**

   Using the insights obtained from the expert review, the team began working on the first iteration of high-fidelity prototype for the application. The high fidelity prototype featured clickable objects–simulating usage of the application.

Note that these milestones are rather loosely defined. This is due to the fact that during design-work, CPYou cycled through multiple iterations of each "milestone", with each iteration incorporating feedback and insights from the previous. Rather, these milestones acted as markers of the completion of the *first iteration* of each body of work.

14.4 Problems Encountered

While not directly related to our design we ran into issues with using Figma. Figma restricts free users to only having 3 Figma prototypes which we realised when attempting to use different files for each low fidelity and high fidelity prototype we created. To get around this problem all prototyping has been put into a single document. This unfortunately means only a single clickable version can be made but allows us to make as many different versions as we desire.

15 Conclusion

No app is perfect or final–Amicia is no exception. Considering all of the work CPYou completed, there are a couple of things that ought to be discussed. Namely, (i) the "final" prototype (ii) next steps.

Amicia is an intelligent assistant that helps users understand their mental state; empowering users to take control of their wellbeing. Specifically, Amicia allows the user to monitor their stress levels, track stressful environments and receive support in real time. What sets this app apart from other competitors like Samsung Health, Mindfulness and Fitbit EDA Scan is the highly personalised care, employing innovations in artificial intelligence to learn the user's patterns and intervene with advice or affirmations before the user even realises they need it.

As for next steps, CPYou is considering entering the initial development stages for the application. A great deal of ideation, prototyping has gone into Amicia so the next logical step would be to begin investigating candidate technologies in order to turn Amicia into a working

iOS (maybe even Android) application. With all team members having software development experience…it is quite a tempting endeavour.

16 Acknowledgements

- **Professor Tom Gideon**

  Early in our project we had the opportunity to have a lengthy meeting with Tom which helped refine our design direction. Initially we found the project very open ended which made it difficult to nail down how we wanted to approach it. Tom's feedback and discussion helped us decide on focusing on smart watch biofeedback for data gathering to allow the app to be targeted at casual everyday users such as students and members of the workforce.

17 References

Atlassian. n.d a. “What is Agile?”. Atlassian. Accessed April 24, 2022. https://www.atlassian.com/agile

Technology Partners. n.d. “Why Does the End User Experience Matter So Much?”. Technology Partners. Accessed April 24, 2022. https://technologypartners.net/blog/2016/07/end-use-experience-importance-it-recruiters-stl/

Sharp, H., Rogers, Y., and Preece, J. 2019. *Interaction Design*. 5th ed. Indianapolis: John Wiley & Sons. https://ebookcentral.proquest.com/lib/curtin/detail.action?docID=5746446

Hasso Plattner Institute of Design at Stanford University. n.d a. “Get Started with Design Thinking”. Hasso Plattner Institute of Design at Stanford University. Accessed April 24, 2022. https://dschool.stanford.edu/resources/getting-started-with-design-thinking

Hasso Plattner Institute of Design at Stanford University. n.d b. “Design Thinking Bootleg”. Hasso Plattner Institute of Design at Stanford University. Accessed April 24, 2022. https://dschool.stanford.edu/resources/design-thinking-bootleg

StoryboardThat. n.d. “User Empathy Mapping”. StoryboardThat. Accessed April 25, 2022. https://www.storyboardthat.com/journey-map/user-empathy-map

usability.gov. n.d. “Use Cases”. usability.gov. Accessed April 25, 2022. https://www.usability.gov/how-to-and-tools/methods/use-cases.html

Fitbit. n.d. Understand your stress so you can manage it. Accessed April 24, 2022. https://www.fitbit.com/global/us/technology/stress

Wearable Whisperer. 2021. *Fitbit Charge 5 EDA Scan App (How to Use)*. YouTube video, 9:20. https://www.youtube.com/watch?v=Y8RrJm9SLEo&ab_channel=WearableWhisperer

Samsung. n.d. “Manage Stress on Samsung Watch”. Samsung. Accessed April 24, 2022. https://www.samsung.com/au/support/mobile-devices/measuring-stress-levels/

Atlassian. n.d b. “Have we met? Four agile ceremonies, demystified”. Atlassian. Accessed April 24, 2022. https://www.atlassian.com/agile/scrum/ceremonies

18 Glossary

- **Artificial Intelligence (AI)**: A program or machine that performs a task that requires some capacity of ‘thinking’ as opposed to a simple mathematical function that programs usually perform.

- **Biofeedback**: A technique where you display a person the physical traits of their body, such as heart rate or body temperature,in an attempt to help them identify the physical signs of them being stressed.
- **Heatmap**: a representation of data in the form of a map or diagram in which data values are represented as colours.
- **Stress**: Stress is the feeling of being overwhelmed or unable to cope with mental or emotional pressure.

19 Appendix

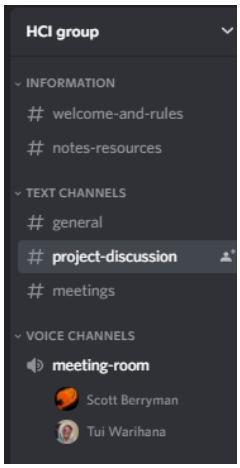
19.1 Record-Keeping

19.1.1 Google Drive Links

The shared drive used by CPYou whilst working on the tutorial worksheets and assignment, is given by this link:
https://drive.google.com/drive/folders/13u4OHBAEJQqUX5V25F-Zm-gvJT0XzLvM?usp=sharing

19.1.2 Evidence of Other Work

The below screenshot is evidence of the Discord channel used by CPYou team members, Scott Berryman, Tanaka Chitete and Tui Warihana whilst working on the tutorial worksheets and ultimately, the assignment.



19.1.3 Figma Files

Prototypes for the GUI are given by this link to a Figma board:
https://www.figma.com/file/od8D9AWvSCDFVTbnJiln9j/GUI?node-id=0%3A1

Also, the whiteboard utilised during the ideation phases are given by this link to a Figma whiteboard: https://www.figma.com/file/JsIy3Mt0D2mjimy7U9xoun/Whiteboard?node-id=0%3A1