



SEN3304

Human Computer Interaction

Group Name: Mindfulness tech team

Project Title: Healthtech mental health mobile

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1. Identify project scope and objectives

1.1. Identify Project Scope and Vision

The twentieth century saw significant improvements in numerous technical sectors, including artificial intelligence, which contributed to an increase in all fields. Our project is a mental health mobile app. It includes therapy, coaching, coping mechanisms, meditations, sleep, and mood tracking. It can serve as a part of the user "feel-better" toolkit.

Anyone who suffers from anxiety, stress, or depression can benefit from our application.

Users will begin by entering their mood every morning, which will aid in monitoring the user's sleep cycle to ensure that they are getting adequate sleep. Or by taking one of our assessments to determine their stress, anxiety, and depression scores by answering twenty-one questions weekly, after that they will be suggested some coping mechanisms such as meditation, yoga, Journaling, mindful breathing, and so on. Also, our app keeps records of the user's symptoms and progress.

The user can make an appointment with a licensed clinician of their choice and change therapists at any moment. They can participate through 1:1 texting with life counseling. Or group coaching sessions and live seminars that help them apply CBT concepts to real-life situations.

Our app's vision is to assist you to feel heard and understood, receive support in our community, and learn more about yourself through cognitive behavioral therapy.

1.2. Identify the objectives and sub-objectives

1.2.1 Main objective

- To develop an app that can track user mood and sleep cycle
- To provide online therapy sessions.
- To provide 1-1 texting, audio calling, and video calling coaching.
- To develop self-care audio courses

1.2.2 Sub-objective

- Tracking the user's mood by asking for their input each morning at the time they pick.
- Tracking the user's sleep cycle by listening to the user using the microphone and AI to determine which sleep cycle there are in and overall sleep quality.

- Tracking the user's well-being by providing a DASS assignment, which is a Depression, Anxiety, and Stress Scale - 21 Items, which will compute the user's depression, anxiety, and stress level, which can be normal, mild, moderate, severe, or extremely severe.
- Recommending coping mechanisms to the users depending on their preferences, such as mediation, breathing exercises, yoga, guided travels, setting a goal for themselves, and having the app remind them of it daily, sending daily affirmation
- Offering self-care courses in physical self-care, emotional self-care, psychological self-care, spiritual self-care, and professional self-care.
- Providing therapy sessions by connecting users with therapists all around the world based on their time zone and native language.
- Providing 1-1 messaging, audio calling, and video calling coaching via our in-app chat to ensure security and safety.

2. Identify user needs for the interactive product

Our vision for the product is to be a “mental health hub” for our users. That is why in our research we tried to compare different tools available in the market, as well as conducting a survey to figure out which features would benefit our user base the most.

From our experience, it became apparent that “sleep analysis” apps and mental health apps are quite separate. We believe this should not be the case. Sleep can be detrimental to mental health, and people should strive to get an adequate amount of sleep and have a consistent sleeping schedule. This is highlighted in the book “Why We Sleep” by Matthew Walker, especially in parts I, II, and III which talk about the Dangers of poor *sleep*, Alzheimer's risk, *mental health*, memory consolidation, and more.

2.1. Market research:

For our market research, we picked two general purpose apps Shine & Sanvello, a one feature app (mood tracking) Kinsugi, and a sleep analysis app Sleep Cycle.

- [Shine](#)
- [Sanvello](#)
- [Kinsugi](#)

- [Sleep Cycle](#)

Although the apps target the same audience, the way they are implemented and the features they have are quite different. This insinuates that the market is not mature yet, and that there is a big room for improvement and innovation.

The competitive analysis figure below highlights the features differences between these apps:

COMPETITIVE ANALYSIS

	Shine	Sanvello	Kinsugi	Sleep Cycle
iOS & Android	✓	✓	✗	✓
Therapist	✗	✗	✗	✗
Anxiety Test	✗	✗	✗	✗
Sleep Analysis	✗	✗	✗	✓
Courses	✓	✓	✗	✓
Mood Tracking	✓	✓	✓	✓

We can observe that Shine and Sanvello share common features, but they are both implemented almost completely differently (design, user experience, pricing...etc.).

We can see that there is a gap in the market for an app that covers all these features and offer a one-stop-shop for users.

2.2. Survey Questions:

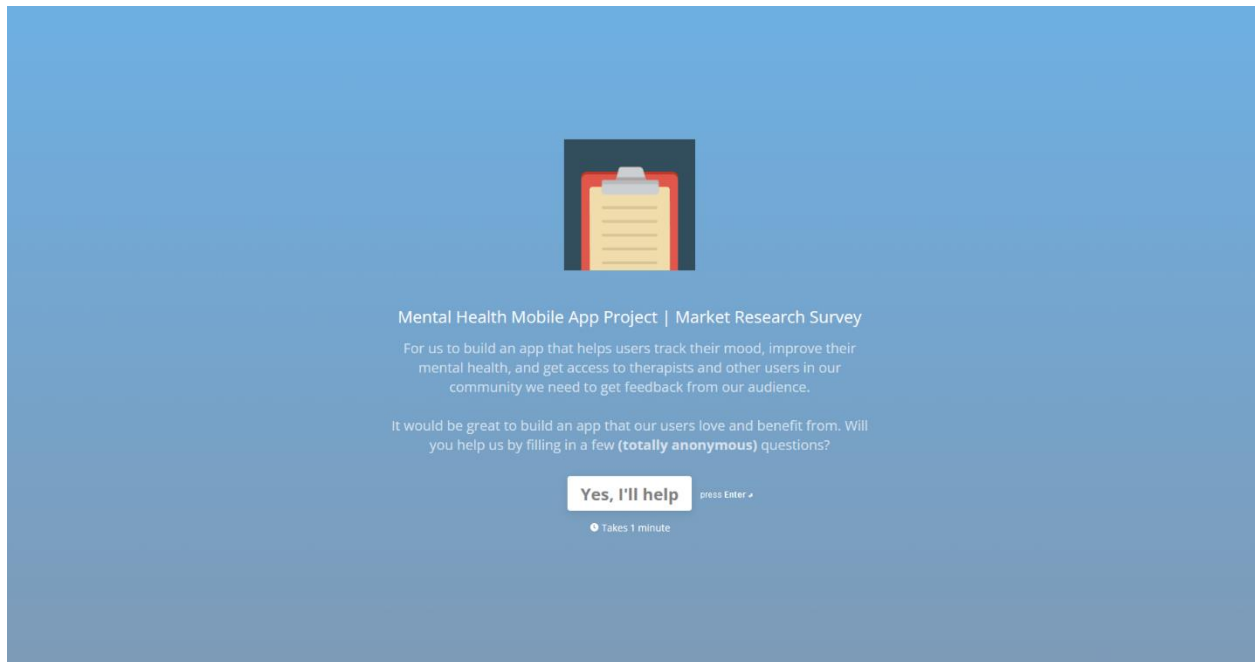
Since the market seems to not be mature enough, we decided to conduct a humble sized survey to further investigate our users' needs.

These are the questions we decided to ask our users, in order:

1. How many hours of sleep did you get last night?
2. My sleeping schedule was consistent last week
3. I document my mental health state
4. How does your sleeping schedule affect your mental health?
5. Have you had mental health issues/disorders?
 - a. I received social support
6. I visited a therapist before
 - a. I wish I had more interactions with my therapist
 - b. I followed my therapist's plan

7. Have you ever tried any app to manage your anxiety or the mental issue at hand? If yes, which app do you use?
- a. Can you tell how was your experience using this app?

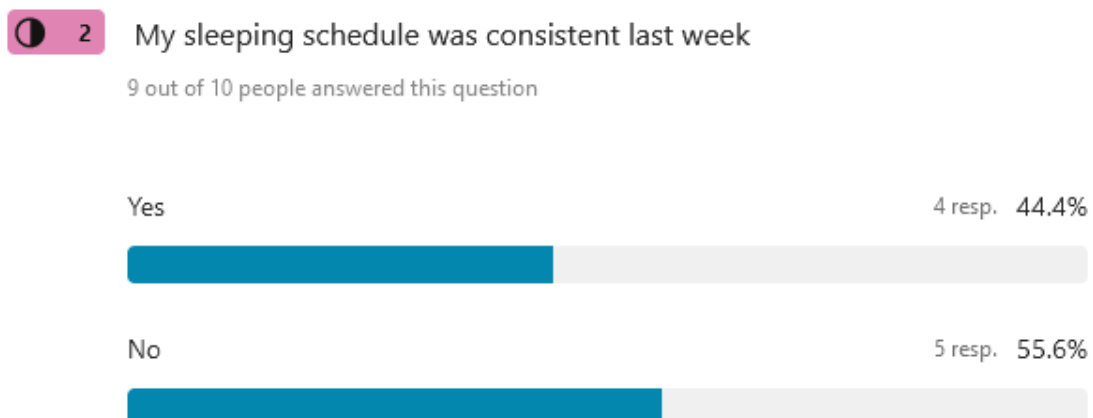
The survey was anonymous, and we made sure that the users were aware of that by adding the following screen at the beginning of the survey:



We kept the survey short (~ 1 minute to answer) and concise with a logical flow to reduce unnecessary questions, as to keep answering the survey less of a hassle.

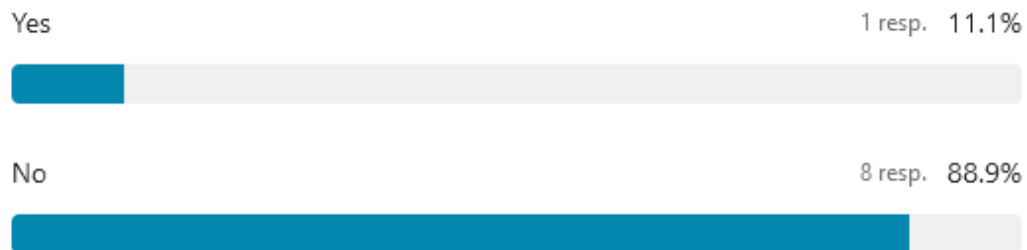
2.3. Survey Results:

The results of the survey were quite interesting. These are some of the answers to the questions that we thought are worth focusing on:



3 I document my mental health state

9 out of 10 people answered this question



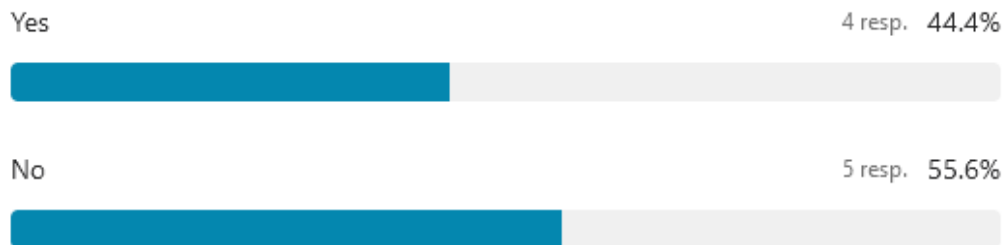
6 I received social support

3 out of 10 people answered this question



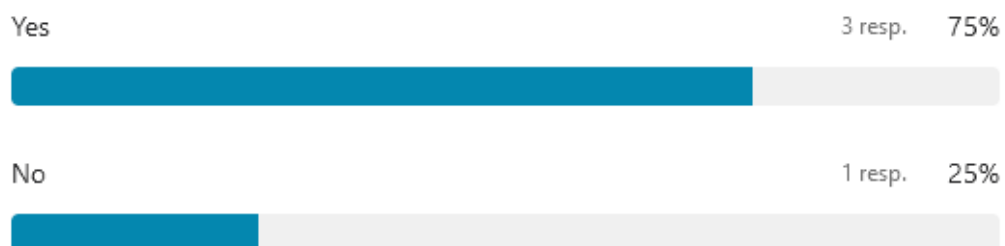
7 I visited a therapist before

9 out of 10 people answered this question



8 I followed my therapist's plan

4 out of 10 people answered this question



Question: *How many hours of sleep did you get last night?*

The answers to this question averaged around 5 hours of sleep, which is below the recommended 7-9 hours of sleep.

Question: How does your sleeping schedule affect your mental health?

Sample answers:

- Extremely negatively
- Considerably
- Not at all
- badly

Eight answers to this question were implying that poor sleep affects their mental health negatively, and only one says otherwise.

Also, it seems like our participants have never used a mental health app before.

2.4. Survey Findings:

Our survey despite its limitations (number of participants), highlights a few critical issues our app needs to tackle. We believe the app should encompass multiple self-care features in order for it to be used more.

We noticed that the participants lack a good night's sleep, and that it affects their mental health directly or indirectly.

2.5. User needs:

From our market research, past experiences, and conducting a survey we concluded that these are the user needs for our product:

- Privacy: the user should be able to use the app without having to use their real identity.
- Security: The user's data should be encrypted and only accessible by the user themselves, unless given explicit permission by the user for research purposes.
- Mood tracking: The app should have a mood tracking feature with visualizations so that the user can check their progress.
- Quality therapists: Aggregate resources for local or remote therapists that the user can reach out to.
- Reminders: Send notifications throughout the day to remind the user of good practices, sleeping time, or just kind words to make them feel less alone.
- Sleep analysis & tracking: An alarm-like feature, that the user can use it to wake up and get an analysis of their sleep the next morning.

3. Create user profiles, persona, and main scenario


3.1. Target Users

- Males & females
- 20–40 years old
- Have some form of anxiety disorder but are not diagnosed
- Do not have an anxiety disorder but face anxious moments

From these parameters, we worked on two personas that fit our targeted audience:

ANGELA SHRUTE

PROFILE
Gender : Female
Age : 32
Education : Master's degree
Occupation : Accounting
Address : 123 Anywhere St., Any City



“

Angela is an ambitious woman with a strong entrepreneurial drive. She is happily married and lives in a crowded city with her husband and cat.

A DAY IN THE LIFE

- Wakes up at 7 am.
- 9am - 5pm: Work at corporate
- 6pm - 9pm: Spends time with friends
- 10pm - 3am: Side hustle & learning

MOTIVATIONS

- Financial freedom
- Family support
- Taking care of her cat

GOALS

- Travel the world
- Start her design business
- Retire early
- Happiness

FRUSTRATIONS

- Social media negativity
- Burnout from overworking
- Pressure from society
- Lack of time for sleep

PERSONALITY
Introvert —●— Extrovert
Thinking —●— Feeling
Judging —●— Perceiving
Sensing —●— Intuition

Angela Shrute Scenario:

Angela returns from her corporate job to her small apartment in New York City. Her husband is away visiting family, so she only has her kitten to comfort her. Despite being off work, she still has her side business to work on.

After working on her side business for a few hours, she feels miserable due to how mental burnout. Luckily, she gets a notification on her phone from the mental health app. Angela decides to take a break and take an anxiety test. The results show her that she has high level of anxiety and that she should take care of herself. Angela decides to take the rest of the night off and chooses a course from the catalog about self-care that was recommended to her.

MICHAEL SCARN

PROFILE


Gender : Male

Age : 25

Education : Bachelor's degree

Occupation : Sales

Address : 123 Anywhere St., Any City



“

Michael is a sales representative with passion for fashion and pop culture. Michael is single and lives in an apartment with his 2 flatmates.

A DAY IN THE LIFE

- Wakes up at 7 am.
- 9am - 5pm: Make sales calls & attend meetings
- 6pm - 9pm: GYM
- 10pm - 1am: Gaming & social media

MOTIVATIONS

- Living healthy
- Family support
- Financial freedom

GOALS

Launch his clothing brand

Buy a house

Work/life balance

Happiness

FRUSTRATIONS

Social media negativity

Not enjoying work

Pressure from society

Lack of time for sleep

PERSONALITY

Introvert ● Extrovert

Thinking ● Feeling

Judging ● Perceiving

Sensing ● Intuition

Michael Scarn Scenario:

Michael is a brilliant sales representative, but despite that, he does not enjoy his job. On a Friday afternoon, Michael returns home after a long day of having calls with customers. Having to deal with multiple people per day as an introvert depletes his energy, so he decides to spend the rest of the day gaming to unwind.

Michael then goes on to think about his future, and how he can get to where he wants. As a creative person, Michael wants to one day launch his own fashion brand and quit his current job. But due to pressures from those around him, Michael does not have the courage yet to quit his high paying job and take a risk with his venture. This overthinking leads him to stay awake during the night, until he remembers the mental health app. Michael opens the app, enters his mood as “unhappy” and proceeds to the courses catalog section. He finds a meditation audio course designed for helping him sleep. He then proceeds to start listening to it, until he falls asleep.

3.2. Claims Analysis

Claims Analysis for the Angela Shrute Scenario: Notifications

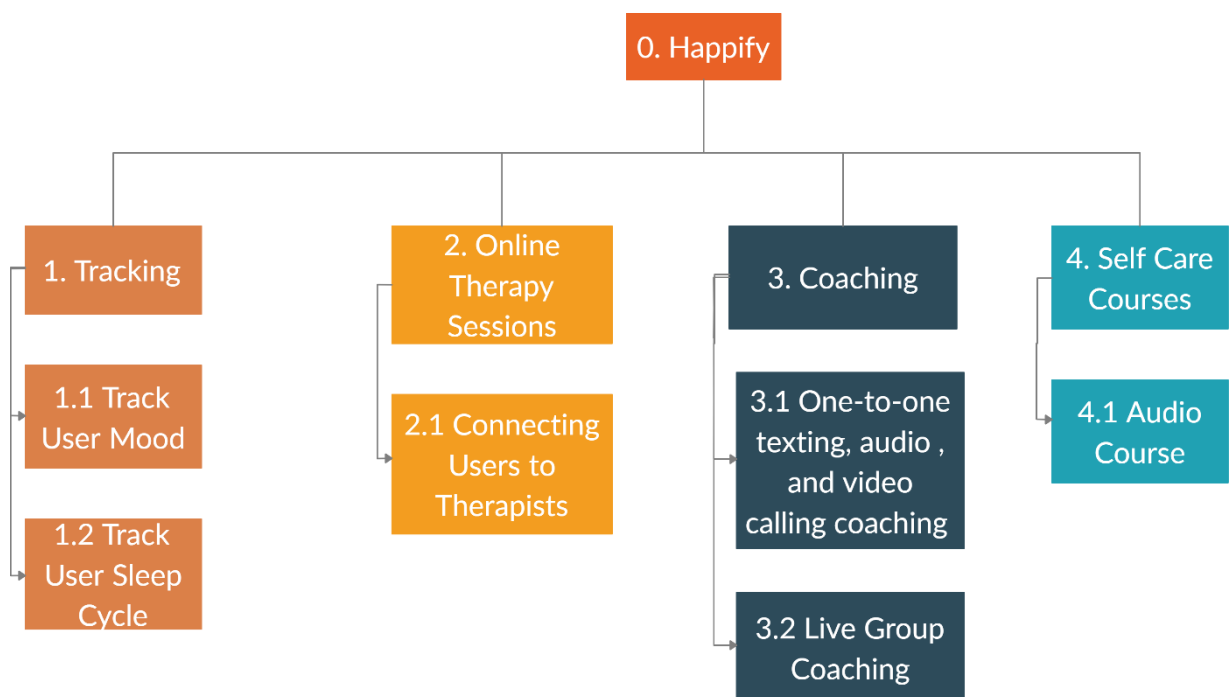
- + Reminds the user to get a test
- + Makes the user feel less lonely
- Could be intrusive

- Might be the wrong time to send the notification

Claims Analysis for the Michael Scarn Scenario: Courses catalog

- + A great place to seek solitude from knowledge (less loneliness)
- + Can be used to regulate the mood (to fall asleep, calm down...etc.)
- Can be overwhelming if the user cannot decide what course to choose from
- Users will leave the app if the course does not capture their attention in the first few seconds

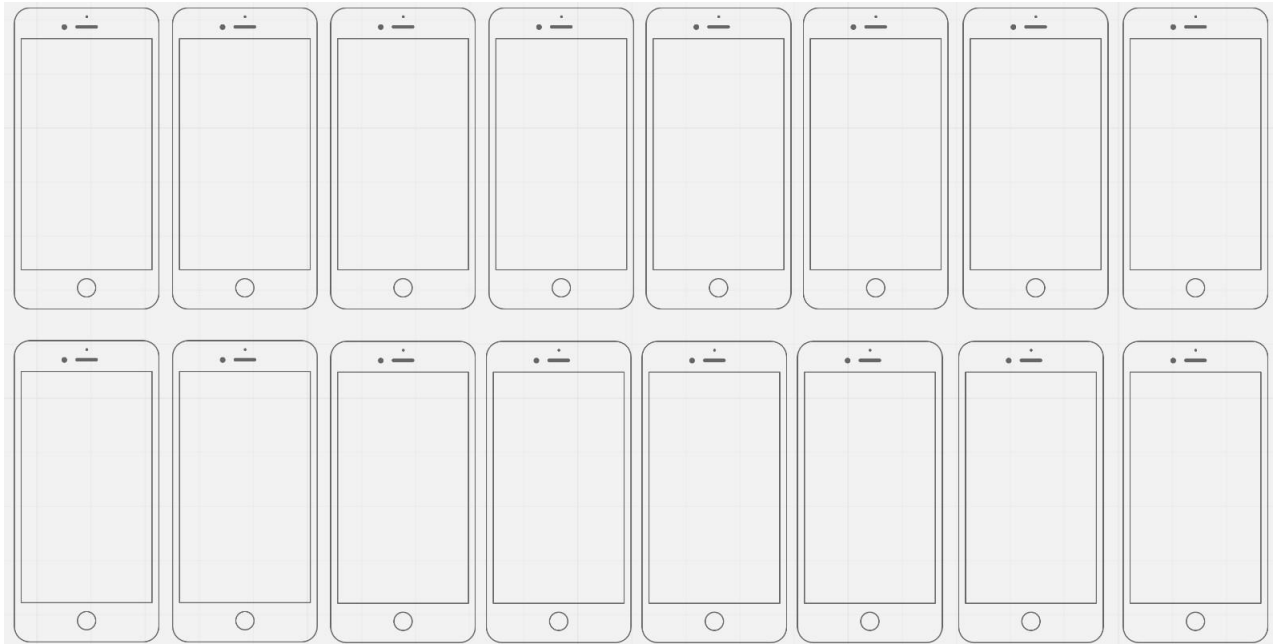
4.Perform a task analysis on the main task associated with the system.



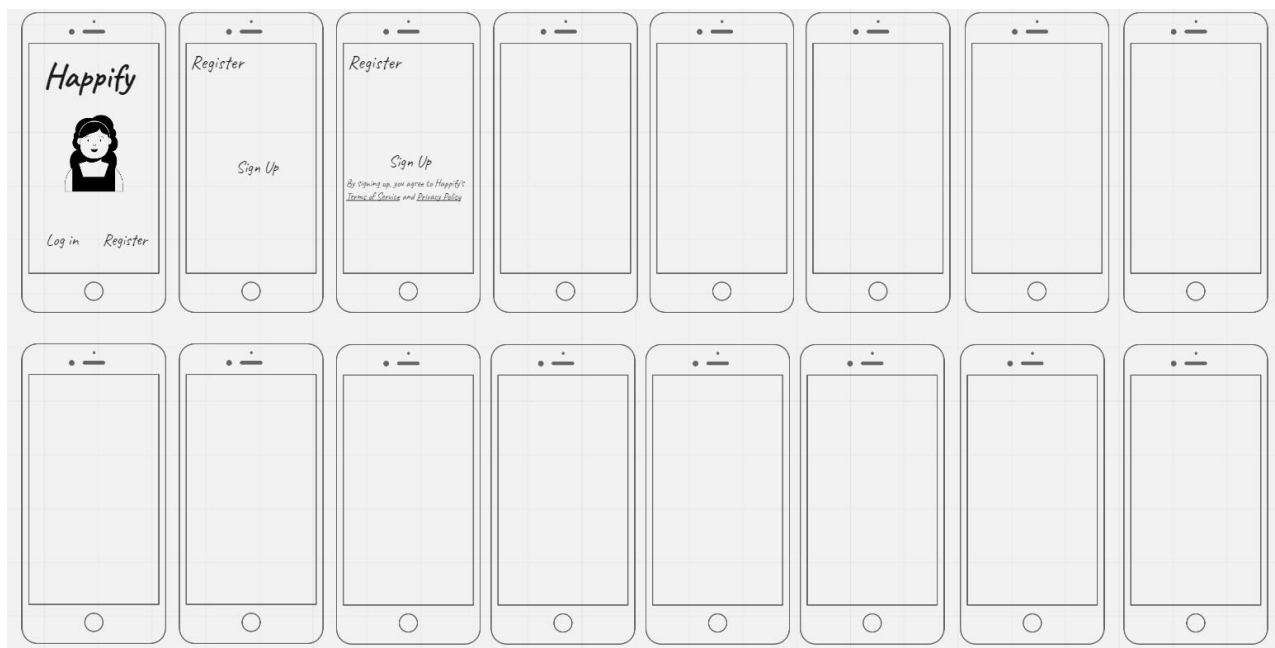
5. Generate low-fidelity prototypes and collect feedback from the target users.

5.1. Low fidelity

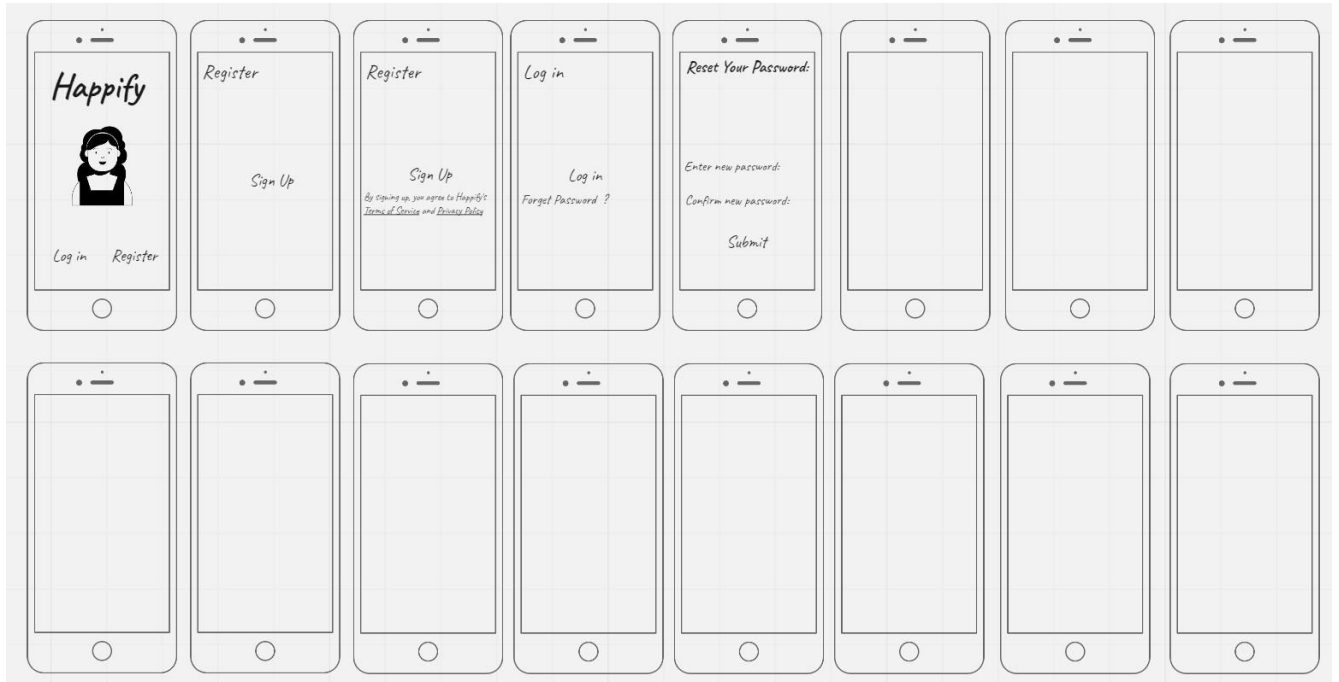
1) Draw the screen frames of the prototype



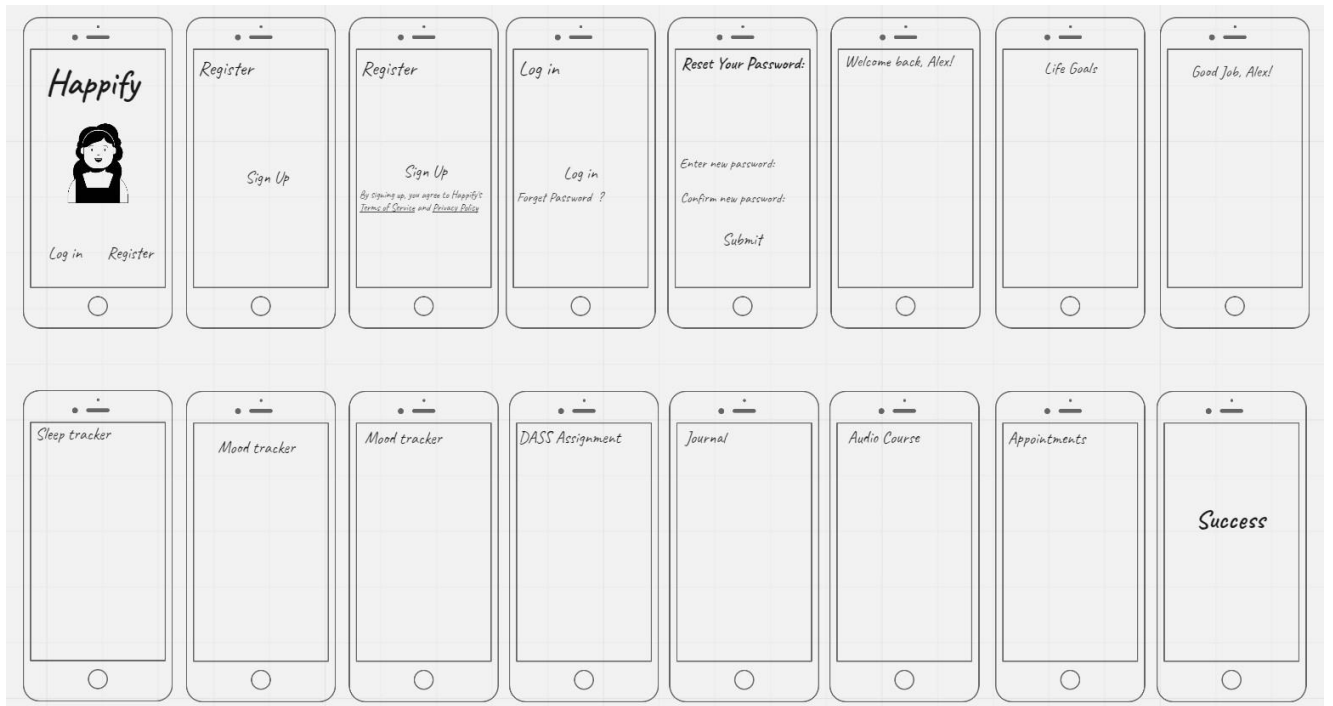
2) Draw the welcome and Register pages of the prototype



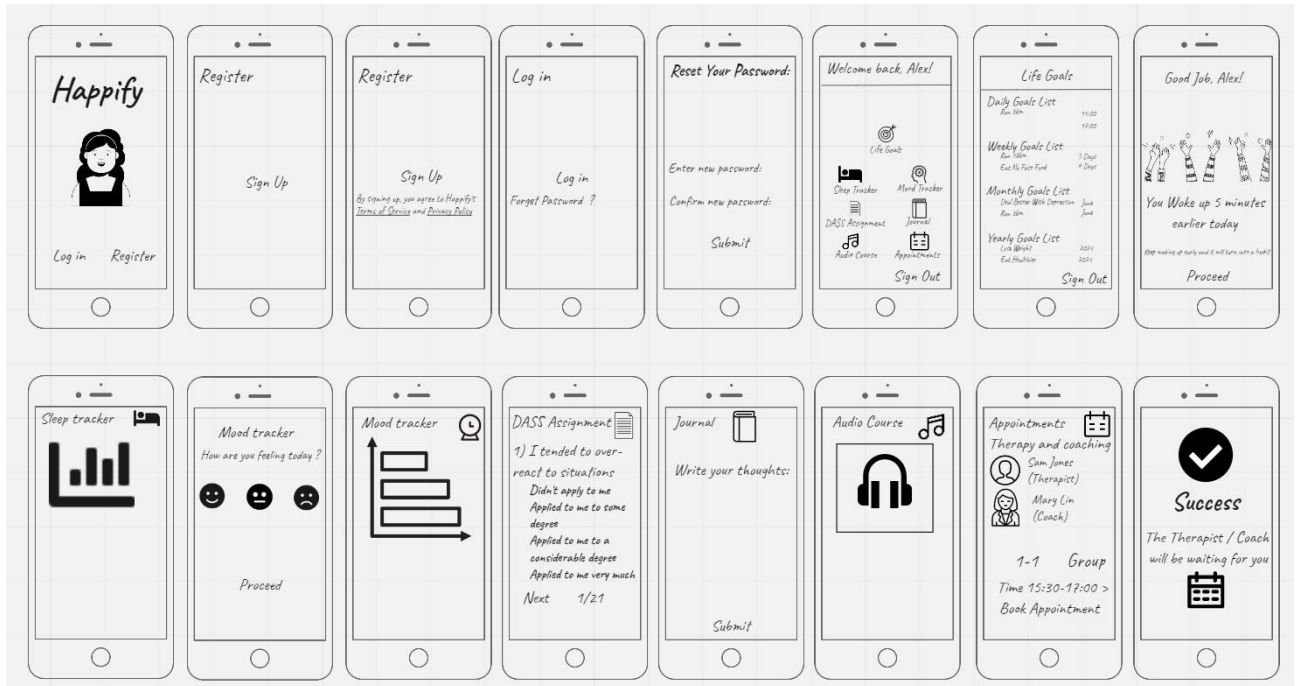
3) Draw the log in and reset your password pages of the prototype



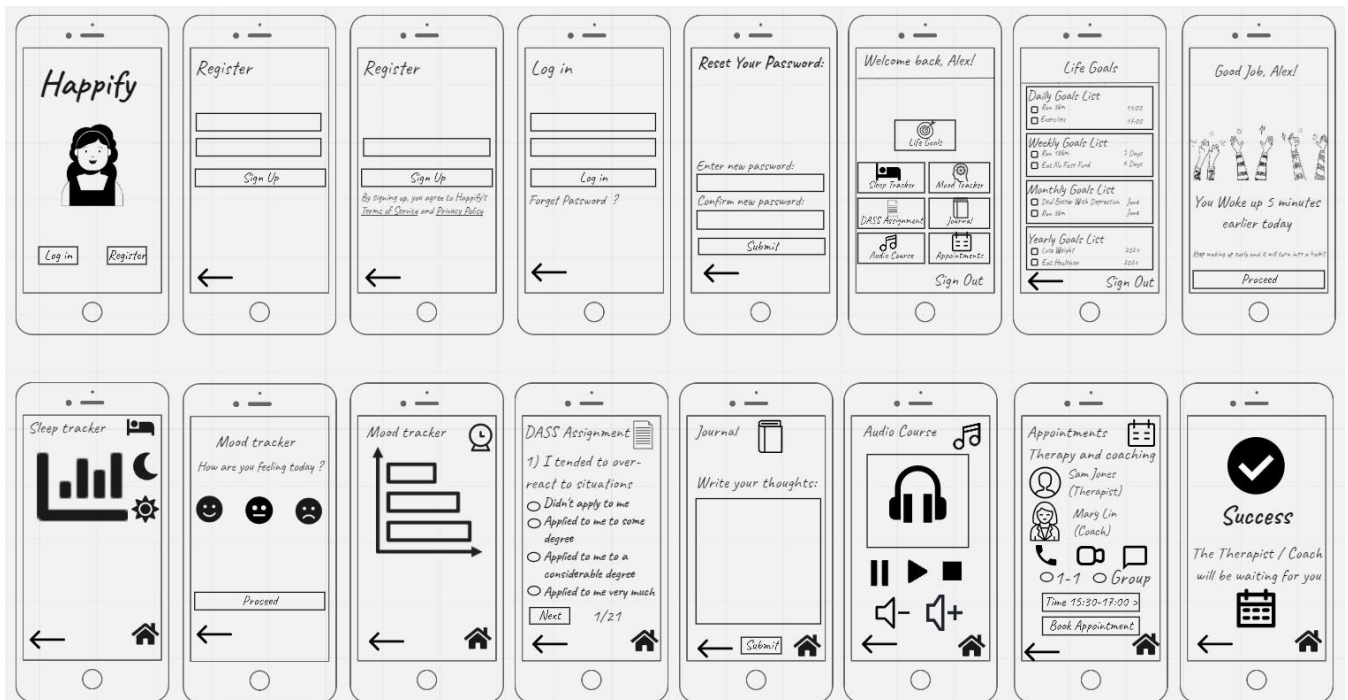
4) Draw other pages of the prototype



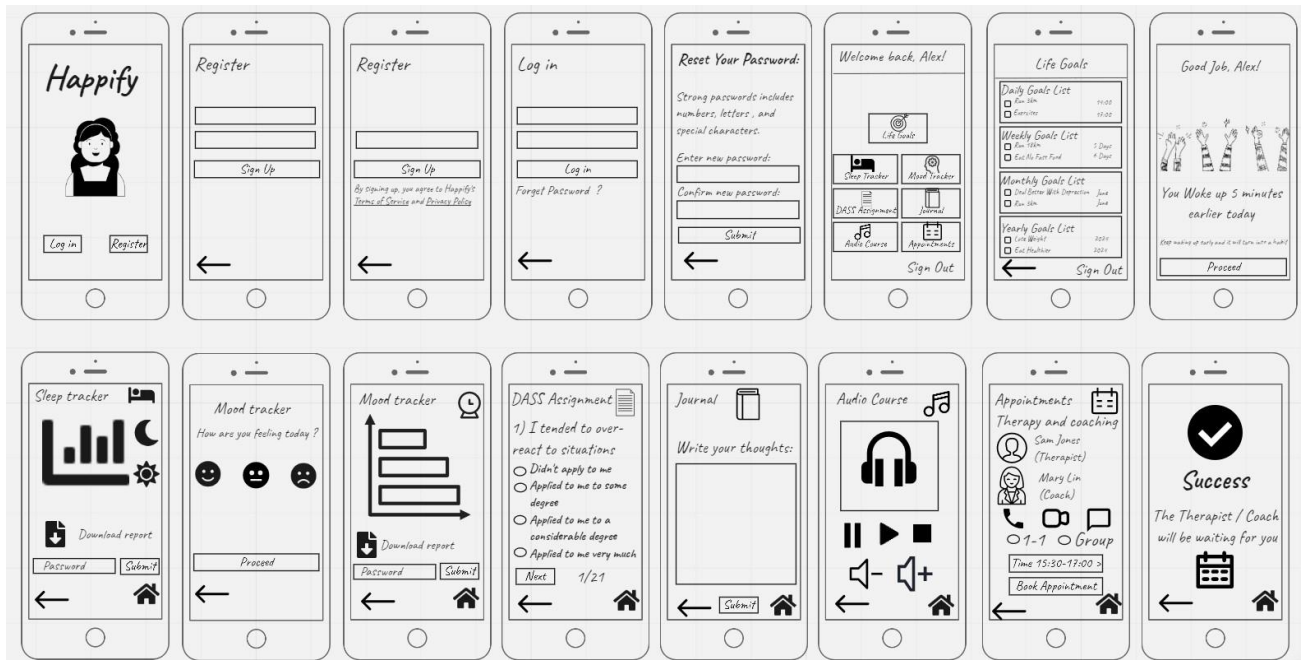
5) Continue drawing other pages of the prototype



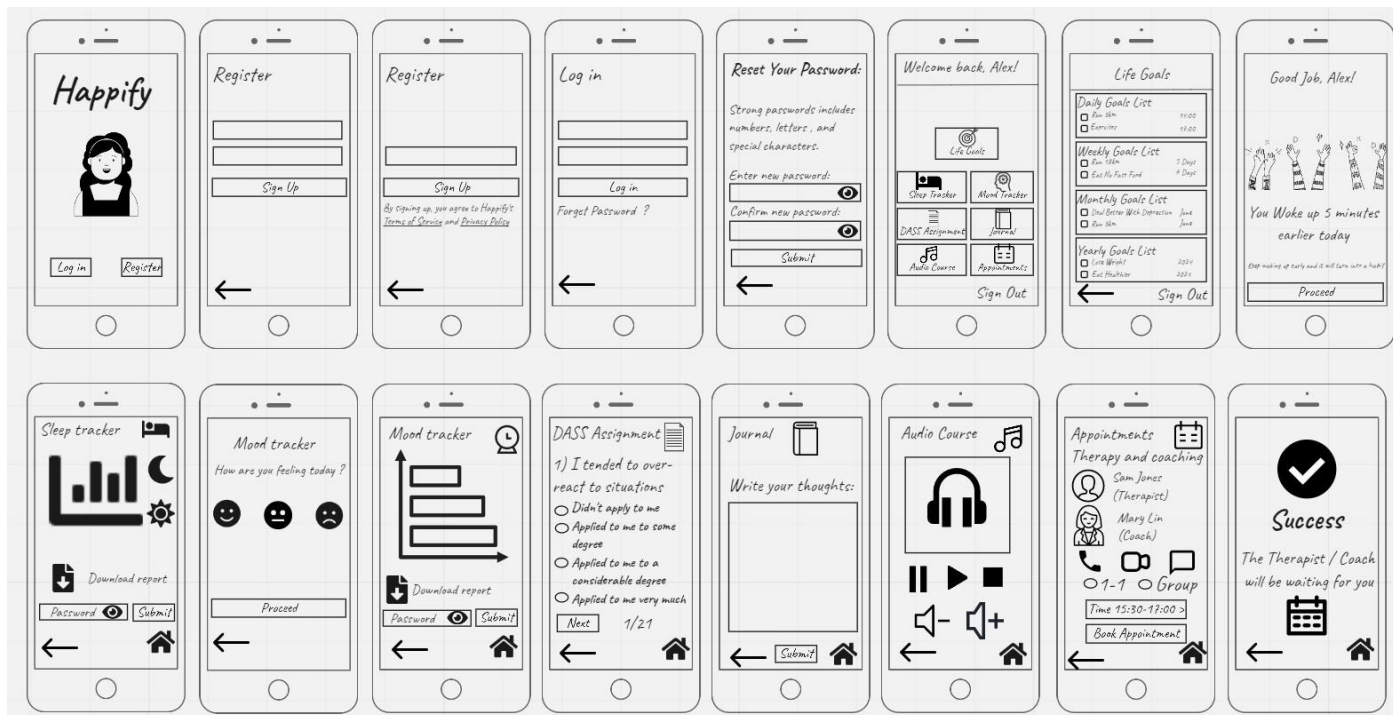
6) Draw the buttons and fields of the prototype



7) Draw the security measures of the prototype



8) Draw the final edits on the pages of the prototype and submit the prototype



5.2. Feedback on the prototype from the target users.

Basic questions regarding the prototype have been asked to target users and they are required to input their feedback.

5.2.1 Target Users:

- Males & females
- 20–40 years old
- Have some form of anxiety disorder but are not diagnosed
- Do not have an anxiety disorder but face anxious moments

1 It is easy to track your mood and sleep cycle

6 out of 6 people answered this question

Yes 5 resp. 83.3%



No 1 resp. 16.7%

2 It is easy to connect to therapists and coaches and book appointments

6 out of 6 people answered this question

Yes 5 resp. 83.3%



No 1 resp. 16.7%

3 The DASS assignment helped you measure your emotional state of depression, anxiety, and stress

6 out of 6 people answered this question



4 The Audio Course helped you to relax and reduce your stress, anxiety, and depression

6 out of 6 people answered this question



5 Received daily reminders from the app recommending coping mechanisms

6 out of 6 people answered this question



6 All mental services been provided in the app

6 out of 6 people answered this question



7 It is easy to navigate through the app

6 out of 6 people answered this question



8 Satisfied with the security measures in the app

6 out of 6 people answered this question



9 Faced any error while using the app

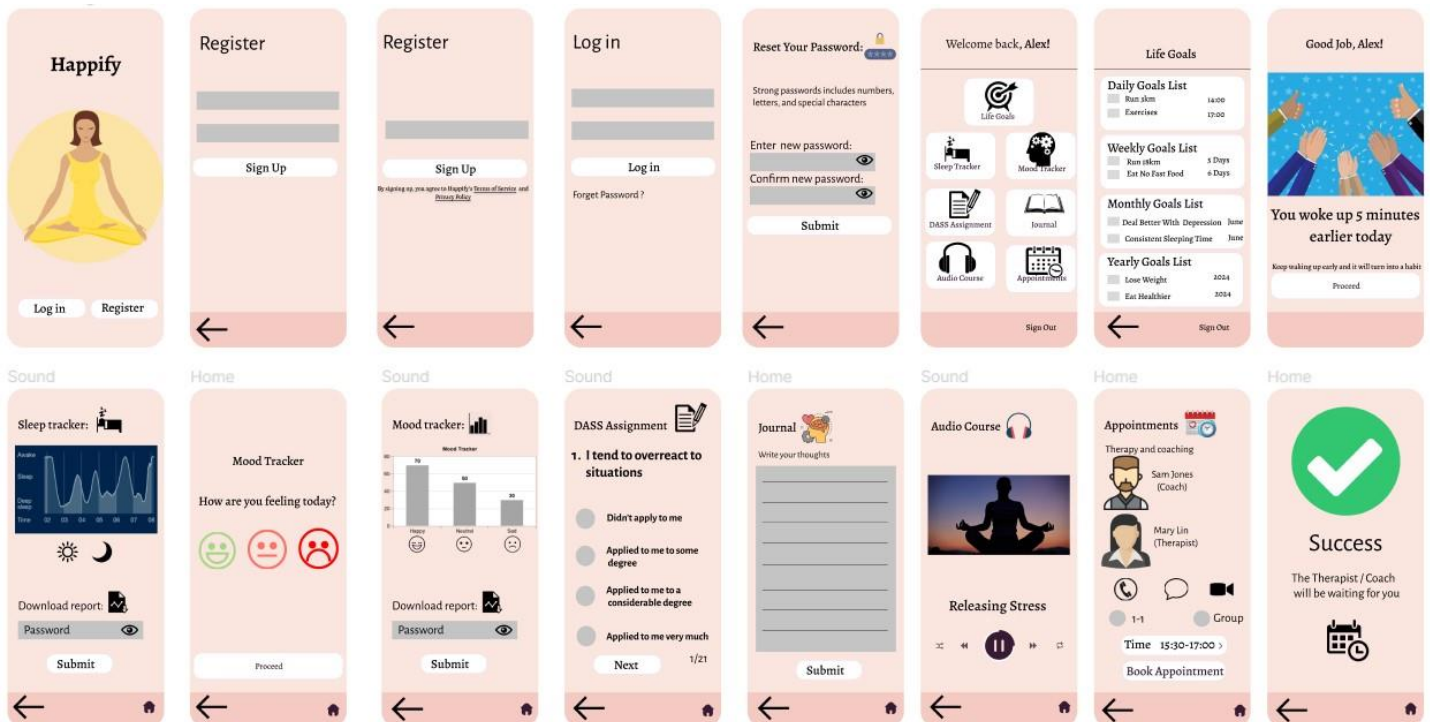
6 out of 6 people answered this question



5.2.2. Survey Findings:

The feedback of target users will help us find problems and implement a solution for them regardless of their severity such as cosmetic, minor, major, and catastrophic.

5.3 High Fidelity:

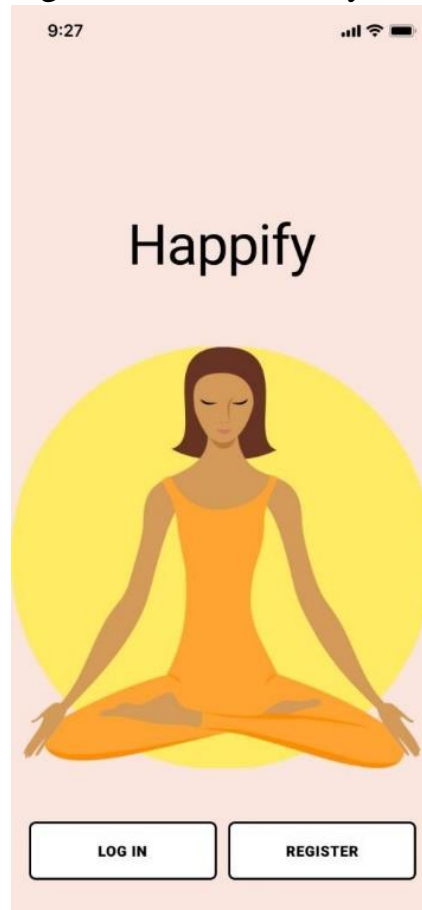


6. develop a software-based prototype that takes into account all of the feedback by using software-based prototyping, briefly describe the techniques you used during the prototyping process.

Based on the feedback collected from the target users for the low-fidelity prototype, we made a software-based prototype by using Figma that includes all the positive and negative feedback to make sure that the target users will be satisfied.

1-Main Screen:

This is the main screen that anyone who enters the app for the first time will see and understand very quickly, it includes a register button that will help the user make a new account or login if the user already had an account



2-Register:

If the user chooses to register for a new account, a page will ask the user to input their email and password, then after clicking sign up another page will show up asking for the desired username, then upon clicking sign up again an account will be made.

The image displays two sequential mobile app screens for registration. Both screens have a light orange background and a status bar at the top showing the time as 9:27 and signal/battery icons. The first screen, titled 'Register', features a back arrow in the top left, an email input field containing 'alex123@example.com', a password input field with masked characters, and a black 'SIGN UP' button. The second screen, also titled 'Register', shows a username input field containing 'Alex', a black 'SIGN UP' button, and a line of text below the button: 'By signing up, you agree to Photo's [Terms of Service](#) and [Privacy Policy](#).' Both screens have a standard iOS-style keyboard at the bottom.

3-Login:

If the users already had an account, they could log in by using the registered email and password

The image shows a mobile app screen for logging in. It has a light orange background and a status bar at the top showing the time as 9:27 and signal/battery icons. The screen is titled 'Log in' with a back arrow in the top left. It contains an email input field with 'alex123@example.com', a password input field with masked characters, and a black 'LOG IN' button. Below the button is a link that says 'Forgot Password?'. A standard iOS-style keyboard is visible at the bottom.

4-Forgot Password:

What if the users forgot their password? by clicking “Forgot Password?” on the log-in page, they will be navigated to a page asking for the email, by submitting the email a request will be sent to the given email that will redirect the users into a page to help them change the password.

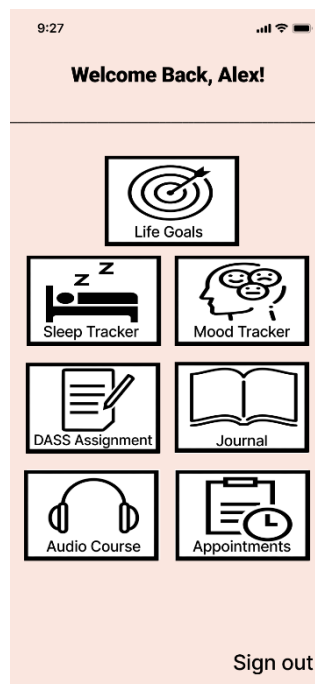
We require these steps so that the users will feel safe because of the security of our app.

The image displays three sequential mobile app screens for a password reset process. Each screen has a light orange background and a status bar at the top showing the time as 9:27 and signal/battery icons.

- Screen 1 (Left):** Titled "Reset Password", it features a back arrow in the top left. Below the title is a text input field containing the email "alex123@example.com". A black "SUBMIT" button is positioned below the input field. A standard QWERTY keyboard is visible at the bottom.
- Screen 2 (Middle):** Also titled "Reset Password", it shows a back arrow. The main content is the message: "A request to change your password has been sent to your Email." The keyboard is not visible on this screen.
- Screen 3 (Right):** Titled "Reset Password", it includes a back arrow. It contains two text input fields: "New Password" and "Confirm New Password", both filled with masked characters (dots). A black "CONFIRM" button is located below the second input field. The keyboard is visible at the bottom.

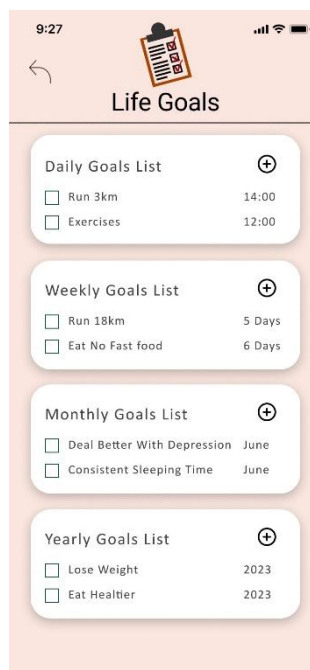
5-Main Menu:

The main menu is made with buttons that include images to help the users easily and quickly understand what each button does, there is also a sign out button in case the users need to log out or change their account.



6-Life Goals:

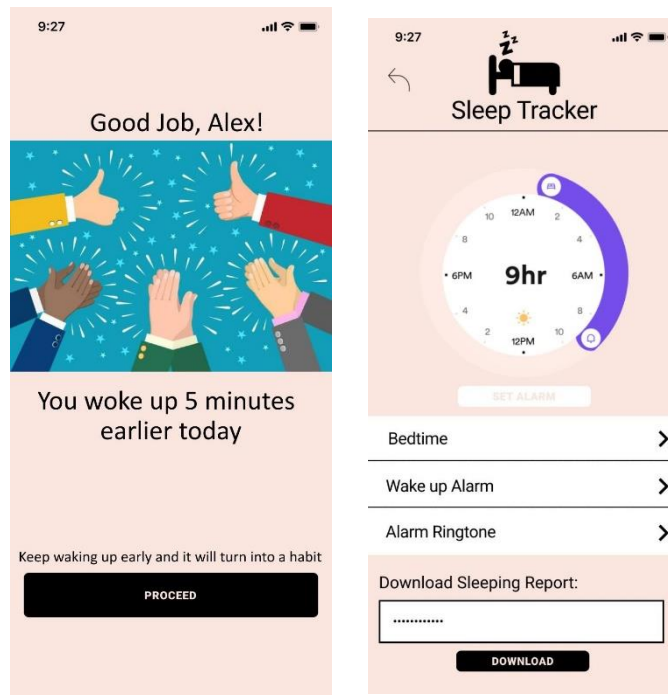
The users can set daily, weekly, monthly, and yearly Goals with a timed notification to help remind them of their goal



7-Sleep Tracker:

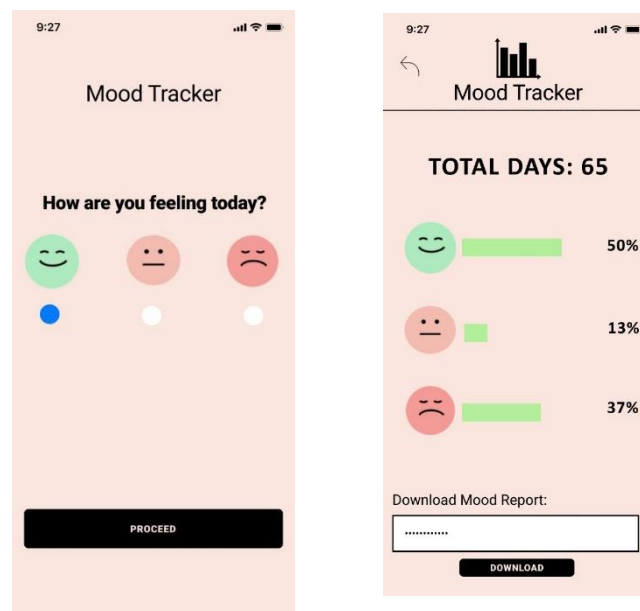
The sleep tracker can be used to set the desired sleeping hours with an alarm that wakes up the users on time but if the users wake up any minutes earlier a congratulation message will popup when the user enters the app.

The users can download the data collected by the sleep tracker by inputting their password for security and clicking download.



8-Mood Tracker:

Every day the users enter the app, they will be asked to answer a question about their mood and the data collected can be seen and downloaded from the Mood Tracker page.



9-DASS Assignment:

DASS Assignment is a twenty-one questions weekly test that the users can take to determine their levels of Depression, Anxiety and Stress and recommend methods to deal with the given results.

9:27

DASS Assignment

Question 8:
I tend to overreact to most situations?

☐ Didn't apply to me

☒ Applied to me to some degree

☐ Applied to me to a considerable degree

☐ Applied to me very much

8/21

GO BACK NEXT

9:27

Results:

You suffer from:
"Mild Depression"
"Moderate Anxiety"
"Severe Stress"

What's Recommended:

Meditation
Breathing Exercises
Yoga

10- Journal:

The users can write any random thoughts they get during anytime of the day in the Journal.

9:27

Journal

Write your thoughts

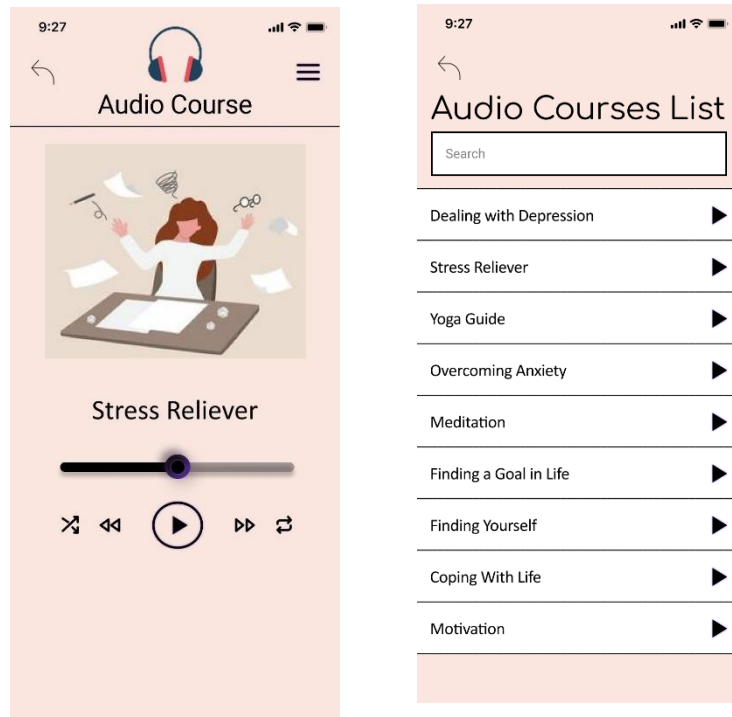
SUBMIT

9:27

Thank you for writing your thoughts

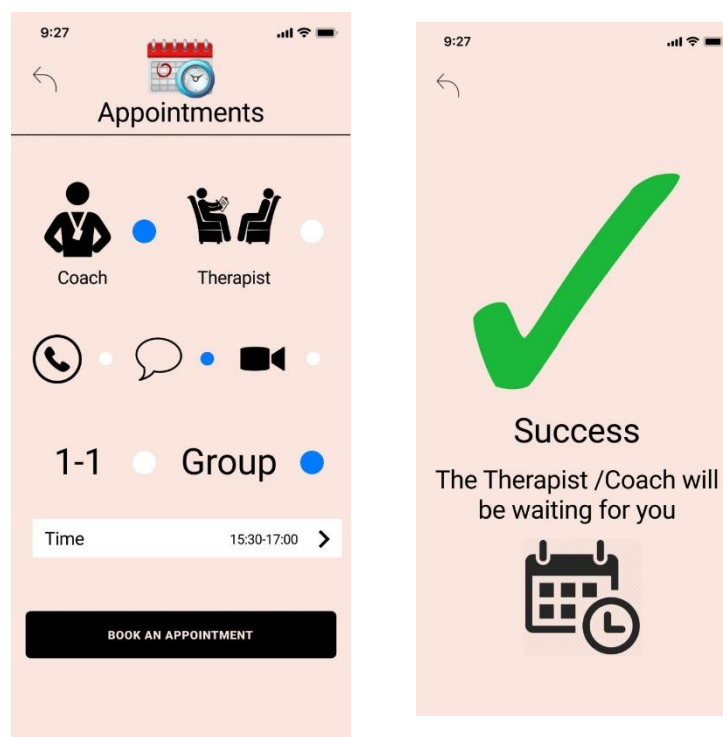
11- Audio Course:

The Audio Course page contains a lot of courses that can help with many different problems and situations in life and these courses can be easily searched by using keywords that are very commonly used.



12- Appointments:

The users can book an appointment quickly by choosing from the options given as radio buttons and by specifying the time of the appointment



7. evaluation scenario and procedure for the product

7.1 procedure

In the evaluation phase we will use two evaluation techniques.

- **Formative evaluations:** expert evaluation, as we have limitation, I had connected with my friend who had ranked the first in the communication design department at BAU (Rita Alnajem, contact info Rita.a.njm@gmail.com), to help us evaluate our application from her point of view using Nielsen's Heuristic Evaluation by giving her set of tasks, user journey, our low fidelity and high-fidelity prototypes. She will help us identify a list of problems and their severity.
- **Summative Evaluations:** user evaluation on low fidelity and high-fidelity prototypes by defining set of tasks using our scenarios. We already tried to use survey to gather the most accurate information in each step which helped us to identify the user needs in **2.5. User needs** and getting feedback after designing the low fidelity in **5.2. Feedback on the prototype from the target users**. The participants will try to do set of tasks using our interfaces and then using the commercial competitive Sanvello app, in two different sessions.

7.2 evaluation process

7.2.1 Formative evaluations:

- a list of tasks:
 1. The user can login and reset their password
 2. the user can find a therapist of his/her choice and book an appointment
 3. the user can take the DASS assignment
 4. The user can set a goal
 5. The user can choose an audio course
 6. The user can write their thoughts in the journal

- user journey



Angela Shrute



32



New York



accounting







Master's degree

Scenario

Angela returns from her job to her apartment. Her husband is away, therefore she feels lonely. She continues working at home, after a while of working and feeling miserable, she receives a notification from our app

Expectations

Angels should feel better after receiving a service from our app

Phases	Motivation	open the app	serach for a course	pick a course
activites	She was feeling terrible while working at home alone, so she opened the app after receiving the notification.	after she opened the app, she answered the DASS test and get the results for her depression, anxiety and stress levels	after receiving her result, she proceeds to search for a course that our app has recommended to her	• after searching, she picked an audio course based on her choice
Experience	She received the notification, which reminded her of how important it is to take care of herself.	she found the DASS test from the main page easily	she found a list of audio courses based on her situation	she found it easy to navigate between other courses and pick a one
Emotions				
User Expectation	Receiving daily affirmation reminders as well as reminders of the daily and weekly goals she established previously.	<ul style="list-style-type: none"> opening the app and getting to the main page should not take more than 1-2 seconds finding all the main functionality easily in the main page 	<ul style="list-style-type: none"> to find the list of variety of audi courses 	<ul style="list-style-type: none"> The user should be able to view how much time is remaining on the course and set the audio speed.

Nielsen's Heuristics	Problem description	severity	solution
Visibility of system status	Focus more on inexperienced and new users	Major	By providing more information about the app's features on the splash screen
	Lack of information on the therapists as well as procedures for booking, editing, and canceling appointments.	Major	By giving more information about the services and procedures on the appointment page.
User control and freedom	While using the app, the user has little freedom and control.	Minor	By providing a settings section (login, account privacy, notifications, etc.) where the user may customize the app settings according to their preference.

User control and freedom	While using the app, the user has little freedom and control.	Minor	By allowing the user to make mistakes or change their minds by including an option to modify or remove their life objectives, and their journal
Consistency and standards	Icons, alignment, font size, and font type should be consistent; for example, the icons on the Main Menu and other pages (journal, appointment, etc.) should be the same.	Cosmetic	Better to use standard icons
Aesthetic and minimalist design	A small icon can be used to represent the Download Report.	Cosmetic	By opening it on a separate page that will appear if the user request to download and, in that page, they enter the password
Help and documentation	Lack of FAQ page as it is critical to provide consumers with effective and understandable assistance when they require it.	Major	By adding FAQ question page and add email support to contact for any technical issue

7.2.2 Summative Evaluations

- **Design:**
 - **Level of functionality:** Only the most necessary features for a mental health app had been provided.
 - **Accessibility:** after the feedback of our expert, we made sure that the icons, alignment, font size, and font are consistent
 - **Terminology:** Terminology that the user group could comprehend.
 - **Personalization:** based on our expert's evaluation, we made certain adjustments to make individuals feel more at ease while using the app.
- **Participants:** Three participants were chosen who had little to no experience with mental health applications and had never used one before and were between the ages of 18 and 21.

- **Tasks:** On the first visit, participants were asked to complete six tasks, and on the second visit, they were asked to do the same six tasks on each system. The facilitator read each task from a Samsung Notes app on a Samsung phone, and the task description was displayed to the participants, screen.
- **Protocol:** before each session a verbal consent was taken from the Participants to record their voice as we had used Think Aloud methodology. The facilitator had a script and a set of instructions to follow. The facilitator had read each task to the participants, and the notetaker was starting a timer to see how long it took each participant to complete each task in order to calculate the average difficulty for each task. The notetaker was also paying attention to the participant if they were having difficulty with a particular task.
Firtly, the participant compeleted the set of tasks using our app, then they had done similar tasks using commercial competitive Sanvello app
- **Findings**
 - The average time for task 1 (The user can login/ register) took 45 seconds to finish
 - The average time for task 2 (the user can find a therapist of his/her choice and book an appointment) took 2 minutes to finish
 - The average time for task 3 (the user can take the DASS assignment) took 5 minutes to finish answering the twenty-one questions.
 - The average time for task 4 (The user can set a goal took 2 minutes to finish
 - The average time for task 5 (The user can choose an audio course) took 1.30 minutes to finish
 - The average time for task 5 (The user can write their thoughts in the journal) took 1 minutes to finish
 - In the second session, which took place five days after the first, the average time to complete the tasks was reduced by 14%.
 - Participants asked for assistance when using the Sanvello app because they could not find the Journal and audio course easily; however, this did not happen when using our app because all of our major functionalities was on the home page. on the other hand, participants found logging in to their accounts and resetting their passwords in the Sanvello app is much easier than in our app

because we did not include sign up/log in options such as Google account, iCloud for iPhone, or Facebook Account

- After the second session, we asked each participant if they would like to use the Sanvello app or our app, and they all picked our app for the following reasons:
 1. There was no app that included sleep tracking, mood tracking, and therapeutic services.
 2. The main menu has all the functionalities.
 3. They thought it was less difficult than Sanvello.

Feedback from Participants

- Adding sign up/login using Google account, iCloud for iPhone, or Facebook account.
- Adding a feedback evaluation after each session to rate each therapist to provide information to the other users.
- Adding some features for the journal functionality such as getting input by voice or inserting a picture.
- Adding search as a text field to the main page to access the other functionalities faster.
- Being able to make a list of the most favorable audio courses and therapist.