

Human Computer Interaction (HCI)
Project Report
on
MindSync App

DECLARATION

We hereby declare that the HCI Design Project Report titled “Mindsync - Sleep Tracker and Reflection Platform” is our original work and has been carried out under the guidelines provided by the supervisor. This report has not been submitted, either in part or in full, to any other academic institution for the award of any degree or certification.

All sources of information used in this project have been properly acknowledged. Any assistance received during the course of this work has been duly recognized.

We further declare that this project is free from plagiarism and reflects our own efforts and understanding of the subject.

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Chapter 1: Introduction

1.1 Project Theme

The theme of this project is human-centered digital wellbeing, focusing on improving users' sleep quality and emotional reflection through an intuitive and empathetic mobile application. The system integrates sleep tracking with personal reflection and community storytelling to support mental health, self-awareness, and personal growth.

1.2 Project Overview

This project proposes a Sleep Tracker and Reflection Platform that allows users to monitor their sleep patterns while also reflecting on their emotions, dreams, and daily experiences. The system combines automatic sleep tracking features with journaling, mood selection, and a community reflection space where users can anonymously or publicly share stories.

The application includes features such as sleep duration tracking, sleep score visualization, mood logging after sleep, reflective journaling, and a story-sharing environment designed to promote emotional expression and empathy among users.

1.3 Objectives and Scope

Objectives:

- To design a user-friendly interface that supports healthy sleep habits.
- To encourage emotional reflection through journaling and storytelling.
- To provide meaningful insights based on sleep behavior.
- To build a supportive reflection community with privacy controls.

Scope:

- The project focuses on interface design and user experience, not medical diagnosis.
- Sleep tracking is simulated or device-assisted.
- The system supports individual reflection and community interaction.
- The scope includes low-fidelity sketches, high-fidelity prototypes, and heuristic evaluation.

1.4 Stakeholders

- Primary Users: Individuals seeking better sleep habits and emotional wellbeing.
- Secondary Users: Students, professionals, and mental health aware users.
- Designers & Developers: Responsible for system usability and functionality.
- Academic Evaluators: Assessing design quality and HCI principles.

Chapter 2: Low Fidelity Sketching

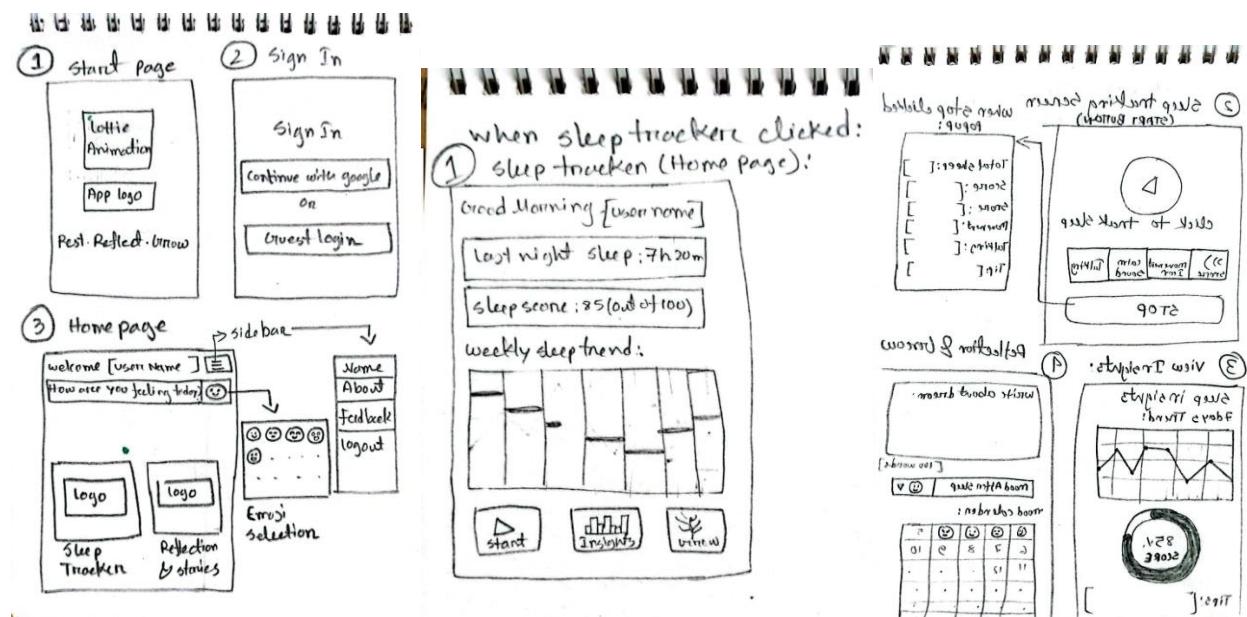
Low-fidelity sketching was used during the early design phase to explore layout ideas, navigation flow, and interaction patterns without focusing on visual aesthetics. Hand-drawn sketches were created to quickly test usability concepts and user flow.

Low-Fidelity Sketch Themes

1. Splash screen and onboarding flow
2. Google authentication screen
3. Home dashboard layout
4. Sleep tracker dashboard
5. Sleep tracking screen with timer
6. Reflection and journaling page
7. Story creation interface
8. Community reflection wall

These sketches helped identify content hierarchy, reduce complexity, and improve navigation clarity before moving to high-fidelity prototyping.

Fig-theme -1.1



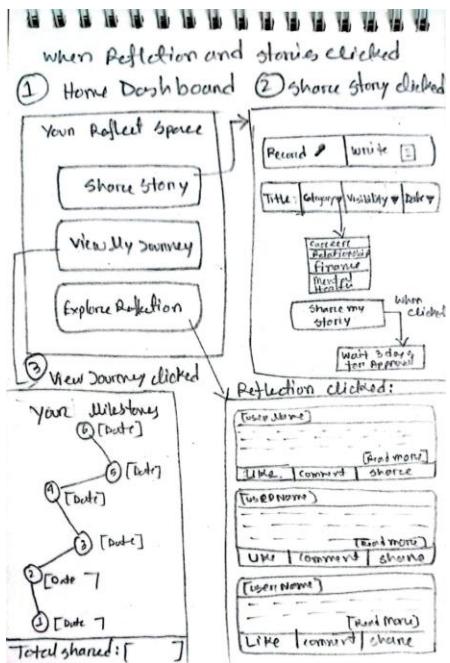


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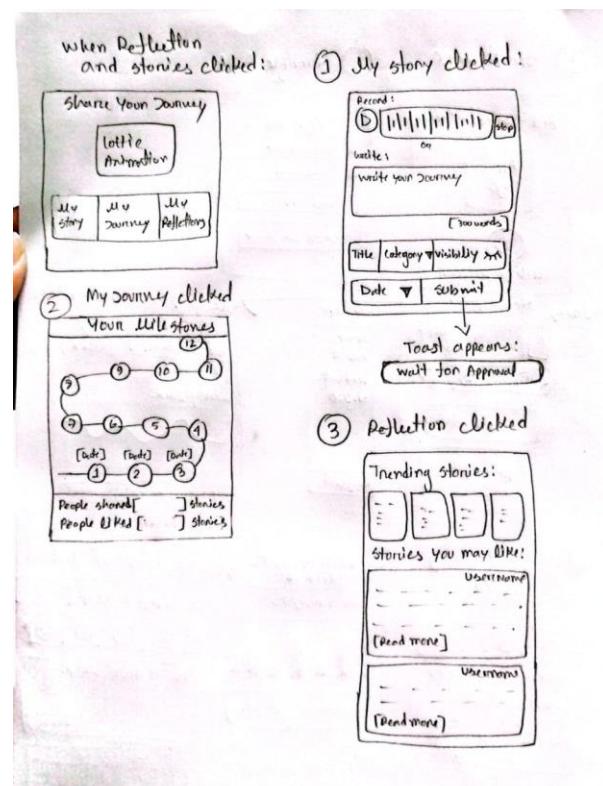
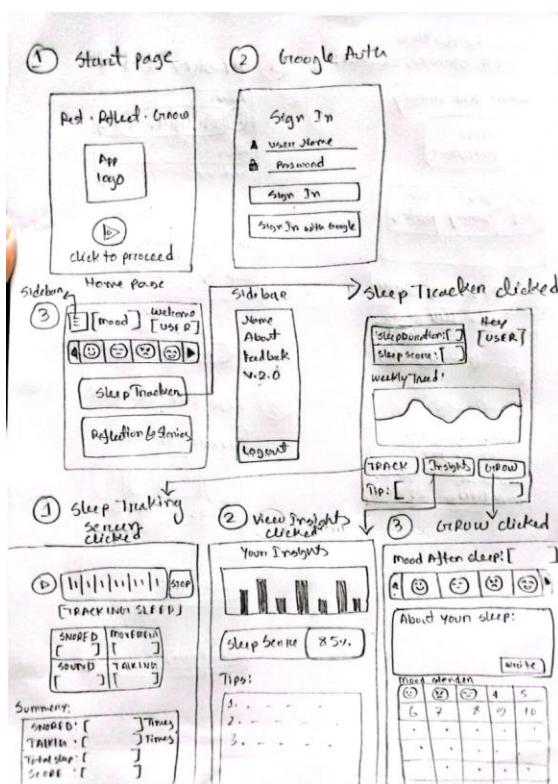
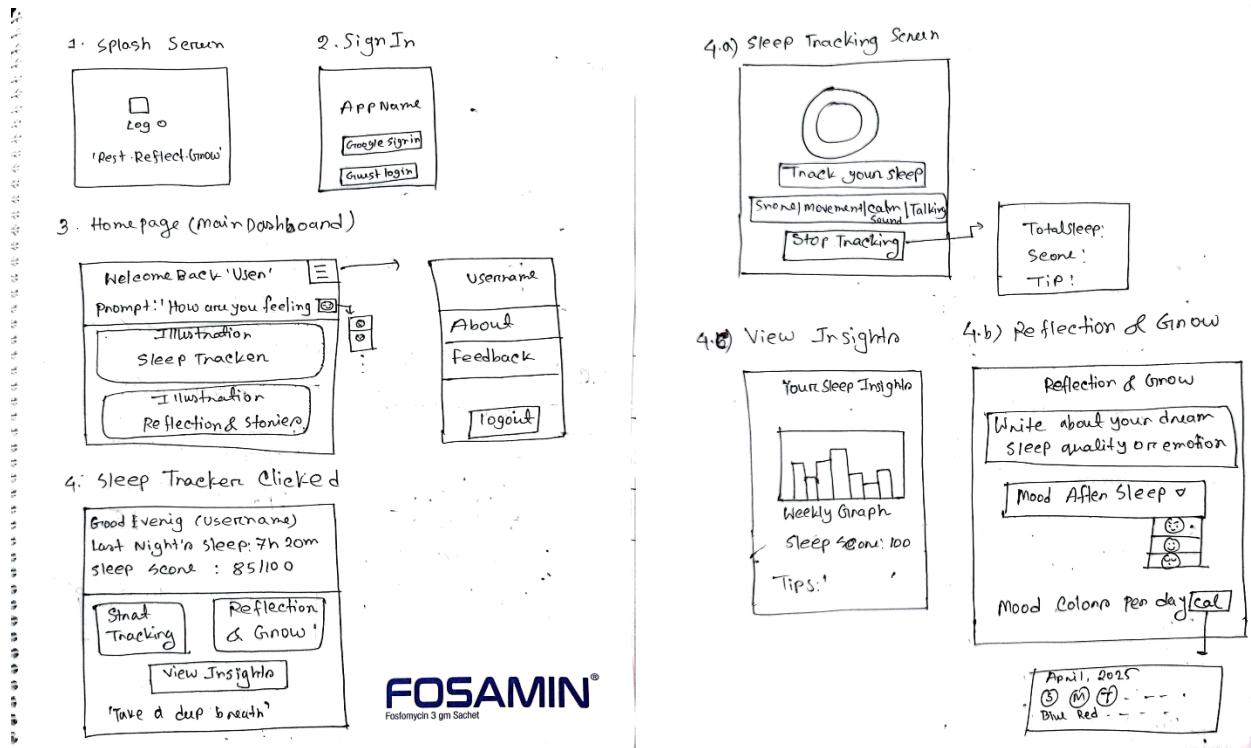
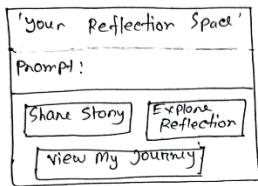


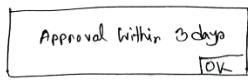
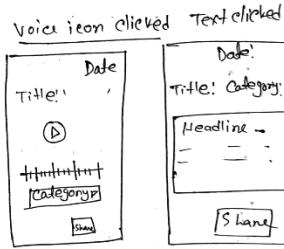
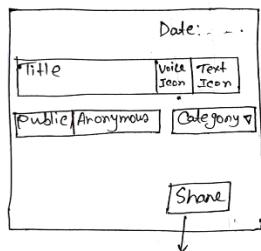
Fig-theme-2.1



5. Reflection Stories

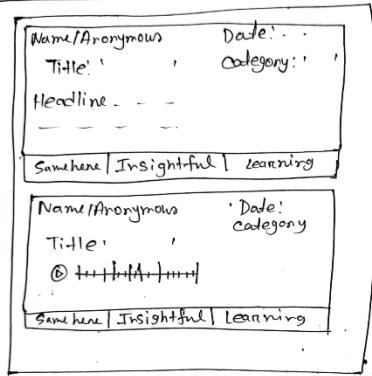


5.1 Share Story



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5.2 Explore Reflection



5.3 View My Journey

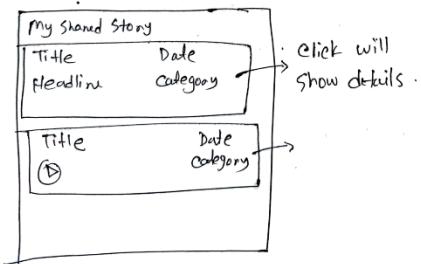
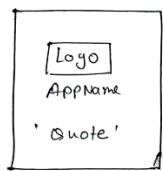
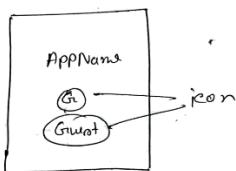


Fig-theme - 2.2

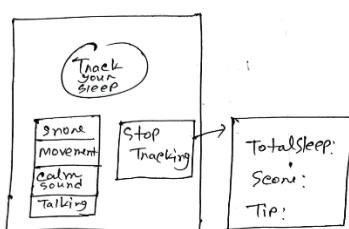
1. Splash Screen



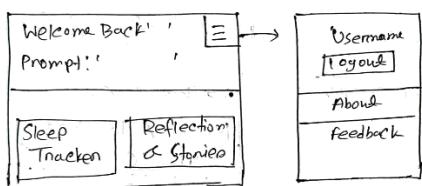
2. Sign In



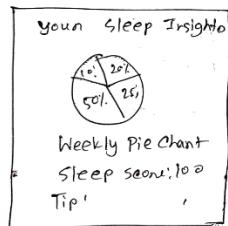
4.a) Tracking Screen



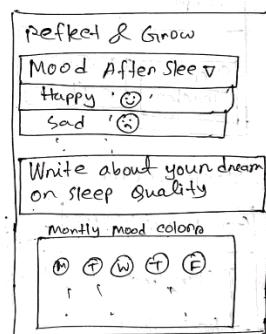
3. Welcome to Homepage



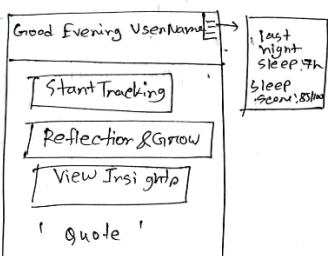
4.b) View Insights



b) Reflection & Grow

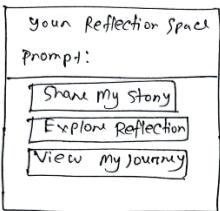


4. Sleep Tracker

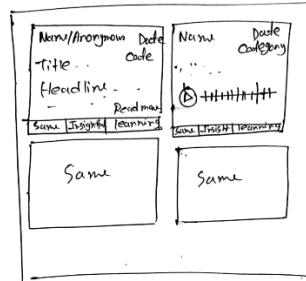


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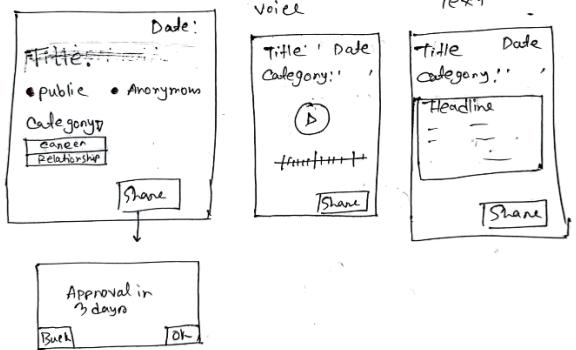
5.a) Reflection Stories



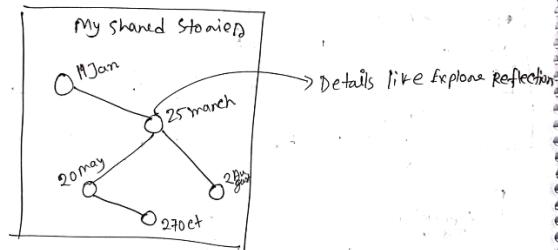
i. a) Explore Reflections:



5.a) Share Story



5.b) View My Journey



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Fig-theme - 3.1

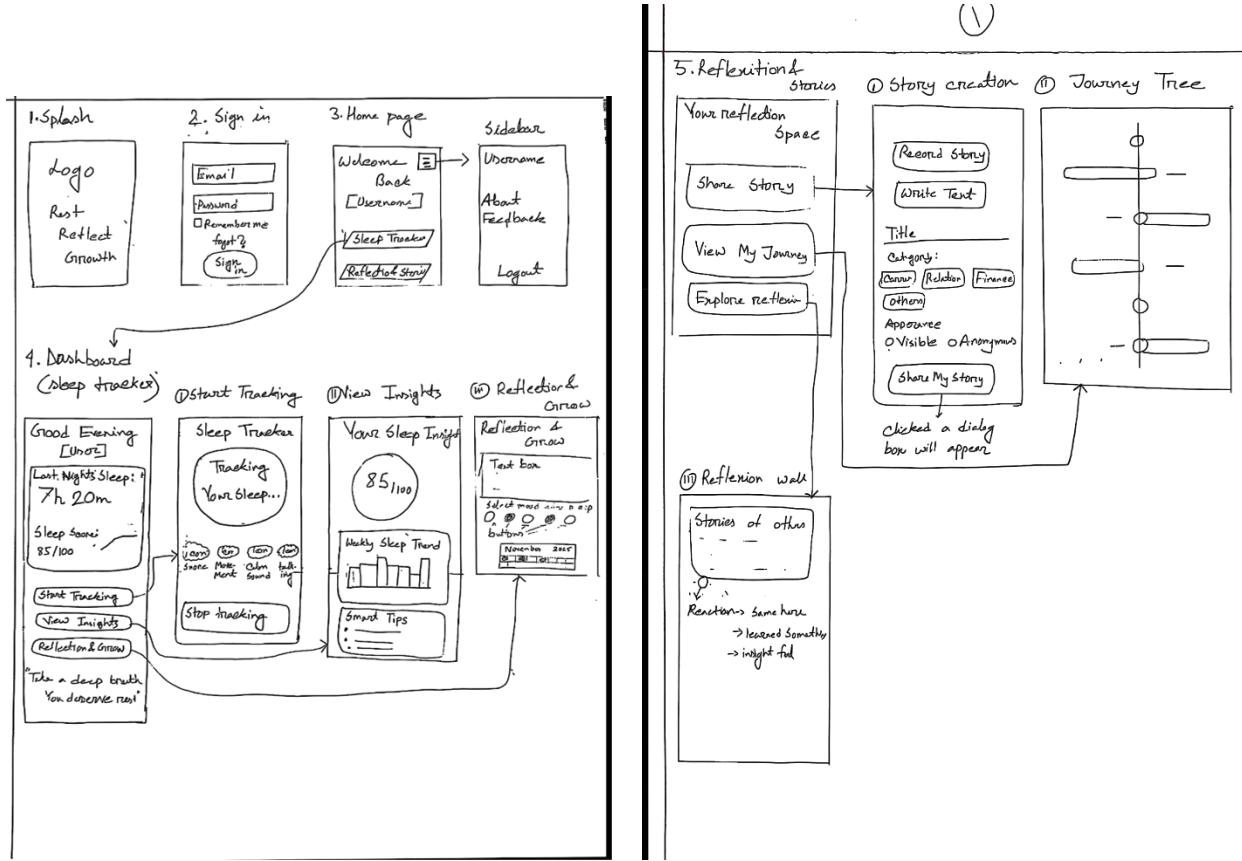


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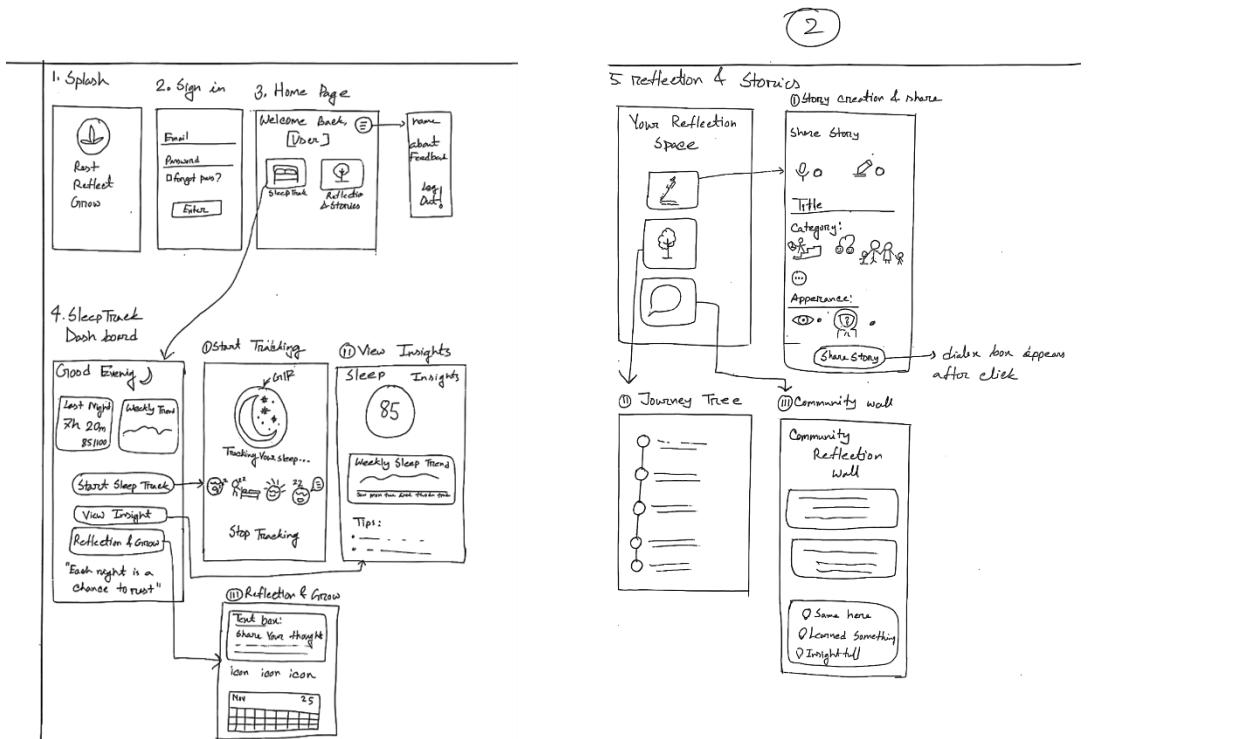


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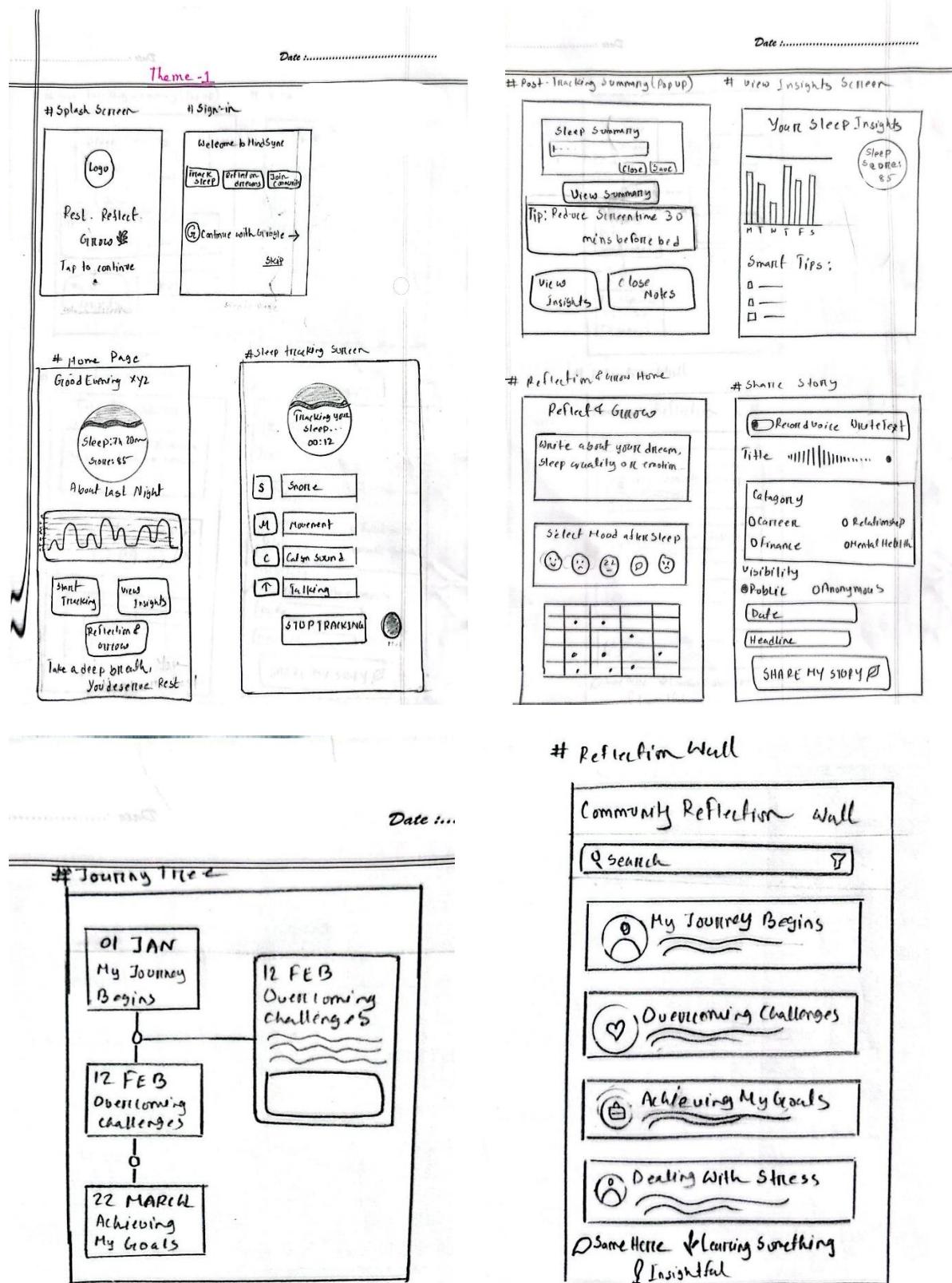


Fig-theme - 4.2

Date:

Theme - 2

splash

sign-in

Home

Sleep Tracking

Post tracking summary

View Insights

Date:

Reflection & Grow Home

Reflect & Grow

Story Creation

Journey

#Community Wall

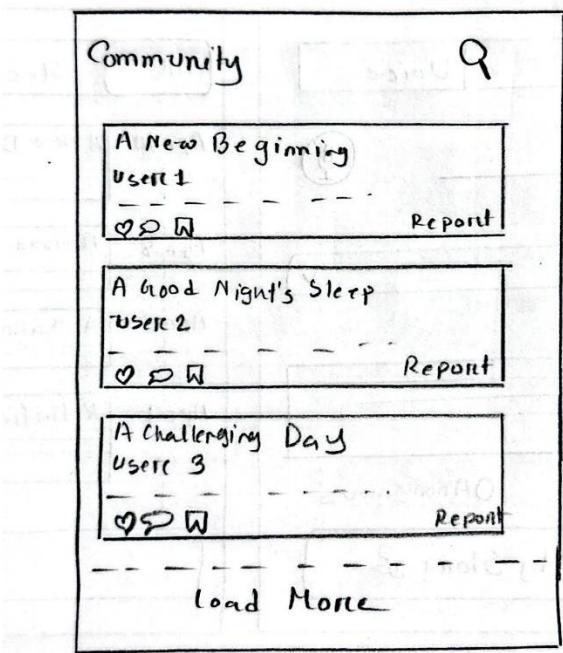


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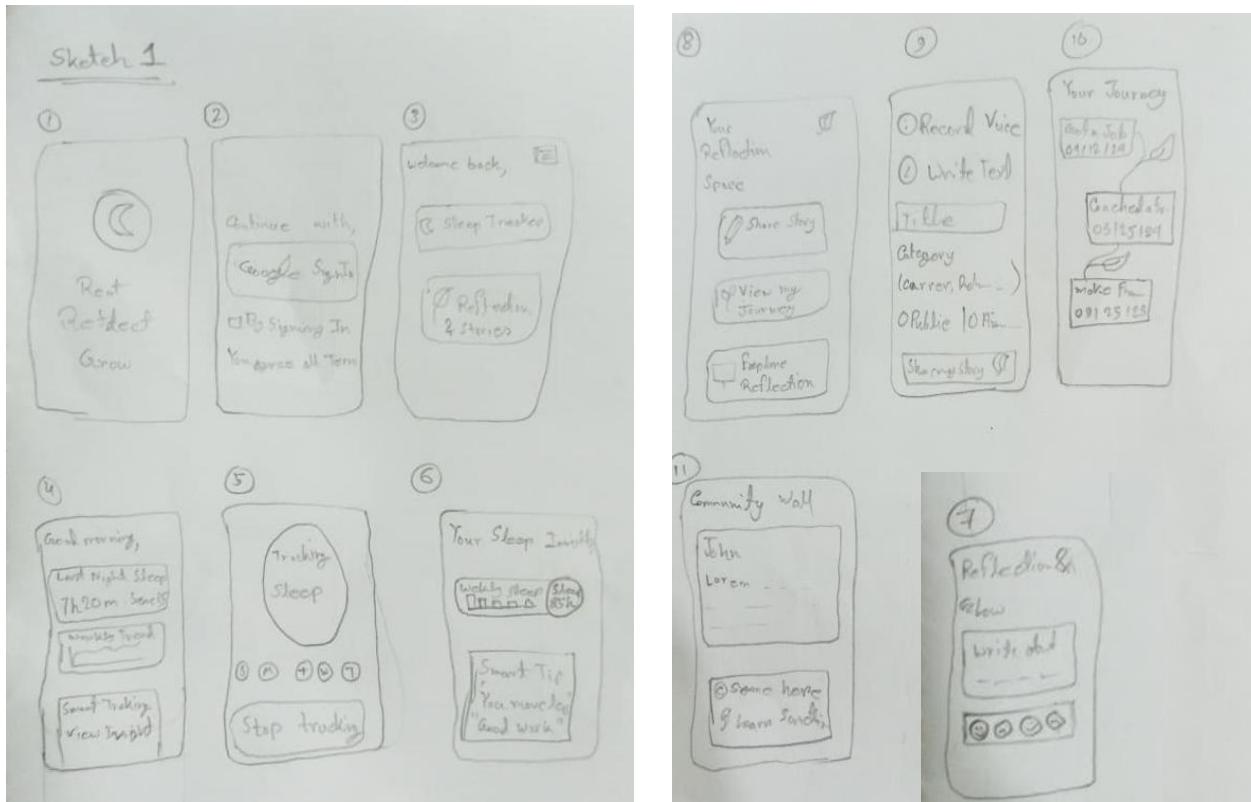
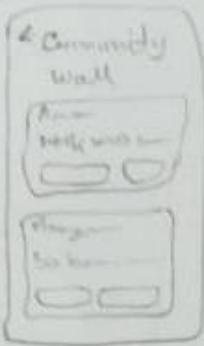


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10



Sketch 3

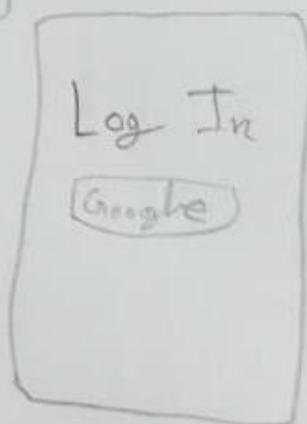
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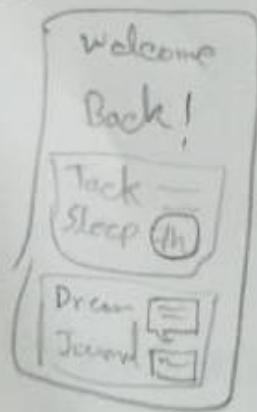
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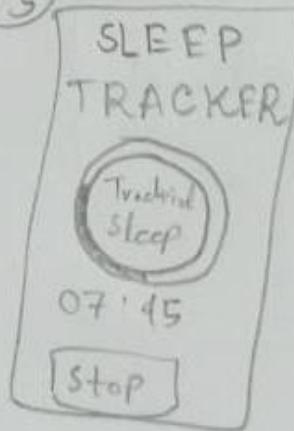
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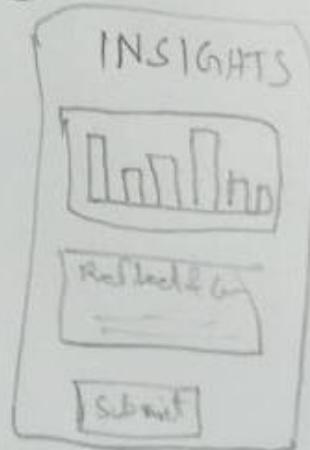
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5



6



Chapter 3: Background Study

The project was informed by studies on:

- Digital wellbeing applications
- Sleep tracking interfaces
- Emotional self-expression
- Community-based mental health platforms

Prior research highlights that combining self-tracking with reflection tools improves user engagement and emotional awareness. These insights guided the integration of both functional tracking and emotional storytelling features.

Chapter 4. User Research

4.1 Research Questions Development (Response 1)

Research Question 1 (RQ1): What strategies do users currently use to improve sleep and manage their emotional well-being, and what obstacles do they face?

Ans: From the participant's responses, it is evident that their strategies for improving sleep and emotional well-being are still developing and somewhat limited. The participant currently tries to improve sleep by maintaining a fixed sleep duration (5–6 hours) and setting screen-time limits to reduce late-night phone use, so they don't scroll too much at night. They report feeling refreshed when they wake up, sleep on time, and annoyed or regretful if they overslept. They do not use any formal sleep-tracking tools or apps at the moment.

The major problems that they are facing are not being able to control phone usage, having an uneven sleep routine, and not using any sleep-tracking apps yet. Regarding the app, they're quite curious about features like sleep-sound detection, and showed interest to see whether it will be helpful.

Research Question 2 (RQ2): How comfortable are users with sharing personal reflections (publicly or anonymously), and what motivates or discourages them?

Ans: The participant shows limited comfort in sharing personal reflections publicly. Their motivation to share arises mainly when an experience feels meaningful enough to communicate. They often feel hesitant because they worry about what others might think, especially when their name or photo is visible. That's why privacy and anonymity are very important to them. They would feel more comfortable if an app lets them post anonymously and doesn't constantly notify them unless they choose to check.

They also prefer supportive interactions. The participant prefers respectful, expressive feedback, such as non-offensive emojis that accurately convey empathy or shared emotion. This type of response would help them feel safe within a reflective community.

Thus, their continued engagement with an app would depend on strong privacy controls, positive and meaningful feedback.

4.2 Interview Questionnaire

Supporting Questions RQ1: Sleep & Reflection Habits

1. Can you describe your usual sleep routine and how you keep track of your sleep quality?

Ans: Honestly speaking, it never comes to my mind to track my sleep quality or my sleep routine. But recently, since I'm concerned to reduce my stress level, I'm trying to maintain a proper sleeping time, or you can say at least 7 hours of sleep every night. And yeah, I'm not using any apps to track or note my sleeping hours.

2. What challenges do you face when trying to improve your sleep or maintain good sleep habits?

Ans: Yeah, it's quite hard to maintain a proper sleeping habit. As I'm kind of addicted to overuse of cell phone and it is a bad habit of mine that I keep scrolling even though I feel like I'm wasting my time. So, recently I have set a timer in my regular apps, so that I can control my screen time.

3. After you wake up, do you spend any time noticing how you feel or what's on your mind? If yes, what do you usually do?

Ans: Of course, I feel refreshed and great when I sleep for my pre-determined time. However, if I oversleep, then the feelings become worse. I keep regretting for not maintaining proper timing. I blame myself for my over screen time.

4. If you have used sleep-tracking apps before, what features did you find helpful or unhelpful?

Ans: No, I did not think of using one, yet. But yeah, I think that could be very helpful for me if I used one. Since I struggle to resist myself, if there is a proper app to help me then that will be great. Particularly, if that app may help me to hold myself, or you can say it'll at least notify me when it's the right time to stop scrolling, then maybe I might find it helpful.

5. How would you feel about an app that gives personalized tips based on sleep sound detection (like snoring or movement)?

Ans: That I might find interesting. But maybe. I don't know how it will help me, as I don't have control for those things. But to think thoroughly, at least I might get to know whether I snore or not.

Supporting Questions RQ2: Motivation & Concerns about Sharing Stories

6. If you ever choose to share personal thoughts or experiences, what would motivate you to do so?

Ans: Ok, to be honest I'm kind of an introvert, but I use social media regularly. I usually do not post frequently, but if there is anything prominent happening in my life then I share it with my peers via social media. It's not like I share each and everything online.

7. What makes you uncomfortable or hesitant about sharing personal reflections, even anonymously?

Ans: Yes, there is always a hesitation that I feel whenever I want to post something, whether it's my personal thoughts or story. I frequently worry about what the readers might think about me as they know my name or my photo.

8. If you choose to share a personal story, what level of privacy control do you expect?

Ans: If there is a system that I can post anonymously and at least a level of privacy where I'll not be notified frequently unless I wish to check, then maybe that will motivate me to write or share my story. You know, nobody will know my identity and I'll feel less concerned about the reactions.

9. In a reflection community, what kind of reactions or feedback from others would make you feel supported and safe?

Ans: Yeap, it might be very interesting if that app allows me to show my true emotions, maybe with proper facial emojis. Not like limited emojis that Facebook offers. If I feel sad after reading others' stories then the emoji should express my feelings properly, and the emojis should not be offensive.

Optional Additional Question (either RQ)

10. What would make you return to this app daily or weekly?

Ans: I usually do not use an app on a daily basis. However, it's natural to use that app weekly, at least $\frac{3}{4}$ times in a week I visit those apps. Moreover, if I feel uncomfortable with using that particular app then maybe I might use it daily. As I told you before, if I get proper privacy then there is a chance that I might write on that app daily. For example, if I write a heartwarming story then I might expect to get good reactions, and for that reason I will check again and again on that app. And then talking about sleep tracker, I might consider using it on a daily basis if it helps me to control myself. You know, after a long day, as I keep using my phone instead of going to bed, for that reason if any app helps me to improve that definitely I will consider using it daily.

4.1 Research Questions Development (Response 1)

Research Question 1 (RQ1): What strategies do users currently use to improve sleep and manage their emotional well-being, and what obstacles do they face?

Interviewer Perspective:

I think most people kinda try the basics going to bed earlier, putting their phone down, maybe using a sleep app or doing some calming stuff like music or breathing exercises. But honestly, sticking to those habits is the hard part. Stress, overthinking, and busy schedules mess everything up. Even when we know what to do, it's tough to actually keep it consistent.

Shourav Perspective:

Users do try to take care of their sleep, but their approach is pretty simple. Most of them aim to keep a regular bedtime and roughly check how long they slept. Either by how they feel in the morning or by quickly looking at their phone's basic sleep data. They're not deeply tracking or analyzing anything; they just want a clear idea of whether they slept enough.

When it comes to emotional well-being, users don't have a formal routine. They do a small "self-check" in the morning by asking themselves how they feel, thinking about dreams, or mentally preparing for the day. It's quick and casual, not a deep reflection process. The biggest obstacles are consistency and stress. Even if they want a good routine, things like late-night phone use or overthinking make it hard to fall asleep. And when apps make sleep feel "too technical" or show harsh feedback ("bad sleep"), it can actually stress them more instead of helping.

Overall, users want simple insights, gentle support, and tools that don't overwhelm them or make them feel judged.

Research Question 2 (RQ2): How comfortable are users with sharing personal reflections (publicly or anonymously), and what motivates or discourages them?

Interviewer Perspective:

I feel like people want to share sometimes, especially if they think it'll help someone else or make them feel less alone. But there's still that worry of being judged or misunderstood. I feel this normal behavior for sure. Anonymous sharing helps, but even then, some people get nervous about privacy. Good vibes and supportive comments make sharing easier, but anything negative or too personal can shut people down.

Shourav Perspective:

Users are open to sharing personal experiences only when it feels meaningful, like helping someone who's going through something similar or letting out a thought they've been carrying. The motivation is mainly empathy and expression, not attention.

But they also have strong hesitations. Even with anonymity, they worry about being judged or misunderstood. They aren't used to sharing personal details online, so it feels risky. The lack of trust or shared empathy makes them pull back. To feel safe, users want full control over their privacy. Benefits like choosing who can see their story, staying anonymous whenever they want, and knowing exactly what the app saves about them. What encourages them the most is a kind, supportive environment where responses are gentle, understanding, and never critical.

If the app can keep things simple, supportive, and respectful of privacy, users are more likely to return regularly and feel comfortable sharing.

4.2 Interview Questionnaire

Supporting Questions RQ1: Sleep & Reflection Habits

1. Can you describe your usual sleep routine and how you keep track of your sleep quality?

Ans: My sleep routine tends to be regular, around 5-6 hours. Other times, I try to go to bed at the same time, but sometimes I find myself staying awake on my phone. I don't track my sleep in a serious way. I just check how I feel in the morning or look at my phone's sleep data if I remember to use a sleep tracking app to see how many hours I've been in deep sleep.

2. What challenges do you face when trying to improve your sleep or maintain good sleep habits?

Ans: Honestly, staying consistent is the hardest part. And when I'm stressed, it's really hard to fall asleep even if I'm tired.

3. After you wake up, do you spend any time noticing how you feel or what's on your mind? If yes, what do you usually do?

Ans: Yeah, a little. I kinda check in with myself, like, am I tired? Do I feel okay? Sometimes I think about my dreams or what I gotta do that day, but nothing super deep.

4. If you have used sleep-tracking apps before, what features did you find helpful or unhelpful?

Ans: I like when the app keeps things simple, like showing me how long I slept or a quick summary. I don't like when there's too many numbers or when it tells me I slept badly, it just stresses me. And most importantly, the application provides benefits for me, so I can maintain my sleep hours.

5. How would you feel about an app that gives personalized tips based on sleep sound detection?

Ans: I think that's cool as long as it's private. If it can help me understand my snoring or movement, that's useful. But I want to be sure the audio isn't being saved or shared.

Supporting Questions RQ2: Motivation & Concerns about Sharing Stories

6. If you ever choose to share personal thoughts or experiences, what would motivate you to do so?

Ans: If I feel like it might help someone, or if sharing helps me get things off my mind. Sometimes, I share something when I want to encourage someone who has a case I relate to. Something like the cases I have faced before, hoping it will help them.

7. What makes you uncomfortable or hesitant about sharing personal reflections, even anonymously?

Ans: I just don't wanna be judged. Even if it's anonymous, it still feels a bit scary to share personal stuff. And I'm not used to sharing my stories with anyone, even on social media. So I think sharing private things is very rare for me. Because not everyone will have the same empathy.

8. If you choose to share a personal story, what level of privacy control do you expect?

Ans: I'd want to choose who can see it, or make it fully anonymous. And I wanna know what's being saved about me. Full control under me.

9. In a reflection community, what kind of reactions or feedback from others would make you feel supported and safe?

Ans: I'd feel good with kind, understanding comments. Stuff like 'I get you' or 'You're not alone.' No judging, no harsh advice. Someone can encourage.

10. What would make you return to this app daily or weekly?

Ans: If the app is easy to use and actually helpful. Like quick check-ins, simple insights, and a positive community that doesn't feel too much.

4.3 Alternate or Complementary Research Method (Survey Form)

Section 1 – Participant Background (3 Questions)

1. Age Group

- 15–18
- 19–24
- 25–30
- 31–40
- 41+

2. Gender

- Male
- Female
- Prefer not to say
- Other

3. How would you describe your daily routine?

- Mostly structured and organized
- Sometimes structured
- Mostly unstructured
- Very unpredictable

4. Your Academic Department:

- CSE (Computer Science & Engineering)
- EEE (Electrical & Electronic Engineering)
- ECE (Electronics & Communication Engineering)
- ME (Mechanical Engineering)
- CE (Civil Engineering)
- ICE (Information & Communication Engineering)
- GEB (Genetic Engineering & Biotechnology)
- BBA (Bachelor of Business Administration)
- English
- Pharmacy
- Mathematics
- LLB (Law)
- **Others (Please specify):** _____

Section 2 – Sleep Habits & Struggles (7 Questions)

4. How many hours do you sleep on average per night?

- Less than 5 hours
- 5–6 hours
- 6–7 hours
- 7–8 hours
- More than 8 hours

5. How often do you face difficulty falling asleep or staying asleep?

- Very often
- Often
- Sometimes
- Rarely
- Never

6. Do you feel rested when you wake up?

- Always
- Most days
- Sometimes
- Rarely
- Never

7. What tools do you currently use to track your sleep?

- Smartwatch / Fitness band
- Mobile app
- Paper journal

- I do not track my sleep
- Other (short answer)

8. What factors most affect your sleep quality? (Select all)

- Stress or anxiety
- Overthinking
- Phone or screen time
- Lifestyle/habits
- Medical/physical issues
- Noise or environment
- Other (short answer)

9. How important is improving your sleep to you right now?

- Not important
- Slightly important
- Moderately important
- Very important
- Extremely important

10. If a sleep app could give you personalized insights (snoring, movement, talking), how likely would you be to use it?

- Very likely
- Likely
- Neutral
- Unlikely
- Very unlikely

Section 3 – Reflection & Mood Journaling (5 Questions)

11. How often do you reflect on your emotions or day (e.g., journaling, self-talk)?

- Daily
- A few times a week
- Once a week
- Rarely
- Never

12. Which method do you use most for emotional reflection?

- Paper journaling
- Notes on phone
- Meditation or self-reflection
- Dedicated mental health app
- Talking to someone
- I don't practice reflection

13. What stops you from reflecting more often? (Select all *that apply*)

- Lack of time
- Forgetting
- No habit or discipline
- Don't know what to write
- Emotional discomfort
- I don't find it useful
- Other (short answer)

14. How would you like an app to help you reflect on or track your daily mood? (after getting their response the next question will be) Do you think a daily reminder to log your mood would be helpful for you?

- Very helpful

- Helpful
- Neutral
- Not very helpful
- Not helpful

15. How useful do you find guided prompts such as “How are you feeling today?” or “What made your day challenging?”

- Very useful
- Moderately useful
- Slightly useful
- Not useful
- I dislike prompts

Section 4 – Sharing Stories & Community Experience (5 Questions)

16. Would you like to share personal reflections or life stories in an app community?

- Yes, openly
- Yes, but only anonymously
- Maybe, depends on privacy controls
- No

17. Which concerns would stop you from sharing personal stories? (Select all)

- Fear of judgment
- Privacy concerns
- Lack of confidence
- Don’t think others need to know
- Prefer keeping things private

- Other (short answer)

18. What motivates you to share your personal experiences? (Select all)

- Helping others
- Finding emotional support
- Feeling seen or understood
- Creating a record for myself
- Community connection
- Other (short answer)

19. What type of feedback from others would feel most meaningful?

- Supportive messages
- “I feel the same” reactions
- Advice or suggestions
- No feedback needed
- Other (short answer)

20. Which community features would you like to see in the app? (Select all)

- Anonymous posting
- Reactions
- Commenting
- Save or bookmark stories
- Categories for Mental health, Career, Study, etc.
- Story approval or moderation
- Other (short answer)

Final Open Question

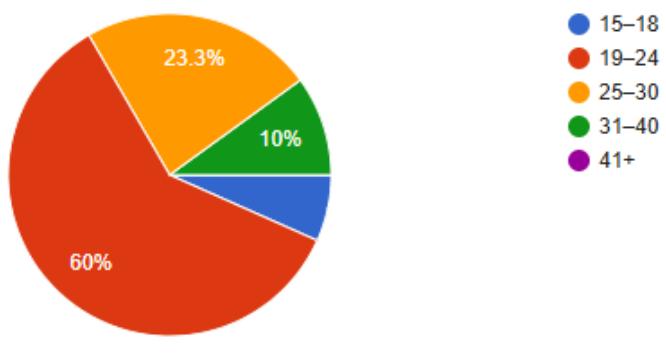
21. What would make you continue using a sleep and reflection app over the long term?

(Short answer)

4.4 Data Collection

1. Age Group

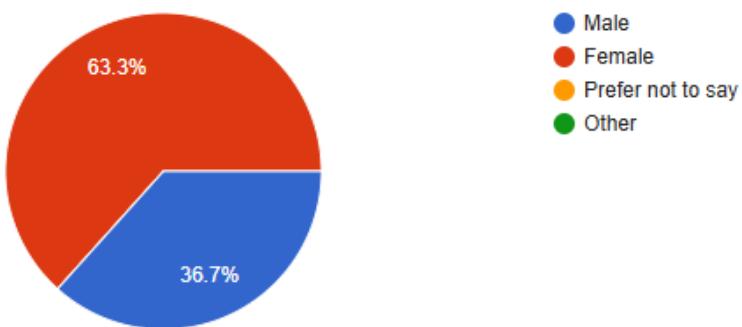
30 responses



W

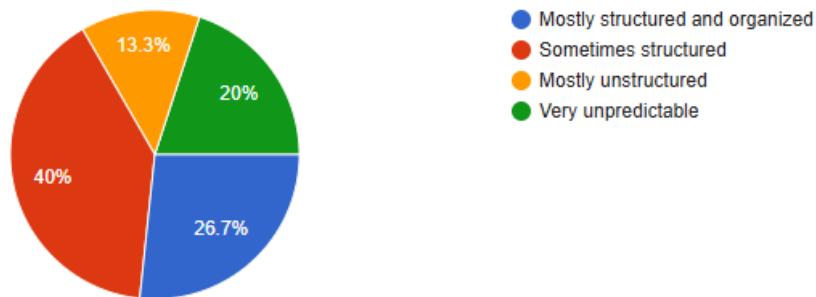
2. Gender

30 responses



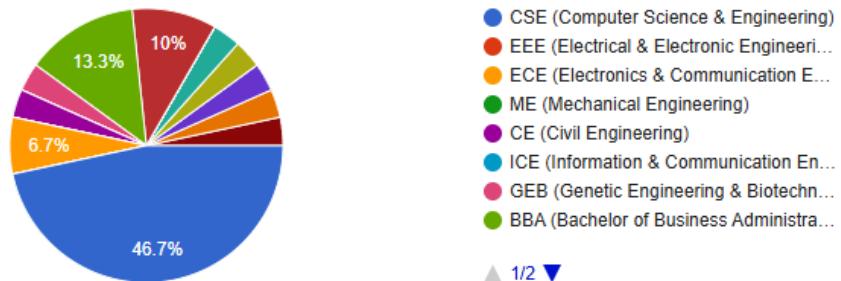
3. How would you describe your daily routine?

30 responses



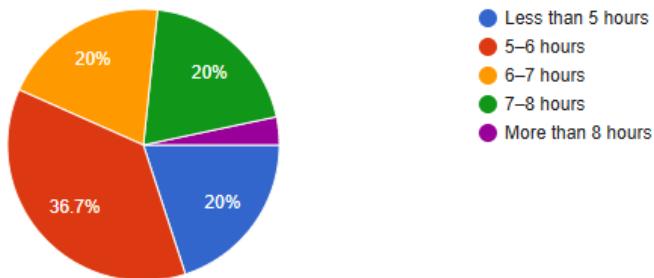
4. Your Academic Department:

30 responses



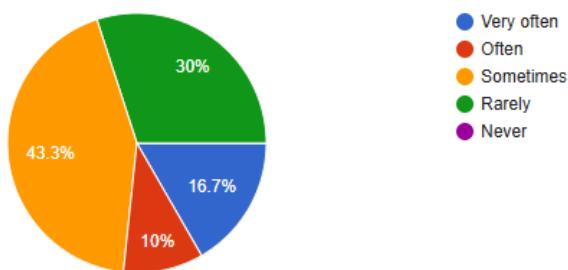
5. How many hours do you sleep on average per night?

30 responses



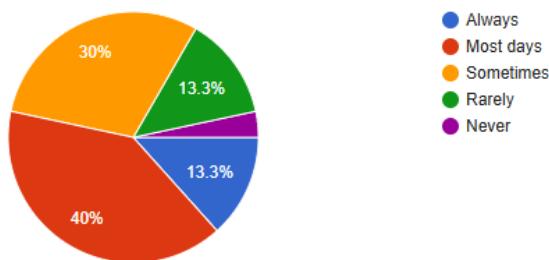
6. How often do you face difficulty falling asleep or staying asleep?

30 responses



7. Do you feel rested when you wake up?

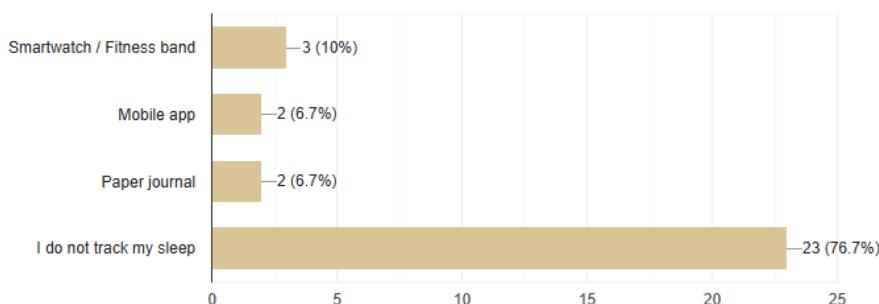
30 responses



8. What tools do you currently use to track your sleep?

[Copy chart](#)

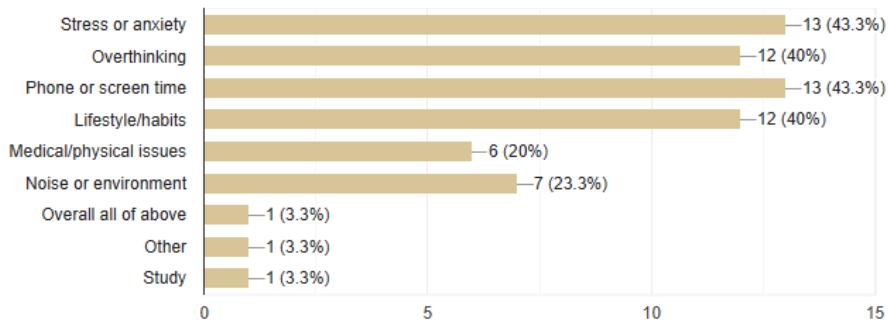
30 responses



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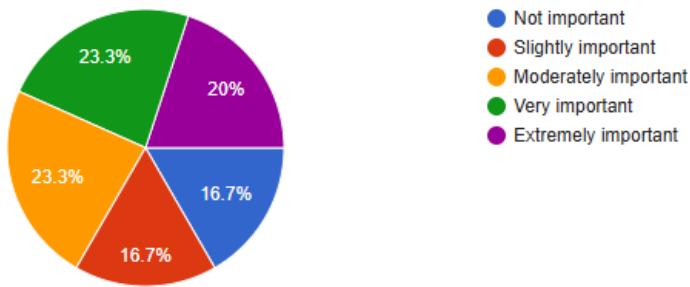
9. What factors most affect your sleep quality?

30 responses



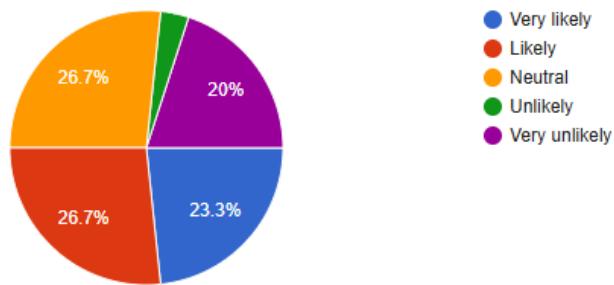
10. How important is improving your sleep to you right now?

30 responses



11. If a sleep app could give you personalized insights (snoring, movement, talking), how likely would you be to use it?

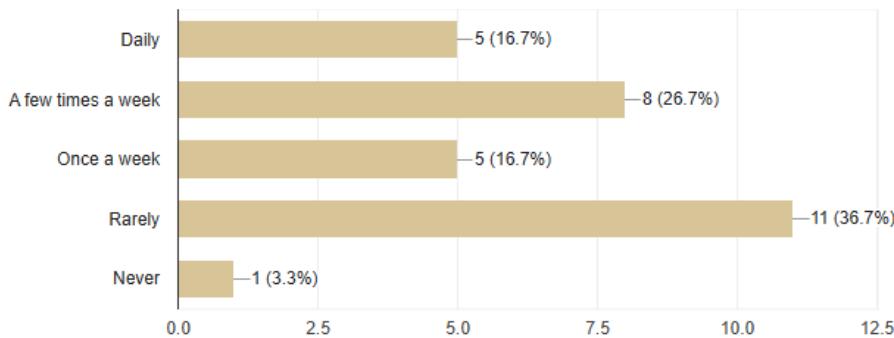
30 responses



12. How often do you reflect on your emotions or day (e.g., journaling, self-talk)?

[Copy chart](#)

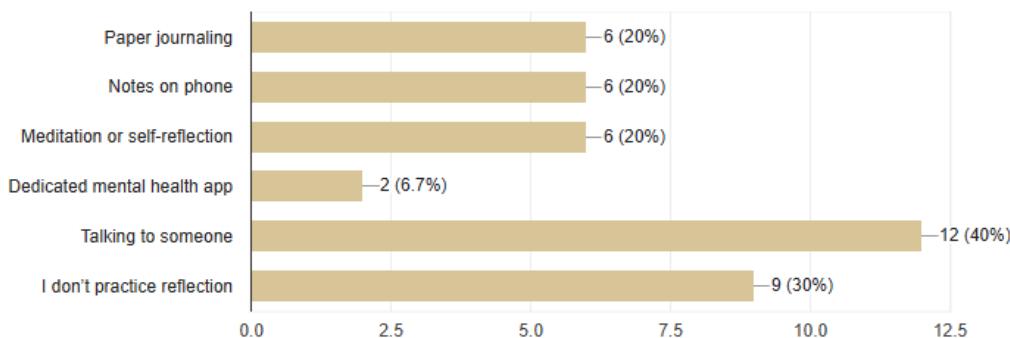
30 responses



13. Which method do you use most for emotional reflection?

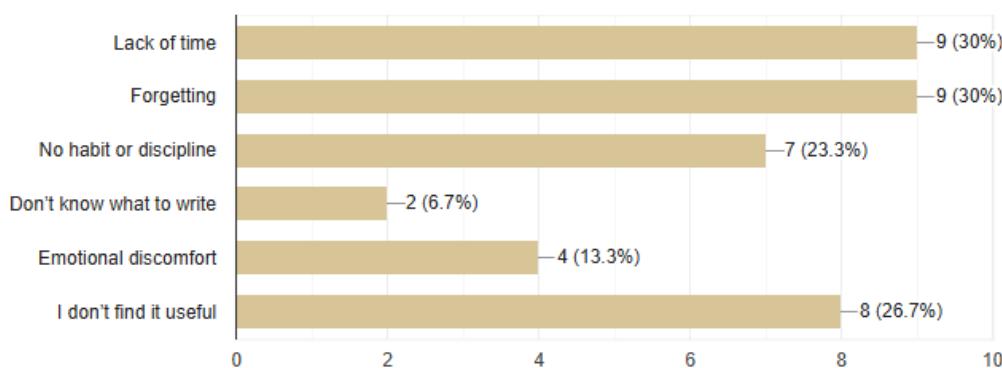
[Copy chart](#)

30 responses



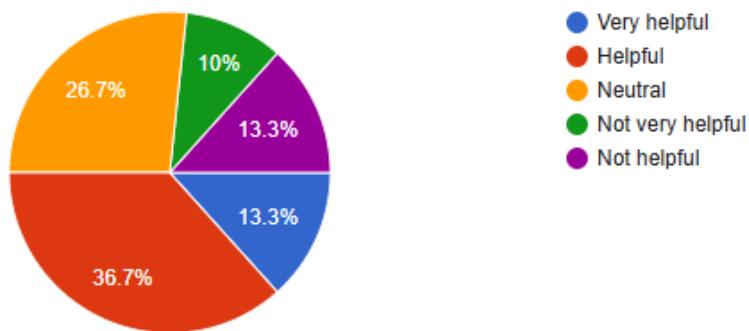
14. What stops you from reflecting more often?

30 responses



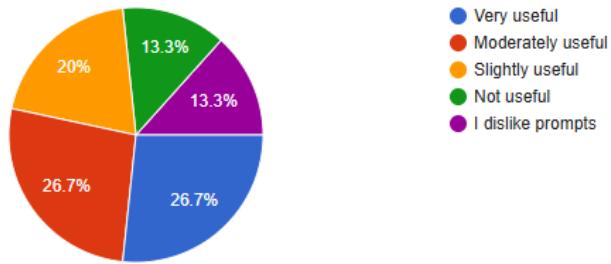
**15. How would you like an app to help you reflect on or track your daily mood?
Do you think a daily reminder to log your mood would be helpful for you?**

30 responses



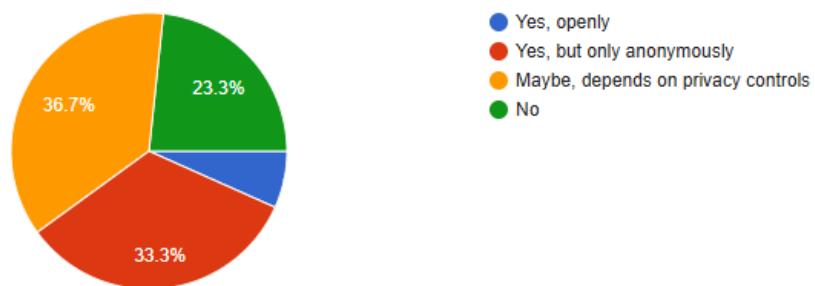
16. How useful do you find guided prompts such as "How are you feeling today?" or "What made your day challenging?"

30 responses

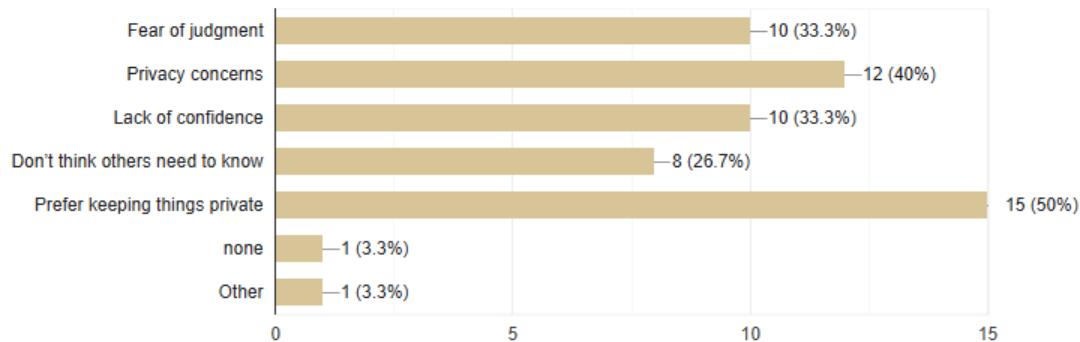


[Copy chart](#)**17. Would you like to share personal reflections or life stories in an app community?**

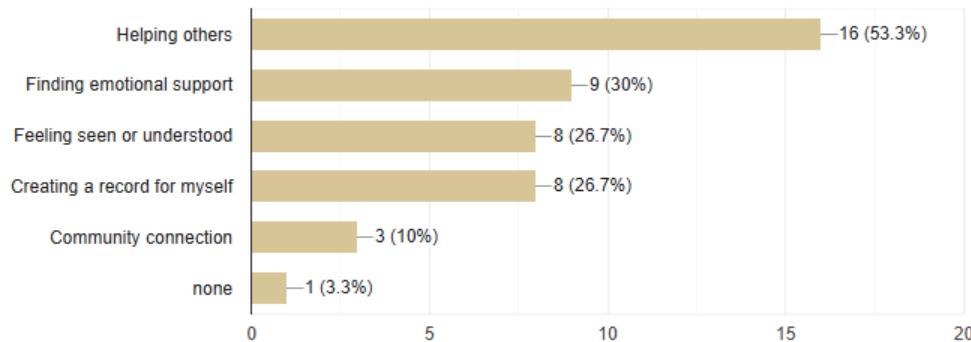
30 responses

[Copy chart](#)**18. Which concerns would stop you from sharing personal stories?**

30 responses

[Copy chart](#)**19. What motivates you to share your personal experiences?**

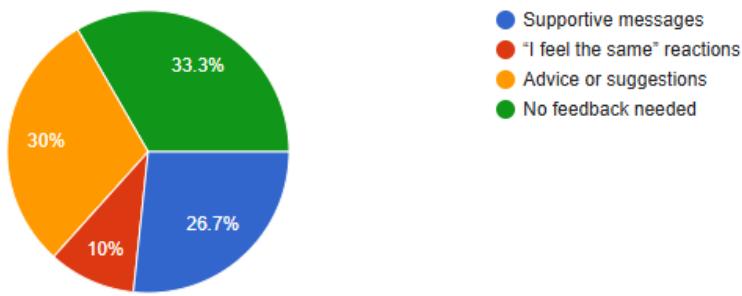
30 responses



20. What type of feedback from others would feel most meaningful?



30 responses



21. Which community features would you like to see in the app?



30 responses

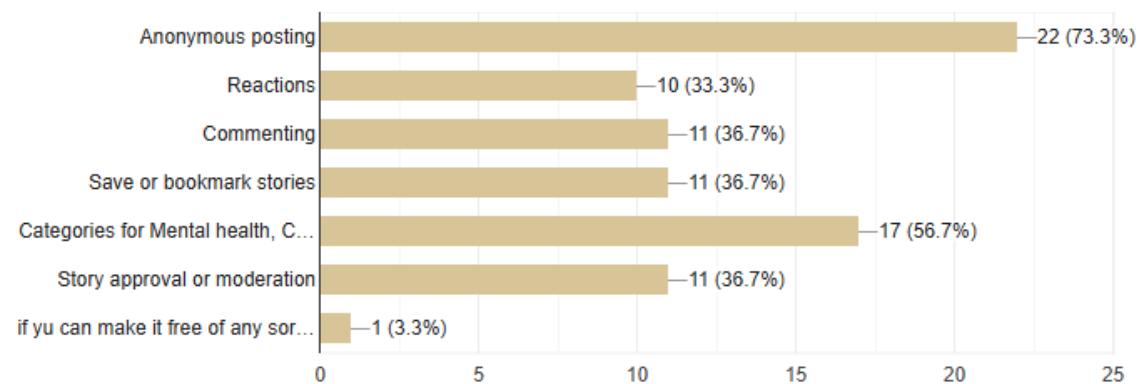


Figure 4.4.1: All Google Form Data Diagrams

22. What would make you continue using a sleep and reflection app over the long term?

30 responses

1. If they are helpful and accurate for sleep tracking, snoring, talking I will definitely use it to track my sleep.
2. Nothing.

3. I don't think there is anything that might make me use the app. I'd prefer to skip it like Duolingo unless I think i need to use it. It's only my opinion but if we think from an overall perspective, I think 20%-45% percent of people might start using the app regularly.
4. I think it will be a waste of to generate this app for my personality
5. Reminder
6. If the UI so good and the loading screen faster. If the features are good and easy to explore according to the challenges we experience. And if the app not only tracks our sleep hours or allows us to write a daily journal, but also provides daily affirmations that strengthen us according to the mood we feel. Maybe it could be supported by more humanized AI technology.
7. If it can track our sleep properly and if the story sharing parts are useful and no unnecessary stories should be published.
8. Creative visuals and easy configuration.
9. No
10. Regular Notification
11. I don't know
12. It depends on the features and how does it track if its good then definitely will use the app for long term.
13. As long as I find them useful.
14. interface of the app and depends on how responsive the app is.
15. don't know
16. None
17. Regular updates and a self-prompt of whole day while ending my day
18. Patience
19. If the app is ad free. Like no forced advertisement.
20. If I get proper good feedback and support from the app.

- 21. gg
- 22. N/A
- 23. maybe an outstanding interface only can make me use the app
- 24. No idea
- 25. Nothing
- 26. I don't think anything will make me use a sleep and reflection app for now
- 27. None IG
- 28. Not really at all
- 29. if it provides consistent value
- 30. Nothing

Chapter 5: High Fidelity Prototyping

Prototype Tool: Figma

Prototype URL: [Figma – Mindsync Design](#)

Style Guide

- Primary Colors: White, Blue and Green
- Font: Mixed
- Design Style: Minimal, calm, and friendly
- Icons: Emotion-based and intuitive

Chapter 6: Interface Evaluation

1. Flexibility and Efficiency



Figure 6.1: Before & After Flexibility and Efficiency

Problem:

At the beginning, users did not have enough flexibility or efficiency when trying to share their stories in two different formats. This limitation made the overall storytelling experience slow, restricted, and inconvenient, as users were forced into a single method instead of choosing what suited them best.

Heuristics: #7 Flexibility and Efficiency

Severity: 3 - Minor

Recommendation:

To solve this, the “Share as Text” option was introduced, allowing users to share their stories in

multiple ways. This aligns with the principle “Allow users multiple ways to do things”, giving them the freedom to choose the method that feels most comfortable and efficient for their needs.

2. Consistency

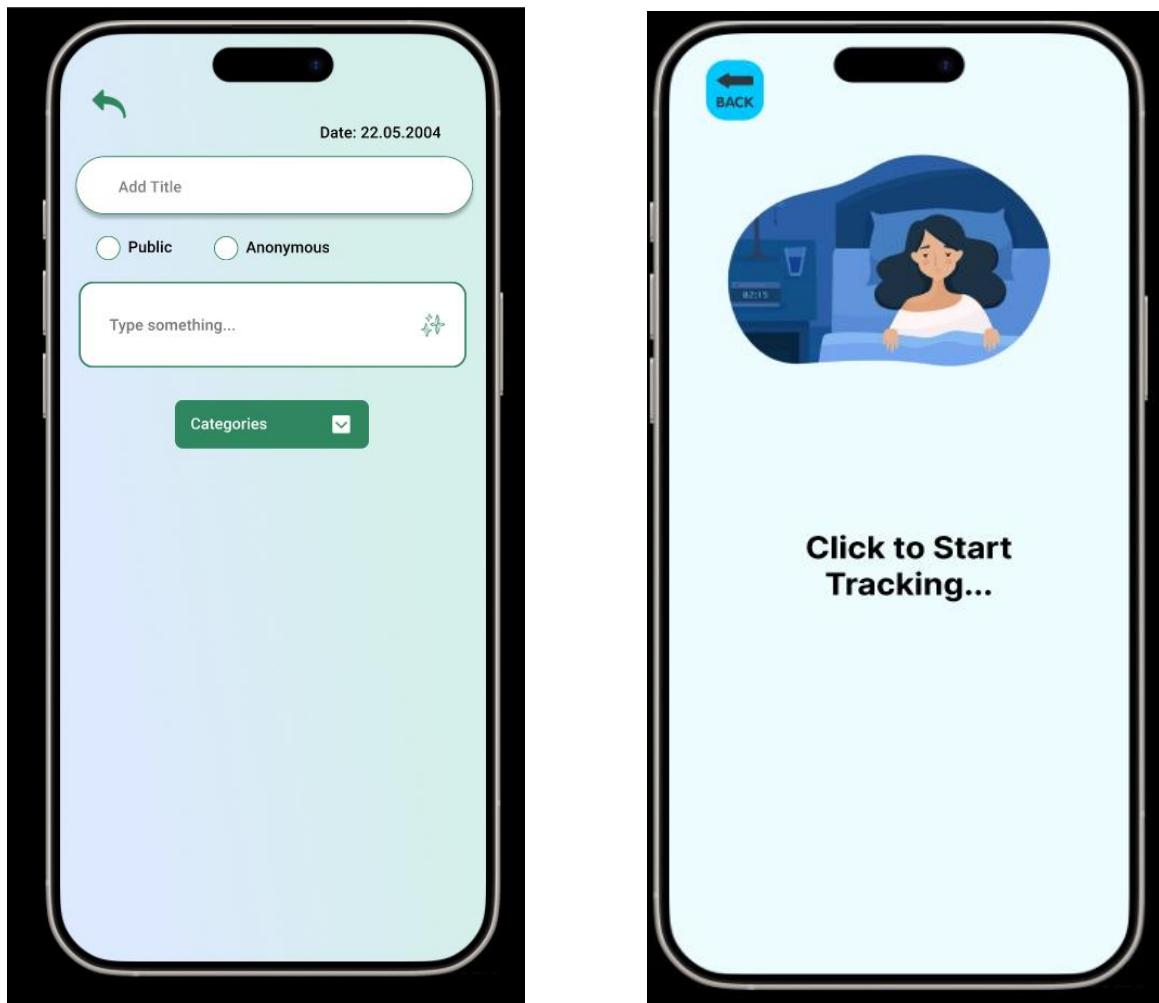


Figure 6.2.1: Before Consistency

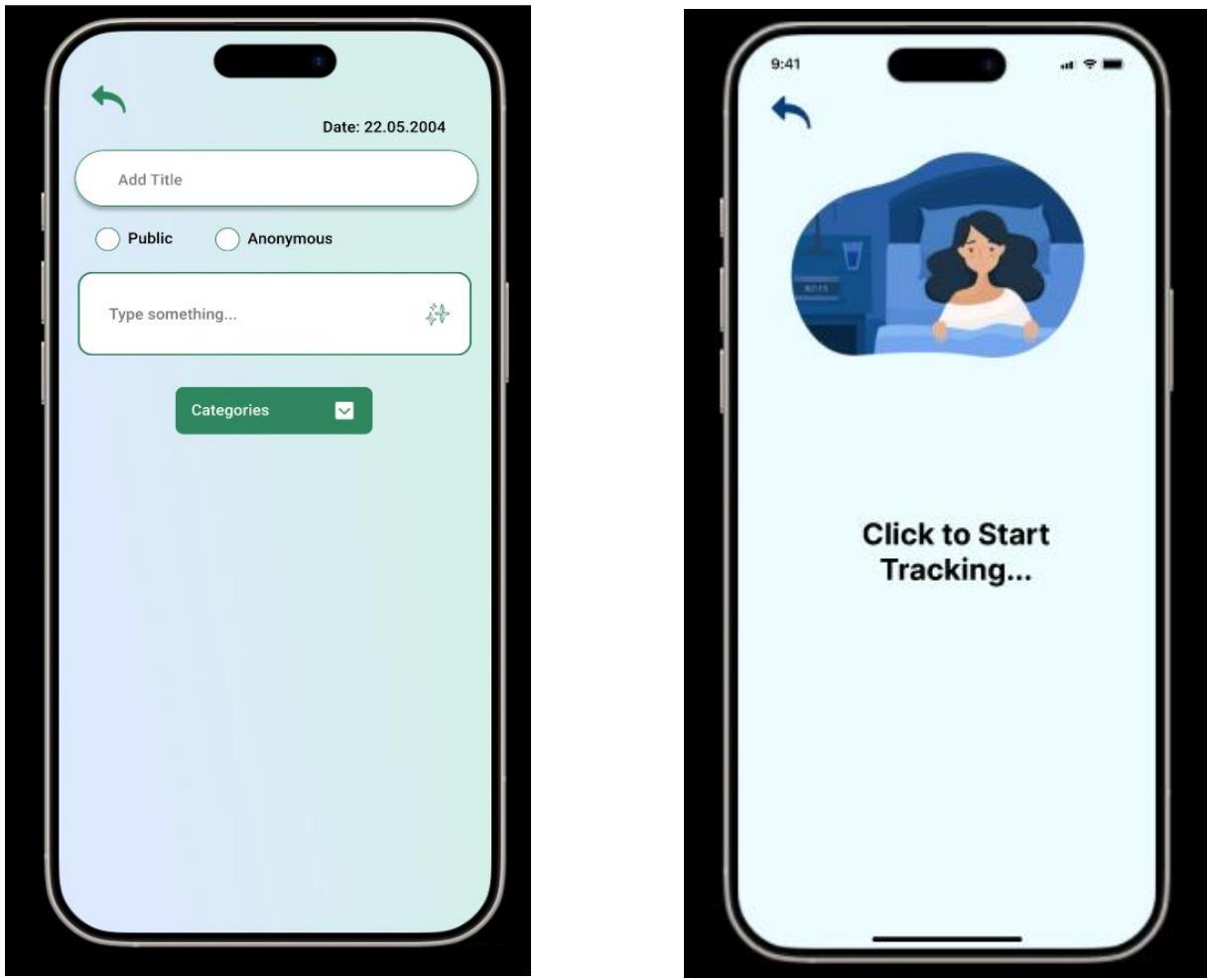


Figure 6.2.2: After Consistency

Problem:

In the beginning, the back buttons were all different from one another, there was no consistency in their design or behavior. This created confusion and made navigation harder for users.

Heuristics: #4 Consistency

Severity: 3 - Minor

Recommendation:

Make all back buttons uniform so that they follow the same style and behavior. This ensures a consistent and predictable experience across the entire app.

3. Error Prevention



Figure 6.3: Before & After Error Prevention

Problem:

In the beginning, items could be deleted instantly without any prevention or confirmation. This was risky because it involved important user data, and accidental deletions could happen very easily.

Heuristics: #5 Error Prevention

Severity: 3 - Minor

Recommendation:

A modal pop-up was later introduced to ask for the user's confirmation before deleting anything.

This ensures the user truly intends to delete the item. By adding this step, error prevention becomes possible and user data stays safer.

4. Aesthetic and Minimalist Design



Figure 6.4: Before & After Applying Aesthetic and Minimalist Design

Problem:

Previously, the design was extremely ugly and downright horrible, the kind of layout that could annoy any user just by looking at it. It was messy, unappealing, and visually painful, making the whole experience frustrating.

Heuristics: #8 Aesthetic and Minimalist Design

Severity: 4 - Major

Recommendation:

The page was redesigned to look clean, attractive, and visually pleasing. This improved aesthetic makes the interface more comfortable and enjoyable for users.

5. Real World Match

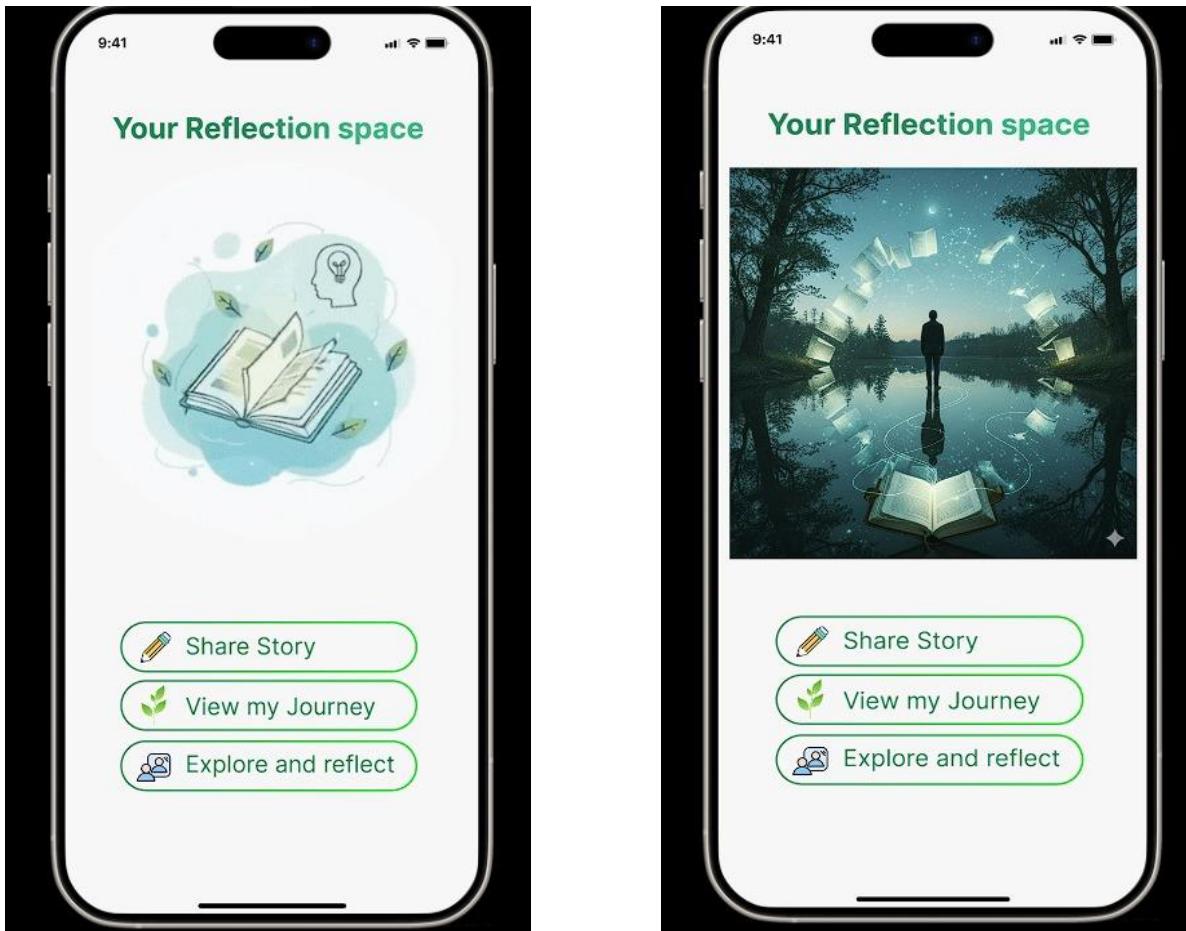


Figure 6.5: Before & After Real World Match

Problem:

Previously, the metaphor did not match with the real world, which made the design feel confusing and unrealistic for users.

Heuristics: #2 Real World Match

Severity: 3 – Minor

Recommendation:

The updated version now uses a metaphor that aligns with real-world experiences, making it more intuitive and relatable for users.

6. Visibility of system status



Figure 6.6: Before & After Visibility of system status

Problem:

On the starting page, after clicking, users had to wait for 1–2 seconds without any feedback. This created confusion because nothing on the screen indicated whether the action was working or not.

Heuristics: #1 Visibility of system status

Severity: 2 – Usability Blemish

Recommendation:

As user tends to lose track of data a loading status indicator was added to clearly show that the action is processing. This helps users understand that the system is loading and they need to wait for 1–2 seconds.

7. User in Control



Figure 6.7: Before & After User in Control

Problem:

At the beginning, users did not have the freedom to undo or redo their actions. This limited their control over the interface and made correcting mistakes difficult.

Heuristics: #3 User in Control

Severity: 3 – Minor

Recommendation:

Later, the ability to reselect and perform undo/redo actions was added, increasing user freedom and giving them more control over their interactions.

8. Error Recovery

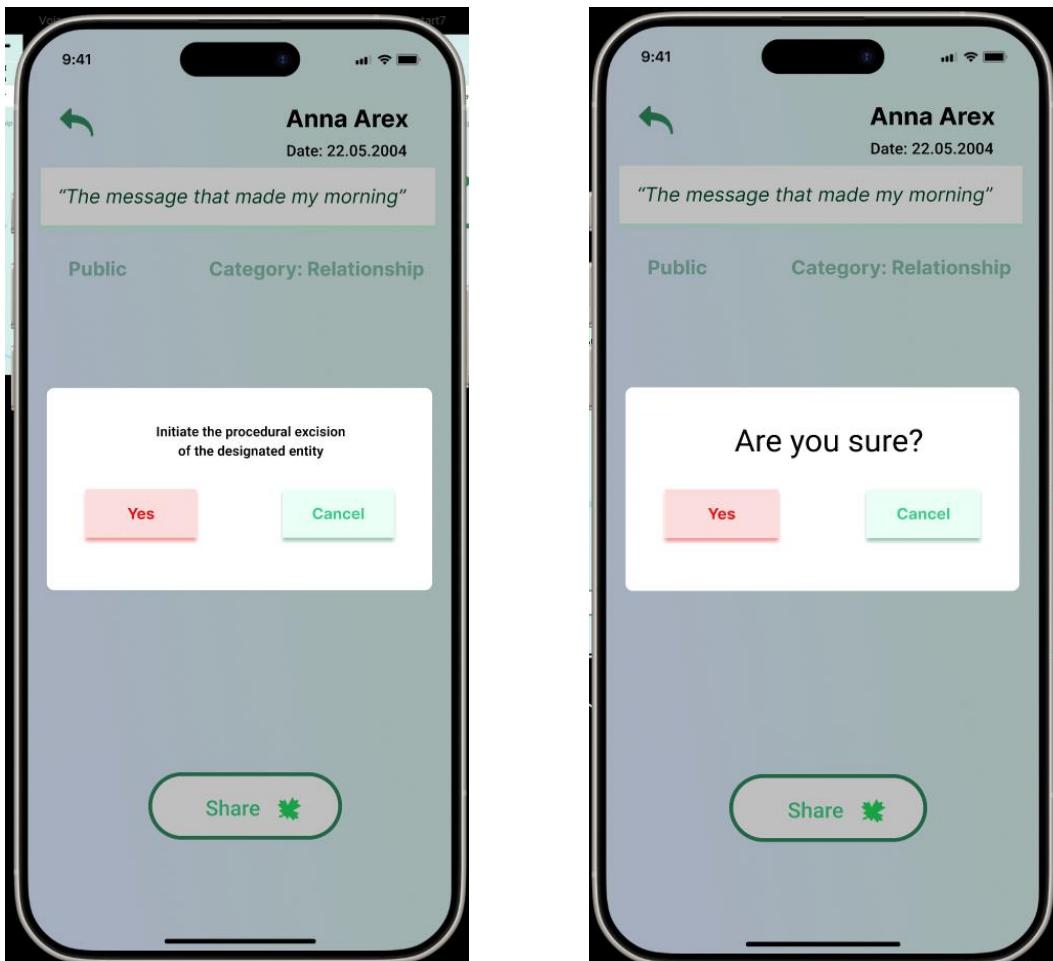


Figure 6.8: Before & After Error Recovery

Problem:

Initially, plain language was not used, so users could not easily understand what was being communicated. This made it difficult for them to grasp the problem or the intended message.

Heuristics: #9 Error Recovery

Severity: 4 – Major

Recommendation:

Later, plain and clear language was implemented, clearly explaining the problem and guiding the user. This allows users to understand the situation and make informed decisions accordingly.

9. Help and Documentation

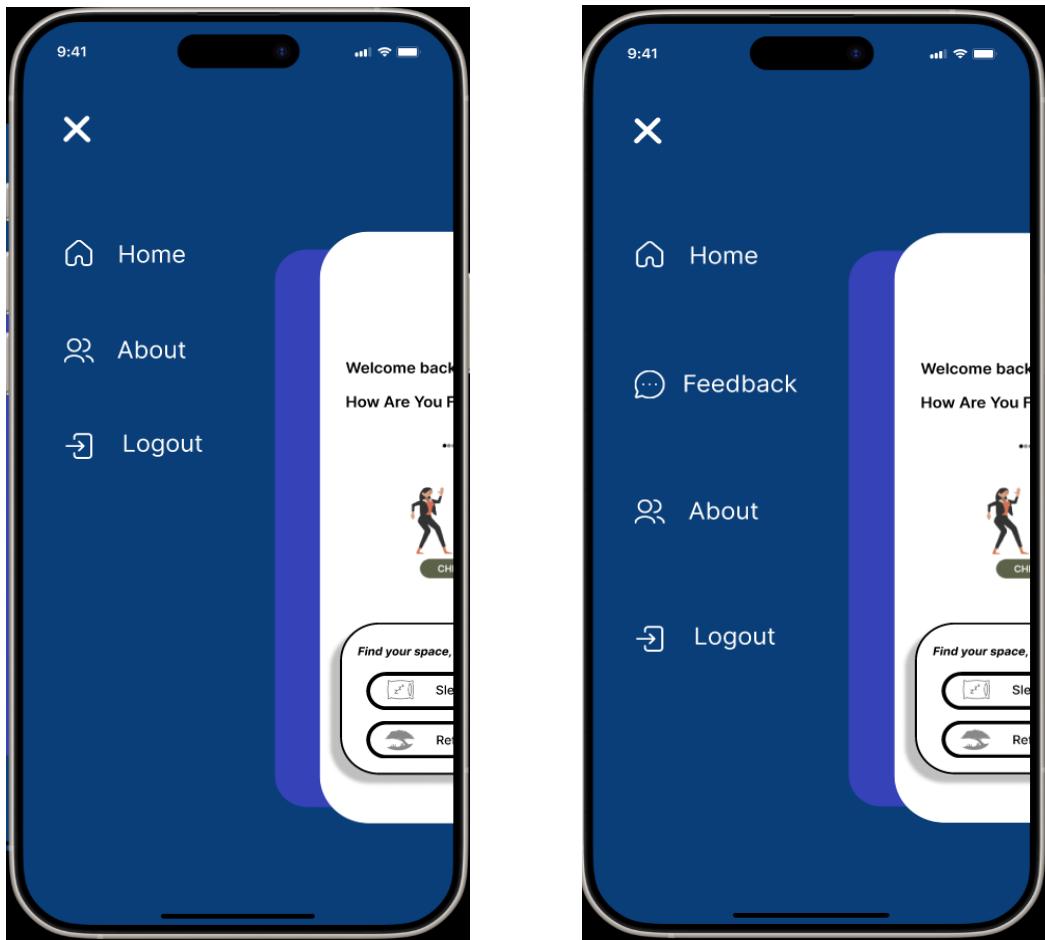


Figure 6.9: Before & After Help and Documentation

Problem:

At the beginning, there was no place for users to seek help or communicate their issues. This made it difficult for them to get support when needed.

Heuristics: #10 Help and Documentation

Severity: 3 – Minor

Recommendation:

A feedback button was later added so that users can easily reach out whenever they need help or want to share their concerns.

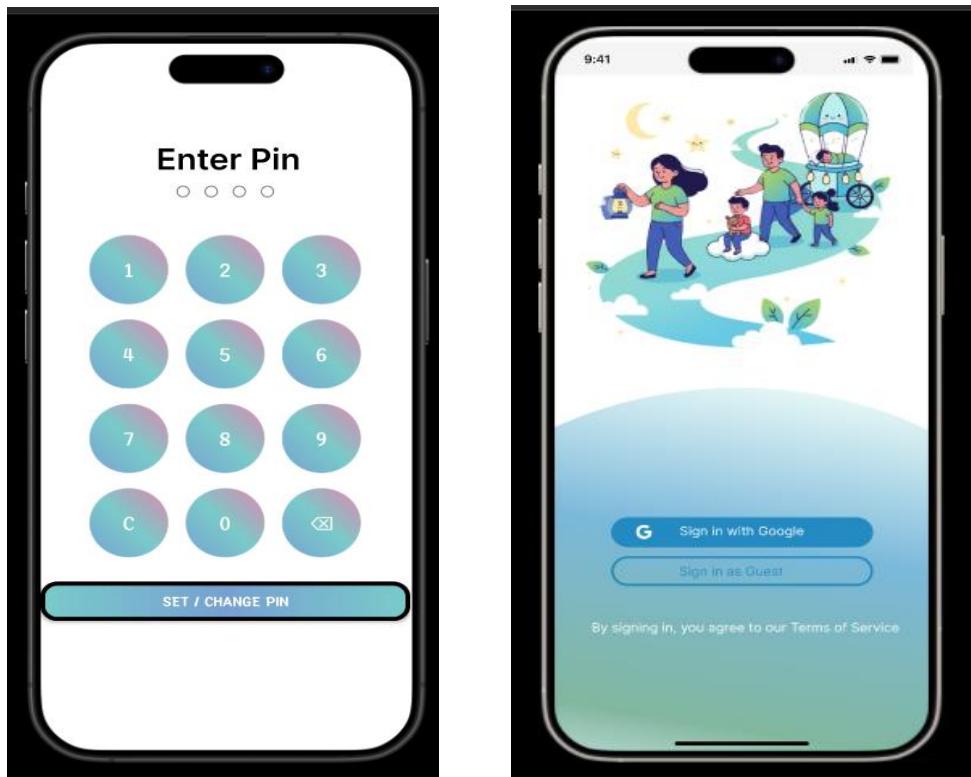
10. Recognition over Recall

Figure 6.10: Before & After Recognition over Recall

Problem:

The user should not have to remember information from one part of the dialogue to another. This creates unnecessary cognitive pressure and makes the experience less frictionless. Forcing users to remember things adds mental load, which should be avoided.

Heuristics: #6 Recognition over Recall

Severity: 3 – Minor

Recommendation:

To keep the system frictionless, users should not be required to recall information like PINs.

Therefore, sign in with Google and Guest Login options were added so users can log in easily without memorizing anything.

Chapter 7: Product Development

7.1 System Architecture Overview

The project follows a design-focused HCI approach, where the main goal is to validate interaction design, usability, and user experience. As such, the system was developed as a clickable, high-fidelity prototype that simulates real application behavior.

No fully deployed backend or production-level machine learning model was implemented at this stage. However, the prototype accurately represents how the system would function in a real-world scenario.

At a high level, the system consists of:

- Frontend user interface layer
- Authentication and user management
- Sleep data processing module
- Reflection and story management module
- Visualization and insight generation module

7.2 Technologies Used

Frontend Design and Prototyping

- Tool: Figma
- Purpose:
Used to design high-fidelity interactive prototypes representing the final user interface of the application.
- Implementation Details:
 - Component-based design for reusable UI elements
 - Interactive navigation flows for sleep tracking, reflection, and story sharing
 - Visual hierarchy maintained using cards, icons, and typography

7.3 Simulated System Features

Although the system is not fully implemented as a working application, the prototype simulates real functionality, including:

- Google authentication flow (visual simulation)
- Sleep tracking start/stop interaction
- Sleep score visualization
- Mood selection after sleep
- Reflection journaling interface
- Story creation and submission flow
- Community reflection wall interactions

This simulation allows users and evaluators to understand system behavior without requiring actual sensor data or backend services.

7.4 Data and Logic Representation

All data-related elements such as:

- Sleep duration
- Sleep score
- Mood indicators
- Weekly sleep trends

are represented using mock data. This approach is commonly used in HCI prototyping to evaluate usability and interaction design without technical constraints.

7.5 Machine Learning Consideration (Conceptual)

No machine learning model was implemented in the current prototype. However, the design concept includes future possibilities such as:

- Sleep quality prediction models
- Emotion analysis from user reflections

- Personalized recommendation systems

These elements are described at a conceptual level only and are not part of the current implementation. Screenshots of the prototype screens are included to APPENDICES layouts.

Chapter 8: Conclusion

8.1 Learnings

Through the design and development of the Sleep Tracker and Reflection platform, several important insights were gained regarding human-centered interface design:

- Understanding user emotions and daily routines is critical when designing wellbeing-focused applications.
- Simple, calm, and minimal interfaces help users feel comfortable when interacting with sensitive features such as sleep tracking and personal reflection.
- Combining functional features (sleep tracking) with emotional features (reflection and storytelling) increases user engagement.
- Low-fidelity sketches and user research significantly improved design decisions before moving to high-fidelity prototyping.
- Heuristic evaluation helped identify usability issues that were not immediately visible during the design phase.

8.2 Limitations

Despite achieving the design goals, the project has several limitations:

- The system was implemented as a high-fidelity Figma prototype rather than a fully functional application.
- Sleep data and insights are based on simulated values rather than real sensor inputs.
- No machine learning or advanced data analysis models were implemented in the current version.
- User research was conducted with a limited number of participants, which may not fully represent all user groups.

These limitations are acceptable within the scope of an HCI design project but should be addressed in future development stages.

8.3 Future Plan

The project can be extended in several meaningful ways in the future:

- Integration with real sleep-tracking devices such as smartwatches or mobile sensors.
- Implementation of machine learning models to predict sleep quality and generate personalized recommendations.
- Sentiment analysis of reflection text to provide emotion-based insights.
- Expansion of the community reflection feature with moderation and recommendation systems.
- Development of a fully functional mobile or web application based on the current prototype.

Closing Remarks

Overall, this project demonstrates how thoughtful interface design can support users' wellbeing by combining sleep tracking, reflection, and community interaction. The outcomes highlight the importance of user-centered design principles in creating meaningful digital experiences.

8.4 APPENDICES

- 1) Interview Audio Notes:
 - i) Response 1 [Repo Interview Folder]
 - ii) Response 2 [Repo Interview Folder]
- 2) GitHub Repo Link: [MindSync](#)
- 3) Figma Prototype Link: [Mindsync](#)
- 4) Screenshots of the Prototype:



Figure 8.4.1: Opening Pages

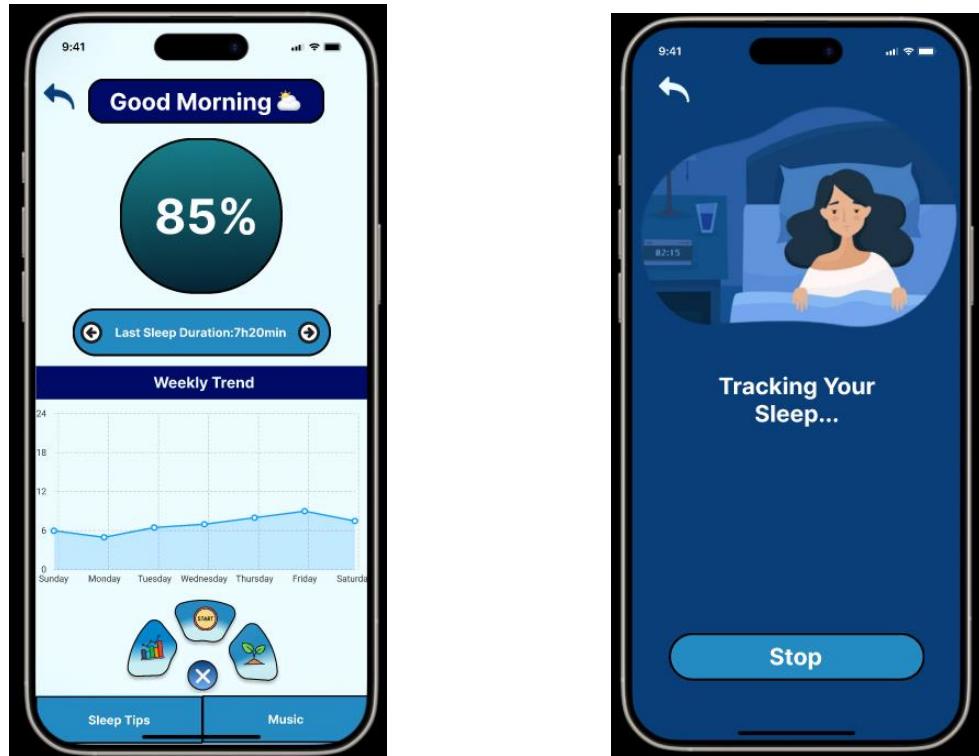


Figure 8.4.2: Sleep Tracker Pages

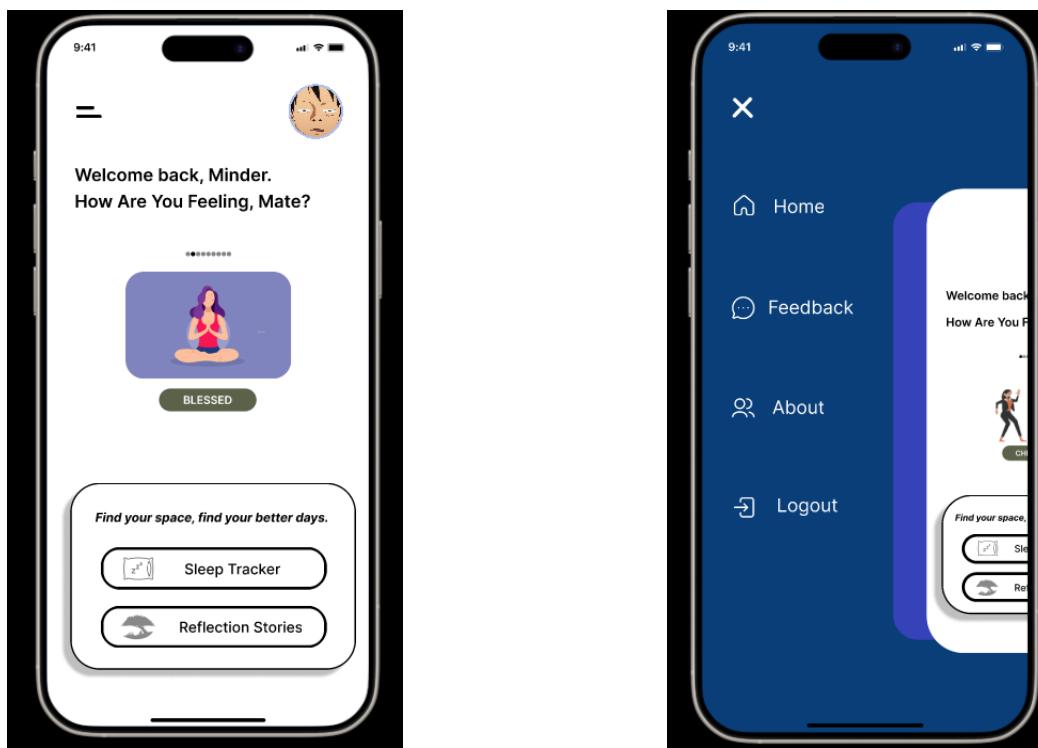


Figure 8.4.3: Menu Pages



Figure 8.4.4: Reflection Pages