



MindMirror

Research and Creation

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What is MindMirror

- It is in human nature to physically document our emotions and experiences. Journals are important historical documents that offer a window into people's thoughts at different points in time. [8]
- MindMirror is a journal or a diary integrated with a mental health recognition application. The idea is not complex, yet effective.
- The user simply writes daily about what is happening in his/her life, and the application using AI will analyse the trends in the texts, their tone, and mood to reveal the initial signs of stress, anxiety, or depression.



Support systems

When the AI detects signs of stress, anxiety, or depression, there are support systems integrated into MindMirror.

- These include
- mindfulness,
- breathing exercises,
- physical activities
- creative pursuits
- social engagement
- referrals to professional services

Also, a detailed list of resources for student wellbeing, university support programs, and third-sector organisations (like helplines and youth charities). [1]



Early Warning Signs of Student Mental Health Crises

The early crisis indicators usually show around 2–4 weeks before a crisis:

- social withdrawal,
- persistent low mood,
- sleep disruption
- academic disengagement
- hopelessness language [2]

DESIGN



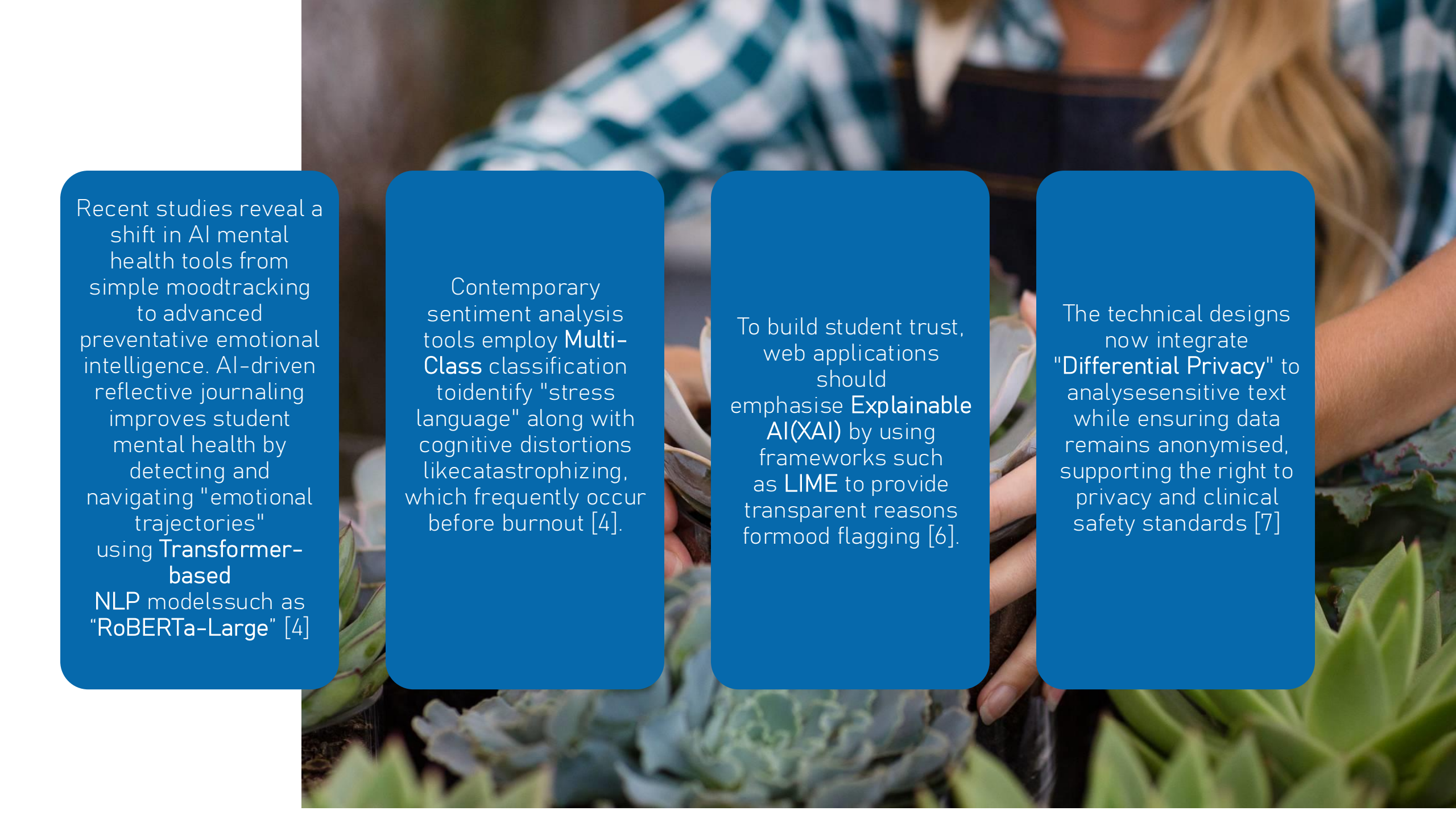
The use of the UX wheel was used to develop the Mind Mirror application. UX Wheel is another field that takes a holistic, user-centred approach to the User Experience (UX). [9]



User-Centered Design strengthens the ethics, the user trust, privacy, and user's overall trust in the application. control as essential components of digital wellbeing tools. [9]



Emotions, aesthetics, and functionality are all crucial. According to Norman and Nielsen (n.d.), goods should be straightforward, sophisticated, and "a joy to own, and a joy to use. [9]



Recent studies reveal a shift in AI mental health tools from simple moodtracking to advanced preventative emotional intelligence. AI-driven reflective journaling improves student mental health by detecting and navigating "emotional trajectories" using **Transformer-based** NLP models such as "RoBERTa-Large" [4]

Contemporary sentiment analysis tools employ **Multi-Class** classification to identify "stress language" along with cognitive distortions like catastrophizing, which frequently occur before burnout [4].

To build student trust, web applications should emphasise **Explainable AI (XAI)** by using frameworks such as **LIME** to provide transparent reasons for mood flagging [6].

The technical designs now integrate "**Differential Privacy**" to analyse sensitive text while ensuring data remains anonymised, supporting the right to privacy and clinical safety standards [7]



- The study analyzes the frameworks of ethical and GDPR-conforming consent in MindMirror, an artificial intelligence-enhanced reflective journaling model of mental health support. [10]
- Since the system is engaged with sensitive and personal data regarding the health-related information, it is highly important that both the explicit and informed consent would be the key to the lawful and ethical usage. [11]
- The research examines pertinent legal grounds in the GDPR Articles 6 and 9, including data minimisation, data transparency and autonomy of the user. [10]
- Child users are granted special treatment, in accordance to the requirements of the UK GDPR, and the Age-Appropriate Design Code,[12]

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Recap of Presentation 1

Loneliness Focus, covering Presentation 1 findings): In Presentation 1, we uncovered 70% of UK uni students feel weekly loneliness, with 79% moderate/severe linked to withdrawal and mood dips.

MindMirror's AI detects these early via journaling, offering prompts, coping strategies (mindfulness, clubs), and wellbeing alerts. It prevents crisis escalation.

Value: self-awareness plus university support access, reducing isolation impact (26% chronic rate).

Multi-Sign Detection): MindMirror spots early flags: withdrawal, sleep issues, negativity. Data showing 60%+ loneliness prevalence (from Presentation 1). AI analyses journals for patterns, to suggests hobbies/therapy. Targets: undergraduate students.

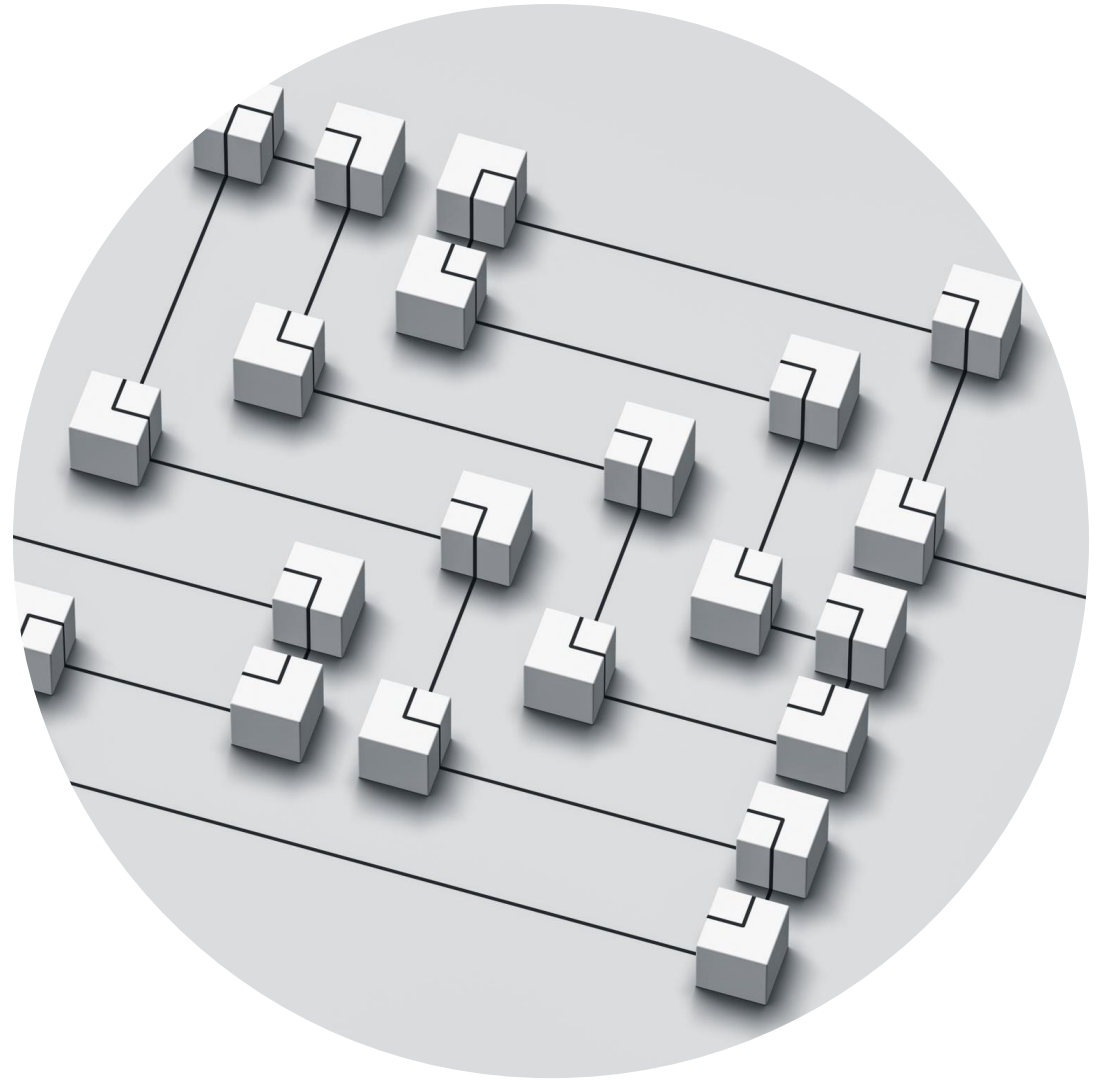
Value: proactive resilience via 5-min check-ins, reducing stress.

(Journaling + AI Coach): Building on Presentation 1 loneliness insights (36% chronic), MindMirror coaches via AI on entries, flagging hopelessness/irritability. Provides walks, clubs, referrals per "FeelingLonely.pdf.

Wins: empathy habits, healthier campuses, complements counsellors by flagging issues early for timely help, not a replacement

Front-End / Experience Build

- MindMirror is a cross-platform application that functions on both web and mobile devices. The aim was to create a simple and calming interface that encourages users to return daily. [1]
- To accomplish this, the app was built using a component-based architecture, with key elements such as the journal editor, mood selector, AI prompt cards, and dashboard designed as reusable components. This approach ensured a consistent design across all screens and made maintenance easier. [1]
- A mobile-first approach was used to ensure the app works smoothly on smartphones, as daily journaling is more likely to happen on mobile devices. On smaller screens, navigation appears as a bottom navigation bar for easy access. In the web version, the layout expands into multiple columns to better use space. [1]
- The main experience focuses on three features: journaling, mood tracking, and AI-generated prompts. AI-generated prompts [2]
- Users write daily reflections, select their current mood, and receive supportive prompts based on their writing. Over time, mood trends are visualised to help users recognise emotional patterns and potential signs of stress. [2]



Back-end and AI



AI-driven analysis:

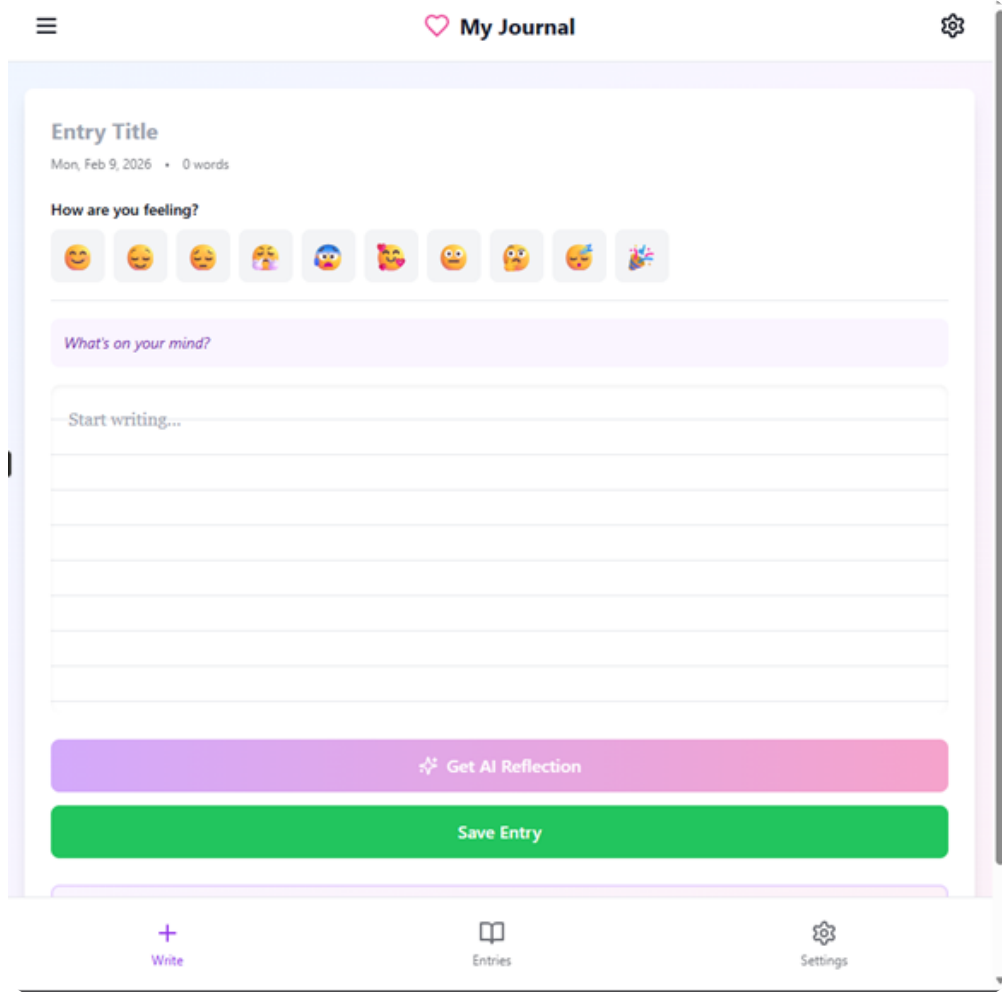
MindMirror employs Natural Language Processing (NLP) to analyze journal entries for sentiment, emotional tone, linguistic stress markers, and recurring risk indicators over time. By identifying mood trends and contextual triggers (such as exams and sleep disturbances), the system produces personalized coping strategies, including guided breathing exercises, mindfulness techniques, structured activity suggestions, and wellbeing advice specifically designed for student life. [9]

Data privacy & ethics:

The platform guarantees encrypted data storage, transparent informed consent, user-controlled monitoring options, and limited data sharing, in compliance with established data protection and ethical AI guidelines. [10]

Supportive role:

MindMirror aids in the early detection and self-management of mental health issues, but it is intended to complement—not substitute for—qualified mental health professionals. [8]



Look & Feel

- A well-designed app has a clearly established visual design system that guarantees that all design components complement one another and provide users with a cohesive impression. [3]
- Typography, which encompasses both written text and graphic elements, is essential for conveying information and feelings in a variety of visual communication formats. [7]
- One of the most effective design tools is colour. It has the power to arouse feelings, shape opinions, and direct users' behaviour. [3]

Journal Entry

Emoji mood rating

User Prompt

Writing

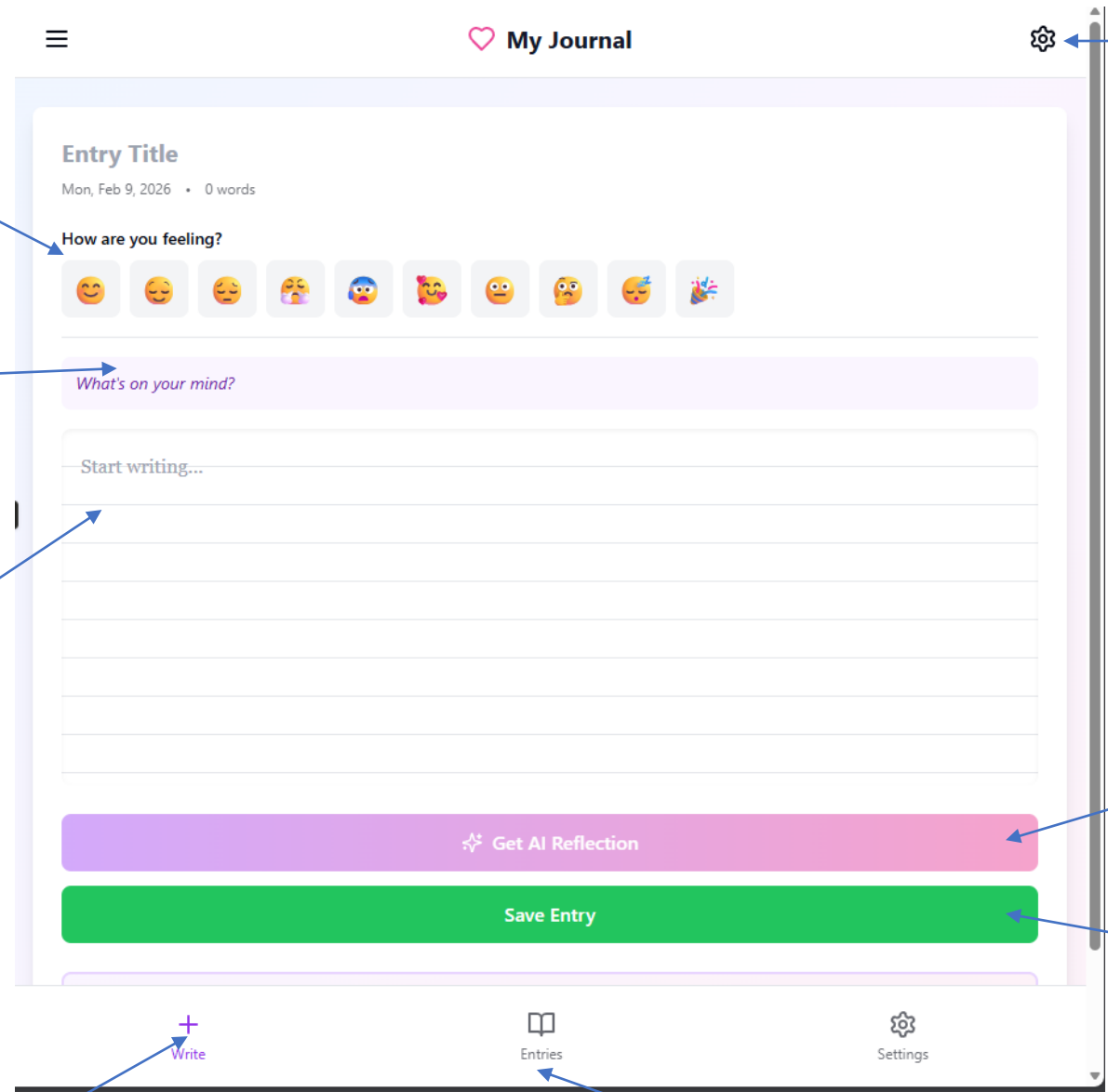
Press here for settings

Press to get an AI overview of your notes

Save entry

Create another entry

Access different entries



Reflection

Save Entry

✨ Get AI Reflection

♥ AI Reflection

Hey there! I noticed you sent something that looks like maybe you were just testing things out, or perhaps you're feeling a bit overwhelmed or unsure how to start? That's totally okay - sometimes it's hard to find the right words.

What's on your mind right now? Is there something you'd like to talk about, or were you just seeing how this works?

Pattern I'm noticing: It seems like you might be hesitant or uncertain about opening up, which is completely natural. Sometimes when we're dealing with difficult feelings or thoughts, even starting the conversation can feel like a challenge. I'm here whenever you're ready to share - no pressure at all. 😊

Ai Reflection

+
Write

📖
Entries

⚙️
Settings

Background
customisation

Settings



 **Customize Everything**

Theme & Colors

Background

Calm

Accent Color

Blue

Writing Area

Font

Georgia

Text Size

Medium

Line Spacing

Comfortable

Page Color

White

Line Color

Gray

Button Style

Rounded

AI Settings

AI Tone

Casual

Prompt Style

Open-Ended

Display Options

☐  Dark Mode

☐  Show Writing Prompts

☒  Show Mood Tracker

☒  Show Word Count

☐  Show Date

 Write

 Entries

 Settings

Customise
the font

Extra options

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MIND MIRROR

TEAMWORK AND PLANNING

The Builders

Jaylan (Leadership, visuals & coding)

John (*Research & problem framing*)

Orlin (*UX flows & designs*)

Yana (*Front-end build*)

Krzysztof (*Back-end & AI*)

The Toolkit

Microsoft Teams: meetings, files sharing

WhatsApp: quick decisions

Claude AI & Inkscape

Phase 1 Insights → Concepts

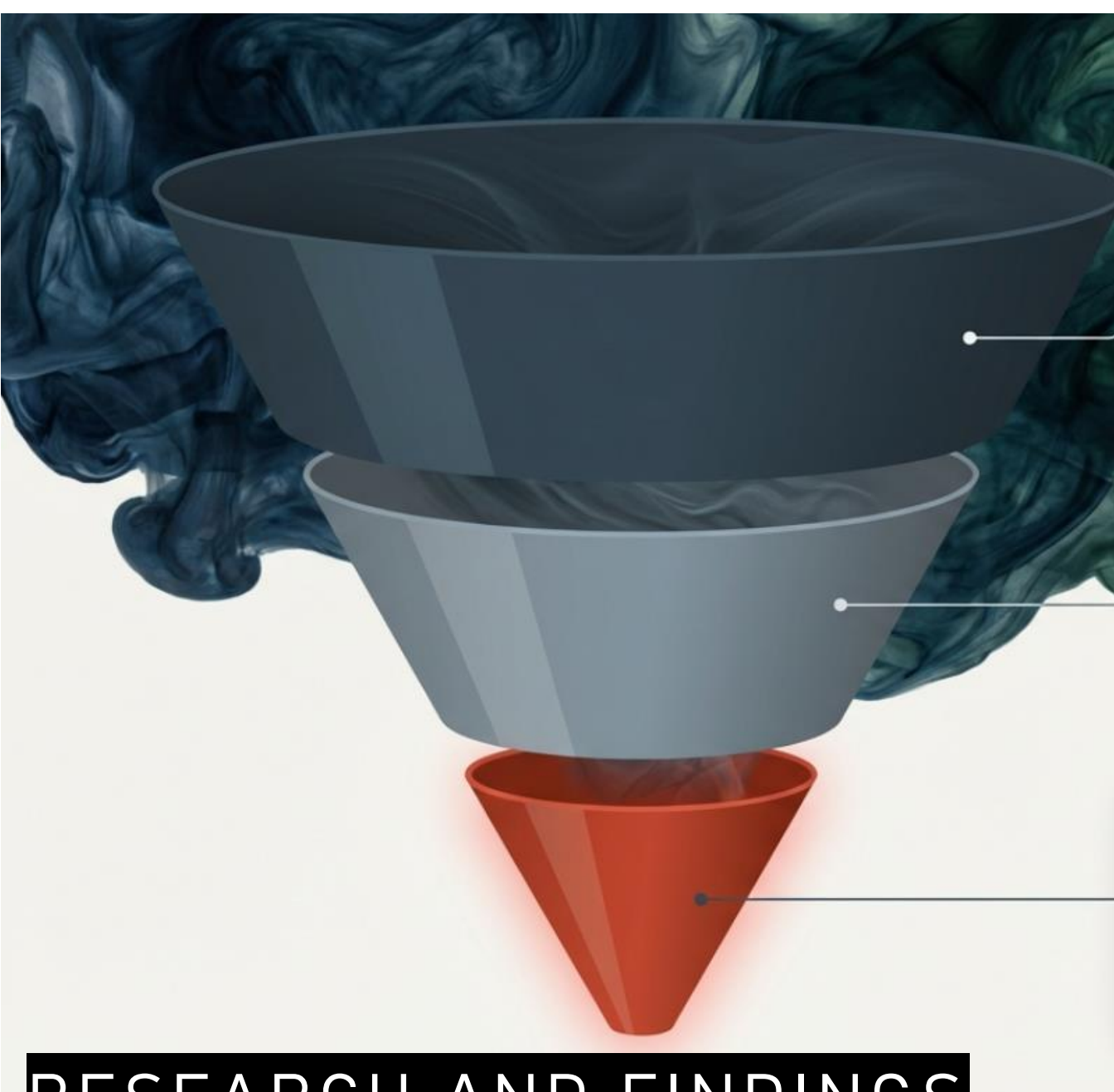
Research findings translated to UX flows;

Problem framing translated to Interaction design

Phase 2 Design specs → Implementation

UX flows become a built prototype;

Screen designs evolve into a tested product



Widespread Student Struggles

70% of UK students experience weekly Loneliness, increasingly battle with anxiety, sleep disruption, isolation, and hopelessness.



Early Signs

**Withdrawal and low mood.
Feeling “Starving for belonging” during uni transitions.**



Escalating Consequences

Ignored early signs can escalate into academic failure and mental health decline.

RESEARCH AND FINDINGS

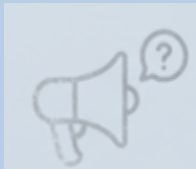
Existing Apps



Reactive tracking only



Isolated data silos.



Generic advice that fails to intervene before a crisis.

VS

MindMirror



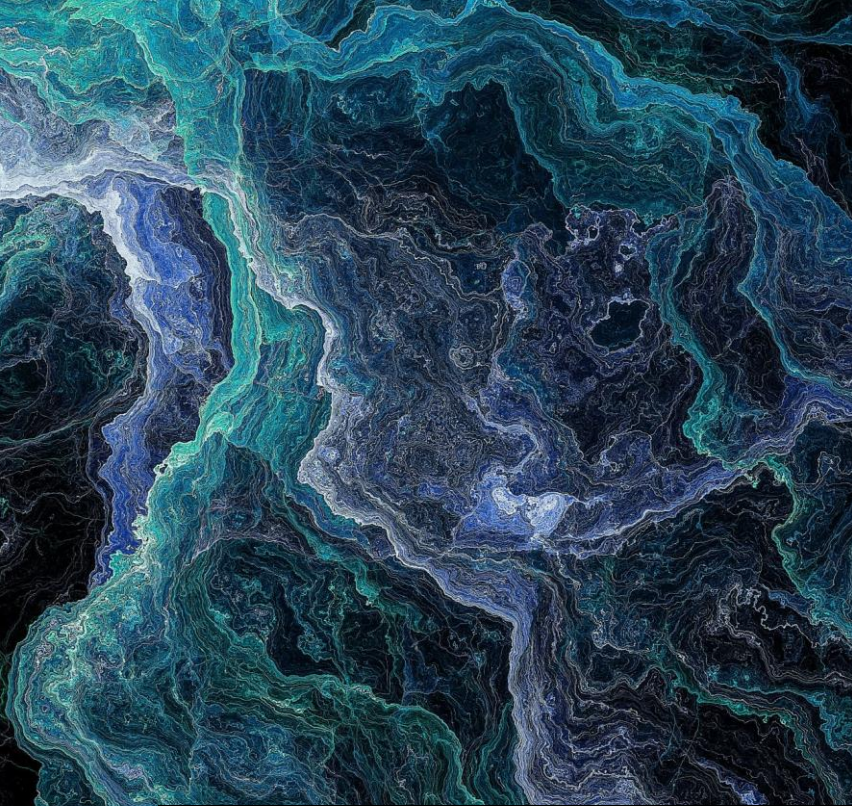
Predictive Natural Language Processing {NLP}.



Proactive campus links integrated directly into alerts.



Heavily rooted in BCS (British Computer Society) ethics and rigorous UX research.



SYSTEM EVALUATION: PERFORMANCE & RELIABILITY

- **Performance Strengths**
 - Daily engagement improves time-series consistency and anomaly detection. [1]
 - Continuous data input increases model confidence and trend accuracy.[1]
 - Scalable alert architecture enables efficient early intervention.[2]
- **Limitations**
 - Dependence on consistent user input; sporadic usage reduces predictive reliability.[1]
 - Missing-data bias may weaken temporal pattern detection.[2]
 - Cross-platform (iOS/Android) sync differences may affect data integrity and alert timing.[3]
- **Model Trade-off**
 - High precision reduces false positives but may miss real at-risk users.[2]
 - High recall reduces missed cases but may increase alert fatigue.[2]
 - Threshold calibration required to balance ethical and technical reliability.[3]

Ethical & Security Evaluation

Ethical Considerations

- False positives may cause distress and reduce trust.
- System designed as decision-support, not a clinical replacement.
- Human oversight remains essential. [3]

Security Measures

- Encryption applied in transit and at rest.
- Layered security: least privilege, defence-in-depth, zero-trust principles.
- GDPR compliance and informed consent framework integrated [4]

Front-End Design & User Experience

Design Approach

Mobile-first, cross-platform architecture for accessibility

Component-based structure ensures consistency and scalability.

Calm, minimal interface encourages daily engagement.

User Trust & Transparency

Explainable AI features (confidence indicators for alerts).

Mood visualisation supports emotional pattern recognition.

Privacy controls and user autonomy embedded in design.

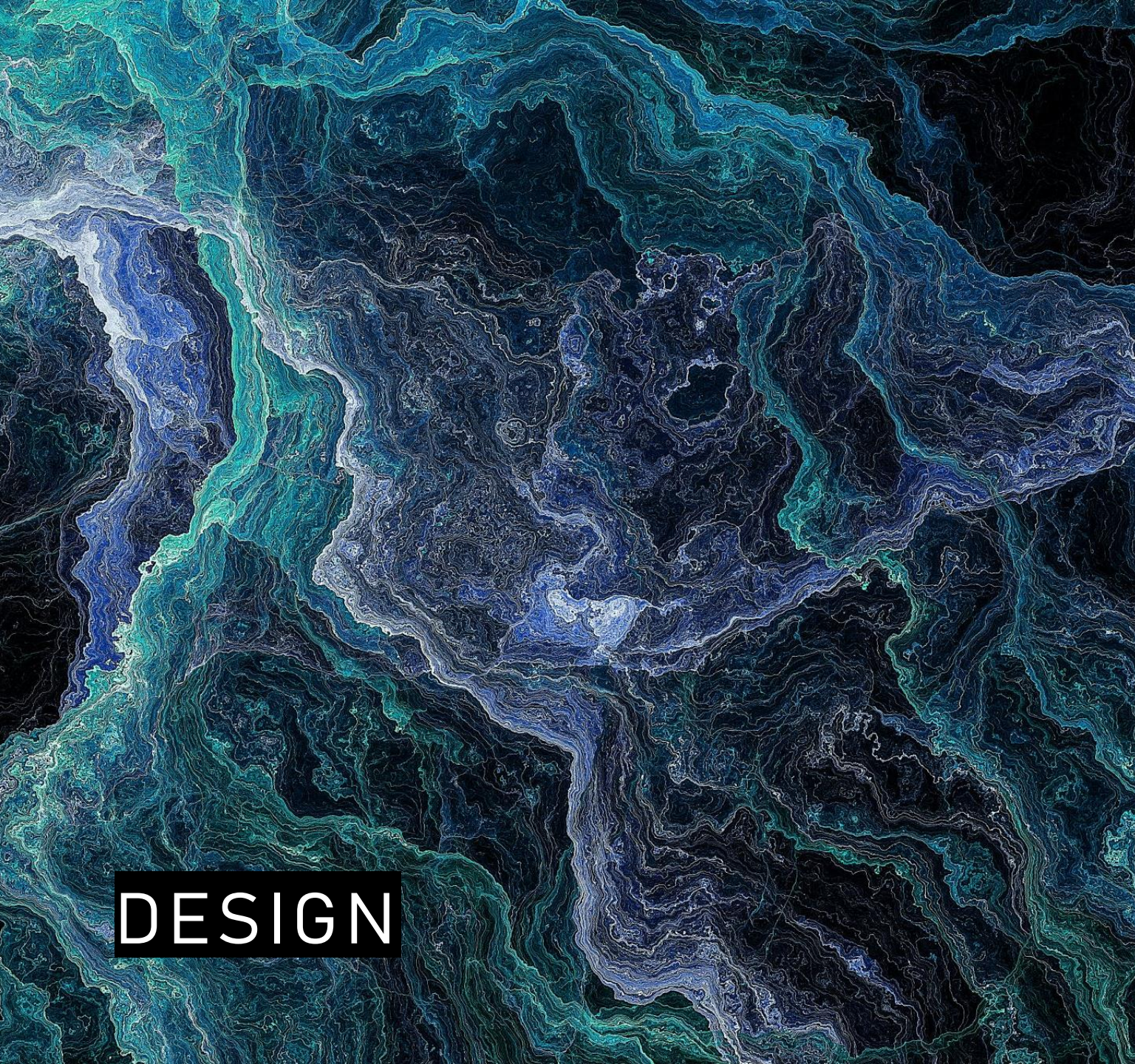
Innovative Concept: Origins of MindMirror



MindMirror draws its inspiration from the age-old tradition of reflective journaling, wherein individuals record their emotions and life experiences to gain deeper self-awareness. Numerous students already engage in writing about stress, examinations, sleep disturbances, or social difficulties; however, identifying detrimental emotional patterns over time can prove challenging [11].

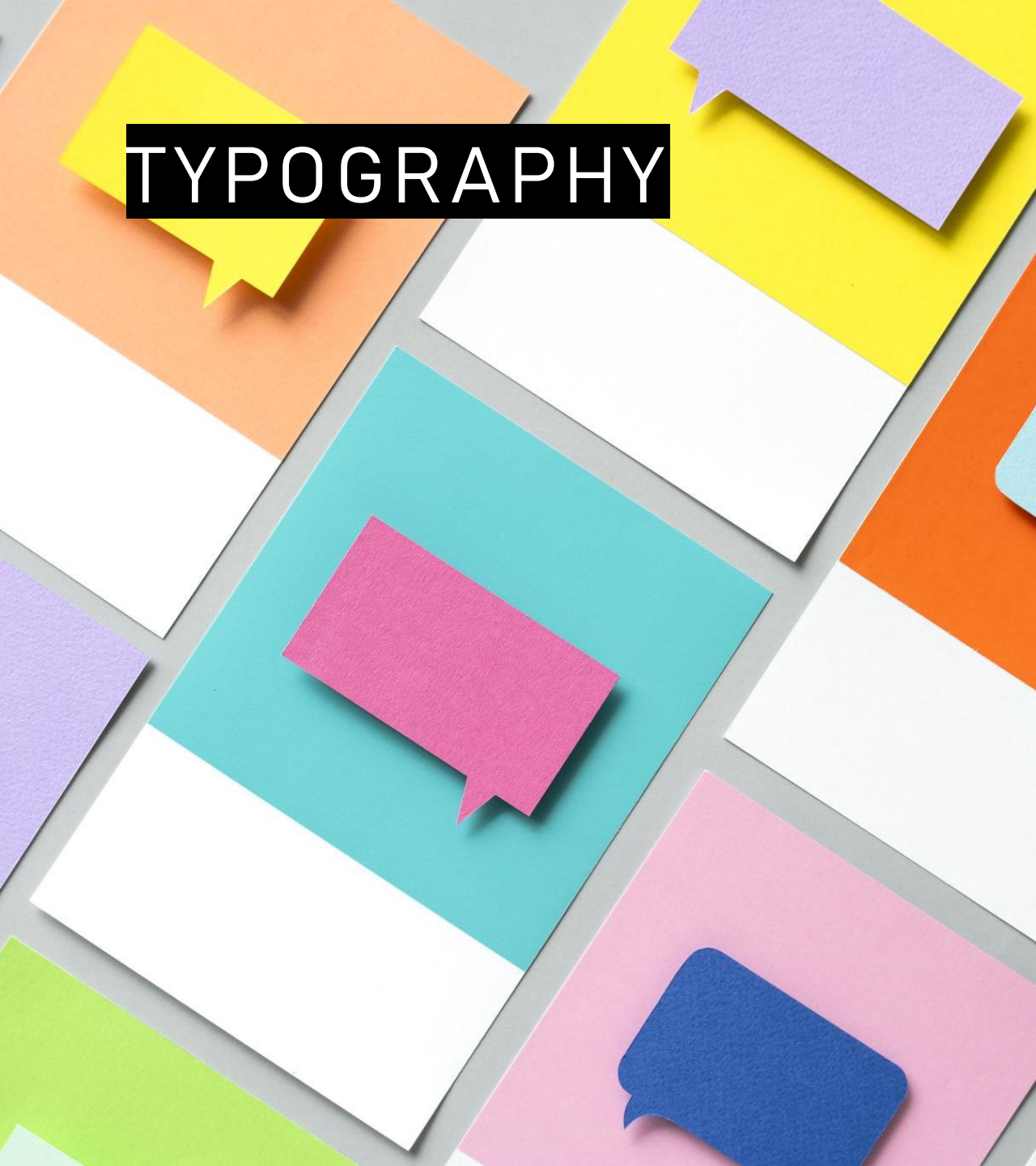
Recent advancements in Natural Language Processing (NLP) and artificial intelligence (AI) offer the potential to enhance this common practice through automated sentiment and pattern analysis [12].

The fundamental premise of MindMirror is to convert personal journaling into a sophisticated reflection tool that identifies mood patterns, underscores possible stressors, and proposes effective coping mechanisms. By integrating AI-driven insights with wellbeing resources and professional guidance, the system aspires to foster early recognition and promote proactive mental health management among students [13].



DESIGN

- As mentioned in Presentation 2 One of the most effective design tools is colour because It has the power to arouse feelings, shape opinions, and direct users' behaviour. [2]
- Primary, secondary, and accent hues are typical components of a colour scheme. [2]
- Secondary hues complement the primary colours, which are the principal colours utilised in the interface. [2]
- Accent colours is used sparingly to highlight key components, [2]



TYPOGRAPHY

- When using words to express ideas and information, typographic design is an essential component of communication. [4]
- Designing readable, eye-catching font that effectively communicates. convey to the audience the intended message. [4]
- Designers must take into account a number of elements, such as font, colour, size, weight, and other design elements, in order to create typographic designs that are effective. [4]



PROTOTYPE



Emoji mood rating

Press here for settings

User Prompt

Writing

Press to get an AI overview of your notes

Create another entry

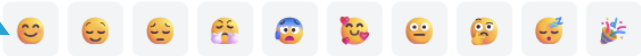
Access different entries

Dashboard

Entry Title

Wed, Mar 4, 2026 • 0 words

How are you feeling?



How are you feeling today?

Start writing...

Get AI Reflection



Write



Entries



Dashboard

Save Entry

✧ Get AI Reflection

♥ AI Reflection

Hey, I'm really sorry you're feeling down today. Sometimes sadness just shows up without a clear reason, and that can feel confusing and frustrating on top of the sadness itself. It's totally okay to feel this way, even when you can't pinpoint exactly why.

****A question for you:**** Have you noticed if anything felt different today - maybe in your sleep, energy levels, or even just the pace of your day? Sometimes our bodies pick up on things before our minds catch up.

****What I'm noticing:**** You're being really honest about not knowing the source of your sadness, which actually shows good self-awareness. The fact that you're reaching out and talking about it, even without having all the answers, is a positive step. Sometimes giving ourselves permission to just **feel** sad without needing to immediately solve or explain it can actually help.

Ai Reflection



Write



Entries



Dashboard

Background customisation

☰

♥ My Journal

⚙️

🎨 Customize Everything

Theme & Colors

Background

Calm

Accent Color

Blue

Writing Area

Font

Georgia

Text Size

Medium

Line Spacing

Comfortable

Page Color

White

Line Color

Gray

Button Style

Rounded

AI Settings

AI Tone

Casual

Prompt Style

Open-Ended

Display Options

☐ 🌙 Dark Mode

☐ ✨ Show Writing Prompts

☒ 😊 Show Mood Tracker

☒ 📝 Show Word Count

☐ 📅 Show Date

☐ 💾 Auto-save Entries

+

📖

📊

Write

Entries

Dashboard

Customise the font

Extra options



Your Entries

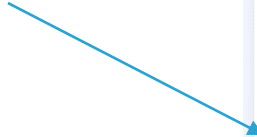
+ New

No entries yet

Entries

Create New Entries

Dashboard



 My Journal

 **Dashboard**

0
Total Entries

0
Total Words

0
AI Reflections

0
Avg Words/Entry

Recent Activity

No entries yet. Start writing to see your activity!

Quick Actions

+ New Entry

 Customize Settings

 Write

 Entries

 Dashboard

PSEUDOCODE

```
1  START
2  |   LOAD entries
3  |   LOAD settings
4
5  IF WRITE chosen:
6  |   show title + mood picker + text area
7  |   → ON "Reflect with AI": send text + mood to Claude → show AI response
8  |   → ON "Save": store entry → return to menu
9
10 ELSE IF ENTRIES chosen:
11 |   show list of entries
12 |   → open entry
13 |   → or delete entry
14
15 ELSE IF DASHBOARD chosen:
16 |   show mood chart
17 |   show stats
18
19 ELSE IF OVERALL REFLECTION chosen:
20 |   collect all entries
21 |   send to Claude
22 |   show summary
23
24 ELSE IF SETTINGS chosen:
25 |   show options (theme, font, dark mode, AI tone, export)
26 |   save changes
27
28 ELSE IF EXIT chosen:
29 |   show "Goodbye"
30 |   END
31
```

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