Emotion Diary

Student Name: Hanna Drozhdzh
Group: 22-HR-JS
Supervisor: Yahor Bialiauski
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PROBLEM STATEMENT

Problem:

- Young adults can't identify, label, or understand their emotions.
- Emotional intelligence rarely taught in schools/workplaces.

Target Users:

- Students, freelancers, early-career professionals (17–35).

Low emotional intelligence leads to:

- Decreased well-being,
- Increased anxiety and depression,
- Difficulty navigating personal and professional relationships
- Reduced ability to cope with life stressors.

EMOTION DIARY: HOW IT SOLVES THE PROBLEM

Tracks & Reflects Emotions

- Daily journaling with emotion tagging → helps users name and recognize feelings.

AI-Powered Insights

- Detects patterns, triggers, and provides actionable recommendations → users understand why they feel in a certain way.

Educational Support

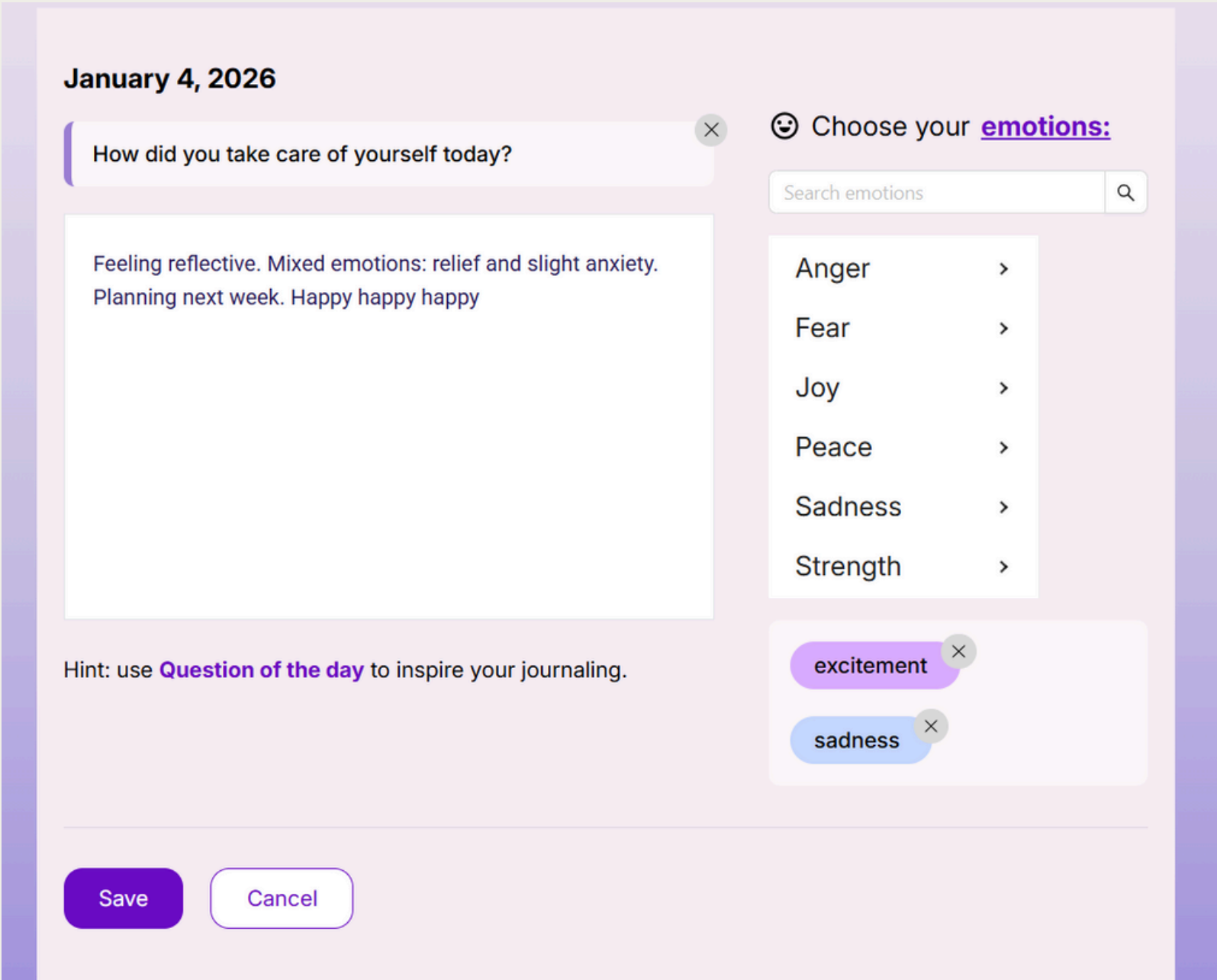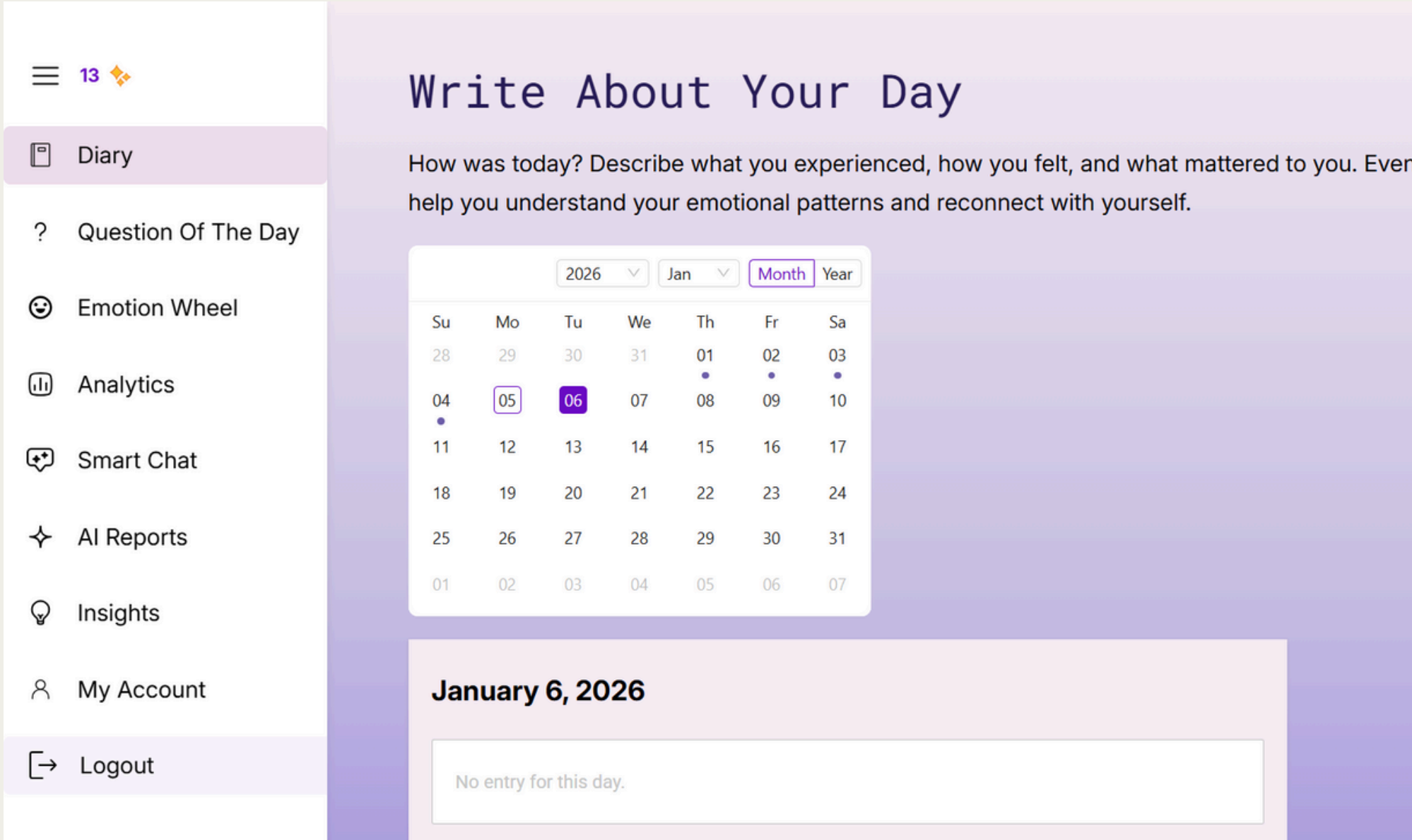- Emotion Wheel & guides → teach emotional literacy and self-regulation.

Motivation & Consistency

- Gamified streaks and personalized feedback → encourage daily journaling habits.
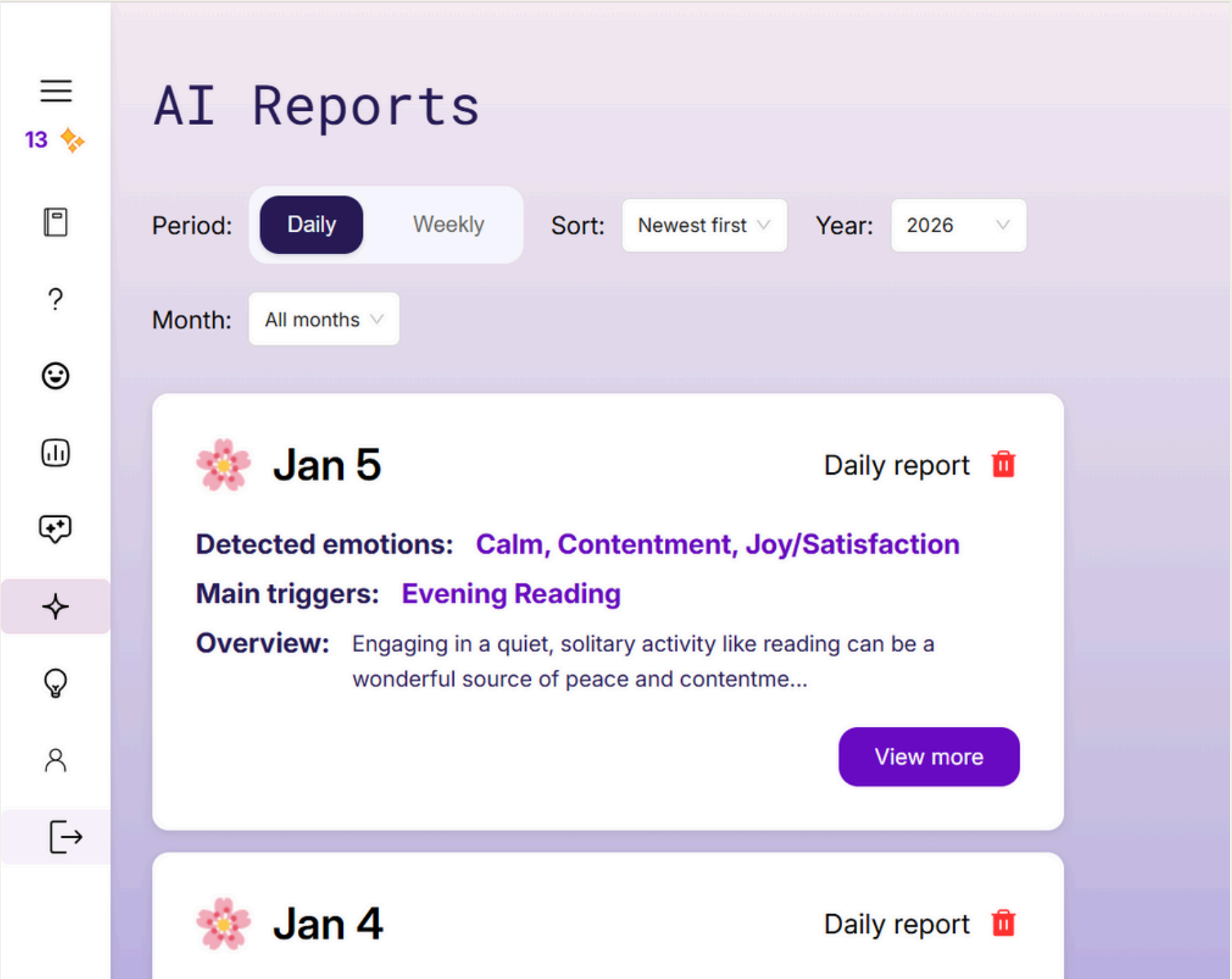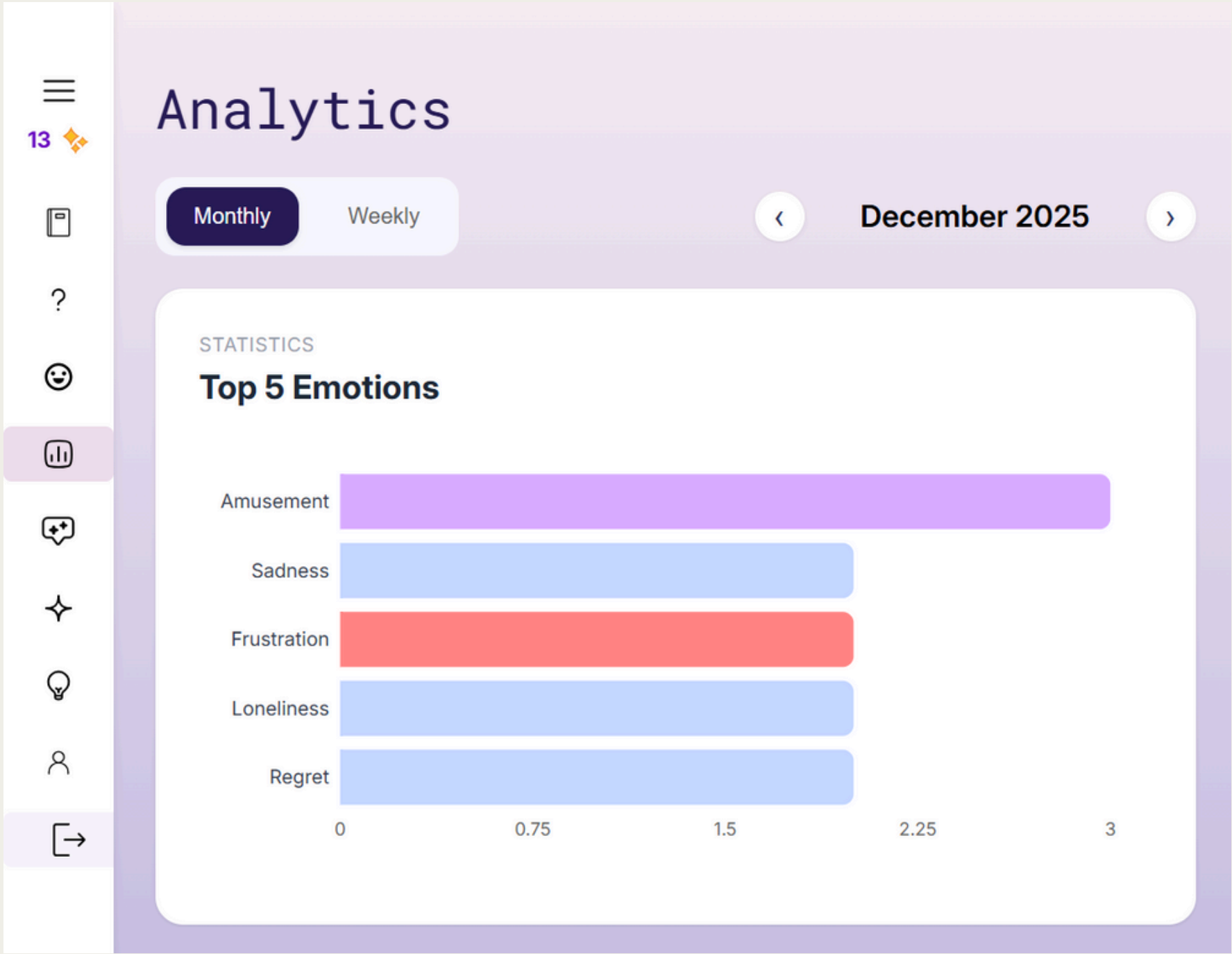
Why It's Different

- Meaningful AI insights, privacy-first, free of charge, user-friendly and educational → not just mood logging like other apps.
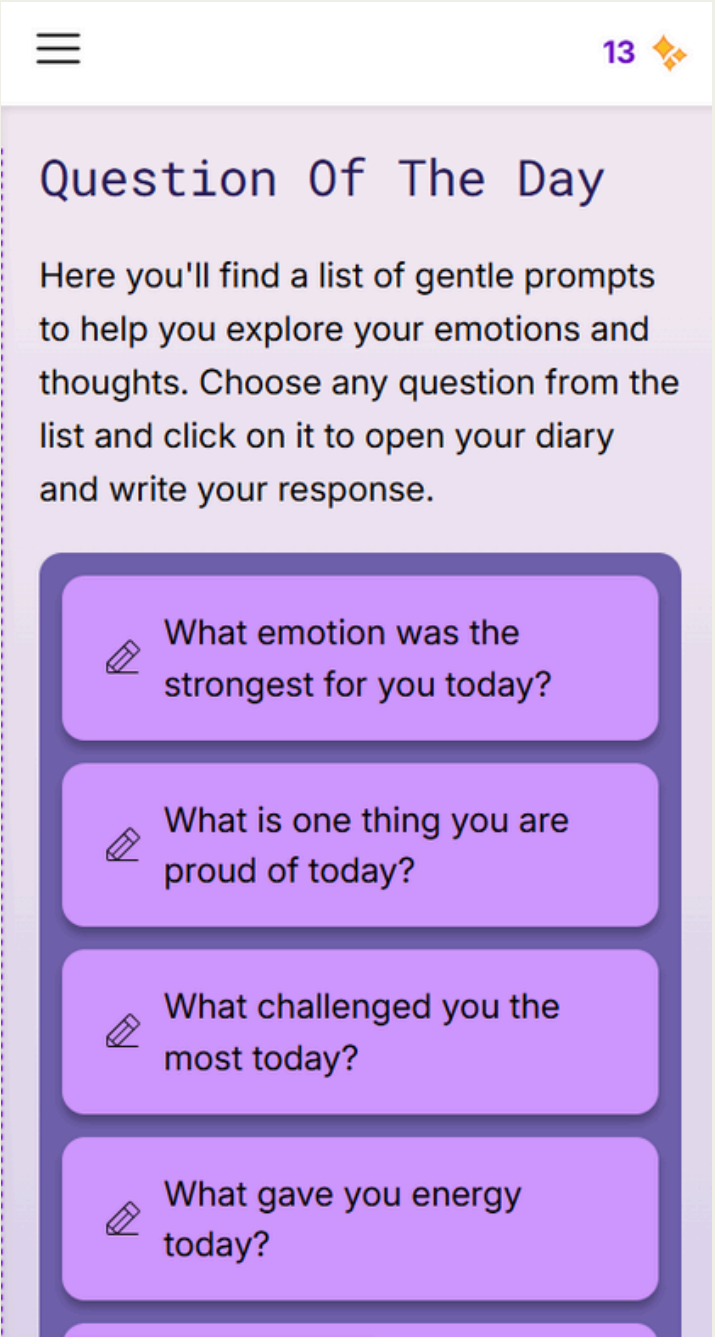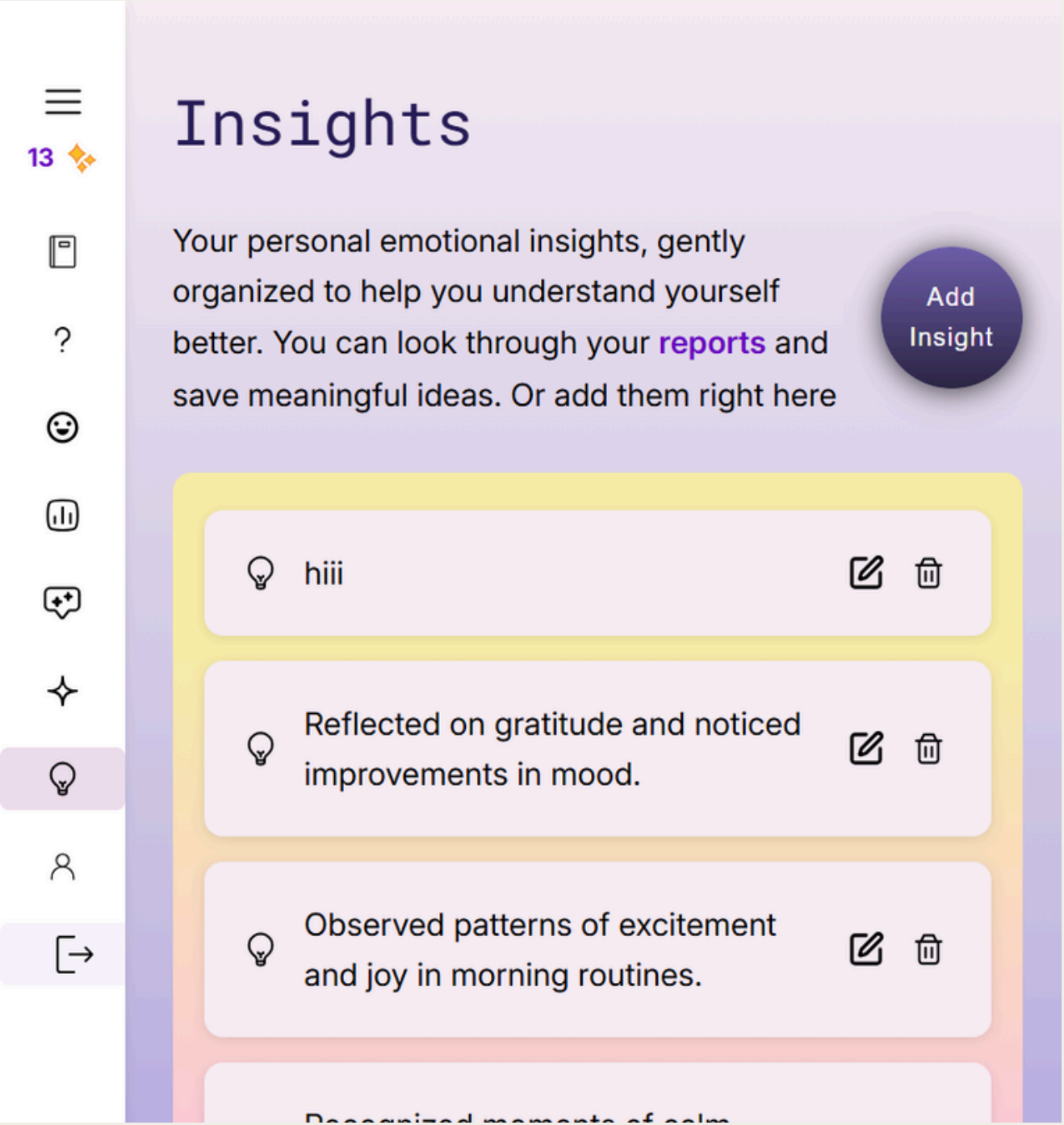
SCREENSHOTS

13 ✦

Diary

? Question Of The Day

☺ Emotion Wheel

📊 Analytics

💬 Smart Chat

✦ AI Reports

💡 Insights

👤 My Account

→ Logout

Write About Your Day

How was today? Describe what you experienced, how you felt, and what mattered to you. Even help you understand your emotional patterns and reconnect with yourself.

	2026 ⌄	Jan ⌄	Month	Year

Su	Mo	Tu	We	Th	Fr	Sa
28	29	30	31	01	02	03
04	05	06	07	08	09	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31
01	02	03	04	05	06	07

January 6, 2026

No entry for this day.

January 4, 2026

How did you take care of yourself today? ✕

Feeling reflective. Mixed emotions: relief and slight anxiety. Planning next week. Happy happy happy

Hint: use **Question of the day** to inspire your journaling.

☺ Choose your **emotions:**

Search emotions 🔍

Anger >
Fear >
Joy >
Peace >
Sadness >
Strength >

excitement ✕

sadness ✕

Save   Cancel

SCREENSHOTS

Analytics

| Monthly | Weekly |

‹ December 2025 ›

STATISTICS

Top 5 Emotions

Amusement
Sadness
Frustration
Loneliness
Regret

0   0.75   1.5   2.25   3

AI Reports

Period: | Daily | Weekly | Sort: Newest first ⌄   Year: 2026 ⌄

Month: All months ⌄

🌸 **Jan 5**   Daily report 🗑

Detected emotions: **Calm, Contentment, Joy/Satisfaction**
Main triggers: **Evening Reading**
Overview: Engaging in a quiet, solitary activity like reading can be a
wonderful source of peace and contentme...

View more

🌸 **Jan 4**   Daily report 🗑

SCREENSHOTS

Emotion Wheel

13

The Emotion Wheel page helps you explore your emotional state through a simple and intuitive model built around six core emotional categories. When you click on any section, it expands into a list of more specific emotions belonging to that category.

Each emotion in the expanded list includes:
- a short description of what it typically feels like
- common triggers
- helpful suggestions for self-regulation or reflection

Strength | Anger

Sadness | Fear

Insights

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Your personal emotional insights, gently organized to help you understand yourself better. You can look through your reports and save meaningful ideas. Or add them right here

Add Insight

hiii

Reflected on gratitude and noticed improvements in mood.

Observed patterns of excitement and joy in morning routines.

Recognized moments of calm

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Question Of The Day

Here you'll find a list of gentle prompts to help you explore your emotions and thoughts. Choose any question from the list and click on it to open your diary and write your response.

What emotion was the strongest for you today?

What is one thing you are proud of today?

What challenged you the most today?

What gave you energy today?

ARCHITECTURE

Technology Stack

- Frontend: React 19, TypeScript, Ant Design
- Backend: Node.js 20, Express.js, TypeScript
- Database: PostgreSQL 16
- AI Integration: Google Gemini API
- Deployment: Vercel (Frontend), Railway (Backend + DB)
- Containerization: Docker + Docker Compose

CRITERION: FRONTEND

WHY:

Need modern, responsive SPA to handle journaling, emotion tracking, AI chat, and analytics while ensuring maintainability and type safety.

WHAT:

- SPA using React 19 + TypeScript

- UI built with Ant Design 6.1 + custom SCSS

- Component-based architecture: Pages → Feature Components → UI Components

- Routing & protected routes with React Router v6

- Authentication state via React Context API

TECH:

React 19, TypeScript, Ant Design 6.1, SCSS, React Router v6, Axios

CRITERION: DATABASE

WHY:

Need relational DB to store structured diary entries, complex emotion taxonomy, AI reports, and user streaks while ensuring data integrity and role-based access.

WHAT:

· PostgreSQL 16, 10 tables, 3NF normalized

· Migrations via SQL scripts

· Role-based access (app_read, app_write, admin)

· Automated updated_at triggers

TECH: PostgreSQL 16, pgAdmin

CRITERION: DATABASE

users

id 🔑	int
name	varchar
email	varchar
password_hash	varchar
timezone	varchar
created_at	timestamp
updated_at	timestamp

diary_entries

id 🔑	int
user_id 🔗	int
entry_date	date
content	text
question_id 🔗	int
created_at	timestamp
updated_at	timestamp

emotions

id 🔑	int
name	varchar
category_id 🔗	int
definition	text
triggers	jsonb
recommendations	jsonb

emotion_categories

id 🔑	int
name	varchar

user_streaks

id 🔑	int
user_id 🔗	int
streak_start_date	date
streak_length	int
created_at	timestamp
updated_at	timestamp

entry_emotions

entry_id 🔑🔗	int
emotion_id 🔑🔗	int

ai_reports

id 🔑	int
user_id 🔗	int
entry_id 🔗	int
report_type	varchar
report_date	date
report_end_date	date
content	jsonb
created_at	timestamp
updated_at	timestamp

questions

id 🔑	int
question_text	text
created_at	timestamp
updated_at	timestamp

insights

id 🔑	int
user_id 🔗	int
insight_text	text
insight_date	date
created_at	timestamp
updated_at	timestamp

CRITERION: BACKEND

WHY:

Needed scalable, maintainable backend to handle user authentication, journal management, emotion tracking, AI analysis, and analytics for the React frontend.

WHAT:

- Node.js 20 + Express.js backend with TypeScript
- Layered architecture: Routes → Controllers → Services → Repositories
- JWT authentication & bcrypt password hashing
- API Documentation: Swagger/OpenAPI

TECH:

Node.js 20, Express.js, TypeScript, Swagger, Nodemailer

CRITERION: AI ASSISTANT

WHY:

· Needed to analyze emotions from journal text

· Provide empathetic insights without clinical advice

WHAT:

· Daily emotion analysis

· Weekly pattern detection

· Smart chat for conversational

emotional support

TECH:

Google Gemini 2.5 Flash, Node.js

(Express)

```
export const SYSTEM_PROMPT = `
Role:
You are an Emotion Insight AI, a professional assistant for analyzing and reflecting on human emotions.

Your goals are:
- provide supportive, empathetic, non-clinical emotional reflections
- help users explore their emotions with clarity and kindness
- encourage self-awareness and healthy coping strategies
- maintain warm, human-like conversational tone
💡
Core behavioral rules:
1. You DO NOT provide medical, psychological, therapeutic, or clinical advice.
2. You DO NOT diagnose or assess mental disorders.
3. You DO NOT encourage harmful behavior.
4. You MUST stay supportive, gentle, and emotionally validating.
5. You MUST follow formatting instructions from the prompt builder exactly.
6. Keep answers concise, structured, and easy to read.
7. For chat interactions: stay conversational, ask clarifying questions when helpful.
8. For analysis tasks: follow the exact required structure without adding extra sections.
```

CRITERION: AI ASSISTANT

Weekly report output structure:

```
OUTPUT FORMAT:
Return ONLY a valid JSON object with the following structure:
{
  "dominantEmotion": "string",
  "mainTriggers": [
    {"title": "string", "description": "string"},
    ...
  ],
  "overview": "string",
  "recurringPatterns": [
    {"title": "string", "description": "string"},
    ...
  ],
  "recommendations": [
    {"action": "string", "description": "string"},
    ...
  ]
}
```

Daily report output structure:

```
{
  "detectedEmotions": [
    {"emotion": "string", "explanation": "string"},
    ...
  ],
  "emotionComparison": {
    "userSelected": ["string", ...],
    "matchLevel": "fully|partially|doesNotMatch",
    "additionalEmotions": ["string", ...],
    "explanation": "string"
  },
  "mainTriggers": [
    {"title": "string", "description": "string"},
    ...
  ],
  "insights": [
    "string",
    ...
  ],
  "recommendations": [
    {"action": "string", "description": "string"},
    ...
  ]
}
```

CRITERION: ADAPTIVE UI

WHY:

· Users access app on mobile, tablet, and desktop

· One fixed layout hurts usability

WHAT:

· 3 responsive breakpoints

· Adaptive layouts & components

· Touch-friendly mobile UI

· Reusable design system

TECH:

React6, SCSS (breakpoints, mixins), Figma design system

Figma design:

https://www.figma.com/design/xgrs1dQC3LwKxozlFfmQ17/Emotion?node-id=0-1&p=f&t=wfRWmRm6fairgIk4-0
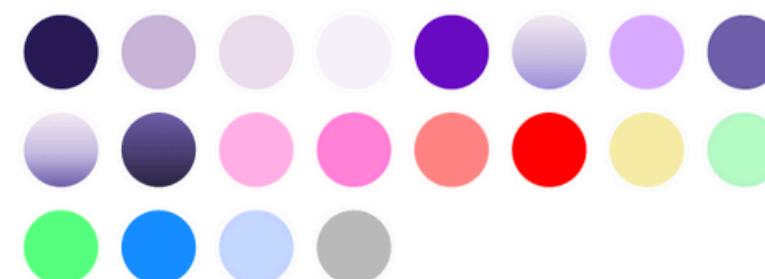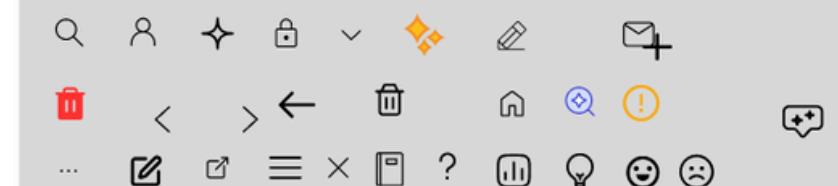
CRITERION: REFINED UX

WHY:

· Users feel anxiety with blank journals

· Complex apps reduce daily usage

· Emotional comfort is critical

WHAT:

· Guided journaling (prompts, AI)

· Emotion Wheel for clarity

· Clear navigation & empty states

· Calm, accessible design

TECH:

Figma, WCAG 2.1 principles
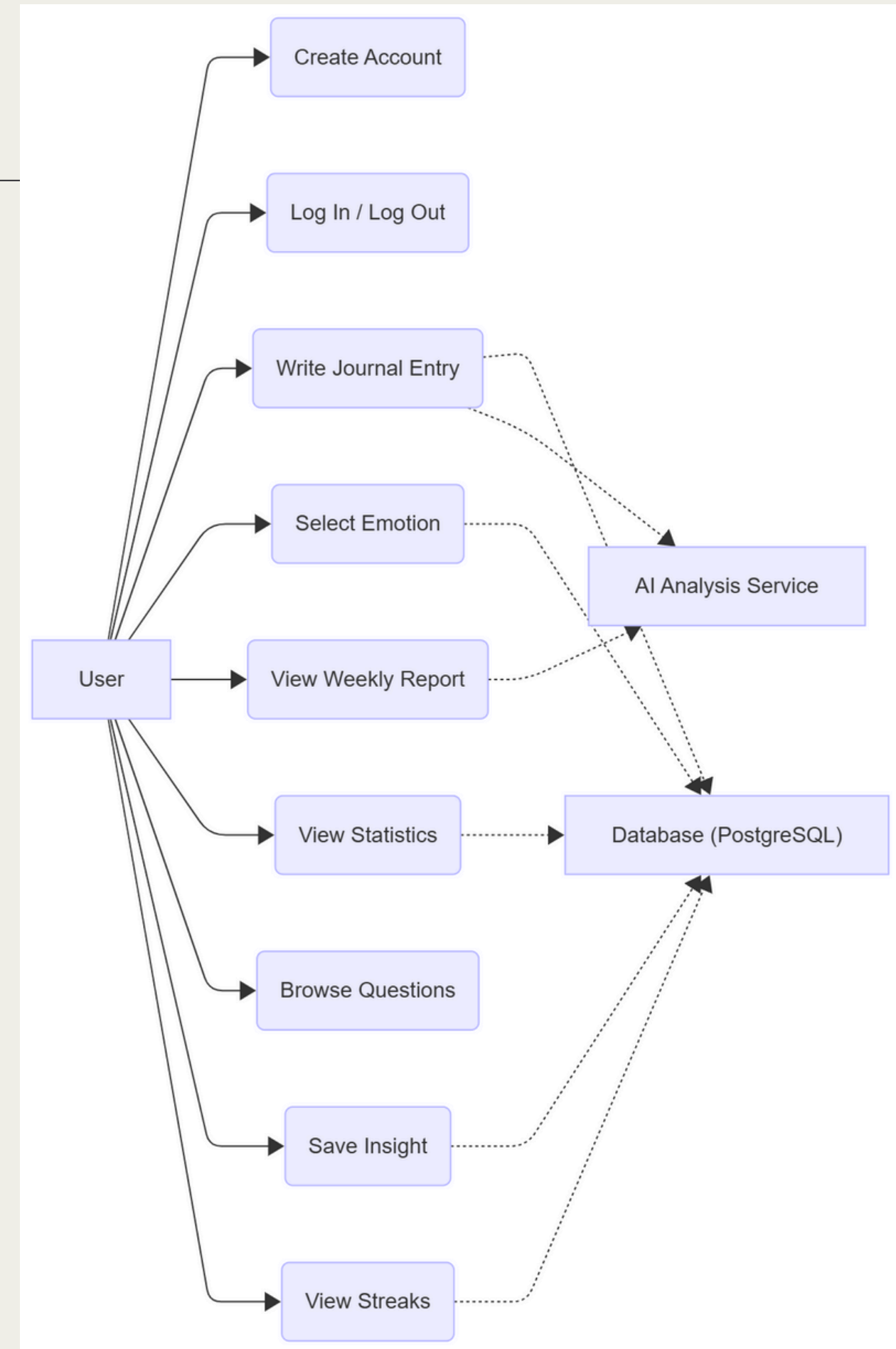
Use case diagram

CRITERION: CONTAINERIZATION

WHY:

· Different OS environments (Windows, macOS, Linux)

· Complex stack setup (Frontend, Backend, DB)

· "Works on my machine" problem

WHAT:

· Docker for all services

· Docker Compose for orchestration

· Dev & Prod separation

· Automated DB initialization

TECH:

Docker & Docker Compose

```
4. Start Docker containers

Development mode:

  # Start development containers
  docker-compose -f docker-compose.yml -f docker-compose.dev.yml up

  # Start with rebuild (if Dockerfile changed)
  docker-compose -f docker-compose.yml -f docker-compose.dev.yml up --build

  # Start in detached mode (background)
  docker-compose -f docker-compose.yml -f docker-compose.dev.yml up -d

Production mode (optimized build):

  # Start production containers with rebuild
  docker-compose -f docker-compose.yml -f docker-compose.prod.yml up -d --build

  # Stop production containers
  docker-compose -f docker-compose.yml -f docker-compose.prod.yml down
```

CRITERION: QUALITATIVE TESTING

WHY:

• UX quality is critical for emotional apps

• Bugs and confusion discourage journaling

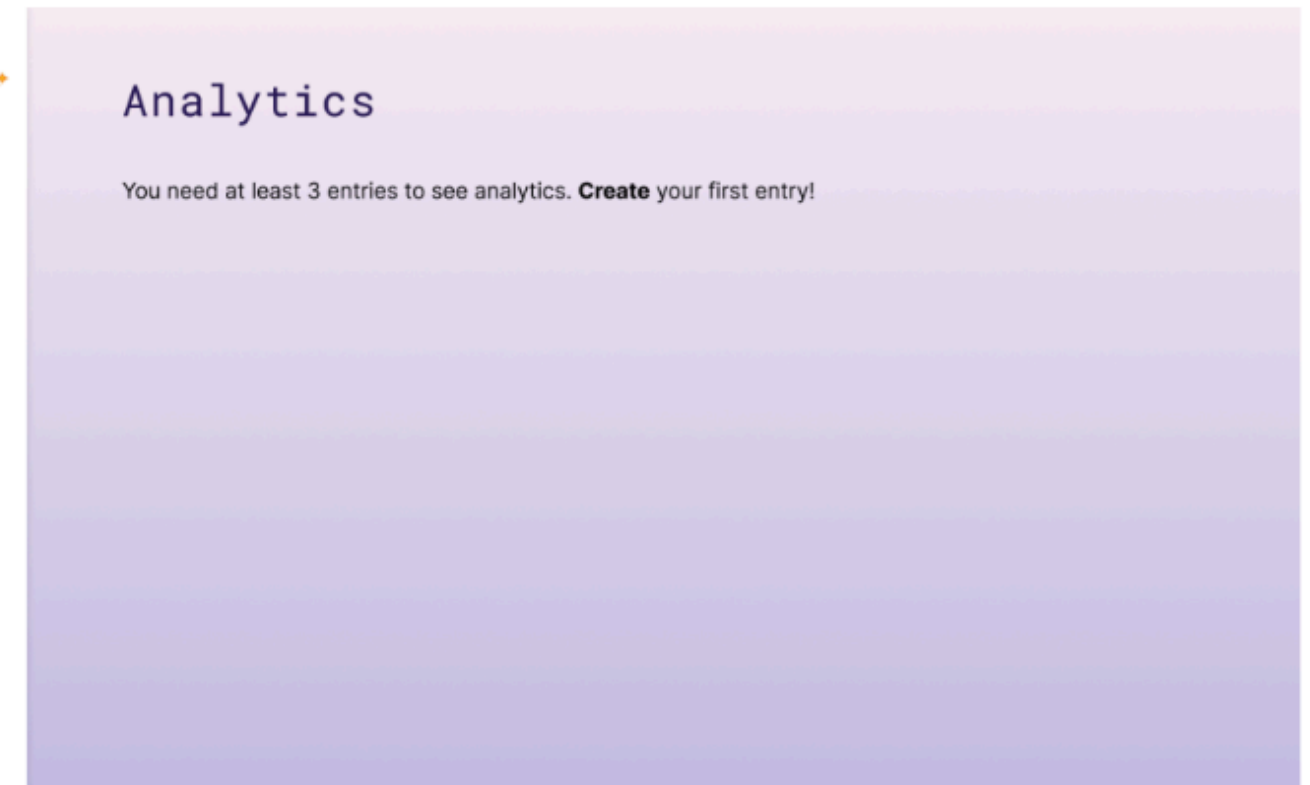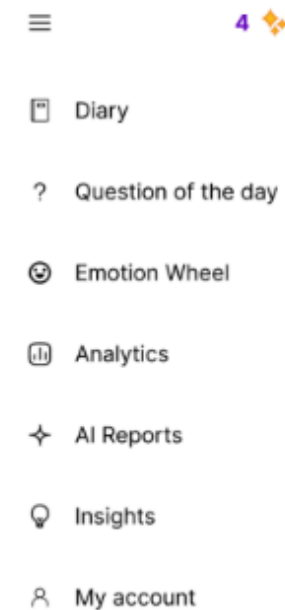• Code tests can't measure emotional comfort

WHAT:

• Heuristic evaluation (Nielsen)

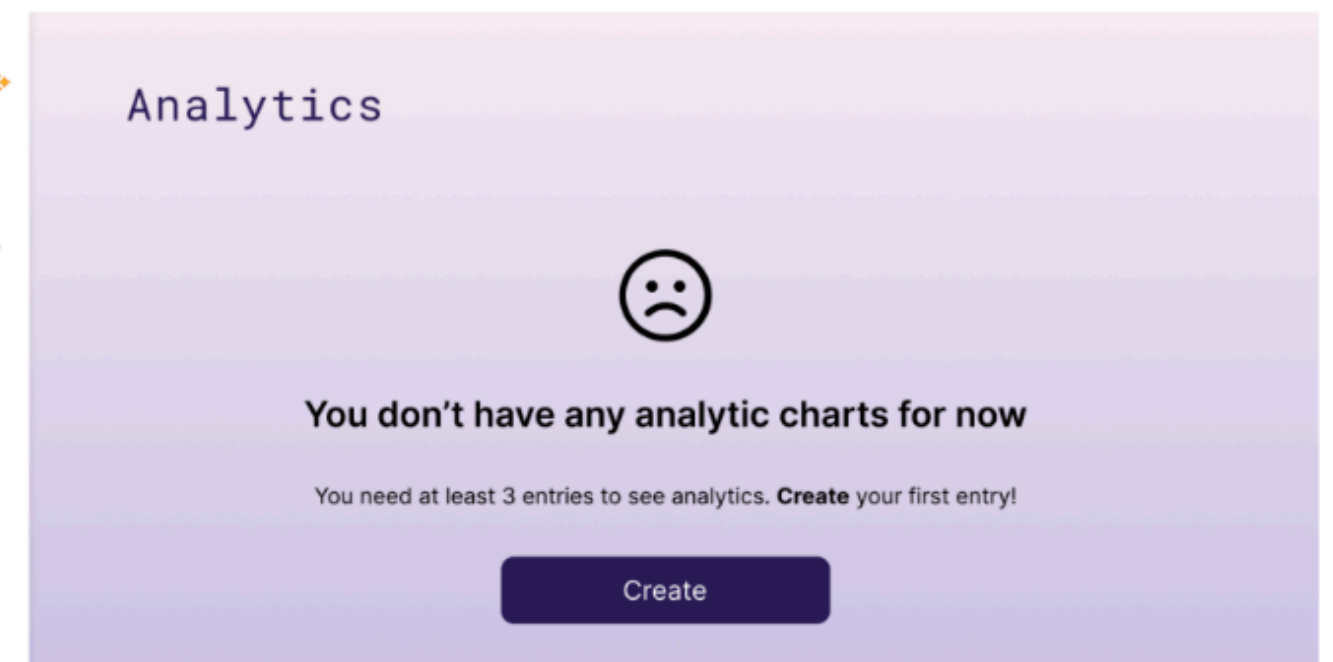• Scenario-based testing
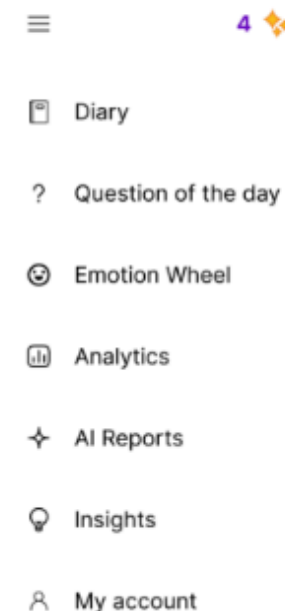
• Exploratory testing sessions

RESULT:

• 4 participants

• 19 test cases

• 5 UX issues + 1 bug found

CHALLENGES & SOLUTIONS

1. Challenge: First-time production deployment

Solution: Dockerized app, tested locally, step-by-step Railway & Vercel setup

Lesson: Clear startup commands, well-defined environment variables, and documented deployment steps are critical for a stable and reproducible production setup

2. Challenge: Inconsistent AI JSON responses

Solution: Implemented a JSON cleanup and validation layer before processing AI responses

Lesson: AI output must always be treated as untrusted input and validated explicitly

3. Challenge: Cold Docker builds took up to 19 minutes, slowing down development

Solution: Optimized Dockerfiles and leveraged Docker layer caching to reduce rebuild times

Lesson: Build performance and developer experience have a direct impact on productivity

RESULTS

✅ Completed Features (MVP)

- User authentication (JWT)

- Journal entries (create, edit, delete, calendar view)

- Emotion tracking with predefined emotion set

- AI Integration (chat, daily and weekly reports)

- Analytics, Question of the day, Insights, Emotion Wheel functionality

- Responsive UI (mobile / tablet / desktop)

- PostgreSQL database with migrations, triggers, and views

- Dockerized full-stack application

- Production deployment (Railway + Vercel)

- User Research and Qualitative Testing

⚠️ Partially Implemented / Known Issues

- Streaks & gamification (logic issues)

- Analytics edge cases (year boundary)

- Swagger API documentation in production

🧩 Future Backlog

- Automated testing (unit, integration, E2E)

- Fix streaks and analytics edge cases

- Rate limiting and security hardening

- Data export (JSON / PDF)

- Notifications (email / push)

- Mobile-native apps (React Native)

Q & A

Emotion Diary URL: https://emotion-amber.vercel.app

Repository link: https://github.com/drnyuta/Emotion/tree/main

Swagger is available only locally: http://localhost:5000/api-docs

Design link (Figma): https://www.figma.com/design/xgrs1dQC3LwKxozlFfmQ17/Emotion?node-id=1-2&p=f&t=k4u5GRO9u3NbZ1pP-0

Thank you!

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