Emotions Tracker

Deliverable D2

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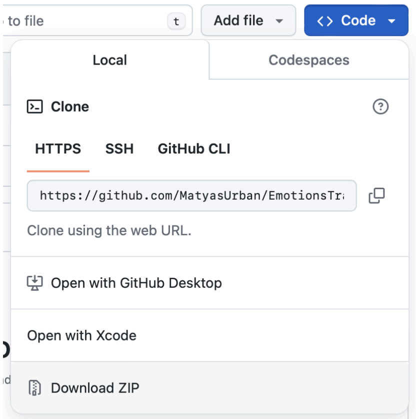
Source Code and Compilation

Source code (GitHub): https://github.com/MatyasUrban/EmotionsTracker
Source code (GitLab) https://gitlab.fel.cvut.cz/urbanm48/emotionstracker
GitLab granted only with reporter access to the course instructor

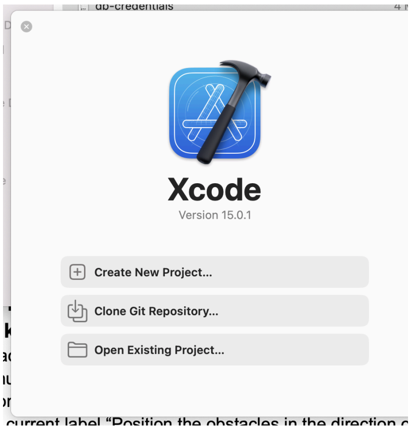
Minimum compilation steps on emulated iPhone

Requires: installed Xcode 15 with downloaded iOS 17 simulator

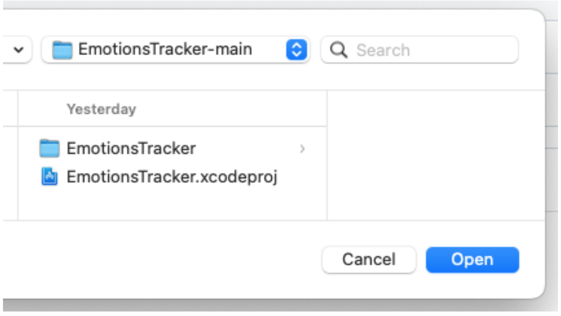
1. Open the source code and click Code > Download ZIP



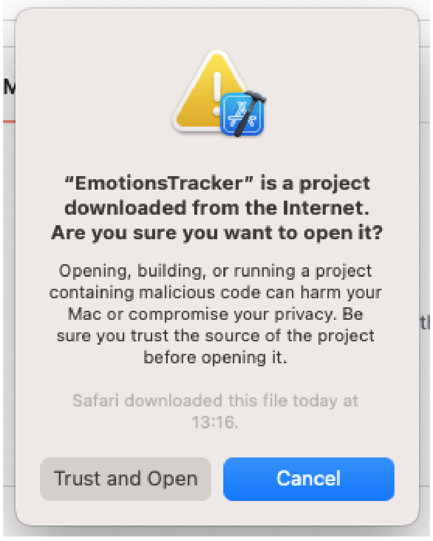
2. Open XCode and click > Open Existing Project



3. Select the downloaded and unzipped (decompressed) folder which should include EmotionsTracker.xcodeproj file and EmotionsTracker folder (do not select this one but the folder 1 level higher in the hierarchy)



4. Trust and Open

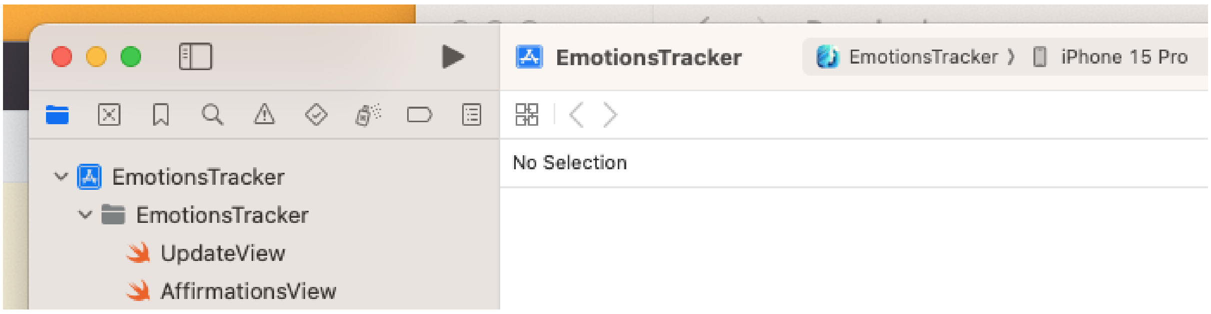


"EmotionsTracker" is a project downloaded from the Internet. Are you sure you want to open it?

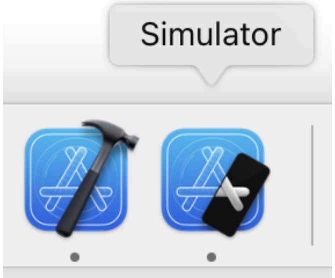
Opening, building, or running a project containing malicious code can harm your Mac or compromise your privacy. Be sure you trust the source of the project before opening it.

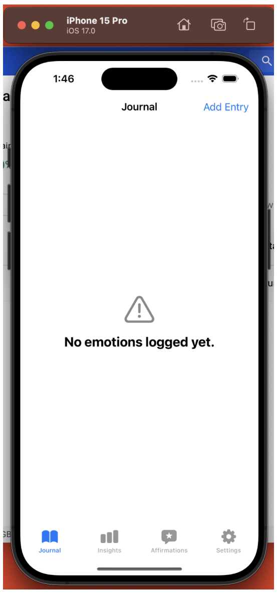
Safari downloaded this file today at 13:16.

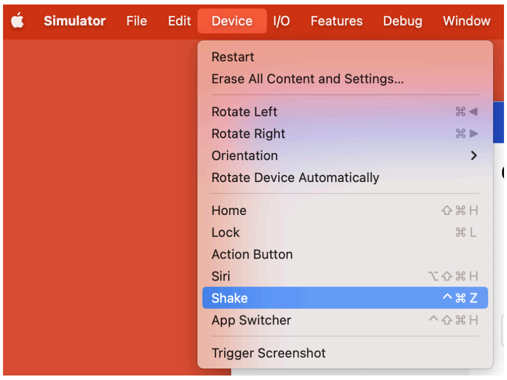
5. Run (the Play button) … you might be required to select which device should emulate previously downloaded iOS17, you may choose for example iPhone 15 Pro



This will build the project, install, attach and run the app on the emulated device, which is to be accessed in a separate window (distinct from the IDE). Note in the simulator you may mimic the physical shake action by choosing Device > Shake.







Technical Description

Mobile Aspects

Hardware (HW)

- **Device Compatibility:** Designed for iPhones running iOS 17 or later.
- **Location Services:** Utilizes device GPS for logging and displaying user location.
- **Shake Detection:** Uses the accelerometer to detect device shake gestures, which trigger the fetching of new affirmations.

Software (SW)

- **Development Language**: Swift
- **Frameworks and Libraries**:
  - **SwiftUI**: For user interface development, providing a modern declarative approach to building UIs.
  - **UIKit**: Interfacing with underlying iOS components, particularly for handling device shake gestures.
  - **CoreLocation**: For managing and utilizing location data to tag emotional logs with geographical information.
  - **MapKit**: For displaying maps and handling geolocation within the app.
  - **UserNotifications**: For managing and handling local notifications to remind users to log their emotions.
  - **SwiftData**: For data persistence and managing the model context for emotional logs.
  - **URLSession**: For making network requests to fetch affirmations from an external API.

Key Components

State Management

- **SwiftUI State Management**: Utilizes **@State, @StateObject, @AppStorage**, and **@Environment** properties to manage state and data flow throughout the app. This ensures efficient and reactive UI updates based on the application's state changes.
- **CoreLocation and CLLocationManager**: Manages location services, including checking authorization status, requesting permissions, and updating the user's location to tag logs with geographical data.

UI Components and Navigation

- **NavigationStack**: Provides a structured navigation flow within the app, enabling seamless transitions between different views such as the journal, detail view, add entry, and settings.
- **Forms and Pickers**: Utilized extensively in views to collect user input for logging emotions, including mood rating sliders, feeling and emotion pickers, date and time pickers, and toggle switches for location services.
- **Maps Integration**: Implements **MapKit** to display interactive maps within the detail view, showcasing the locations where emotions were logged.
- **Custom View Modifiers**: Extends SwiftUI functionality, such as **DeviceShakeViewModifier** for handling device shake gestures to fetch new affirmations.

Data Persistence and Model Management

- **SwiftData**: Utilized for storing and managing emotional logs. It allows for the efficient querying, inserting, and deleting of log entries within the app's local database.
- **Model Definitions**: Defines models such as EmotionLog to structure and manage emotional log data effectively, including attributes for date, time, mood rating, feeling, emotion, context, latitude, and longitude.

Network Requests and Async Operations

- **URLSession and Async/Await**: Implements asynchronous network requests to fetch affirmations from an external API. This ensures non-blocking operations and a smooth user experience.

Notifications

- **UserNotifications Framework**: Manages local notifications to remind users to log their emotions at specified times. It handles scheduling, presenting, and canceling notifications based on user settings.
- **Notification Authorization and Scheduling**: Requests user permission for notifications and schedules daily reminders based on user-configured times.

Customization and Settings

- **AppStorage**: Utilizes **@AppStorage** to persist user preferences such as personalized affirmations, notification settings, and custom theme selections.
- **Dynamic Theme Management**: Implements a dynamic color theme selection, allowing users to customize the app's appearance with a wide range of colors, compatible with iPhone's dark mode.

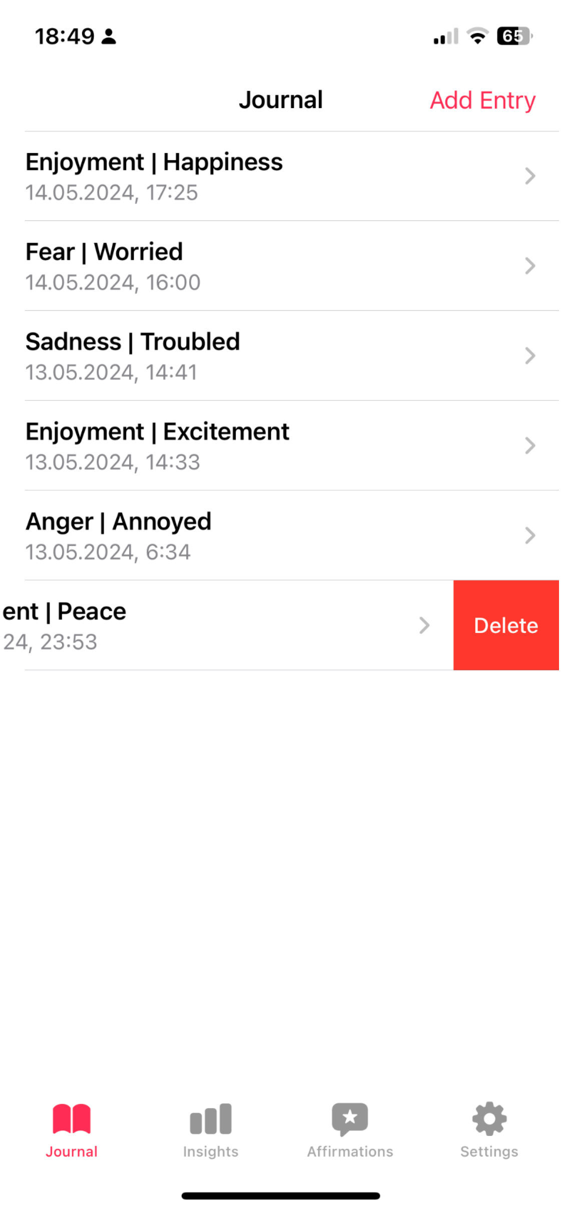
Functionality Overview

The emotion tracking app is designed to help users monitor and log their emotional states over time. It offers various functionalities to facilitate emotion tracking, visualization of mood trends, and receiving personalized affirmations. The app is optimized for iPhone, compatible with dark mode, and provides a user-friendly interface for seamless interaction.

Screen #1: Journal

Purpose: View and manage emotional logs.

Functionalities:
Displays a list of emotional logs sorted in descending order by date and time.
Allows users to delete specific logs by swiping left.
Provides a button to create a new log entry.
Shows a brief summary of each log, including the primary feeling and emotion.



Enjoyment | Happiness
14.05.2024, 17:25

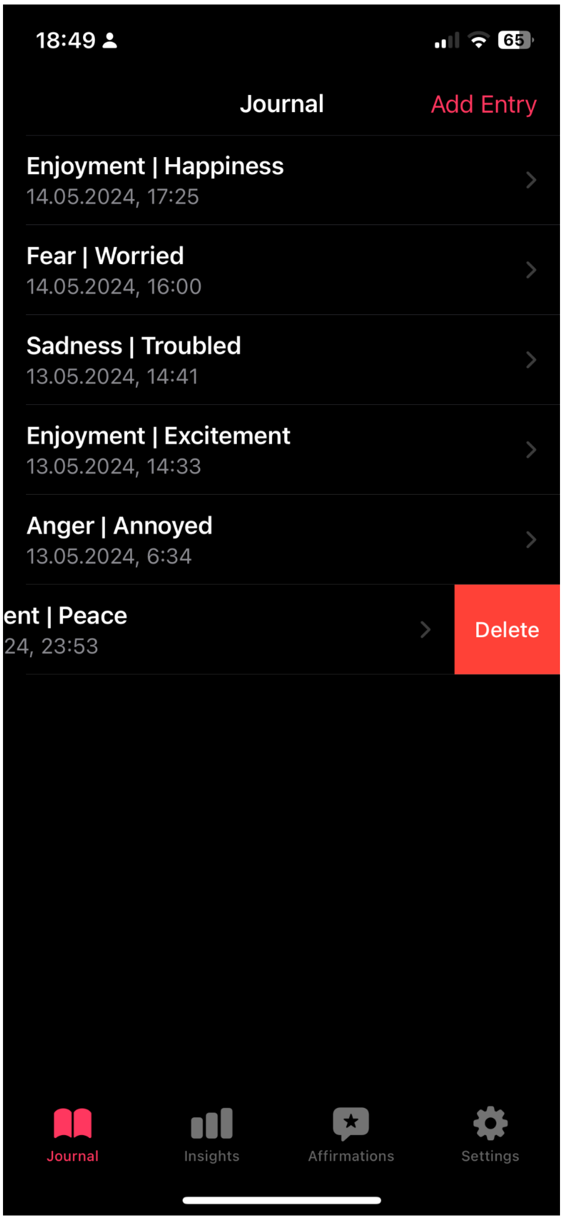
Fear | Worried
14.05.2024, 16:00

Sadness | Troubled
13.05.2024, 14:41

Enjoyment | Excitement
13.05.2024, 14:33

Anger | Annoyed
13.05.2024, 6:34

ent | Peace
24, 23:53



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Enjoyment | Excitement
13.05.2024, 14:33

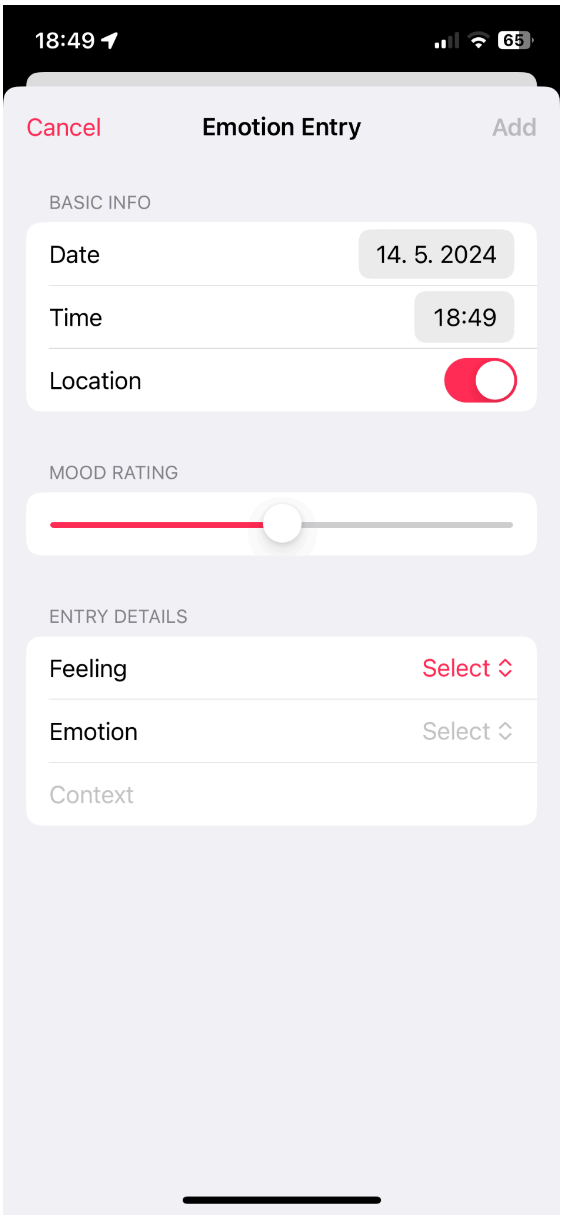
Anger | Annoyed
13.05.2024, 6:34

ent | Peace
24, 23:53

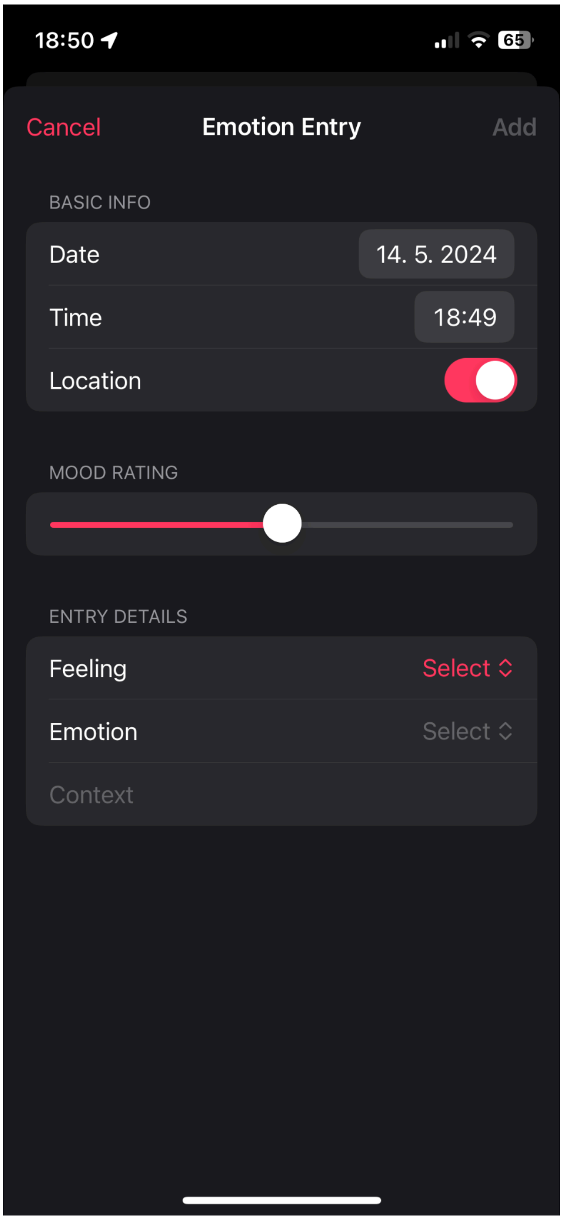
Screen #2: Add Entry

Purpose: Create new emotional logs.

Functionalities:
Opens a pre-filled sheet with the current date and time.
Includes a toggle for saving the location with the log entry.
Features a mood rating slider to quantify the user's current mood.
Offers a picker for selecting a general feeling.
Includes a secondary picker for selecting a specific related emotion.
Provides an optional text field for adding additional context.
Saves the log entry upon clicking Add.



Date 14. 5. 2024
Time 18:49
Location
Feeling
Emotion

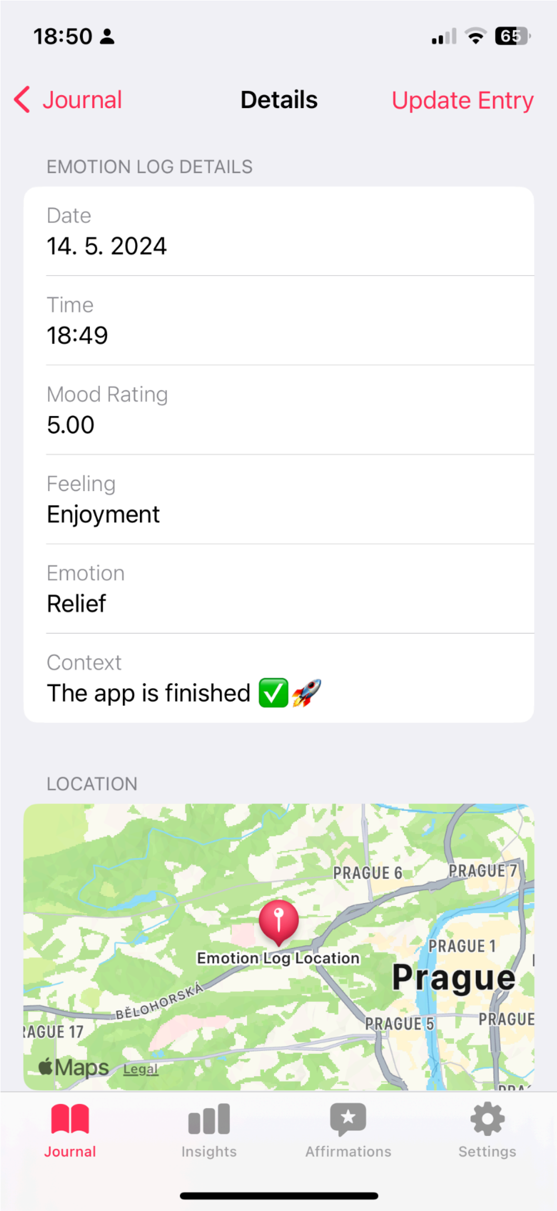


Date 14. 5. 2024
Time 18:49
Location
Feeling
Emotion

Screen #3: Details

Purpose: Display detailed information about a log entry.

Functionalities:
Displays comprehensive details of a selected log entry.
Shows the date, time, mood rating, feeling, emotion, and context.
Includes an interactive map indicating the log location.
Provides a button to open the coordinates in the iPhone’s default map app.
Features an update button for modifying log details.
Allows users to review and reflect on their logged emotions and associated contexts.



EMOTION LOG DETAILS

Date
14. 5. 2024

Time
18:49

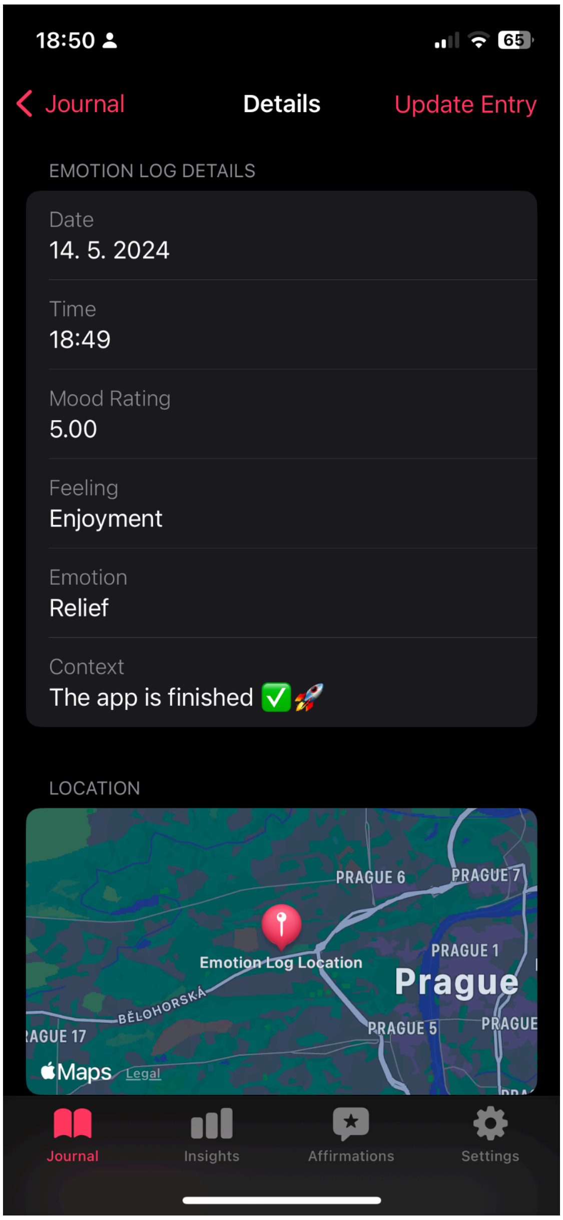
Mood Rating
5.00

Feeling
Enjoyment

Emotion
Relief

Context
The app is finished ✅🚀

LOCATION



18:50
65
< Journal
Details
Update Entry

EMOTION LOG DETAILS

Date
14. 5. 2024

Time
18:49

Mood Rating
5.00

Feeling
Enjoyment

Emotion
Relief

Context
The app is finished ✅🚀

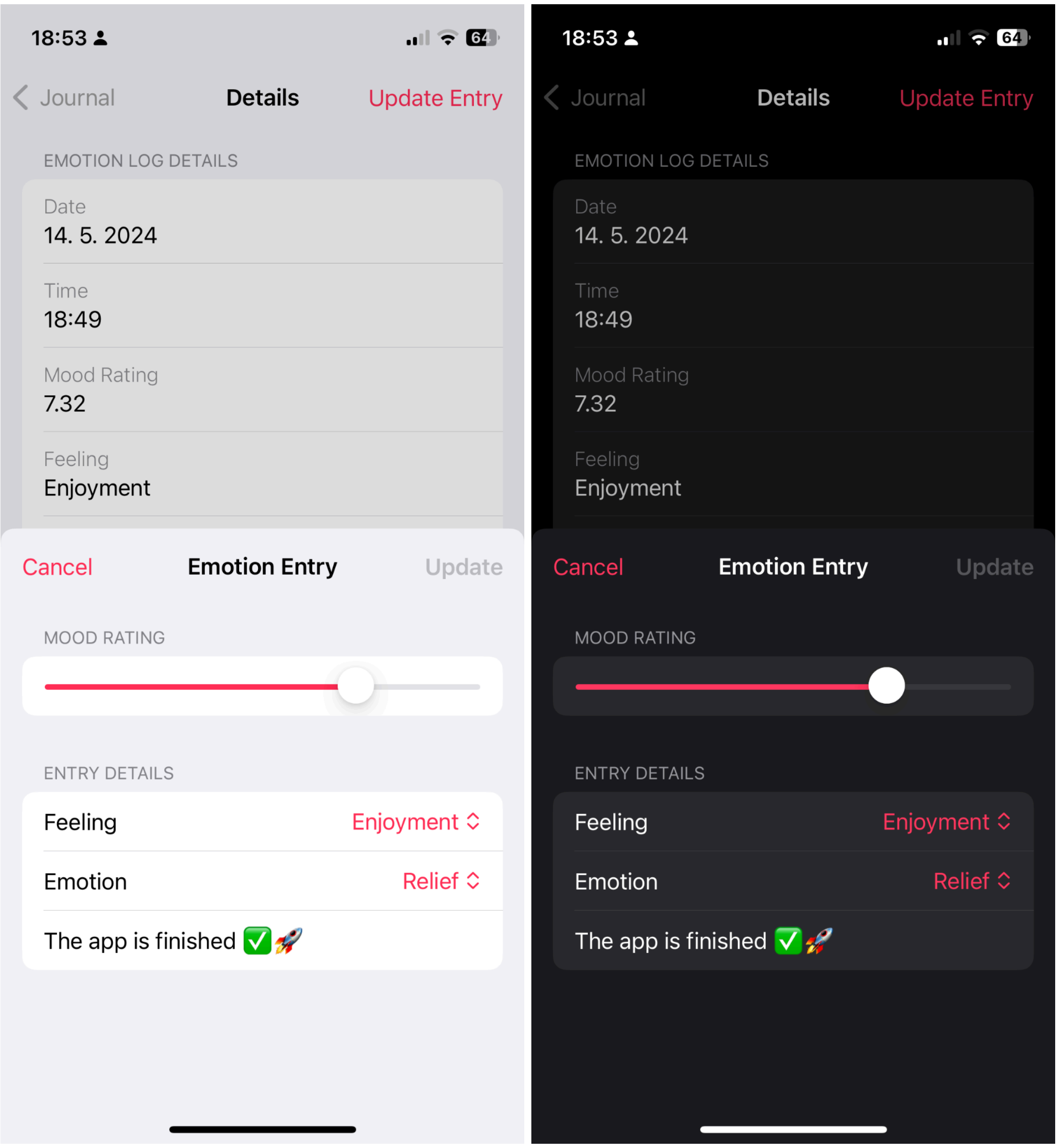
LOCATION

PRAGUE 6
PRAGUE 7
PRAGUE 1
Emotion Log Location
Prague
BĚLOHORSKÁ
RAGUE 17
PRAGUE 5
PRAGUE
Maps
Legal
Journal
Insights
Affirmations
Settings

Screen #4: Update Entry

Purpose: Modify existing log entries.

Functionalities:
Users can update the mood rating, feeling, emotion, and context of an existing log.
Date, time, and location data remain immutable.
Ensures data integrity by preventing changes to the original log creation time and location.



EMOTION LOG DETAILS

Date
14. 5. 2024

Time
18:49

Mood Rating
7.32

Feeling
Enjoyment

MOOD RATING

ENTRY DETAILS

Feeling: Enjoyment

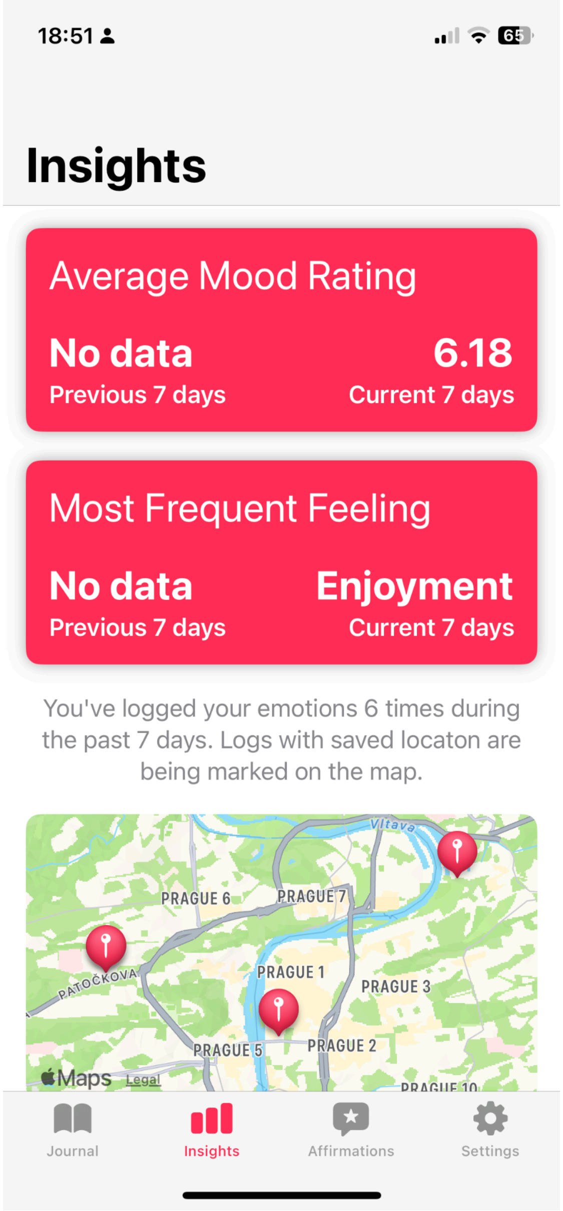
Emotion: Relief

The app is finished ✅🚀

Screen #5: Insights

Purpose: Provide analytical insights into mood trends.

Functionalities:
Compares the average mood rating of the current week with the previous week.
Identifies the most frequent feeling for the current and previous week.
Displays the number of logs created in the past seven days.
Maps log entries with saved locations on a geographical map.
Helps users track their emotional patterns over time and identify triggers or trends.



18:51

Insights

Average Mood Rating

No data
Previous 7 days

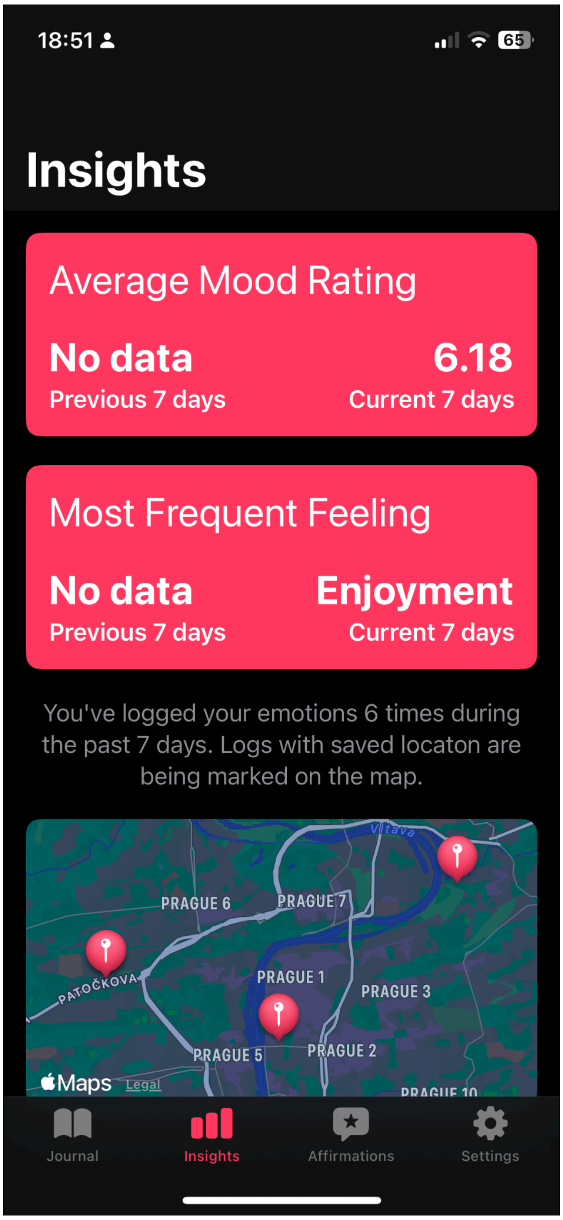
6.18
Current 7 days

Most Frequent Feeling

No data
Previous 7 days

Enjoyment
Current 7 days

You've logged your emotions 6 times during the past 7 days. Logs with saved locaton are being marked on the map.



18:51

Insights

Average Mood Rating

No data
Previous 7 days

6.18
Current 7 days

Most Frequent Feeling

No data
Previous 7 days

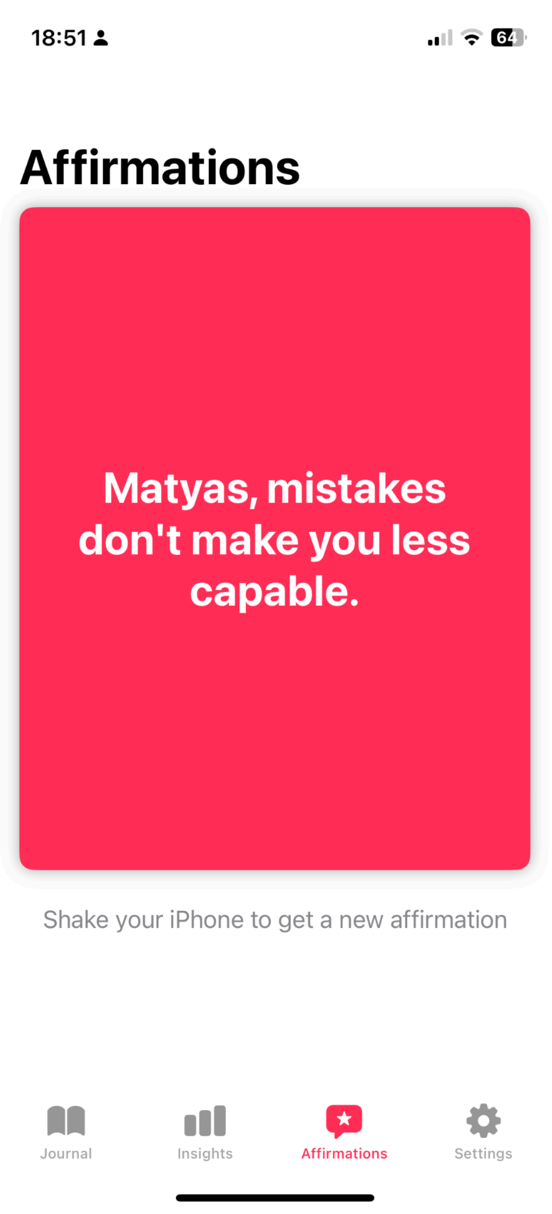
Enjoyment
Current 7 days

You've logged your emotions 6 times during the past 7 days. Logs with saved locaton are being marked on the map.

Screen #6: Affirmations

Purpose: Offer motivational messages.

Functionalities:
Fetches a new affirmation when the user shakes the iPhone.
Displays affirmations personalized with the user’s name, if set in the settings.
Provides positive reinforcement and encouragement to improve the user's emotional state.

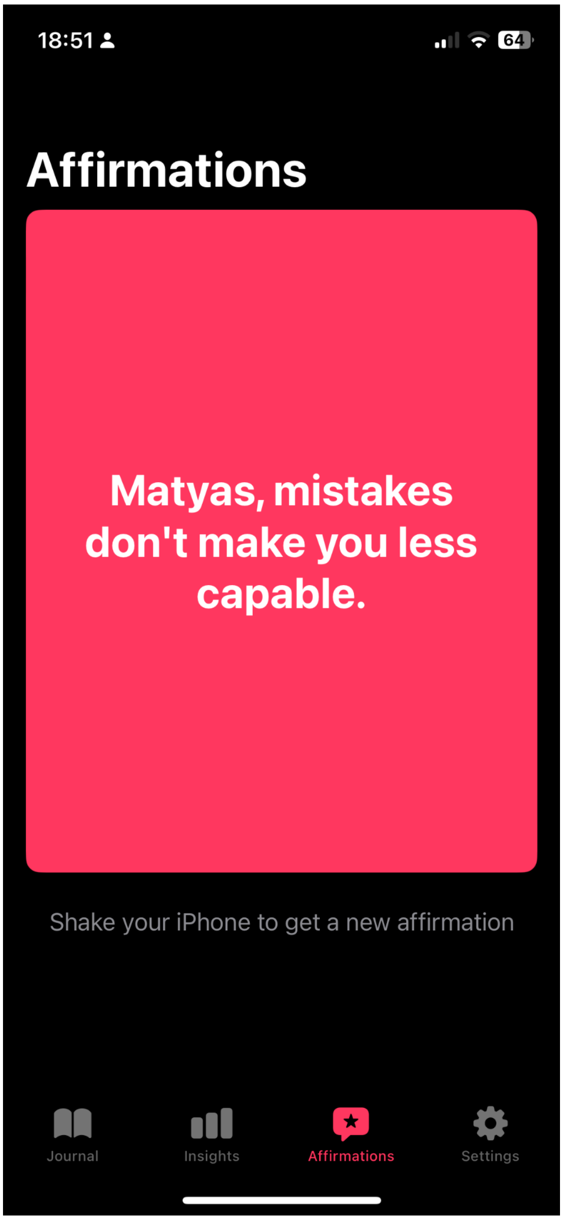


18:51

Affirmations

Matyas, mistakes don't make you less capable.

Shake your iPhone to get a new affirmation



18:51

Affirmations

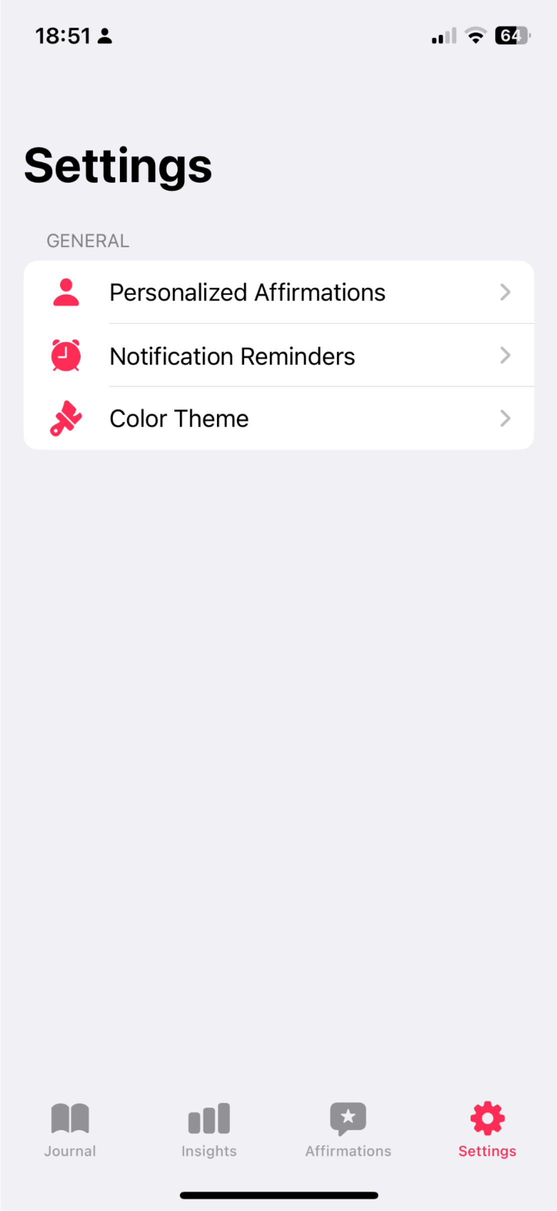
Matyas, mistakes don't make you less capable.

Shake your iPhone to get a new affirmation

Screen #7: Settings

Purpose: Configure app preferences.

Functionalities:
Access to settings for customizing the app's appearance, notification reminders, and personalized affirmations.
Allows users to tailor the app experience to their preferences.

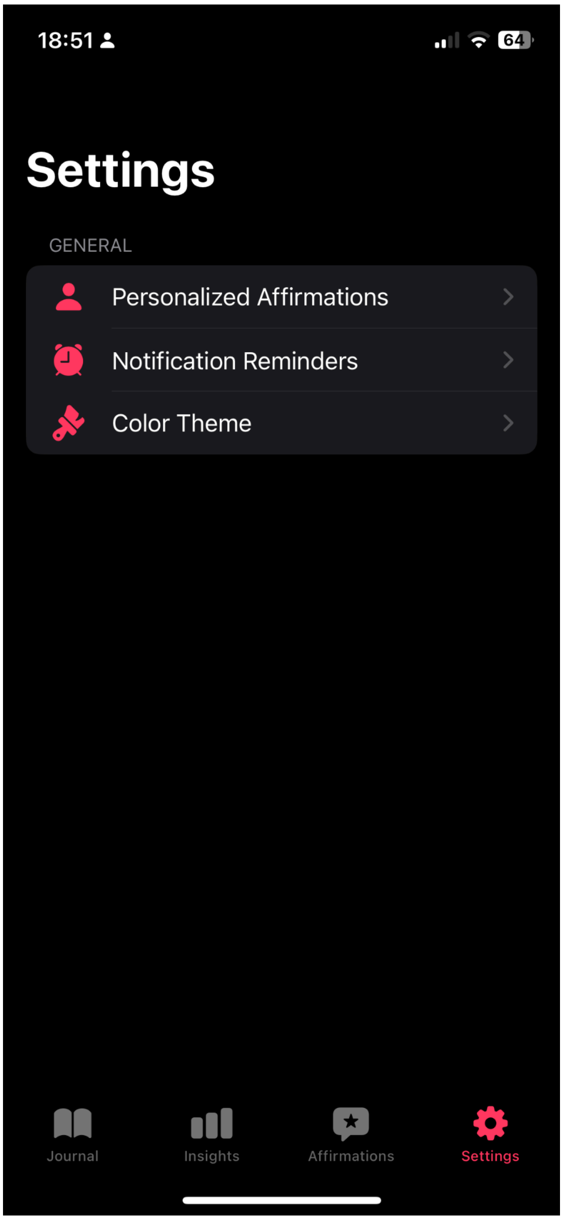


18:51 64

Settings

GENERAL

- Personalized Affirmations
- Notification Reminders
- Color Theme



18:51 64

Settings

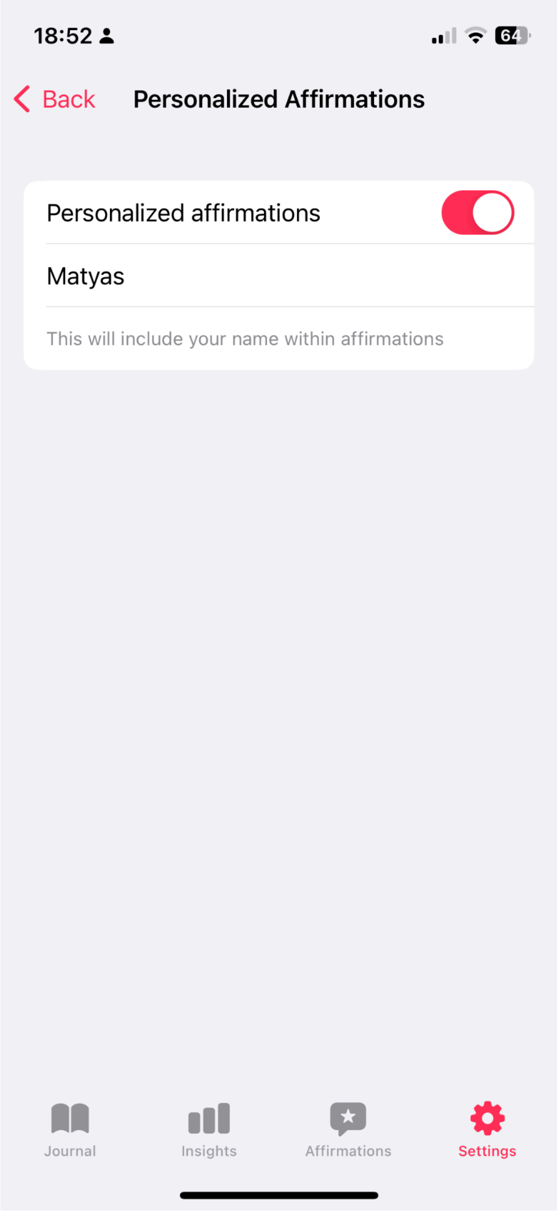
GENERAL

- Personalized Affirmations
- Notification Reminders
- Color Theme

Screen #8: Personalized Affirmations

Purpose: Customize affirmations with the user’s name.

Functionalities:
Toggles personalized affirmations on or off.
Provides an input field for the user to enter their name.
Enhances the motivational impact of affirmations by making them more personal.



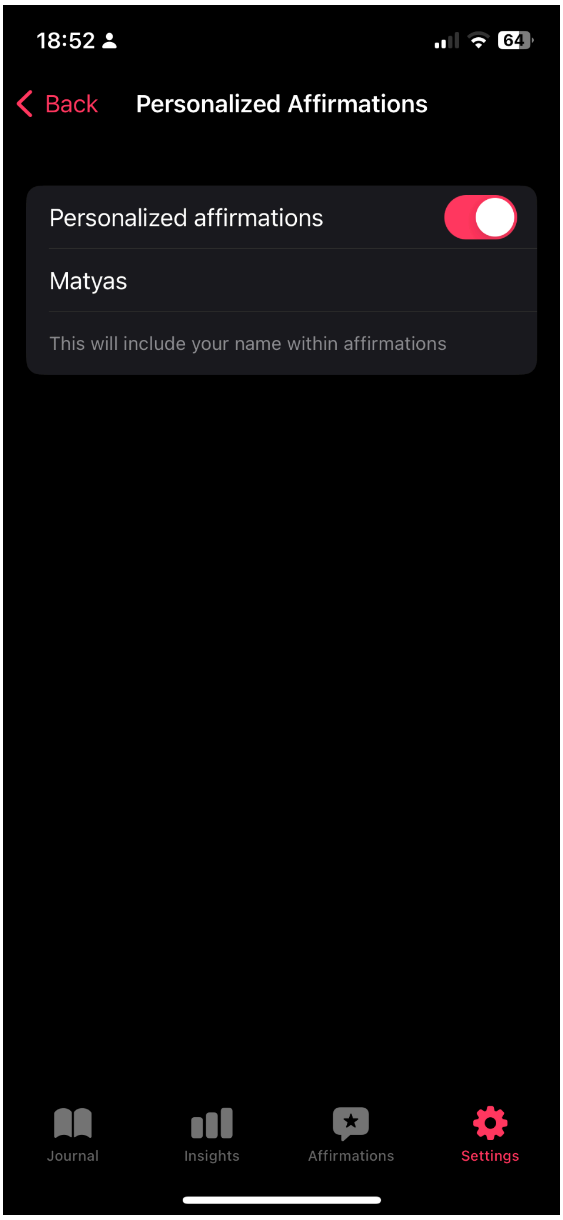
18:52

Back **Personalized Affirmations**

Personalized affirmations ●

Matyas

This will include your name within affirmations



18:52

Back **Personalized Affirmations**

Personalized affirmations ●

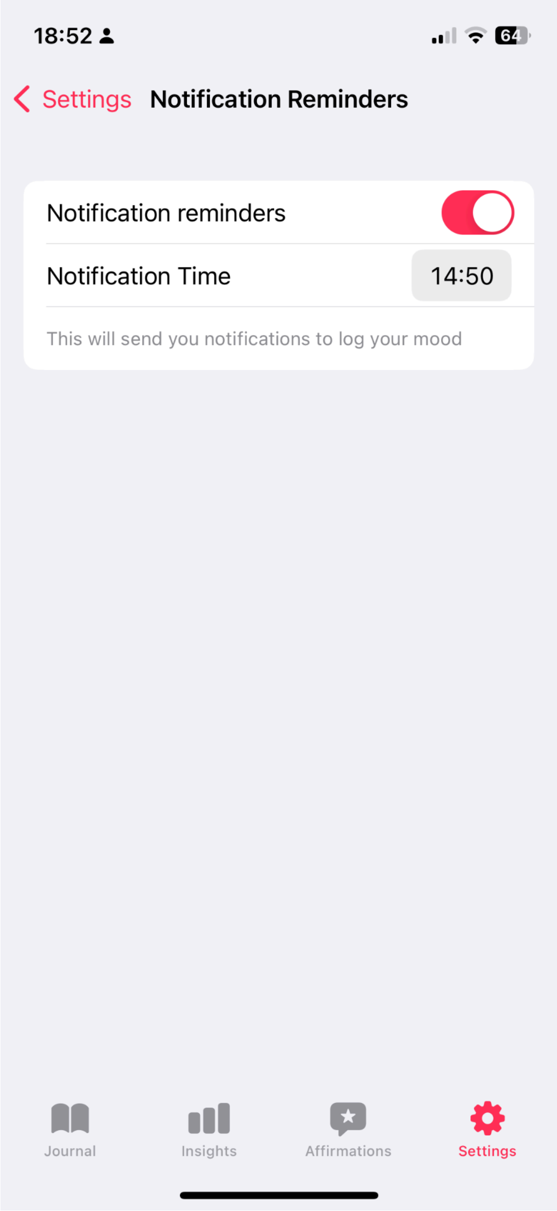
Matyas

This will include your name within affirmations

Screen #9: Notification Reminders

Purpose: Set daily reminders for logging emotions.

Functionalities:
Enables daily notification reminders to log emotions.
Allows customization of the reminder time.
Ensures users maintain a consistent logging habit.

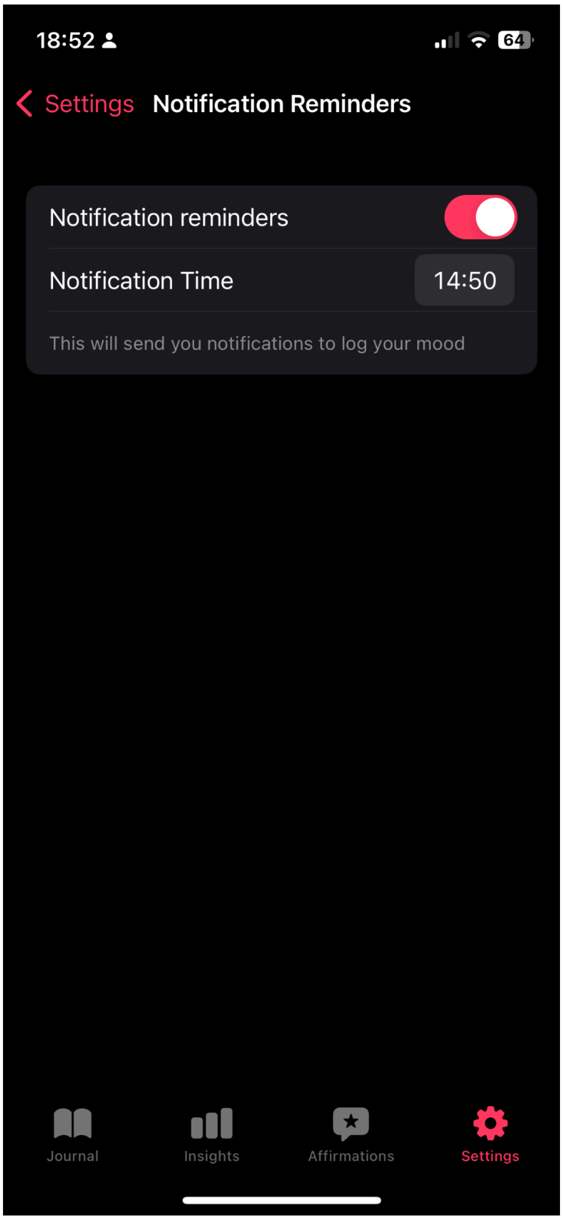

18:52

Settings Notification Reminders

Notification reminders

Notification Time 14:50

This will send you notifications to log your mood


18:52

Settings Notification Reminders

Notification reminders

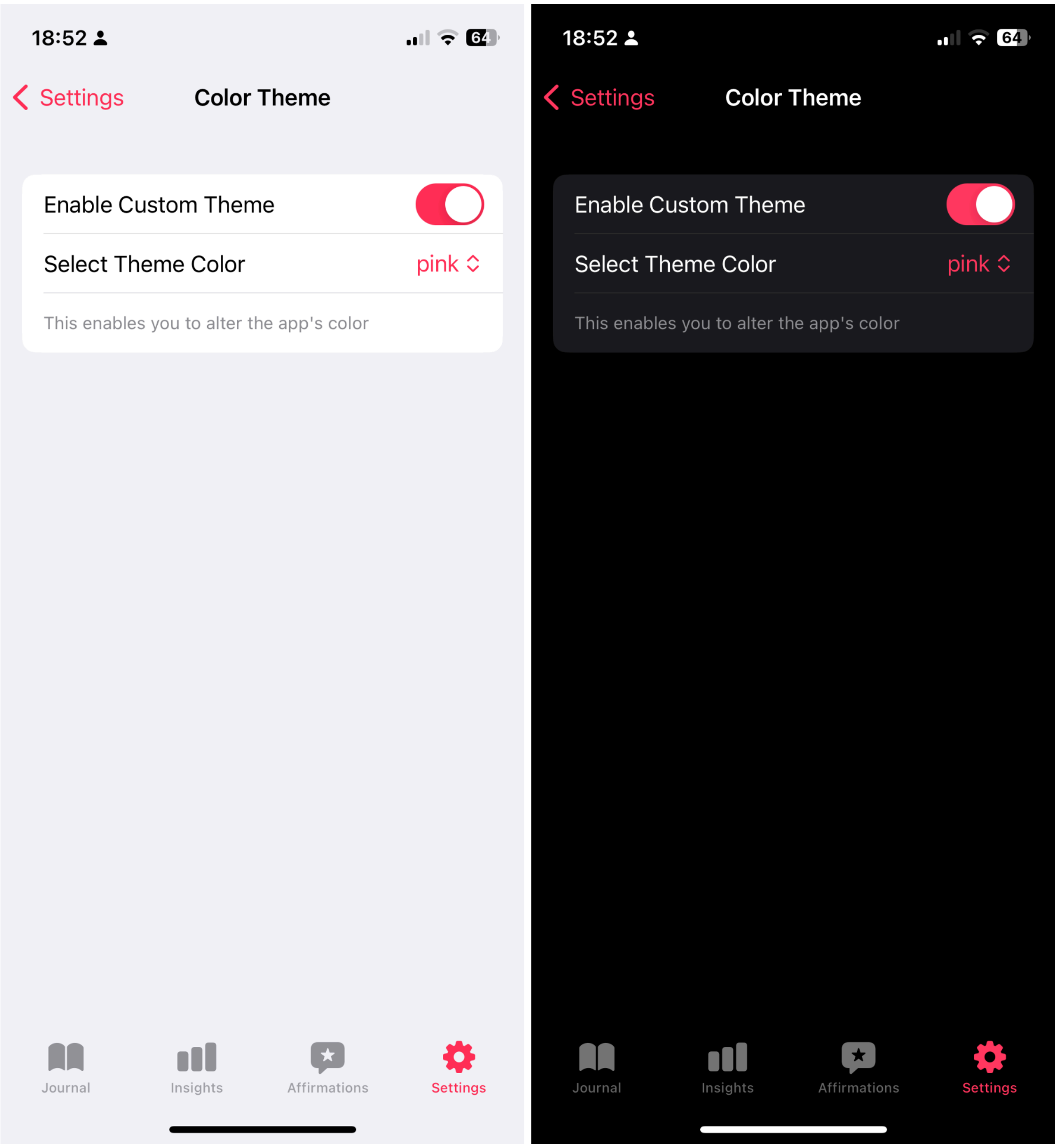
Notification Time 14:50

This will send you notifications to log your mood

Screen #10: Color Theme

Purpose: Customize the app's appearance.

Functionalities:
Allows users to enable a custom theme.
Offers a wide range of colors to choose from.
Provides a more personalized and visually appealing user experience.



Enable Custom Theme ●

Select Theme Color pink

This enables you to alter the app's color

User Experience Testing

Achievement Score Scale:

A - achieved the task easily (less than 5 seconds between each touch interaction)
B - achieved the task slowly
C - achieved the task with a hint
F - were not able to complete the task without step-by-step instructions

Test Questions

Task 1: Log a New Emotion
Create a new log entry with the current mood rating to 10/10, feeling "Enjoyment," and specific emotion "Peace." Include the context "Had a relaxing day" and save the location.

Task 2: View Detailed Log Information
Open the log entry from three days ago and review all the details, verifying that the correct mood rating, feeling, emotion, context, and location on the map has been saved. Open the location within a map app on your phone.

Task 3: Update an Existing Log
Update the mood to 8/10 as well as set the emotion to "Satisfaction" for the previous one.

Task 4: Personalize an Affirmation
Enable personalized affirmations in the settings by entering your name.

Task 5: Receive a New Affirmation
Read an affirmation and retrieve a new one 3 times.

Task 6: Set a Daily Notification Reminder
Configure the app to send you a daily notification reminder to log your mood at 8:00 PM.

Task 7: Change the App's Theme Color
Enable the custom theme in the settings and select a new color Indigo.

Task 8: Delete a Log Entry
Delete your entry and make sure it is no longer available.

Test Notes for Subject #1

<table>
<tr><td colspan="3">Context: Android user, no experience with digital journaling</td></tr>
<tr><td>Question</td><td>Score</td><td>Notes</td></tr>
<tr><td>1</td><td>a</td><td></td></tr>
<tr><td>2</td><td>b</td><td>Tried tap-on-map to open the location in Maps</td></tr>
<tr><td>3</td><td>b</td><td>Expected in-place editing, later discovered the Update button</td></tr>
<tr><td>4</td><td>a</td><td></td></tr>
<tr><td>5</td><td>a</td><td></td></tr>
<tr><td>6</td><td>a</td><td></td></tr>
<tr><td>7</td><td>a</td><td></td></tr>
<tr><td>8</td><td>b</td><td>Tried long-tap on list item which led to the exploration of swipe</td></tr>
<tr><td colspan="3">Other remarks:

Pros:
- native feel
- minimalist
- production ready
- appreciates the physical aspect (shake to refresh/retrieve affirmation)
Recommendations:
- another method to delete log (perhaps secondary button near update)
- another method to fetch affirmation (pull to refresh)</td></tr>
</table>

Test Notes for Subject #2

Context: Uses Notion on desktop, no journaling, android user with some iOS exposure		
Question	Score	Notes
1	a	
2	b	Tried tap-on-map to open the location in Maps as well
3	a	
4	a	Was not sure if the value was saved, verified within functionality
5	a	
6	a	
7	a	
8	b	took some time to recollect the swipe to delete for lists
Other remarks: Pros: - app is stable and pleasant Recommendations: - feedback that new settings have been saved		

Findings and Recommendations from UX Testing

Test Setting:

- Users were handed an iPhone 12.
- Both users primarily use Android devices.

Findings

Finding #1: Discoverability of Actions

Users struggled to find the "Open in Maps" button and expected to tap on the map to open the location in Maps. They also had difficulty discovering the swipe-to-delete action for log entries.

Proposal:

1. Move the "Open in Maps" button above the map to improve visibility and ease of access. Alternatively implement a clickable map to open the location in Maps, but this would require disabling map interactivity (reduces delight and playfulness).
2. Add a secondary delete button near the update button for better discoverability.
3. Create an onboarding tutorial that explains key functionalities, such as deleting logs, updating entries, and opening locations in Maps. This will help new users quickly get accustomed to the app's features.

Finding #2: Feedback on Settings Changes

- Users were unsure if their settings changes (e.g., theme color, notification reminder) were saved successfully.

Recommendation:

1. Implement toast messages or notifications to confirm when settings are saved. For example, after updating the theme color or setting a notification reminder, display a message like "Settings updated successfully."

Finding #3: Alternative Interaction Methods

Users expressed a preference for additional ways to interact with the app, such as pulling to refresh for new affirmations.

Recommendation:

1. Add a pull-to-refresh feature for fetching new affirmations.