

## MENTAL HEALTH



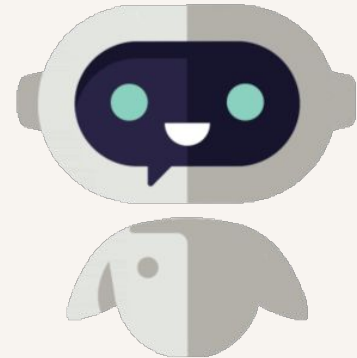
# MOODLE

CS4518

# Mobile and Ubiquitous Computing

## Term Project Proposal

Jose Perez



# PROBLEM STATEMENT: WELL-BEING

In today's fast-paced world, many struggle with mental health and emotional self-awareness. Self-reflection can improve well-being but is often avoided due to emotional barriers or uncomfortable questions.

**MOODLE** overcomes this by offering a relaxed, non-intrusive diary experience with the MOODLE Chat Companion. Instead of harsh questions, it engages users with simple, conversational prompts, making self-reflection easier. It also provides personalized insights and motivational phrases, encouraging users reflect while they feel safe

# MAIN FEATURES

**Encouraging Well-Being:** Low-pressure, enjoyable experience that helps users maintain a sense of self-awareness and mental well-being by reflecting on their days, moods, and growth over time.

**Daily Interaction:** MOODLE chatbot engages users by asking simple questions about their day, and their responses are recorded. This creates a non-intrusive, conversational way for users to reflect.

**Sentiment Analysis:** The app uses a Large Language Model (LLM) to perform sentiment analysis on the user's responses, offering insights into their mood and emotions.

**Photo Uploads:** Users can upload photos to accompany their diary entries. Once a day has passed, the conversation and photos are locked to preserve the integrity of the memory.

**Emotional Insights & Reports:** The app tracks emotions over time and generates reports based on the user's entries, summarizing their mood trends, offering insights, and suggesting motivational phrases to uplift them.

# DESIGN CHOICE



SACRAMENTO

Alice

# UI REQUIREMENT: JETPACK COMPOSE



## Week Sliding Panel

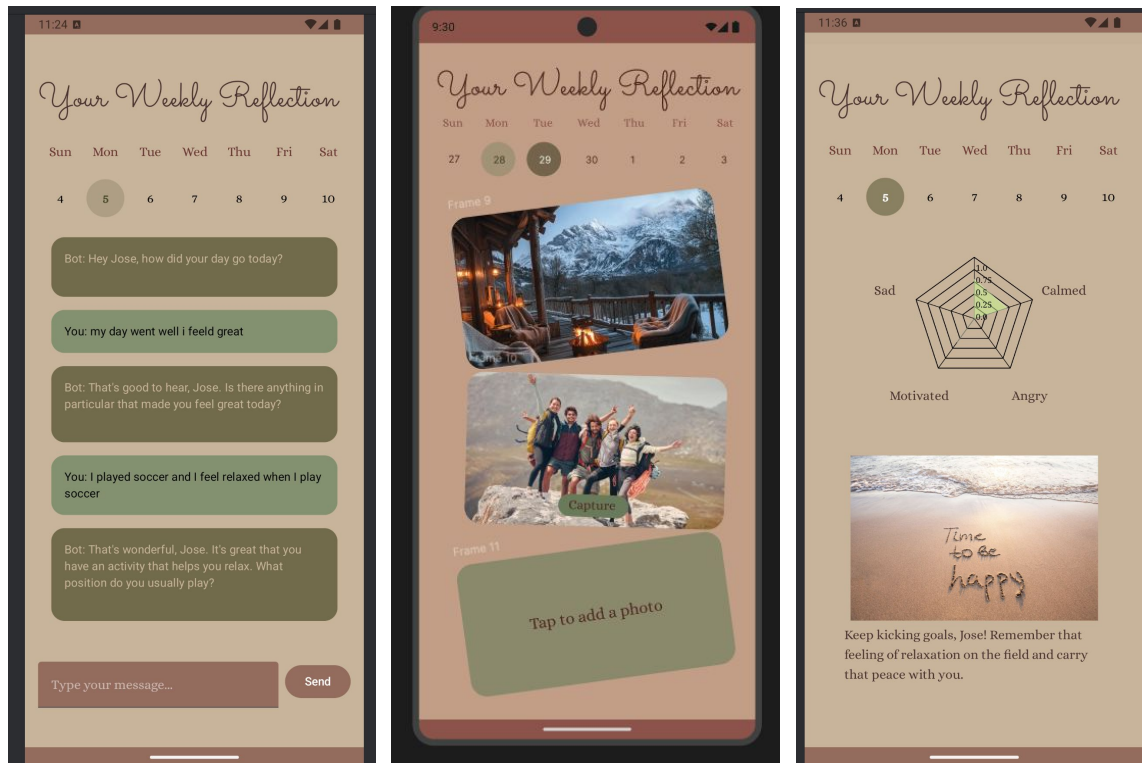
- 1) Always at the top.
- 2) Manages and remembers the selected Date.
- 3) When the user slides or taps a day, it updates the selectedDate.
- 4) Passes selectedDate into the HorizontalPager.

**Horizontal Pager:** Handles page switching between the three screens:

- 1) Daily Chat Screen
- 2) Daily Picture Screen
- 3) Stats Screen
- 4) Always passes the current selectedDate to each screen as a parameter.

## Each Screen

- 1) Has its own ViewModel (separate ViewModel class).
- 2) Accepts selectedDate: LocalDate as an argument.
- 3) Screen's ViewModel reacts to the date (fetches / loads data based on date).



# SENSING REQUIREMENT: CAMERA



CameraX

## User Features:

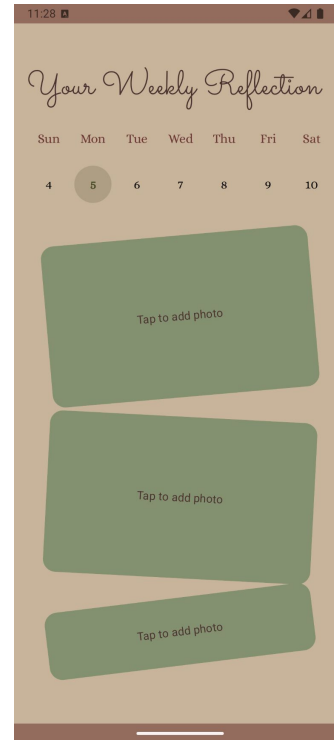
- 1) Capture a new photo using the device camera.
- 2) Retake the photo if they are not satisfied.
- 3) Delete a stored photo.
- 4) Add a picture from the device's gallery instead of taking a new one.

**ViewModel:** Responsible for handling the camera-related logic, including user interactions. It communicates with the Camera model and the local database.

## Model

Accesses the Android Camera API to manage the camera lifecycle and capture images. Manages permissions for camera access.

**Database (Local SQLite):** Stores the captured or imported pictures.



# PROCESSING REQUIREMENT: LLM



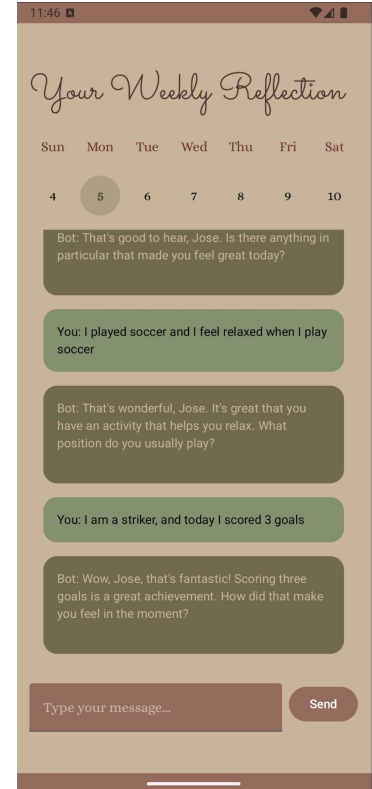
## User Features:

- 1) Send a new message by typing into the chat input field.
- 2) Receive a response from the Gemini API based on the ongoing conversation.
- 3) Store both user and AI messages in the local SQLite database for future analysis.
- 4) View past conversation history based on the selected date.
- 5) Analyze the chat history later for stats (mood, frequency, etc.).

**ViewModel:** Responsible for handling the chat-related logic, including sending user messages, receiving responses, and updating the conversation history. It communicates with the Chat model and the local database.

**Model:** Handles HTTPS communication with the Gemini API, managing authentication and request/response cycles. Parses the API responses and formats them into usable message objects.

**Database (Local SQLite):** Stores the user and AI messages along with timestamps and the associated date. Enables retrieval of all messages of a specific day for chat history and basic analysis.



11:46



## Your Weekly Reflection

Sun Mon Tue Wed Thu Fri Sat

4 5 6 7 8 9 10

Bot: That's good to hear, Jose. Is there anything in particular that made you feel great today?

You: I played soccer and I feel relaxed when I play soccer

Bot: That's wonderful, Jose. It's great that you have an activity that helps you relax. What position do you usually play?

You: I am a striker, and today I scored 3 goals

Bot: Wow, Jose, that's fantastic! Scoring three goals is a great achievement. How did that make you feel in the moment?

Type your message...

Send

11:34



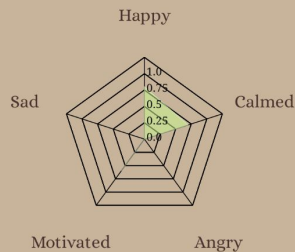
## Your Weekly Reflection

Sun Mon Tue Wed Thu Fri Sat

4 5 6 7 8 9 10

Perform Daily Analysis

Jose, it sounds like your day was brightened by playing soccer. Feeling relaxed after playing – that's a really good feeling. Thanks for sharing that with me.



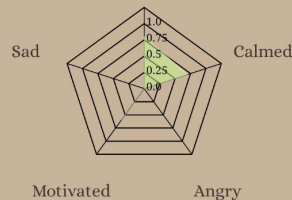
11:36



## Your Weekly Reflection

Sun Mon Tue Wed Thu Fri Sat

4 5 6 7 8 9 10



Keep kicking goals, Jose! Remember that feeling of relaxation on the field and carry that peace with you.



11:53

# Your Weekly Reflection

Sun Mon Tue Wed Thu Fri Sat

4 5 6 7 8 9 10

You: I fell down the stairs everyone laughed at me

Bot: Ouch, Jose, that sounds really rough. Falling down the stairs is never fun, and having people laugh must have made it even worse. How did you feel in that moment?

You: I feel ashamed of myself and angry with everyone

Bot: It's completely understandable that you'd feel ashamed and angry after that, Jose. Those are valid emotions. Is there anything specific about the situation that's making you feel particularly ashamed or angry?

You: I feel happy at least I didn't break anything

Type your message... Send

12:07

# Your Weekly Reflection

Sun Mon Tue Wed Thu Fri Sat

4 5 6 7 8 9 10

Perform Daily Analysis

Jose, your day sounded really rough. It's clear that things didn't go as planned, and I appreciate you sharing that with me.

Happy

Sad Calmed

Motivated Angry

11:55


# Your Weekly Reflection

Sun Mon Tue Wed Thu Fri Sat

4 5 6 7 8 9 10

Sad Calmed

Motivated Angry



Hey Jose, even on bad days, you're still learning and growing. Tomorrow's a fresh start, so hang in there!

what I'm

12:00



## Your Weekly Reflection

Sun Mon Tue Wed Thu Fri Sat

4 5 6 7 8 9 10

Bot: Thanks for checking in, Jose. Is there anything specific you'd like to talk about or reflect on from your day?

You: I did a lot of homework I feel super motivated

Bot: That's great to hear, Jose! It's always a good feeling to be productive and motivated. What subject were you working on?

You: i also feel super calmed, that tomorrow I can relaxed, and also I am excited because I will be hanging out with some friends at my house

Bot: That sounds like a wonderful plan for tomorrow, Jose. Knowing you have a relaxing day

Send

12:04



## Your Weekly Reflection

Sun Mon Tue Wed Thu Fri Sat

4 5 6 7 8 9 10

Perform Daily Analysis

It sounds like you had a really productive day, Jose, getting a lot of homework done and feeling super motivated. And now, you're feeling calm and excited knowing you have a relaxing day and fun time with friends planned for tomorrow. That's wonderful!



12:01



## Your Weekly Reflection

Sun Mon Tue Wed Thu Fri Sat

4 5 6 7 8 9 10



Hey Jose, ride that wave of calm and excitement into tomorrow – good vibes

12:11



# Your Weekly Reflection

Sun Mon Tue Wed Thu Fri Sat

11

12

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14

15

16

17

Bot: Hi Jose, how did your day go today?

You: I feel very angry I missed my friend's birthday because I am feeling sick

Bot: Oh man, Jose, that's a really frustrating situation. Missing your friend's birthday because you're sick is definitely something to be angry about. It's understandable to feel that way.

You: Right, and they were going to go skiing and I had to miss it, I feel certain that next time I won't miss it

Bot: Skiing sounds like it would have been a lot of fun! It's good you're already looking forward to the next time.

Type your message...

Send

12:12



# Your Weekly Reflection

Sun Mon Tue Wed Thu Fri Sat

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17

Jose, it sounds like today was a mix of disappointment and frustration. You were looking forward to celebrating your friend's birthday, especially with the skiing trip, but being sick kept you from it. It's tough to miss out on something you were anticipating. You're already looking ahead, and I recognize that you're hoping not to miss out next time.



12:12



# Your Weekly Reflection

Sun Mon Tue Wed Thu Fri Sat

11

12

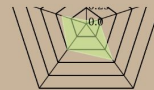
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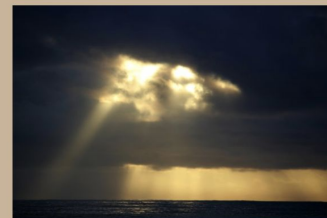
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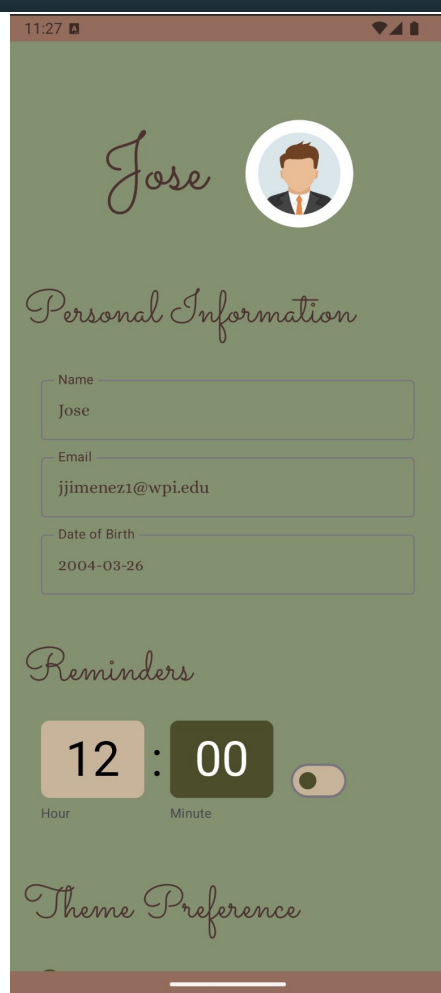


Motivated

Angry



Hey Jose, even though you're bummed about missing out, focus on getting better and planning an even bigger adventure with your friend next time! Think of this as a chance to recharge and come back stronger for the slopes.



12:34



## Your Weekly Reflection

Sun Mon Tue Wed Thu Fri Sat

11 12 13 14 15 16 17

Bot: WHAT A STUPID DAY! Peter, tell me what went wrong today. I'm already pissed off, so don't hold back!

You: Calm down

Bot: CALM DOWN?! Are you kidding me? I'm trying to help you vent, and you tell ME to calm down? Fine, keep it all bottled up then. See if I care! Ugh, just tell me ONE thing that irritated you today. Just one!

You: I failed the quiz

Bot: ARE YOU SERIOUS?! You failed the quiz? What a waste of time! Did you even study? Ugh,

Type your message...

Send

12:32



Peter



Personal Information

Reminders

Theme Preference

Chat Bot Mood

☐ NEUTRAL

☐ HAPPY

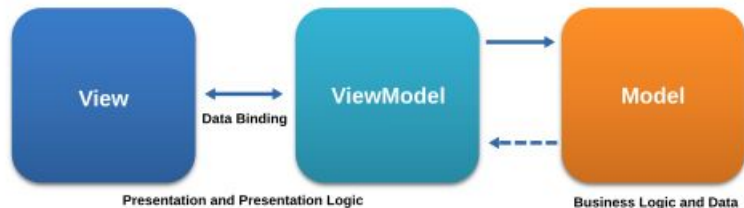
☒ ANGRY

# DATA PERSISTENCE: MVVM, SQLITE

**Shared ViewModel:** Global app states (like settings and user info) that must persist across different parts of the app and that need to be accessed by multiple screens will be in a SharedViewModel.

**Each screen will have its own ViewModel:** UI-related data for each screen will survive screen rotations and compositions. For example for the chat screen, this viewmodel will hold the state and logic related to messages. The viewmodel's state will be reset when the data changes.

**SQLite Database:** When long-term persistence is needed ( storing chats, images, analysis or keeping the user info/settings even when the app is closed), the SharedViewModel can save that data into an SQLite database, and load it back when the app starts using onInit in the viewmodel.



SQLite



Database

