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Executive Summary

Mental health among Malaysian university students has become a critical concern, with research indicating that over 72% of students experience anxiety and psychological distress. Despite the seriousness of this issue access to affordable and appropriate mental health support remains limited, with many students unaware of or unwilling to use available resources.

CalmU is a proposed free android mobile application designed specifically for Malaysian students aged 18-25. Unlike existing solutions such as Headspace, Wysa, MindHealth CBT, and DBT Mind which are either costly or overly cynical and designed for the general public. CalmU addresses these gaps by providing a stigma free, student centered mental wellness platform at no cost.

The application offers daily mood check-ins, sleep logging, guided exercises, meditation, personal journal, pattern analytics of all recorded data, Ai Companion, and contacts of university councilors. CalmU follows agile development methodology to ensure iterative improvement and user centered design approach throughout its development.

CalmU supports United Nations sustainable development goal 3 (Good health and well being) by promoting easy to access mental wellness tools that empower students to manage their emotional health. While bridging the gap to professional help when needed.

1.0 Problem Identification and Proposed Solution

1.1 Introduction

The rapid advancement of mobile technology, especially in recent times has transformed the way individuals access information, communicate and manage their daily lives and handle their daily tasks. In recent years, mobile applications have emerged as a powerful tool in addressing real world problems. Including those which are related to mental health and well being of individuals. With smart phones becoming an essential part of university student's life. *99% of Malaysians aged 18-24 own a smartphone(Nielsen, 2019).* Mobile applications present a unique opportunity to deliver easy to access and immediate mental health support directly to those who need it.

This report presents a proposal for **CalmU**, a mobile app designed specially for Malaysian university students who are experiencing increased stress, anxiety and emotional burnout. This proposal outlines the motivation behind the application, analysis of existing similar applications, and the proposed design and evaluation of proposal effectiveness.

Report is structured as follows: section 4 identifies problem and its importance, section 5 review of existing apps addressing similar problems, section 6 proposed solution and core features of CalmU, Section 7 and 8 discuss the technical approach and improvements over existing solutions, section 9 evaluating strengths and weaknesses, section 10 proposal alignment with SDG, section 11 outlines evaluation strategy and section 12 concludes the report.

1.2 Motivation and Problem Statement

Mental health has emerged as one of the most pressing concerns among university students in Malaysia and other countries of the world. Transition to higher education exposes students to stress because of high expectations from them and pressure due to studies, self financial challenges, social adjustments, family environment and increasing competition in education and job market. These pressures have resulted in alarming rates of psychological distress across Malaysian campuses.

A study conducted at University Putra Malaysia revealed that *72.7%* of students reported substantial levels of anxiety, *68.9%* experienced psychological distress, 60.6% showed signs of depression and *42.8%* experienced loss of emotional or behavioral control. These figures are clearly higher than normal levels. And highlight the widespread and mental health challenges within Malaysian education institutes.

Despite the concerning levels of this problem, access to mental health support remains limited. *About a third of students were not aware of mental health services offered by their institution, nor had any intention of utilizing them (Malaysian Journal of Public Health Medicine 2024).* This gap between increasing mental health issues and utilization of availabe support services points to a critical need for an alternative. Which is easy to access and gives stigma free solutions.

Existing applications in the field such as Headspace, Mindshift, CBT, DBTMind and MindMate offer various forms of support. However, many of these applications are or others are either costly, overly clinical or not designed with the Malaysian university students in mind. This makes a clear need for a mobile solution that is free, simple and more focused towards Malaysian students.

CalmU is proposed to fulfill these gaps. Designed specifically for Malaysian university students aged 18 to 25, CalmU offers daily mood tracking, guided science based exercises to lower stress, personal journaling, student university councillor contacts and information, and mood trend history. All within easy to use, free mobile based applications. By providing these immediate mental health tools, **CalmU** will empower students to control their mental wellbeing without any load on their pockets and any stigma or complexity.

1.3 Relevancy to Existing Work / Literature Review

1. MindHealth CBT

1.1. This app is based on cognitive behavioral therapy available on both Android and IOS, designed as a personal self help application for users dealing with anxiety, depression, stress, and panic attacks. The application combines diagnostic tools, educational resources and a AI powered psychologist which offers tests to assess the conditions such as *depression, eating disorders, neurosis and ADHDMindHealth: Mental Health CBT - Health & Fitness App | MWM*. (2022). Complete with professional recommendations. **MindHealth CBT** integrates an AI assistant that tailors exercises and guidance to match the user's condition. It also offers educational resources covering mental health concepts and positive thinking.

1.2. In terms of user feedback, this application holds the *ratings of 4.45/5 and has been downloaded over 100,000 times MindHealth: CBT Mental Health: Free Health & Fitness on Google Play - Rankings,History,Reviews*. (2026,May16). Reviews highlight that **MindHealth CBT** is best in journaling and thought tracking, making it a strong application in the market for CBT practice. However, negative feedback points to the majority of the features being locked for a subscription. One of the users noticed that it cost him 6$ a month with only a 3 day free trial. Which makes this app inaccessible for the users who can't afford it.

1.3. Despite all the strengths, Mindhealth CBT leaves a notable gap for Malaysian university students. Disadvantage here is that this app is heavily clinical focusing on diagnosing and treating the psychological disorders rather than providing light weight student focused support emotionally and mentally. Its diagnostic test and terminologies may feel overwhelming for students who are simply seeking to manage daily academic stress. Furthermore, the paywall restricts access to the most useful features, creating a financial barrier. **CalmU** addresses these gaps by offering a completely free, non clinical application for students. With student friendly User interface focused on daily pressure handling, journaling and exercises without requiring any paid subscription.

2. Headspace

2.1. Headspace is one of the most recognised mental wellness applications in the market globally. It offers a user-friendly mindfulness and meditation experience through courses, different kinds of exercise or sleep support. It is backed by deep research with studies indicating that *using the app for 10 days can reduce daily stress up to 14%(Headspace App Review: Is It the Best Meditation App So Far? (2026, March 3)*. It works by using cloud based content delivery, AI powered session recommendations, and personalization to enhance the user experience. It's available on android and IOS platforms.

2.2. In terms of feedback, *headspace maintains a solid 4.8 star rating (Headspace App Review: Is It the Best Meditation App So Far? (2026, March 3)*. Users often praise the gradual course structure of this application. However, the criticism is heavily focused on the paid content, poor customer service. Despite 10million+ downloads worldwide. This app is ongoing for locking most of its content for subscriptions.

2.3. This presents a significant gap for Malaysian university students. Headspace costs $12.99 monthly or $69.99 annually, with a seven-day free trial which also gives access to only limited services. Major flow is that it is not tailored to academic stresses or students specifically, *app content is catered to general public Behance. (2022, May 1)*. **CalmU** addresses these by offering all core mental wellness features completely free of charge, also removing the financial barrier that prevents the Malaysian university students from using the consistent mental support.

3. Wysa

3.1. Wysa is also one of the Ai powered mental health support applications which is availabe on IOS platform and android. Designed to manage stress, anxiety and depression through using its (CBT) Cognitive behavioural therapy techniques. *This app offers yoga, meditation and journaling techniques with a free and premium version. Premium self care version costs $74.99 annually with a seven day free trial. And personal coaching starts at $19.99 per session Bell, C. (2023, October 18).*

Wysa uses natural language processing to assess users emotional states, it uses machine learning to tailor more specific user needs, it provides a chatbot for the user to enhance the experience.

3.2. Regarding the feedback, an analysis of google play *store found that Wysa has a 4.7 star rating and 147K reviews Bell, C. (2023, October 18).* More than 80% of users are giving higher than 4 star rating praising its engaging exercises and interactive interfaces. However, a study found that while Wysa is effective and fosters connection and encourages people to take positive steps towards being more emotionally strong. *Its AI requires several improvements to enhance user experience with the application Beenish Moalla Chaudhry, & Happy Rani Debi. (2023).*

3.3. The primary gap with Wysa is its accessibility and suitability. The free version offers very limited functionality. Full experience creates a gap for students because of a limited budget. Some of the users found the app frustrating and unhelpful. Noting that free version is seen as limited and often ineffective, with issues in AI's guessing of emotions and phrases. Again, **CalmU** offers a full set of features at no cost, ensuring students are not limited by subscription fees.

4. DBT Mind

4.1. DBT Mind is also one of the strong mental health support available in the market; it is built on the principles of dialectical behaviour therapy (DBT), designed to help users in regulating their behaviours and manage distress. This application offers guided audio practices, a positive journal, and all in one crisis thermometer, guided crises plan, and last but not least an AI chat for immediate emotional support. The app is integrated with clinical portals for feedback. Supporting all DBT skill modules including mindfulness, emotional stability and distress tolerance. *Application have strong data privacy by using end to end encryption. Team, D.-M. (2024).*

4.2. In terms of user feedback it is noted by the users that this application is extremely helpful. It can manage conditions such as borderline personality disorder , with content described as detailed, well organised and practical instead of just surface level. However, negative reviews highlight that the app is highly clinical in nature and uses technical DBT terms which make it better suited for individuals already engaged in formal therapy rather than students or general users.

4.3. A critical gap with this application is in its own complexity for the general users. The app is heavily focused towards the individuals who are already receiving formal DBT therapy or those dealing with serious borderline personality disorder. Its structured therapy framework and technical terminology may feel overwhelming and irrelevant for Malaysian students who are simply seeking to have some form of stress reliever and manage their emotional states due to study pressures or personal issues. **CalmU** will address this directly by offering a simpler, student friendly experience focused on everyday wellness rather than any need of going to a clinic.

1.4 Proposed Solution and Application Overview

1. Description of the Proposed Solution

CalmU is a free android mobile application proposed to address the growing mental health crisis among Malaysian university students. Unlike existing applications which are either expensive, overly clinical, or designed for general audiences, CalmU is proposed specifically around the daily needs of a general university student aged 18 to 25. Application provides safe, private, and stigma free digital space where students can monitor their mental wellness on their own. Can also practice self care techniques and access available support resources for free.

CalmU draws inspiration from existing solutions in the market while introducing student specific features that are not available in current mental wellness solutions. The design proposal prioritises simplicity, accessibility relevance and ensures students with no earlier experience with mental wellness applications can also easily navigate and take benefit from the app.

2. Core Functions and Features

CalmU is organized around five core sections accessible through a bottom navigation bar:

a. **Today Screen** serves as the home dashboard of CalmU, it greets users by name and displays the current date. It provides a daily mood check in and sleep log which prompts students to record their emotional states each day. This screen also presents a structured daily sequence of wellness activities, such as morning breathing exercise or journal check-in.

b. **Wellness Hub** provides students with four mental wellness tools presented as interactive tiles:

- **Breathing exercise**-guided breathing techniques to help students manage stress and anxiety.
- **Journal**-a private digital journal,entries saved securely to their account.
- **Meditation**-short guided techniques specifically according to students' stressors such as exams.
- **University Counselling Contacts**

c. **Pattern Screen** presents visual analytics derived from the students' recorded data and entries in the form of journal and mood. Includes mood transitions, emotional landscape mapping, journal sentimental patterns, and stress trends. These help students figure out recurring triggers and emotional cycles, and help them to make informed decisions about their mental health.

d. **AI Chat Companion**

CalmU includes a lightweight AI chat companion that provides supportive responses to common student mental health concerns. AI chat is not intended as a clinical tool but rather as an always available support option for students to turn to when they feel the need to be heard. It can respond to common triggers such as burnouts, exam stress, loneliness with informed suggestions.

e. **Profile and Gamification**

Profile screen displays students wellness journey through XP (experience points) and streak system to encourage students to maintain daily login. Achievements and active challenges will encourage them to have long term engagement with the app and form a habit towards mental self care.

Platform

CalmU will be developed as a native Android application using Gradle and Android Studio. Android was selected as the target because of its dominant market share in Malaysia. Which can help in broadest possible reach. Android approach is also preferred over cross platform development to ensure optimal performance, smooth user experience and direct access to android specific features such as local notifications. Android studio will also help in launching the app live on emulator to test its performance and functionalities.

2.0 App Design and Architecture

2.1 Overall App Concept

The **CalmU** is a mobile mental health support app designed for university students in Malaysia who tend to go through stress, anxiety, emotional burnout, and even academic pressures in the course of their university life. Students have difficulties with managing tasks, tests, work, and family life that may adversely influence their emotional state and everyday work. Although the issue of mental health awareness has taken central stage over the last few years, the majority of students remain reluctant to seek any support due to the lack of knowledge as to where to begin or feeling awkward to openly express their feelings. Due to this fact, **CalmU** is suggested as a basic and guiding platform that enables students to take better care of their mental health by means of available self-care resources and emotional support functionalities. The primary **CalmU** mission statement is to offer students a secure, cozy, and convenient environment where they can control their emotions and achieve lower levels of daily stress more healthily. Unlike clinical treatment, the application focuses more on emotional support and self-care activities that can be part of a daily routine of a student. **CalmU** has mood tracking, relaxation exercises, personal journaling, mood history, an AI chatbot, and university counselor features. These characteristics should allow students to be more conscious of their emotional state and promote healthier coping and positive mental health behaviors.

CalmU will target **Malaysian university students aged 18 to 25** who might feel some emotional stress, anxiety, loneliness, burnout, or pressure to study during their academic journey. **CalmU** leverages mobile technology to offer convenient and timely emotional support to its students everywhere and in any place, as smartphones are a ubiquitous part of student life. It will enable the student to seek mental wellness support in a private, comfortably provided screening when the student sees the need, including stressful situations like assignment deadlines and examination periods.The benefit that allows **CalmU** to shine against the current mental wellness initiatives, such as the intense emphasis on a particular student group and its particular needs. The available majority of applications are expensive, overly complex, or specific to clinical mental treatment. **CalmU,** in comparison, is way simpler and can be easily used by students, focusing on daily emotional support and stress management. The application also has an AI chatbot assistant, which also acts as a helpful talking friend, and students are able to talk, maintain emotional well-being, and feel less alone when they are going through difficult times. Combined with silent UI/UX and simple

navigation, **CalmU** plans to create a comfortable, calming digital atmosphere that is suitable and warm for students to visit.

2.2 Key Features

CalmU offers multiple features that aim to promote mental wellness among university students in Malaysia. This includes emotional awareness, managing stress, self-care, mental health resources and user account management. This platform is designed to make it easier for students to learn healthy emotional skills, track their wellbeing journey, and access wellbeing support during their university experience.

Features	Description	Benefit to Students
Daily Mood Check-in	Emoji based mood logging	Helps students track emotional patterns and identify stress triggers early
Sleep Log	Tracks daily sleep quality and duration	Connects sleep habits to mood and stress levels for better self care
Guided Breathing Exercises	Guided breathing techniques	Provides immediate stress and anxiety relief during high pressure times.
Journaling	Personal journal	Gives students a safe, free outlet to express thoughts and emotions.
Meditation Session	Guided meditation sessions	Helps students mentally reset during exams
Patterns and Analytics	Mood trends, emotional trends, sleep patterns, journal and stress patterns.	Empowers students to understand their mental health cycles
Counselor Contacts	university counselor information and appointment support	Bridges the gap between students and professional mental health support on campus
User Profile Management	Allows students to manage personal information, preferences, and account settings	Provides a personalized experience and helps users track their wellbeing journey more effectively
AI Chat Companion	Provides AI-powered support for common student stressors	Always available emotional support without clinical complexity or cost
XP Points	xp points, Streaks, and achievement tracking	Encourages students to log in daily
Completely Free of Cost	All features are available without subscriptions or paywalls	Removes financial barriers ensures equal access for all students
Student Support Content	Tips and resources related to exam stress, deadlines, and student wellbeing	Delivers support tailored to students' needs

Together, these features create a well-rounded mental wellbeing platform that incorporates emotional monitoring, self-care activities, professional support resources, personalized user

management, and AI-driven interaction. CalmU is unique in the mental health space in terms of its accessibility, daily emotional support and student-centred wellbeing management. The application is designed to be a comprehensive suite of mental health tools, easily accessible to students at the university level who are under academic pressure, stress and anxiety.

2.3 UI/UX Design Considerations

CalmU's UI/UX design will be developed to offer a serene, straightforward, and empowering experience for students in Malaysian universities. The app is about mental wellbeing, therefore don't want to create a design that's too cluttered and easy to use. Rather, it should be used to get students to fast and easy access to support tools.

Design Considerations	Implementation in CalmU	Purpose
Simplicity	Create a clear interface with minimal text, clear icons, and organized screens.	Minimizes confusion and simplifies use of the app during stressful periods.
Easy Navigation	The main functions like mood tracking, journaling, relaxation exercises, and AI-powered chatbot are accessible from the home dashboard screen.	Provides easy access to support tools without many steps.
Calm Visual Design	Create soothing colors, uncomplicated designs, and calming elements.	Establishes a wellness environment appropriate for a mental health application.
Accessibility	Make fonts easy to read, buttons easy to click and labels easy to read.	Helps different users interact with the app easily on mobile screens.
Consistency	Ensure uniformity in the style of these buttons, icons, colors and layout patterns across all screens.	Makes the app feel familiar and easier to learn.
Privacy & Security	Keep personal information like journal entries and mood records secure and provide secure login.	Establishes trust and helps students to use the Application with integrity.
Mobile-Friendly Design	Create the app specifically for Android phones and have responsive screen layouts.	Enables students to access mental wellness support at anytime, anywhere.
User Engagement	Reminders, progress dashboard, and AI chatbot interactions.	Encourages students to use the app frequently and to take care of themselves.

These UI/UX considerations collectively contribute to a comfortable and student-friendly digital environment for CalmU. The design helps advance the app's primary mission to ensure that tools for mental well-being are easily accessible, well understood, and fit in with students' everyday lives.

2.4 Platform Choice

In the development of **CalmU**, the group chose to use the Android platform as the primary platform on which to develop the application. Android was found out to be one of the most popular mobile operating systems used by the university students in Malaysia. Mobile applications are a convenient and easily accessible source of mental health support because most students use smartphones in the learning process and personal life. In addition to that, Android devices are available at various prices as well, and thus the application will reach more classes with various financial statuses.

Figma and Android Studio are the primary tools the project team relies on to promote the process of design and development. Figma helps us design the UI/UX phase, including wireframes, user flow planning, interface layout design, and the prototype visualization. With Figma, the group can work on the design of a clean and student-friendly interface prior to implementation. This process will make the team have a concept of how the users will use the application, and any improvements can be made in the early stages of planning. Figma use also facilitates more effective team collaboration since the design and ideas could be easily shared and edited in real-time.

In the case of the application development, the primary development platform is chosen to be Android Studio. Android Studio is a tool that supplies an architecture to create mobile apps, including interface building, writing tests, and incorporating the system. The platform is very appropriate for creating **CalmU** since it allows for creating responsive and interactive Android applications but also includes tools that ease the development process. The team will successfully implement the suggested functionalities, such as mood tracking, the journaling feature, notifications, and user-interaction features, with Android Studio.

Figma and Android Studio would enable the project to accomplish both efficient application development and planning design. Figma is used to make sure that the application has a light, relaxing, and easy user experience, and Android Studio contributes with the technical features needed to make the design a working mobile application. This option of the platform allows sustaining the overall goal of **CalmU**, as the application is also accessible, practical, and applicable to students of Malaysian universities.

2.5 User Flow [The Diagram Link]

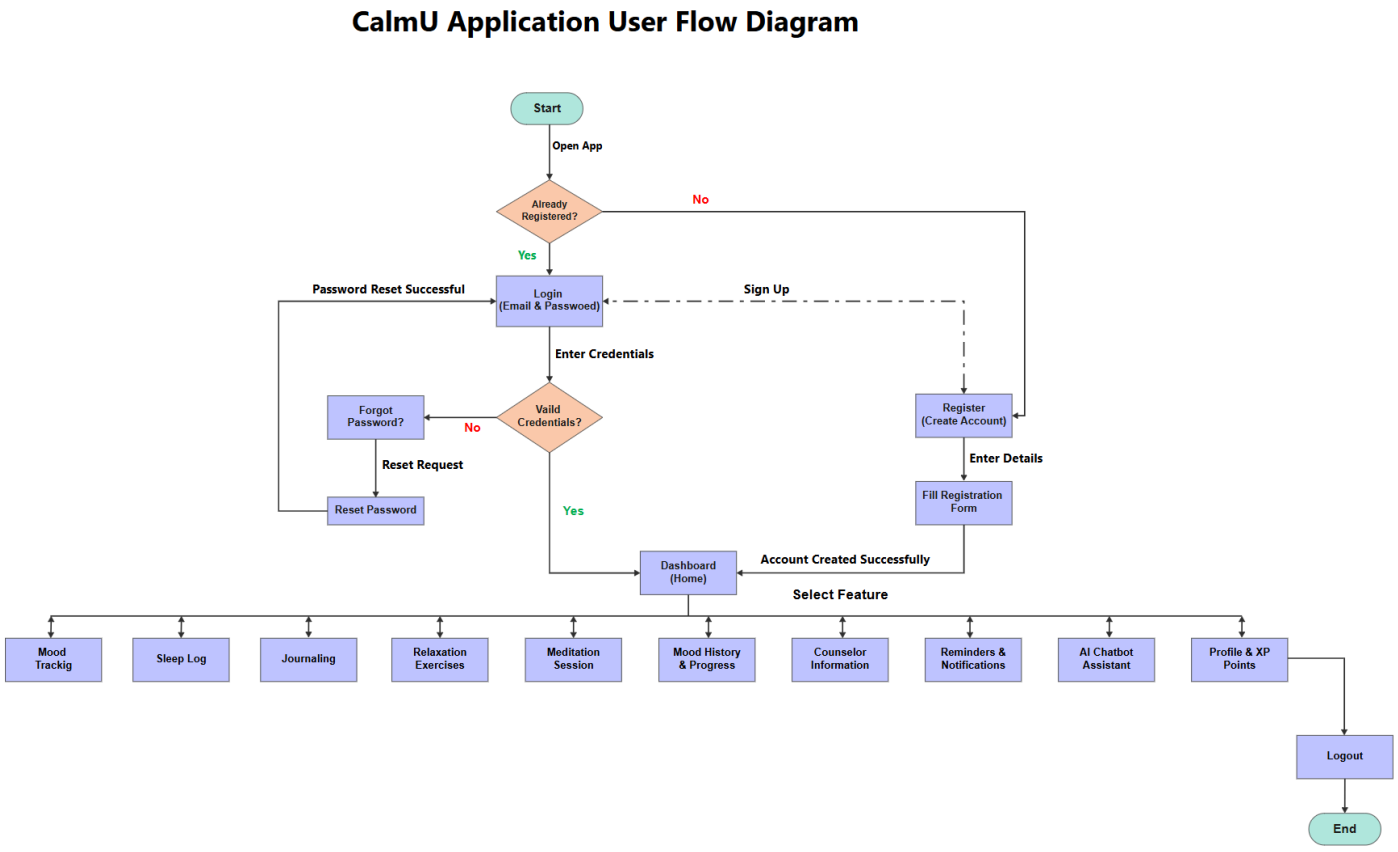


Figure 1: CalmU User Flow

The user flow diagram shows how a user navigates through the CalmU application, starting from registration or logging in, who then verifies the credentials and recovers the password if needed. Successful authentication will lead to a main dashboard, where users will be able to access the features and services of the application. Through the dashboard, users can access Mood Tracking, Sleep Log, Journaling, Relaxation Exercises, Meditation Sessions, Mood History & Progress, Counselor Information, Reminders & Notifications, the AI Chatbot Assistant, and Profile & XP Points. The diagram illustrates the flow of users within the system, showing a clear and organized route for each function. Other features like Completely Free of Cost and Students Content are considered as supporting features of the application but are not shown as separate navigation modules with user flow in the user flow diagram. Overall, the navigation structure seeks to create a user-friendly experience that enables university students to effectively and safely manage their well-being and access mental wellness resources.

2.6 System Architecture [The Diagram Link]

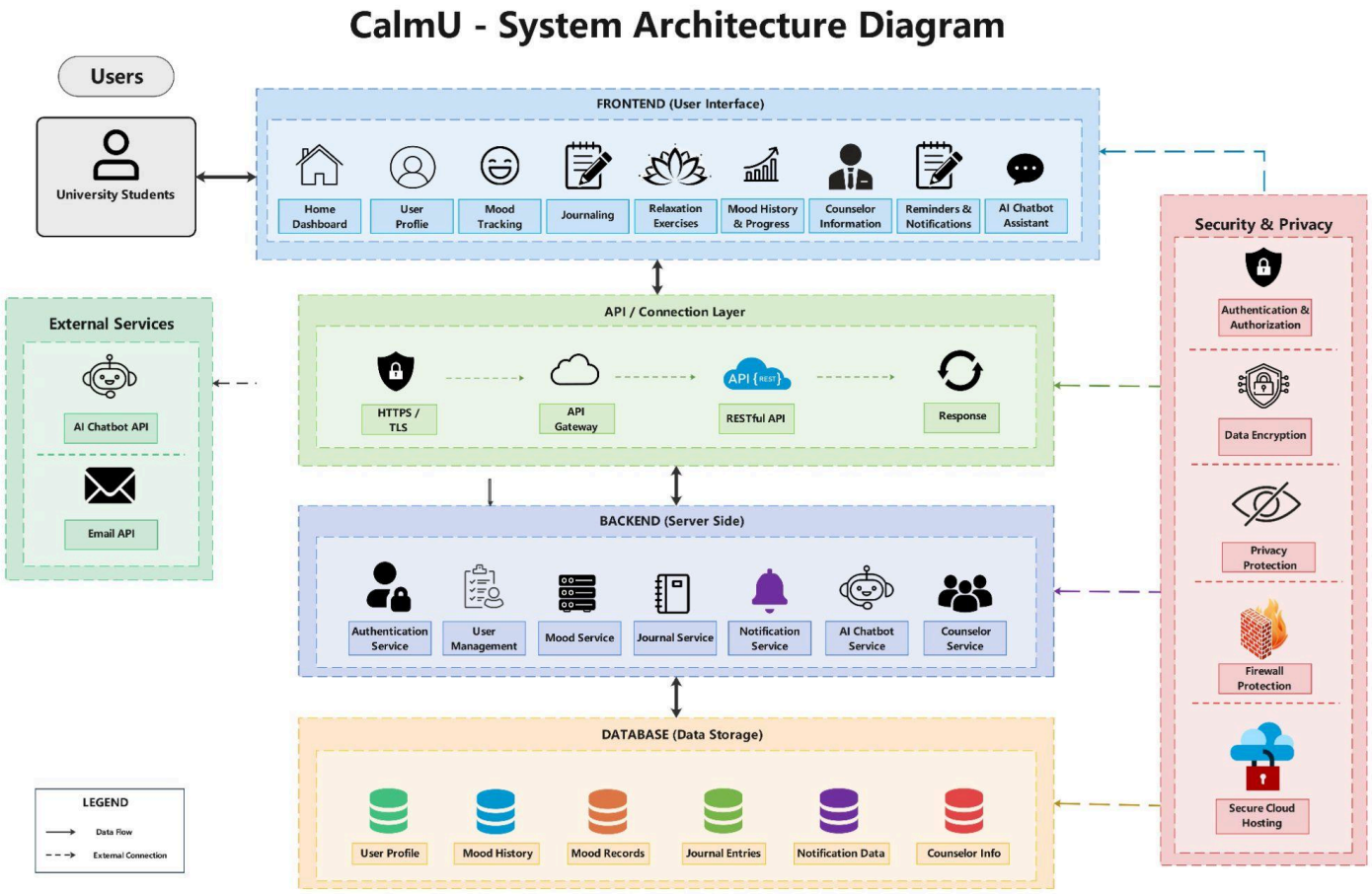


Figure 2: CalmU System Architecture

CalmU's overall system architecture is shown in Figure 2. The design is layered, consisting of four layers: Frontend, API/Connection Layer, Backend, and Database. Moreover, a dedicated Security & Privacy layer shields all system components and External Services are incorporated with the help of the API layer. It provides better organization, maintainability, scalability and security of the system.

This system is created for Malaysian university students and can be accessed via the CalmU mobile application. Frontend layer refers to the interface that students directly interact with the application. It features the Home Dashboard, User Profile, Mood tracking, Journaling, Relaxation Exercises, Mood History & Progress, Counselor Information, Reminders & Notifications, and AI Chatbot Assistant. These features provide students with easily and seamlessly accessible mental wellness resources, personal/facing resources and self-care prompts through a simple and intuitive interface.

In order to make communication between mobile application and server side services, the API/Connection Layer is used. The components of this layer are HTTPS/TLS, API Gateway, RESTful API and Response. The API Gateway serves as a gateway to direct requests to the correct back-end functions and also protects the data passing through the gateway from client to server via HTTPS/ SSL (Joy & Ahmed, 2025). The communication between the mobile application and server-side systems is done via RESTful API, as it offers a reliable and scalable way to communicate between different systems (Andry et al,. 2011).

The Business logic of the application is in the Backend layer. The Authentication Service handles user enrollment, logon and account validation. The User Management service provides access to user preferences and information. Other backend services include the Mood Service, Journal Service, Notification Service, AI Chatbot Service and the Counselor Service. These services respond to the user's request, process the business rules and coordinate with the database to return the needed data and functionality to that user.m

The Database layer contains all the data for the application. This will include User Profiles, Mood History, Mood Records, Journal Entries, Notification Data & Counselor Information. It could provide custom experiences, monitor user emotions across time, and guarantee secure information the board party, just to mention a couple of, while maintaining info in a focal area. CalmU is currently backed by some External Services; aimed at improving functionality via the API layer. The AI Chatbot API is utilized for delivering conversational assistance and basic direction to the user, while the Email API is suitable for delivering notifications, reminders, and important information to the user.

The Frontend, API/Connection Layer, Backend and Database are all protected by a dedicated Security & Privacy layer. The layer comprises of Authentication & Authorization, Data Encryption, Privacy Protection, Firewall Protection and Secure Cloud Hosting. The authentication and authorization mechanisms ensure that only certain users are granted access to the resources of the system, as well as their personal information (Ferrag et al,. 2019). Data encryption needs to secure sensitive information while it is being transmitted and stored, and firewall protection can prevent unauthorized access to the backend resources. Cloud hosting also provides increased system reliability, availability, and data security.

The proposed architecture will offer a secure, scalable, and maintainable platform for CalmU.

2.7 Data Flow

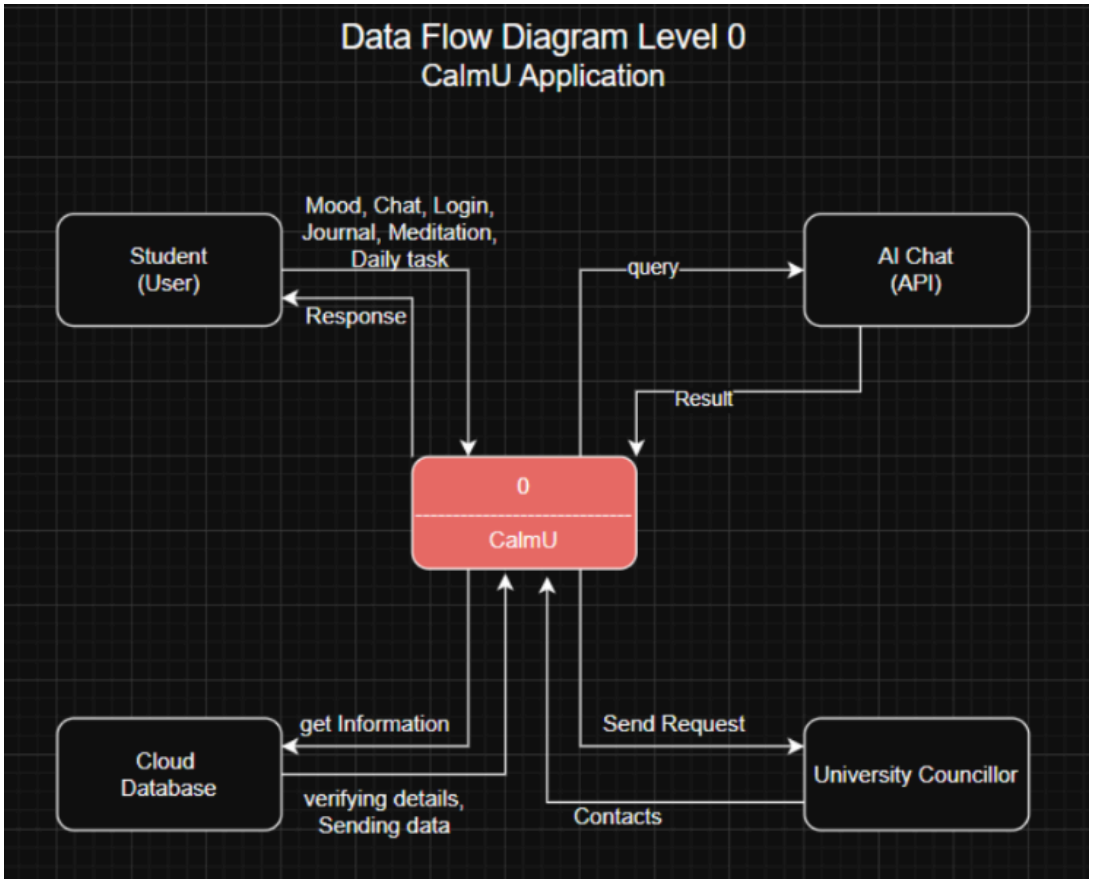


Figure 2: CalmU Data Flow

This figure represents the level 0 Data Flow diagram for CalmU app. Students are the primary user, providing inputs such as mood entries, journal logs, chat messages, and daily tasks, and receiving responses and analytics in return. AI Chat receives queries from the system and returns AI generated results to support the student. University counsellor entity provides professional contact information. Cloud databases handle data storage and retrieval, verifying the user details and storing the records such as mood history and journal entries. Also our chatbot will be getting its data from a cloud database. Together all these entities and data flow forms the bases of CalmU.

3.0 Development Process and Tools Used

3.1 Development Methodology

The development of CalmU is proposed to follow the Agile software development methodology. Agile was selected because it provides a flexible, iterative, and user-centered approach that is highly suitable for mobile application development projects, especially applications that focus on user experience and continuous feature enhancement. The design process for CalmU is a process that will need to be refined based on user feedback, as the application is expected to support mental health within the university community, it must be simple, easy to access, and effective for users.

The Agile methodology enables the project to be broken down into smaller, more manageable development phases, including planning, requirement analysis, UI/UX design, feature planning, testing, feedback collection, and evaluation. Rather than setting the entire system in stone, each feature can be iterated and developed over time, taking user expectations and the findings from discussions and research into consideration, as well as testing results. This is useful for the team to detect possible problems at an early stage, to continuously develop the planned functionality and to keep the project organized during its development. The iterative nature of Agile is especially beneficial for mental wellness applications, where user comfort, accessibility, and interface simplicity play a critical role in user engagement and long-term usage.

Agile also promotes strong collaboration and communication among team members. Each group member is assigned specific responsibilities while still participating in group discussions, idea sharing, and decision-making processes. This collaborative environment helps ensure that all parts of CalmU are planned consistently and aligned with the overall project objectives.

It is used to design user interfaces, application layouts, and user flow during the UI/UX design phase. Once the team adopts Figma, they can get a clear picture of the application structure before implementation, decreasing the probability of problems in the design during the subsequent development process. This also allows the team to evaluate the usability and visual consistency of the application before implementation.

Meanwhile, Android Studio was chosen as the primary development environment to create the mobile app and add the suggested features. Android Studio offers certain tools and resources for app testing, system integration, debugging, and interface designing that are very

appropriate for developing CalmU. GitHub also is suggested as a platform for collaborating with other members of the team and keeping track of changes throughout the development process.

Additionally, the Agile approach supports future scalability and feature enhancement for CalmU. Mental wellness applications are regularly updated and improved based on user feedback and evolving user requirements, and Agile offers a development framework that enables such future modifications to be integrated more efficiently.

3.2 Project Development Phases

The development planning of CalmU is structured into multiple planned phases to ensure the proposed mobile application is developed systematically and effectively. At the current stage of the project, the team is primarily focusing on research, planning, requirement analysis, and system design as part of the proposal development process. Future phases of the project will involve actual implementation and full system development. Each proposed phase focuses on specific objectives that contribute to the overall quality, usability, and functionality of the proposed system. The development phases may evolve further as further feedback, research findings and user requirements are identified during the project planning process.

The first Phases is the planning and research phas**e**. During this stage, the team identified the increasing mental health challenges faced by Malaysian university students and conducted research on existing mental wellness applications such as Headspace, Wysa, MindHealth CBT, and DBT Mind. This phase helped the team understand current market solutions, identify gaps in existing applications, and determine the core objectives and target users of CalmU.

The second phase is the phase of requirement analysis. In this phase, the team studied the functional and non-functional needs of the proposed application. Based on the users' needs and project objectives, the following important features were identified: mood tracking, guided stress-relief exercises, personal journaling, and access to the university counselor information. The team also looked at usability and accessibility of the proposed application and simplicity of the interface, so that the application does not make any difficulty for the university students.

The third phase is the UI/UX design phase . At this point, Figma is employed to make interface prototypes, application layouts, and user navigation flow. This is done to get the app structure visualized before implementation, and to make the interface design easy, attractive and user friendly. Particular focus is placed on establishing a peaceful and encouraging user experience, in keeping with the function of a mental wellness app. Since CalmU is designed as a mental wellness application, additional attention is given to interface comfort, color simplicity, and user interaction flow to create a supportive and stress-free user experience.

The fourth phase is the proposed application development phase, which is planned for the future implementation stage of the project. Android Studio will be the main development environment for implementing the proposed functionalities and interface components of the application during this planned phase. The future development process aims to continue to integrate the key functions of CalmU while keeping the interface consistent, system usability and application performance efficient. In this stage, the proposed system modules will be integrated and tested incrementally to verify the functional consistency, usability, and smooth interaction between various application parts before proceeding to the final evaluation stage.

The final phase is the proposed testing and evaluation phase, which is also planned for future implementation. In this stage, the team plans to evaluate the functionality, interface usability, and overall effectiveness of the developed application after the implementation process is completed. Feedback and test results are anticipated to be used to determine potential improvements and to inform system design and user experience refinement. This phase is intended to ensure that CalmU meets the expected project objectives and user requirements during future development stages.

In future implementation phases, there may be further enhancements, refinements and new features and functions that are added to the project based on user feedback, future research results and changing project needs. This flexible approach supports the continuous improvement nature of Agile development methodology. Documentation and planning activities are also considered important throughout the proposed development phases to ensure better organization, communication, and project management among team members. The proposed development process also focuses on a user-centered approach to ensure that the design and functions of the application are in accordance with the emotional comfort and usability of the university students.

3.3 Team Roles and Responsibilities

The CalmU project is developed through collaborative teamwork, where each member contributes to different project activities based on their assigned responsibilities and expertise. The team structure is organized in a way that aligns with the Agile development approach, allowing better coordination, communication, and workflow management throughout the proposal development process. Clear role allocation also enhances accountability, consistency, and cooperation in various aspects of the project. The role structure also facilitates cross-functional collaboration, whereby team members participate in planning discussions and help in many project activities as needed.

Saad Muhammad is the Research and Solution Analysis Lead for the project. He is responsible for recognizing the mental health issues faced by university students, assessing available solutions, and helping develop the application concept. He also contributes to the App Design and Architecture section by conducting **Data Flow analysis**, ensuring that information moves efficiently between users and system components while supporting the overall objectives of the proposed system.

Alshamary Juri Dham O serves as the Design and Future Enhancement Coordinator. Her role is to assist with the overall concept for the application, identify the major features of the system, help choose the platform for the application, and participate in the planning of the system architecture. She is also expected to assess the proposed solution and identify strengths, weaknesses and limitations, as well as make recommendations for potential future enhancements that could increase the effectiveness and usability of CalmU in subsequent stages of development. Furthermore, she contributes to the **overall application concept, key feature identification, UI/UX design considerations, platform selection, and system architecture planning** while coordinating the quality and organization of the report to ensure consistency, clarity and professionalism throughout the proposal.

Alshamary Badr Dham O serves as the Development Planning and Documentation Coordinator. His duties involve documenting the proposed development methodology, explaining the framework and technologies chosen, organizing development planning, and maintaining the overall quality and structure of the document. He also coordinates workflows between technical planning and documentation, and between technical planning and project organization, ensuring the process is consistent across the proposal development. Furthermore, **he contributes to the User Flow design and documentation, illustrating how**

users navigate through the CalmU application from registration and login to dashboard access and feature interaction. He also plays a role in development methodology planning, technology justification, project documentation quality assurance, and the evaluation of the proposed solution through the identification of strengths, weaknesses, limitations, and future improvement opportunities to ensure consistency and professionalism are maintained throughout the proposal.

Saimon Kabir Chowdhury acts as the Testing and Evaluation Coordinator for the project. His role is to plan the proposed testing strategy, identify evaluation methods, and document the use of generative AI tools in various stages of the project. His work also relates to assisting future system evaluation efforts and to the ability to effectively evaluate the proposed solution during the future system implementation phases. He also participates in the development of project conclusion and helps with the final review of project outputs and results, ensuring that the project is complete and well documented.

While each member has specific roles, the development process of the project is collaborative and discussion based. Team members are actively engaged in sharing ideas, planning discussions, providing feedback, and making decisions throughout the project to ensure consistency throughout all project segments. Regular communication and collaborative coordination are also deemed essential for ensuring that the CalmU proposal keeps moving along, and remains professional, well-structured and with a focus on project goals and user needs.

3.4 Tools, Frameworks, and Technologies Used

Several tools, frameworks, and technologies are planned to support the design, organization, and future development of the CalmU mobile application. These technologies are chosen according to their adaptation to mobile application projects, collaboration workflow management, interface design, and future requirements for the system implementation.

Using Figma as the main UI/UX design platform, interface prototypes, layout and user navigation are created. With Figma, the team can bring the proposed application design to life before implementation, and confirm that the application interface structure is organized, easy to use, and visually consistent. The platform also facilitates team discussions on design in the planning and prototyping phase.

Android Studio is chosen as the main development platform for the future deployment of CalmU. It offers some tools that are essential for android mobile application development

which includes interface development support, debugging tools, testing with an emulator, and integration with the system. Android Studio also offers improved structure for app parts and productive planning of future phases of development.

GitHub is recommended to be a collaboration and source management platform to facilitate project coordination and source management across the development process. It allows team members to handle project documents, track changes, keep consistency of versions and help in collaborative coding activities better. The platform also enables centralized project management and improves coordination among various project areas.

The Agile development methodology is adopted to guide the overall project planning and future development process. Agile encourages incremental planning, ongoing improvement and adjustment to project needs and future feedback. The methodology is well suited to the CalmU domain, as mental wellness applications can benefit from gradual refinement for better user experience, usability and system functions over time.

Along with these technologies, normal documentation and research tools are used too in the process of developing the proposal which help in writing the report, analysing the literature, planning the project and documentation activities. These tools contribute to maintaining better organization, communication, and consistency throughout the project preparation process.

3.5 Justification of Selected Technologies

The technologies and development methodologies chosen for the CalmU project were carefully selected, depending on the nature of the proposed application, the user experience desired, the future implementation requirements, and the collaborative structure of the project. The technologies selected for CalmU are aimed at accessibility, usability, efficient development planning and long-term scalability; as it is a mental wellness mobile application for university students.

The UI/UX design platform was chosen as the main one – Figma – due to its critical role in mental wellness apps. Conventional applications are generally more functional, while CalmU should feature an interface that creates a sense of emotional comfort, simplicity, and ease of interaction. The team can visualize the structure of the app, the flow of the user, and consistency of the interface before implementation even starts, thanks to Figma. This will help minimize future conflict and will aid in the identification of usability changes early in the design process. Moreover, the collaborative properties of Figma allow several team

members to be useful in the discussion and planning of interfaces during the proposal development phase.

Android Studio is chosen as the main development environment since it offers a comprehensive and organized platform for Android mobile application development. Android Studio provides an environment where all of the interface development, debugging, emulator testing and management of the application can be done within a centralized workspace, which is what is anticipated for CalmU to be implemented in the future. The platform is widely used for Android application development and provides full compatibility with Android system requirements, making it suitable for implementing the proposed functionalities of CalmU. This makes it highly suitable for supporting the future implementation goals of CalmU while maintaining better organization and development efficiency. Android was also selected due to its widespread adoption among university students, making the proposed application more accessible to its target user group. The platform's availability across a wide range of devices further supports the project's goal of providing convenient, inclusive, and accessible mental wellness support.

Collaborative project development needs members to coordinate, manage files, and track changes in the development, where gitHub is proposed as a version control and collaboration platform. Project versions are important for organized versions when the project is still in the various planning and development stages. Centralized workflow management and tracking of project changes are supported in GitHub. This assists in minimizing confusion in collaborative work and enhances coordination among technical planning, documentation and future implementation activities.

The Agile development methodology was used as it fits very well with the characteristics of mental wellness apps and the changing needs of user-centred mobile systems. Software for mental wellness applications frequently should be continually improved by user feedback, observations of how the software is used, and evolving user expectations. Agile works well with iterative planning and flexible improvement processes, which enables the project to improve more adaptively as per future changes and improvement opportunities. The methodology also enhances team working, communications and task organisation among the team members, which is crucial for ensuring consistency across the development planning process.

Overall, the selected technologies and development approaches were chosen not only for their technical capabilities, but also for their ability to support the long-term vision, usability objectives, collaborative workflow, and future scalability of the CalmU mobile application.

4.0 Testing Strategy and Results

4.1 Evaluation Strategy

The evaluation approach for CalmU is proposed to ensure the proposed mobile application is able to fulfil the functional, usability, accessibility, and emotional support needs of Malaysian university students. In addition to technical performance, CalmU needs to be tested for user comfort, simplicity of the interface and user experience, with the aim of supporting mental wellness and stress management.

The evaluation process will be carried out in the future implementation part of the project. Several testing methods are suggested to test the application systematically before its real deployment and find any possible improvements.

4.2 Functional Testing

All the key **CalmU** functionality will be undertaken to confirm that the system meets what is required function wise. This testing is used to ensure that each element functions properly, responds to users properly, and delivers a seamless user experience without system errors.

Key functions to be tested are aimed at the essential functions of CalmU, such as tracking a student's mood, relaxation exercises, writing in a journal, interacting with the AI chatbot, notification capabilities, and resources to support the students .

These will be the functions that are intended for testing:

Feature	**Testing Objective**	**Expected Result**
Daily Mood Tracking	Verify users can record daily moods successfully	Mood entries are saved and displayed correctly
Guided Relaxation and Breathing Exercises	Check exercise sessions load and function smoothly	Exercises open properly and audio/animations function correctly
Personal Journaling Feature	Test writing, editing, and saving journal entries	Journal entries are stored successfully
Mood History and Progress Dashboard	Verify historical mood records and progress graphs display accurately	Dashboard updates correctly with user data

University Counselor Information	Check counselor details and contact information accessibility	Counselor information displays properly
Notifications and Self-Care Reminders	Verify reminders and notifications trigger correctly	Notifications appear at scheduled times
Student-Friendly User Interface	Evaluate navigation simplicity and accessibility	Users can navigate the application easily
AI Chatbot Assistance	Test chatbot responses and conversation flow	Chatbot responds appropriately to user inputs
Sleep Log	Verify whether it is possible by user to record their sleep time or quality	Sleep records saved and displayed correctly
Streak gamification	Check if users are able to log their daily streak	Streak record logged and displayed correctly
Login/Registration	Test if registration and logging in can be done correctly	User are able to register and log in correctly
User Profile Management	Verify users can update profile information and preferences	Profile data saved and displayed correctly
API Communication	Verify successful data exchange between app and backend services	Data sent and received correctly

The testing will be repeated several times in the subsequent implementation stages to verify feature uniformity, application strength and reliability in multiple scenarios.

4.3 Unit Testing

Unit testing is suggested to be used to test individual components and modules of the **CalmU** application. This can help to catch functionality errors early during development and make sure that each functionality is working correctly before complete system integration.

Planned Unit Testing Areas are:

Module	Unit Testing Purpose	Expected Outcome
Mood Tracking Module	Verify mood input processing and storage	Mood data saved correctly
Journaling Module	Test journal text saving and retrieval	Journal entries retrieved accurately
Notification Module	Check reminder scheduling functionality	Notifications trigger correctly
Dashboard Module	Verify progress calculations and graph updates	Dashboard statistics displayed correctly
AI Chatbot Module	Test chatbot message processing and response generation	Relevant responses returned to users
Counselor Information Module	Verify counselor data loading functionality	Information displayed without errors
Authentication Module	Verify login, registration and account validation	Login and Registration being done correctly
Relaxation Exercise Module	Test guided session loading and controls	Exercises run smoothly
Sleep Log Module	Verify logging of sleeping details	Logs sleep quality and time correctly
Streak Module	Test the streaks data are being logged correctly	Streaks are perfectly logged and maintained correctly
User Management Module	Verify profile update and retrieval functionality	Profile data processed correctly
Email Service Module	Verify email notification delivery	Emails sent successfully

In later stages of development, bugs will decline with Unit testing and the quality and maintainability of the application will improve.

4.4 Usability Testing

Usability testing is intended to test if **CalmU** gives the Malaysian University Students a simple, comfortable and stress-free using experience. CalmU's theme is mental wellness support; thus ease of interface and emotional comfort are deemed extremely important.

Usability testing areas are proposed to be:

- Ease of navigation
- Simplicity of interface organization.
- Readability of content
- The core feature is easily accessible.
- User satisfaction
- Emotional comfort when using the app
- Simplicity of chatbot interaction
- Notification usefulness without causing stress

In future implementation stages, a group of University students can be allowed to attend prototype testing sessions. Feedback will be gathered using questionnaires, surveys and demo observations, and areas for improvement will be identified.

4.5 Compatibility and Performance Testing

CalmU will be tested for compatibility to ensure it functions properly on various Android device platforms, screen sizes, and operating system versions.

The focus of performance testing will be:

- Application startup speed
- Dashboard loading performance
- Smooth navigation between screens
- AI Chatbots response time
- Notification reliability
- Prevention of crashes or freezing
- Efficient memory usage
- Data being sent/retrieved correctly

The device simulation and performance analysis will be carried out by the Android Studio emulator tools.

4.6 Security and Privacy Testing

Privacy and security testing plays a crucial role in the evaluation strategy because **CalmU** processes sensitive emotional information, creates journal entries, and engages with chatbots.

The suggested testing will be based on:

- Secure local storage of user data
- The privacy of journals is guarded.
- Moods records are well-guarded.
- Prevention of unauthorized access
- Safe chatbot interaction handling
- Notification privacy protection
- Sleep logs are guarded and encrypted
- Verify only authenticated users can access personal data.
- Verify protected data cannot be accessed without login
- Verify sensitive user data is encrypted during storage and data transfer
- Verify all API requests use HTTPS/TLS encryption. .

These are designed to foster trust of the user and responsible handling of personally owned mental wellness information.

4.7 Test Cases and Expected Outcomes

There are several test cases ready to be tested to check key app features.

Test Case ID	Test Scenario	Expected Outcome	Status
TC-01	User records daily mood	Mood saved successfully	Planned
TC-02	User opens breathing exercise	Exercise loads correctly	Planned
TC-03	User creates journal entry	Journal saved properly	Planned

TC-04	User views mood history dashboard	Dashboard displays accurate records	Planned
TC-05	User accesses counselor information	Counselor details displayed correctly	Planned
TC-06	Reminder notification triggers	Notification appears at scheduled time	Planned
TC-07	User interacts with AI chatbot	Chatbot responds appropriately	Planned
TC-08	User navigates between application pages	Navigation functions smoothly	Planned
TC-09	App tested on different Android devices	Interface remains responsive	Planned
TC-10	User completes daily activities	XP and streak count update correctly	Planned
TC-11	User doing registration and login	Registration and Login are successful	Planned
TC-12	User tracks there sleep	Sleeps record are logged correctly	Planned

5.0 Reflection and Future Improvements

5.1 Learning Outcomes and Team Experience

Throughout the development of the CalmU project proposal, the team gained valuable knowledge and practical experience in various aspects of mobile application planning and software development. One of the key learning outcomes was understanding how to transform a real-world problem into a structured software solution. The research process of mental wellness problems of university students and analysis of existing applications provided them a deeper understanding of the user needs, problem analysis, and the design of the solutions. The project also provided valuable experience in applying software engineering concepts within a realistic project environment. Team members learned more about Agile development principles, project planning, system architecture design, feature identification, and technology selection. These activities guided students to connect the theoretical knowledge they learnt in class to the project environment. In addition, the project provided valuable experience in project planning activities, including defining the project scope, identifying system requirements, selecting appropriate technologies, and designing a feasible solution that aligns with user needs and project objectives. Through this process, the team gained insight into the need for careful planning and practical decision-making at the initial stages of software development.

The team also gained experience in evaluating different alternatives and making informed design decisions based on user requirements, technical feasibility, and project constraints. By comparing existing mental wellness applications and analyzing their strengths and weaknesses, the team improved its ability to develop more suitable and practical solutions for the proposed system. The project also helped the team to gain a deeper insight into user-centered design principles. By focusing on the needs, preferences, and challenges faced by university students, the team learned the importance of designing solutions that prioritize user experience, accessibility, and practical usability. This helped ensure that the proposed application remains relevant and beneficial to its intended users. Furthermore, the project strengthened communication, collaboration, and teamwork skills. Since different project components were assigned to different team members, continuous discussion, idea sharing, feedback exchange, and coordination were required to maintain consistency throughout the proposal. The team experienced handling responsibilities, solving differences in opinion, and working on a common project goal in this collaborative process.

Overall, the CalmU project proposal gave the opportunity to get hands-on experience of the early stages of software development, in which the team got the opportunity to experience several aspects of software development processes—planning, analysis, structuring, and evaluating software solutions—before implementation. This experience improved technical knowledge and professional skills which will be useful in software engineering projects in the future.

5.2 Challenges Faced

Throughout the development of the CalmU project proposal, the team encountered several challenges that required careful planning, discussion, and decision-making. A key challenge was to create a project scope that was meaningful and achievable given the requirements of the assignment. Since mental wellness is a broad topic, the team needed to carefully determine which features and functionalities should be included in the proposed solution while ensuring that the project remained realistic and focused on addressing the needs of university students. Another challenge involved conducting research and gathering reliable information related to student mental wellness and existing mental health applications. This team had to assess the various applications, understand their pros and cons, and decide on ways to supplement the value or not feature duplicate in CalmU. This entailed in-depth analysis and comparison to make sure the suggested solution met the actual needs of the user. Another challenge was determining which features should be included in the proposed system. The team had to be mindful of adding new ideas and functionalities that directly aid the project goals and users' demands. This involved balancing innovation, practicality and feasibility to ensure that the proposed solution would be realistic, focused and would be within the scope of this project. Aslo hurdle in the planning process was determining the level of innovation that was appropriate and feasible. While the team explored various ideas and advanced functionalities that could potentially enhance the application, it was important to ensure that the proposed solution remained realistic, achievable, and aligned with the project objectives. The development of this involved the careful testing of the various concepts, to determine which features would be of value for users but not unnecessarily complicate the system.

The team also faced challenges in designing a solution that balances functionality with simplicity. While there were many potential features that could be incorporated into the application, it was important to ensure that the proposed system remained user-friendly, accessible, and suitable for students who may already be experiencing stress or emotional

difficulties. As a result, careful consideration was required when selecting features and designing the overall user experience. One hurdle was making sure that the desired result is a solution that is responsible for, and appropriate to, mental wellness issues. Since the application focuses on sensitive emotional and psychological topics, the team needed to carefully evaluate the proposed features and support mechanisms to ensure they promote well-being in a safe and ethical manner. It was also crucial that the application was seen as a helping hand, and not a substitute for professional mental health services. This has meant careful thought was given to the design and planning process to ensure that it is functional and that the user has trust in it. In addition, coordinating project activities among team members presented its own challenges. As responsibilities were divided into various parts of the project, it was imperative that there was communication and collaboration throughout to maintain a consistent writing style, content structure and direction of the project. Regular discussions and feedback sessions were necessary to ensure that all project components remained aligned with the project's objectives and requirements. Another challenge was making informed design and planning decisions despite the limitations of the proposal stage. Many decisions had to be made based on research results, literature review and logical assumptions due to the lack of real user testing and implementation. This required the team to carefully evaluate alternatives and select the most appropriate approaches for the proposed solution.

These difficulties were overcome by constant communication, research, planning, and positive feedback and discussion. The experience was beneficial because it taught them about the challenges of software project planning and the need for communication, adaptability, and critical thinking to create a software solution proposal.

5.3 Strengths, Weaknesses, and Limitations of the Proposed Solution

In addition to the identified weaknesses, the proposed CalmU application is subject to several limitations that should be considered when evaluating its potential effectiveness. A downside is that it's not a mental health treatment platform and is intended as a supportive and preventive mental wellness application. CalmU aims to support students in managing their stress, in keeping an eye on their emotional health and in accessing support resources but should not diagnose mental health issues or substitute professional counselling services. Another constraint is that the solution is targeted at general mental wellness issues among university students. However, the individual's circumstances, emotional state, and support needs can be very different for each user. As a result, the effectiveness of the application's

features may differ from one student to another. Moreover, the proposed system is based on research findings, literature review and the identified user needs in the planning phase. Although considerable effort was made to ensure that the proposed features are relevant and beneficial, actual user expectations and preferences may differ when the application is implemented in a real-world environment. The proposed solution is also constrained by the dynamic nature of mental well-being needs and the development of technology. The features or approaches presented in the current system may need to be updated, enhanced, and redesigned over time depending on shifting student expectations, support needs, and digital technologies. Furthermore, as the project currently remains at the proposal stage, the proposed architecture, features, and user experience have not yet been validated through real-world implementation and testing. Therefore, additional refinements, modifications, or enhancements may be required during future development stages to better meet user expectations and practical requirements.

However, the solution proposed here offers a realistic and structured basis for promoting student mental wellness and presents an opportunity for further improvements and validation as it is implemented and evaluated in the future.

5.4 Sustainable Development Goals (SDG) Engagement

The CalmU application directly contributes to the United Nations Sustainable Development Goal (SDG) 3: Good Health and Well-Being. This goal focuses on promoting healthy lives and improving well-being for individuals of all ages. As mental health and emotional well-being are essential components of overall health, the proposed solution aims to contribute to this goal by providing accessible support for university students who experience stress, anxiety, and other mental wellness challenges. By addressing these common challenges, CalmU contributes to improving mental well-being and encouraging healthier lifestyles among its target users. CalmU offers a variety of supportive tools such as mood tracking, personal journaling, relaxation exercises, AI-driven guidance, and information about University counselors, to support your mental well-being. These features aim to foster self-awareness, emotional regulation, and early help-seeking, to promote mental wellbeing and provide support before difficulties escalate.

In addition, the application seeks to reduce barriers to mental wellness support by providing a free and easily accessible platform. Some pupils may be reluctant to get support from professionals because of financial, social or personal reasons. By offering convenient digital support, access to university counseling resources, and relevant information, CalmU aims to

encourage positive help-seeking behavior and increase awareness of available support options among students. The proposed solution is also in line with the preventive dimension of SDG3, emphasizing prevention and early support. Students are encouraged to learn to practice healthier coping strategies and maintain better emotional wellness throughout their school experiences through regular self-monitoring and wellness related activities. Additionally, the inclusion of information about the university counsellor offers students a better link to appropriate professional support if they need it.

Although the primary contribution of CalmU is toward SDG 3, the application may also indirectly support educational outcomes by helping students better manage stress and emotional challenges that can affect academic performance, concentration, and overall learning experiences. By promoting student well-being, the proposed solution may contribute to a more positive and supportive educational environment

5.5 Future Improvement and Enhancements Over Existing Solutions

Although the proposed CalmU application provides several valuable features to support student mental wellness, there are various opportunities for future improvements and enhancements that could further increase its effectiveness and user engagement. These improvements may help the application provide more personalized, interactive, and comprehensive support compared to existing solutions. A possible improvement is the introduction of personalized recommendations using AI. Through the analysis of the user's activities, mood tracking record and journaling patterns, more personalized wellness recommendations, coping mechanisms, and self-care activities could be offered that would be more appropriate to the specific needs of each student. A future enhancement could be integrating gamification elements to foster sustained user engagement and participation. Features such as achievement badges, progress tracking, wellness milestones, and motivational rewards could help students remain actively involved in maintaining their mental well-being and encourage consistent use of the application. The AI chatbot could also be further enhanced with more advanced conversational abilities. Future versions of the system may incorporate improved natural language processing technologies to better understand user concerns, provide more relevant responses, and deliver a more interactive and supportive user experience.

In addition, there may be future opportunities to increase the variety of wellness resources and support within the application. This could include additional relaxation activities, educational mental wellness materials, self-help resources, and interactive tools that address

different emotional and psychological needs. CalmU could also feature scheduling or communication capabilities in future versions that could allow students to better reach out to counseling services at the university. This enhancement may make it easier to access for professionals and help link digital wellness help to in-person counselling services. Furthermore, future versions of CalmU may incorporate more comprehensive personalized wellness insights and progress reports. These enhancements could help users gain deeper insights into their emotional patterns, wellness progress, and personal development over time, allowing them to make more informed decisions regarding their mental well-being. Additional functionalities to consider for future development are continuous user feedback systems, where students can offer their ideas, rate the features they have and share their experience. This feedback could help improve the application over time and ensure that future updates remain aligned with the evolving needs and expectations of university students.

Overall, these future improvements have the potential to strengthen the effectiveness of CalmU, improve user satisfaction, and provide a more personalized and engaging mental wellness experience for university students. These enhancements may also help differentiate CalmU from existing mental wellness applications by offering a more student-centered, accessible, and comprehensive support experience.

6.0 Use of Generative AI Tools

In an ethical manner, generative AI was applied at various stages of the project to support the team in its research, idea generation, organizing reports and planning testing. To support the brainstorming of test strategies, the generation of structured documentation concepts, clarity of sentences, and support for the organisation of technical explanations for the report, the support of ChatGPT was used. All content generated by the team was reviewed, verified, edited and adapted to meet the project requirements and guidelines on academic integrity. Generative AI tools were used only as supportive tools and not as replacements for original analysis, discussion and decision making from team members.

7.0 Conclusion

The CalmU project aims to create a mobile mental wellness app that will assist Malaysian university students experiencing mental health issues such as stress, anxiety, emotional burnout, and other prevalent mental health concerns throughout their university experience. After undertaking research and analysing current mental wellness apps including MindHealth CBT, Headspace, Wysa and DBT Mind, several limitations were identified: Subscription cost, clinical complexity and the lack of support for students. The results indicated that there was a need for an easy-to-use, cost effective and accessible solution, specifically for university students.

CalmU aims to solve these problems with features such as daily mood tracking, sleep logging, guided relaxation exercises, personal journaling, mood analytics, etc. as well as features that provide emotional support through its AI system, information about the university counsellor and motivational game elements. The proposed system promotes accessibility, emotional comfort, privacy and ease of use and promotes healthy self-care habits and increased mental health awareness amongst students.

The project also provides a systematic approach to application architecture, development process, and evaluation that can be used for future development. CalmU will be developed following the principles of Agile development and the principles of user centred design (UCD) so that a practical and sustainable platform emerges which can be tailored based on user feedback and the changing needs of users.

In conclusion, CalmU is a promising application to improve the mental health of Malaysian University students. It provides a simple way for people to find digital support, self-care tools even connects with people who are professionals when required. This can have a significant impact on the well-being of students and improve educational settings and systems.

Appendix

Appendix A: System Architecture Diagram

Appendix B: User Flow Diagram

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