

SECJ2203: Software Engineering

**System Documentation (SD)**

Digital Mental Health Literacy Hub

Version 3.0

29 November 2024

Faculty of Computing

Prepared by: Bithack

**Revision Page**

1. Overview

The current version of the System Documentation specifies the functional and non-functional requirements of the system, with the specifications of all modules in the system. It also includes the design of the to-be system, with the design of the system architecture and their components, as well as the class and sequence diagram for the new system. Lastly, it includes the test cases for all the use cases in the system.

1. Target Audience

System clients, system engineers, System test engineers, Managers

1. Project Team Members

| Member name | Role | Task | Status |
| --- | --- | --- | --- |
| Sumaita Alam | Leader | Self Assessment / Counselling Module Test cases | Complete |
| Thang Wei Jie | Member | Artificial Intelligence Test cases | Complete |
| Ruslan Zagidullin | Member | Admin module | Complete |
| Baqir Tsaqib Hakim | Member | Educational content module | Complete |
| Vasila Sujavudeen | Member | Accounting module Test cases | Complete |

1. Version Control History

| Version | Primary Author(s) | Description of Version | Date Completed |
| --- | --- | --- | --- |
| 1.0 | Thang Wei Jie | Initial specification of user and system requirements | 1-12-2024 |
| 2.0 | All members | Design of system architecture and components | 28-12-2024 |

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# **Introduction**

## 1.1 Purpose

The purpose of this System Requirements Specification document is to clearly specify the user requirements and system requirements of this new system. It will also contain functional and non-functional requirements of the new system, clearly stating what the users are able to do with the system.

This System Documentation is meant for the developers of the system as a reference on how the new system should be designed and developed, as well as making sure that it fulfils the requirement of our stakeholders. The System Documentation will also be written for the stakeholders to ensure that they know how the system will operate, and also for better communication between the stakeholders and the developers for any updates on requirements.

## 1.2 Scope

The software product will be named “Digital Mental Health Literacy Hub”. The features that will be available in this system are mental health educational modules prepared by mental health professionals that students can access and complete. The system also provides a way for users to seek professional assistance if necessary, by allowing them to communicate with mental health professionals and schedule counselling sessions with them. The system also provides self help tools for the students to use for them to keep track of their own mental status.

This system will mainly be applied in the higher education sector, where the targeted users are university/college level students. The objective of this system is to spread awareness among higher education students on mental health issues and how to recognise them and treat them effectively, preventing it from being a serious issue in their daily lives. The goals that we hope to achieve with this system is to reduce the severity of mental issues among higher education students, as well as a better understanding of them.

## 1.3 Definitions, Acronyms and Abbreviations

| Term | Definition |
| --- | --- |
| PDPA 2010 | Personal Data Protection Act 2010 - An act passed by the Malaysian Government to protect personal data from misuse. |
| OS | Operating system - A program that manages resources and applications in a computer. |
| .doc | File format for Microsoft Word documents. |
| .xlsx | File format for Microsoft Excel spreadsheets. |
| .pdf | File format for Portable Document Format files. |

## 1.4 References

1. 830-1998 - IEEE recommended practice for software requirements specifications | IEEE standard | IEEE xplore. (n.d.). <https://ieeexplore.ieee.org/document/720574/>

## 1.5 Overview

In the rest of this System Documentation, we will specify the specific requirements of the system. Firstly, we will state the different users of our system, listing out their characteristics and capabilities which will need to be considered when designing the system. We will also list the features of the system, stating the use cases of the new system, as well as their specific specifications and the activity and sequence diagram, which is the functional requirements of the system.

Other than the functional requirements, we will also state the non-functional requirements, comprising the performance requirements, security requirements and other necessary requirements. We will also explain the constraints that are imposed onto the system that affects the designing process.

# **Specific Requirements**

# 

## 2.1 User characteristics

The Digital Mental Health Literacy Hub will be used mainly by two groups of users: higher educational students and mental health professionals.

### 2.1.1 UTM Students

* The students that will use this system are expected to have a decent computing literacy and familiarity in using Artificial Intelligence technology.
* The knowledge students may possess on mental health topics can range from minimal understanding to decent understanding.
* The mental health status of the students using this system may range from no serious mental health issues to suffering severe mental health problems.

### 2.1.2 Mental health professionals

* Mental health professionals should possess extensive knowledge in the field of psychology and counselling support.
* They are expected to have basic computing literacy and capabilities, and will receive support on how to use the system.
* They will be able to create educational modules and upload them into the system for students to access.
* They may also provide professional assistance to students facing problems by having a counselling session with them.

### 2.1.3 Administrators

* The administrators should possess extensive knowledge on the management of the system, such as the database administration and service management.
* The administrators are able to view and manage different aspects of the system, such as the uptime, the database and the internal logic of the system itself.

## 2.2 System Features

| Module | Function | Description |
| --- | --- | --- |
| User module | UC01 - Register | This use case allows students and professionals to register as a user in the system. |
| UC02 - Login | This use case allows users to gain access into the system. |
| UC03 - Update profile | This use case allows the user to modify basic account information. |
| Educational content module | UC04 - Access module | This use case allows users to gain access to learning modules and interact with it. |
| UC05 - Add module | This use case allows users to upload new learning modules to the system. |
| UC06 - Delete module | This use case allows users to remove existing modules from the system. |
| Counselling module | UC07 - Make counselling appointment | This use case allows users to schedule a virtual counselling session with a counsellor. |
| UC08 - Chat with counsellor | This use case allows users to communicate with a counsellor in real time. |
| Self Assessment Modules | UC09: Take self assessment test | This use case allows users to participate in a self-assessment test. |
| UC10: Access guided routines | This use case allows users to access guided routines. |
| UC11: Track mood patterns | This use case allows users to record and monitor mood patterns. |
| Administration module | UC12: View system analytics | This use case displays analytical data about the system such as number of current users, its current uptime and data processes in the system. |
| UC13: Manage user accounts | This use case allows administrators to manage accounts of users such as their status (active, suspended), their access permissions and profile information. |
| UC14: Generate system analytics report | This use case uses the analytical data in UC12 and generates a report in .doc, .xslx or .pdf form. |

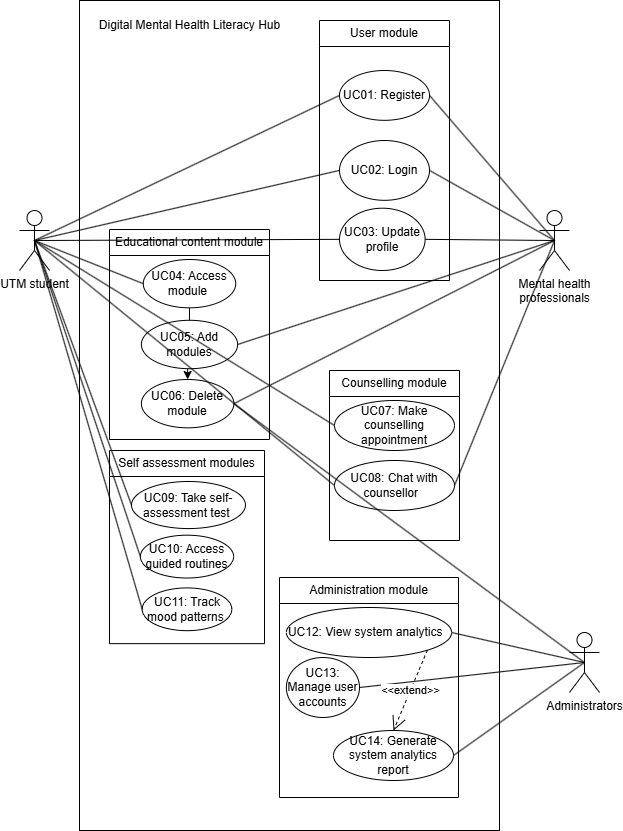


Figure 1: Use Case Diagram

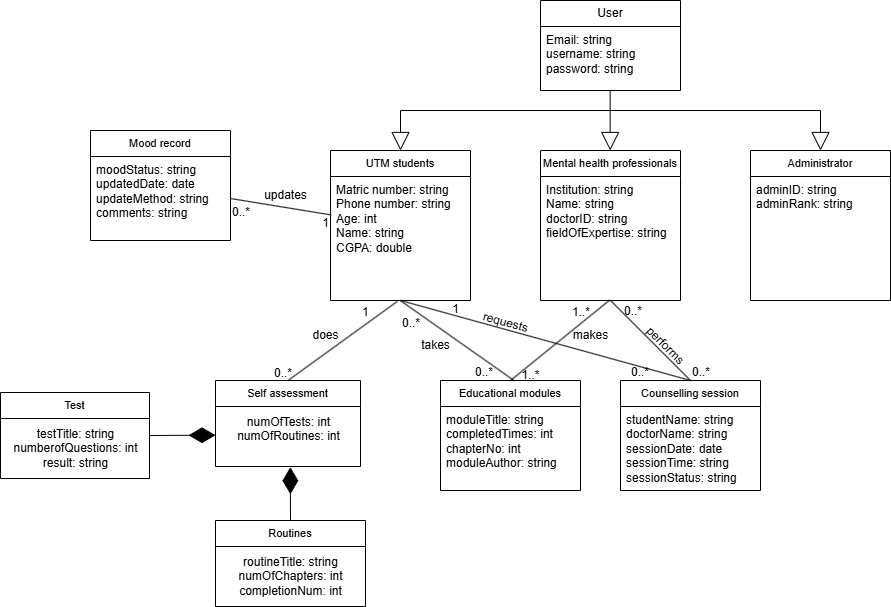


Figure 2: Domain class diagram

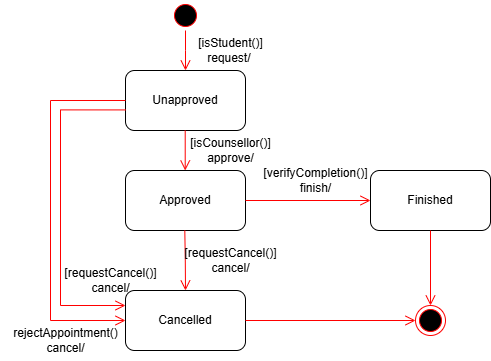


Figure 3: State diagram for **Counseling Session** class

## 2.3 Use Case Details

### 2.3.1 UC01: Use Case Register

### Use Case Specification of UC01

| Use Case: Register |
| --- |
| ID: UC01 |
| Actors: UTM students, Mental Health Professionals |
| Preconditions: 1. UTM students must have a valid UTM ID.  2. Mental health professionals must have valid credentials. |
| Flow of events: 1. The user enters their email and UTM ID/credentials.  2. The user sets the username and password for their account.  3. The system sends an authentication request to the specified email.  4. The user clicks on the authentication link received.  5. The user enters basic information such as phone number and name.  6. The system creates the account. |
| Alternative flow: |
| Postconditions: 1. A new account is added to the database. |
| Exception flow(if any): |

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### Activity Diagram of UC01



Figure 4. Activity Diagram of UC01

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### System Sequence Diagram of UC01

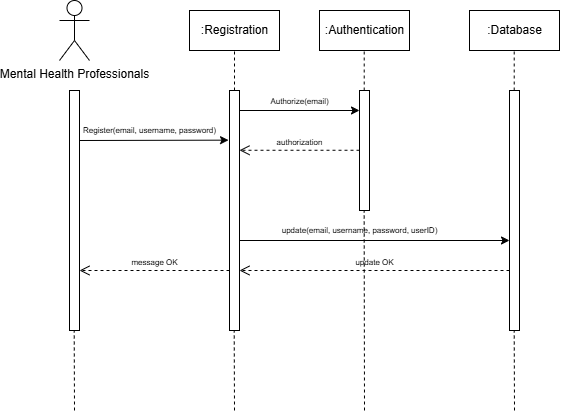
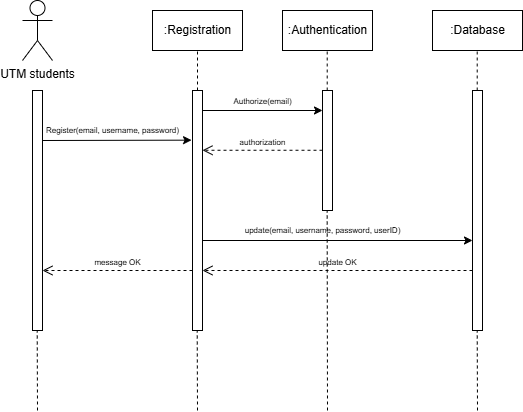


Figure 5. Sequence Diagram of UC01

### 2.3.2 UC02: Use Case Login

### Use Case Specification of UC002

| Use Case: Login |
| --- |
| ID: UC02 |
| Actors: UTM students, Mental Health Professionals |
| Preconditions: 1. Users must already have a registered, active account in the system. |
| Flow of events: 1. The user enters their email and password.  2. The system searches for an account that matches the email and password in the database.  3. If account is found then  3.1. Logs the user into the system.  4. Else  4.1. Displays “Account not found. Check login details” message. |
| Alternative flow: |
| Postconditions: The user is now able to gain access into the system. |
| Exception flow(if any): |

### Activity Diagram of UC02

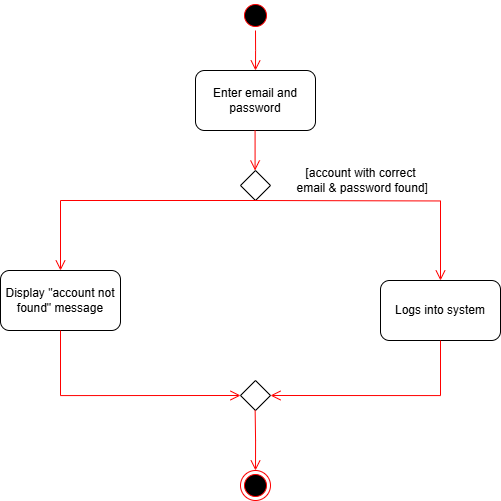


Figure 6. Activity Diagram of UC02

### System Sequence Diagram of UC02

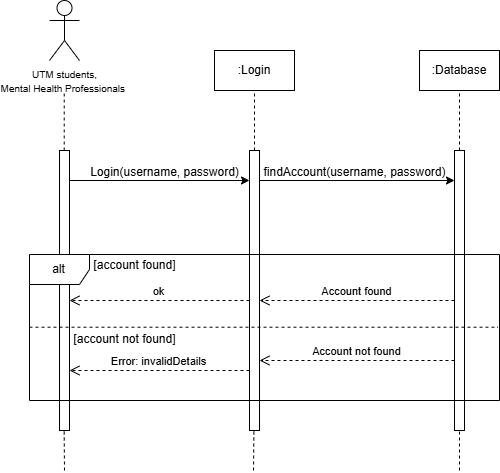


Figure 7. Sequence Diagram of UC02

### 2.3.3 UC03: Use Case Update Profile

### Use Case Specification of UC03

| Use Case: Update Profile |
| --- |
| ID: UC03 |
| Actors: UTM students, Mental Health Professionals |
| Preconditions: 1. Users must be logged into the system. |
| Flow of events: 1. The user enters their profile page.  2. The user clicks on the “update profile” button option.  3. The user changes information such as email address, password, phone number and name.  4. The user saves the changes made on their profile. |
| Alternative flow: |
| Postconditions: The profile information is updated to the newest changes. |
| Exception flow(if any): |

### Activity Diagram of UC03

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Figure 8. Activity Diagram of UC03

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### System Sequence Diagram of UC03

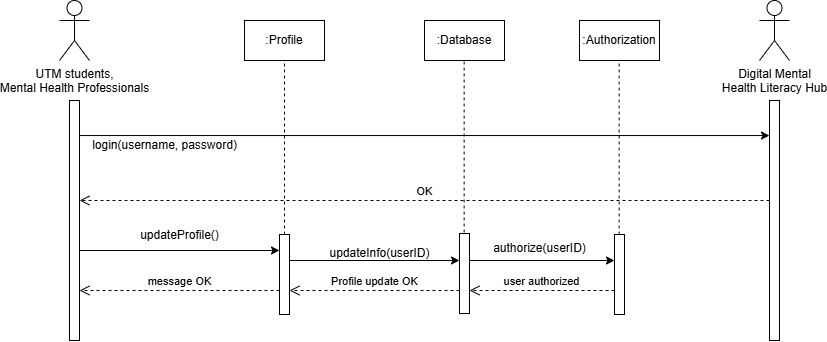


Figure 9. Sequence Diagram of UC03

### 2.3.4 UC04: Use Case Access Module

Use Case Specification of UC04

| Use Case: Access Module |
| --- |
| ID: UC04 |
| Actors: UTM Students |
| Preconditions: 1. The user must be logged into the system.  2. The user must have access privileges for the selected module. |
| Flow of events: 1. The user navigates to the Educational Content Module.  2. The system displays a list of available learning modules.  3. The user selects a module from the list.  4. The system loads the content of the selected module.  5. The user can view & interact with the content (videos, documents,  quizzes). |
| Alternative flow: If the user does not have access privileges, the system displays an error  message. |
| Postconditions: 1. The user successfully views and interacts with the selected module. |
| Exception flow(if any): If the module content fails to load, the system notifies the user and  logs the error. |

### Activity Diagram of UC04

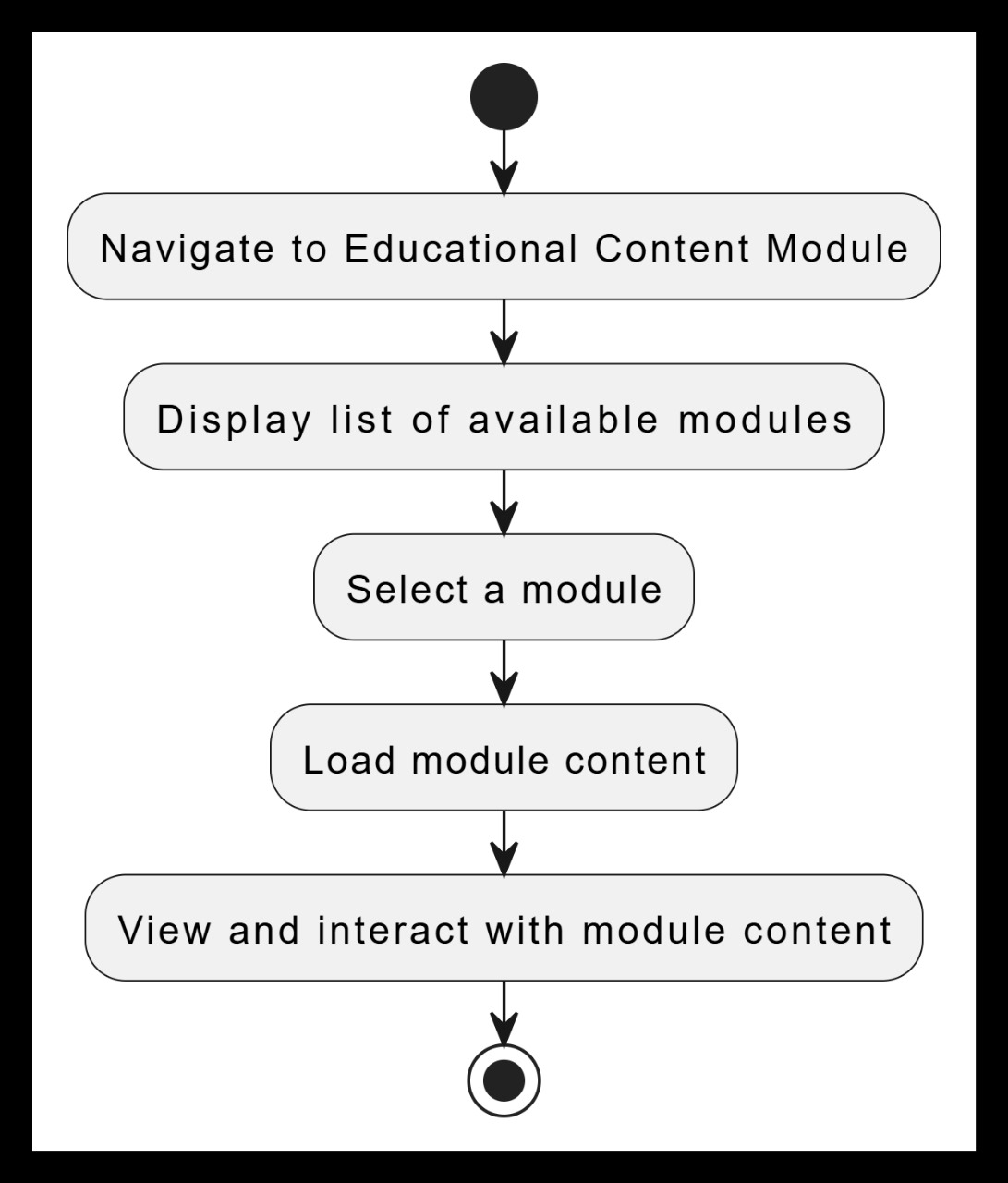


Figure 10. Activity Diagram of UC04

### System Sequence Diagram of UC04

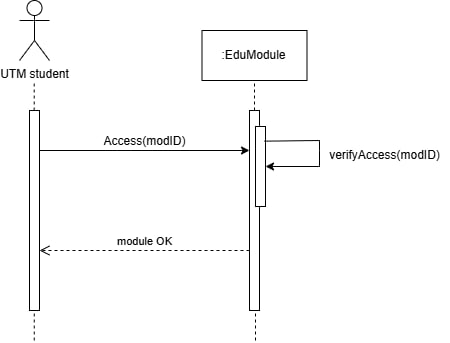


Figure 11. Sequence Diagram of UC04

### 2.3.5 UC05: Use Case Add Module

Use Case Specification of UC05

| Use Case: Add Module |
| --- |
| ID: UC05 |
| Actors:Mental Health Professionals, Administrators |
| Preconditions: 1. The user must be logged into the system.  2. The user must have the role of a professional or administrator. |
| Flow of events: 1. The user navigates to the Educational Content Module.  2. The user clicks the "Add Module" button.  3. The system displays a form to input module details (e.g., title,  description, content).  4. The user fills in the required information and uploads the module  content.  5. The system validates the input and uploads the module to the database.  6. The system confirms the successful addition of the module. |
| Alternative flow: If any required fields are missing, the system prompts the user to  complete the form. |
| Postconditions: 1. A new learning module is added to the system. |
| Exception flow(if any): If the upload fails, the system notifies the user and provides  troubleshooting steps. |

### Activity Diagram of UC05

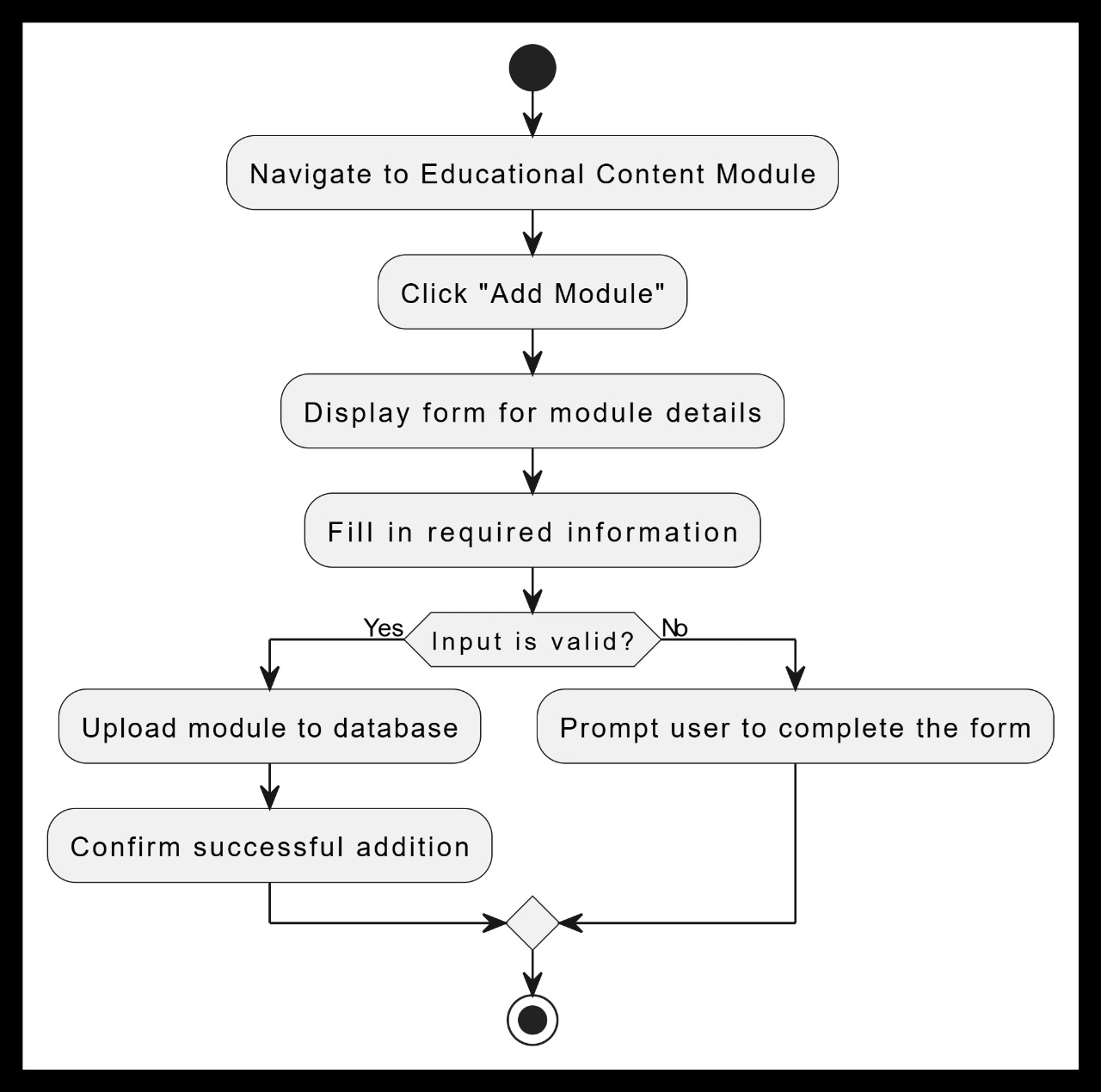


Figure 12. Activity Diagram of UC05

### System Sequence Diagram of UC05

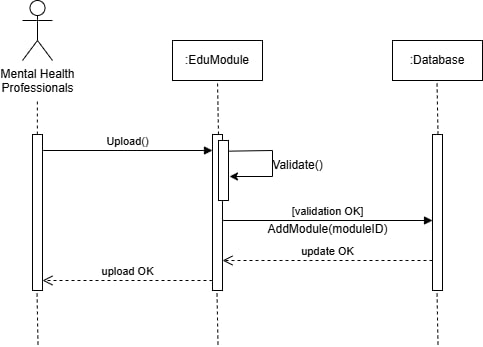


Figure 13. Sequence Diagram of UC05

### 2.3.6 UC06: Use Case Delete Module

Use Case Specification of UC06

| Use Case: Delete Module |
| --- |
| ID: UC06 |
| Actors: Mental Health Professionals, Administrators |
| Preconditions: 1. The user must be logged into the system.  2. The user must have the role of an educator or administrator. |
| Flow of events: 1. The user navigates to the Educational Content Module.  2. The system displays a list of existing modules.  3. The user selects the module they want to delete.  4. The system asks for confirmation before proceeding.  5. The user confirms the deletion.  6. The system removes the module from the database. |
| Alternative flow: If the user cancels the action, the system returns to the module list  without making any changes. |
| Postconditions: 1. The selected module is removed from the system. |
| Exception flow(if any): If the module cannot be deleted due to database constraints, the  system notifies the user and logs the issue. |

### Activity Diagram of UC06

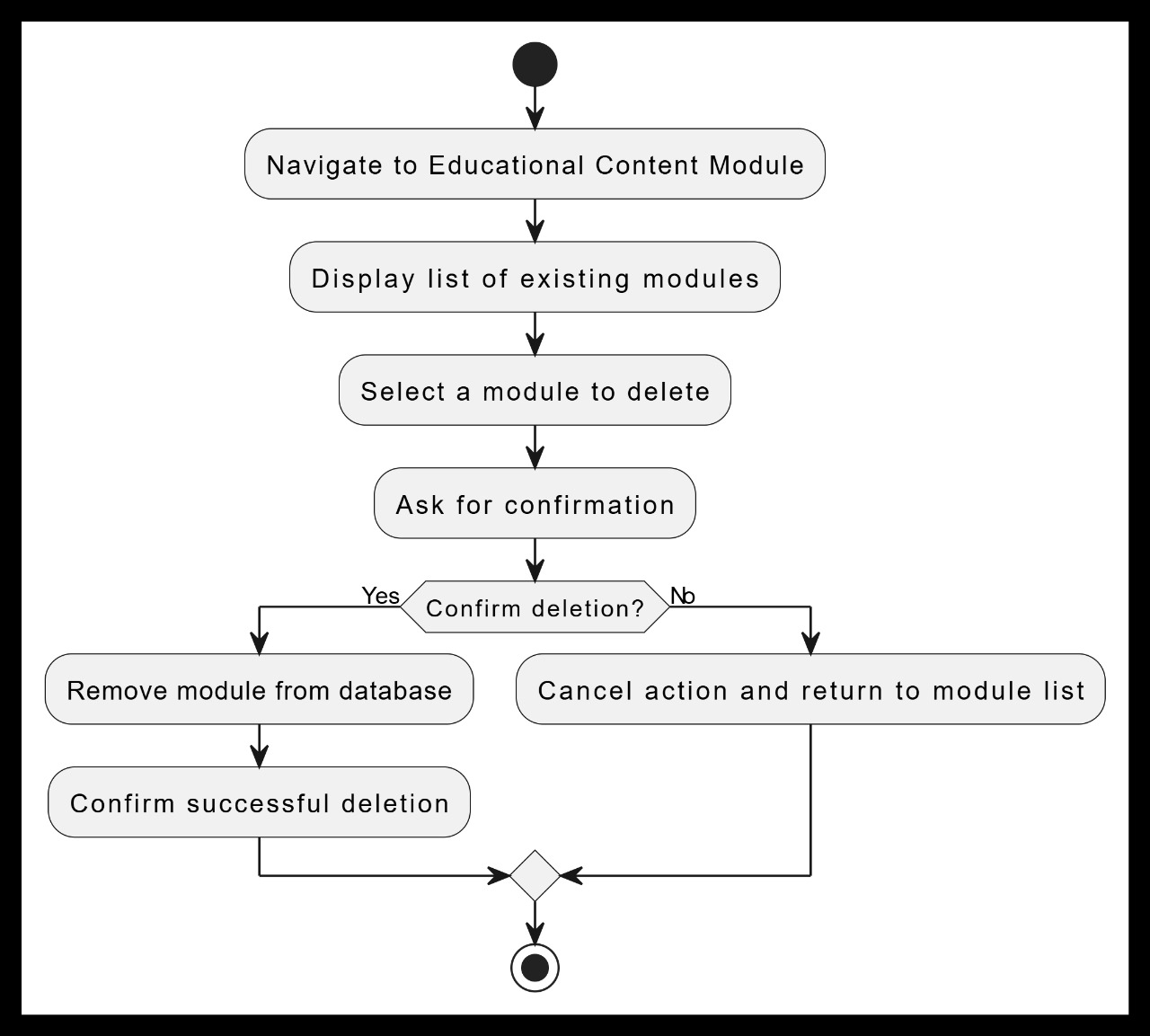


Figure 14. Activity Diagram of UC06

### System Sequence Diagram of UC06

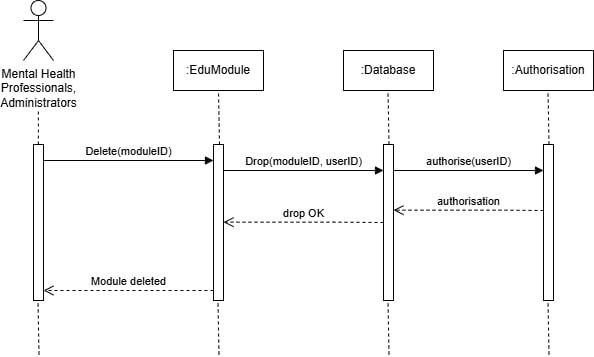


Figure 15. Sequence Diagram of UC06

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### 2.3.7 UC07: Use Case Make Counselling Appointment

Use Case Specification of UC07

| Use Case: Make counselling appointment |
| --- |
| ID: UC07 |
| Actors: UTM Students |
| Preconditions: 1.The user must be logged into the system.  2.The system must have a list of available mental health professionals and appointment slots. |
| Flow of events:  1. The user navigates to the "Counseling Module" interface.  2.The system displays available mental health professionals and their time slots.  3.The user selects a professional and a preferred time slot.  4.The system verifies the availability of the selected slot.  5.The user confirms the appointment details.  6.The system schedules the appointment, updates the calendar, and sends confirmation notifications to both the user and the mental health professional. |
| Alternative flow:  The user cancels the appointment before confirmation.  The system discards the unsaved changes and returns the user to the counseling module interface. |
| Postconditions:  The user's appointment request is successfully scheduled.  The mental health professional is notified of the new appointment.  The system updates the calendar to reflect the appointment. |
| Exception flow :  If no professionals or slots are available, the system displays a message to the user and suggests alternative dates or resources. |

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### Activity Diagram of UC07

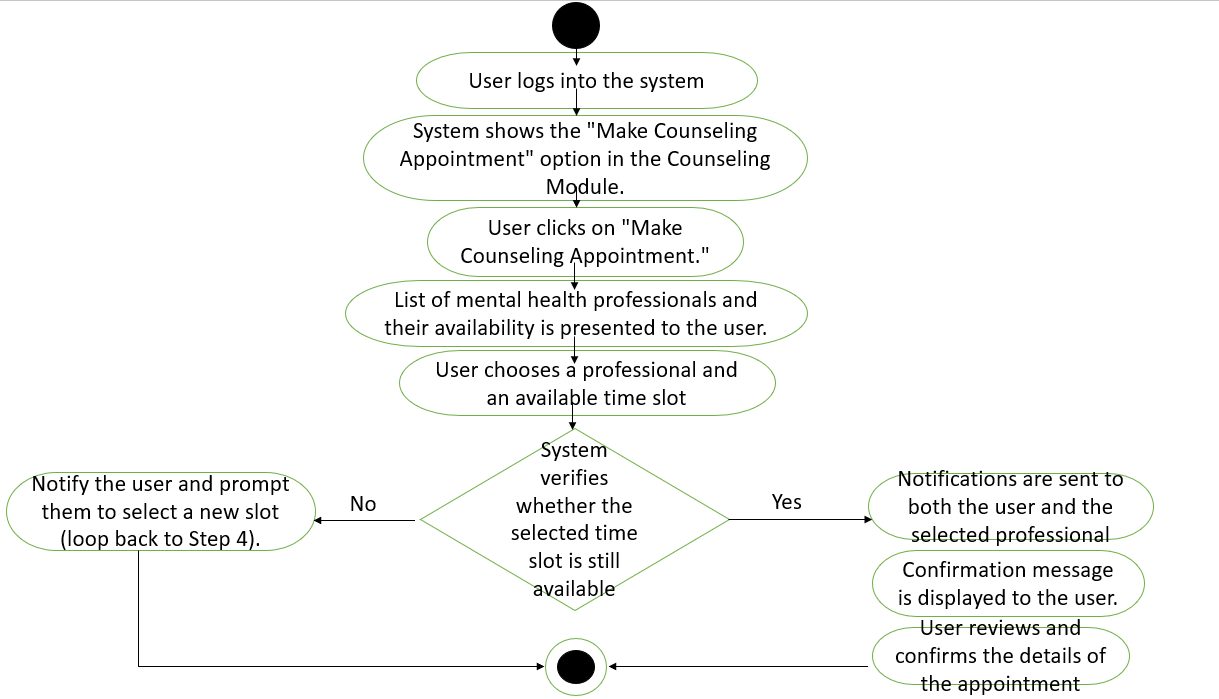


Figure 16. Activity Diagram of UC07

### System Sequence Diagram of UC07

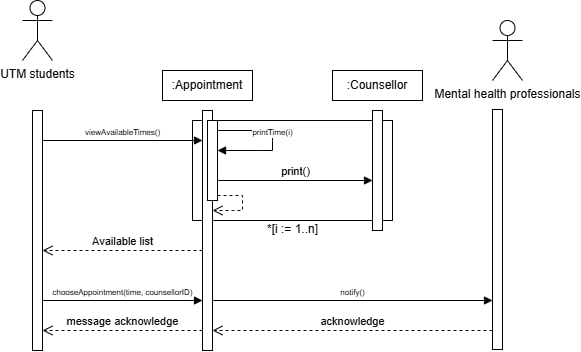


Figure 17. Sequence Diagram of UC07

### 2.3.8 UC08: Use Case Chat With Counsellor

Use Case Specification of UC08

| Use Case: Chat With Counsellor |
| --- |
| ID: UC08 |
| Actors: UTM Students, Mental Health Professionals |
| Preconditions: 1.The user must be logged into the system (UC02).  2.A mental health professional must be online or available to chat.  3.The user must have appropriate access rights to the chat feature. |
| Flow of events:  1.The user navigates to the "Counseling Module" and selects the "Chat with Counsellor" option.  2.The system displays a list of available mental health professionals.  3.The user selects a professional to start the chat session.  4.The system establishes a secure connection between the user and the professional.  5.Both parties exchange messages in real time.  6.When the session ends, the user or the counselor terminates the chat.  7.The system logs the session and displays a message confirming the chat has ended. |
| Alternative flow::  The system notifies the user that no counselors are currently available for chat.  The user is prompted to schedule an appointment (UC07) or submit a written query for later follow-up. |
| Postconditions:  1. The user successfully connects and exchanges messages with the counselor.  2.The system logs the chat session (if required) for future reference or reporting, ensuring data privacy. |
| Exception flow :  If a system error occurs, the chat session is terminated, and both the user and counselor are notified.  The system provides an option to retry or submit a support ticket. |

### Activity Diagram of UC08

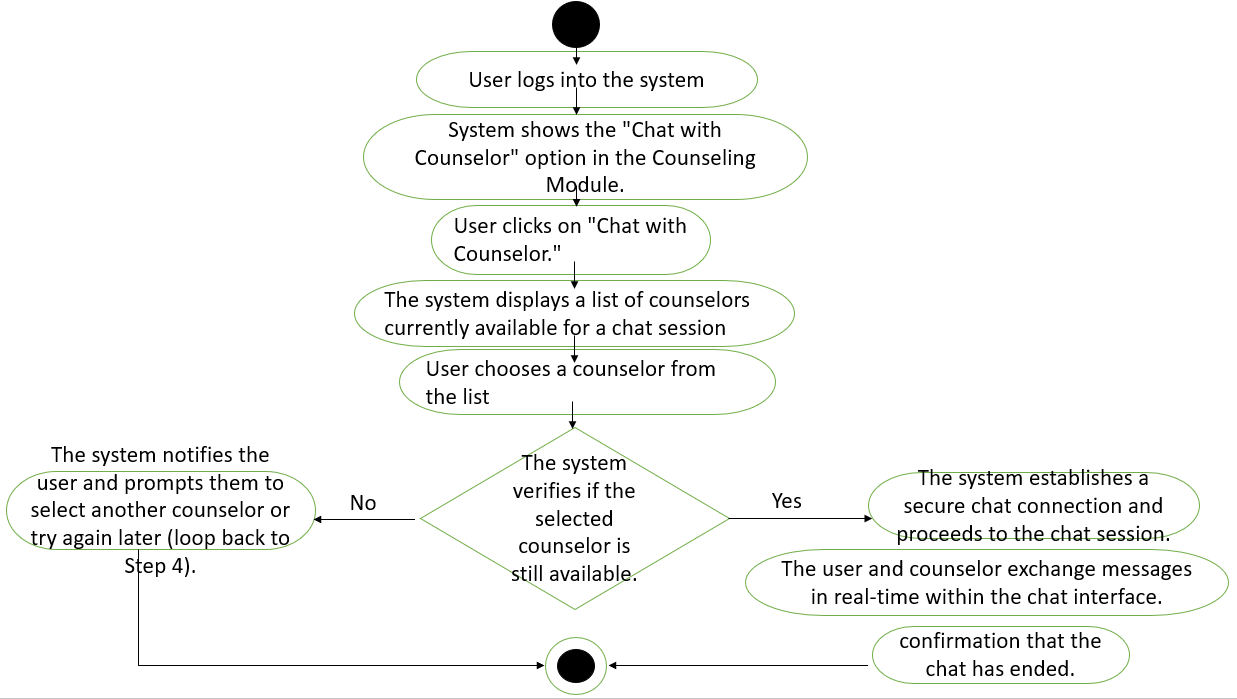


Figure 18. Activity Diagram of UC08

### System Sequence Diagram of UC08

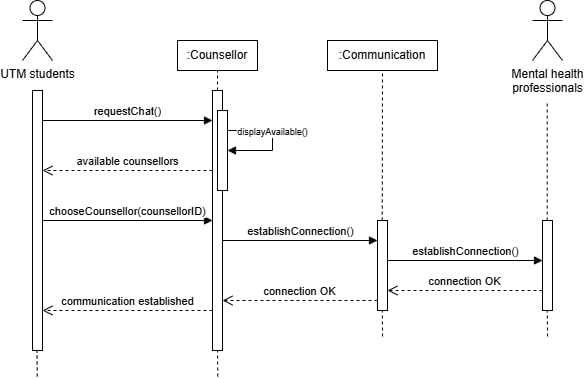


Figure 19. Sequence Diagram of UC08

### 2.3.9: UC09 Take Self-Assessment Test

### Use Case Specification of UC09

| Use Case: Take Self-Assessment Test |
| --- |
| ID: UC09 |
| Actors: UTM students |
| Preconditions: 1. Users must be logged into the system. |
| Flow of events:   1. The user navigates to the Self-Assessment Module. 2. The system displays a list of available tests. 3. The user selects a test and starts it. 4. The user answers the questions provided. 5. The system calculates the result based on the responses. 6. The system displays the result and provides recommendations or resources. |
| Alternative flow: If the user exits the test prematurely, the system saves progress for later. |
| Postconditions: The system stores the test results in the user’s profile. |
| Exception flow(if any): |

### Activity Diagram of UC09

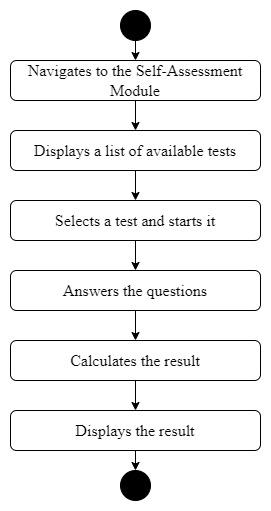


Figure 20. Activity Diagram of UC09

### System Sequence Diagram of UC09

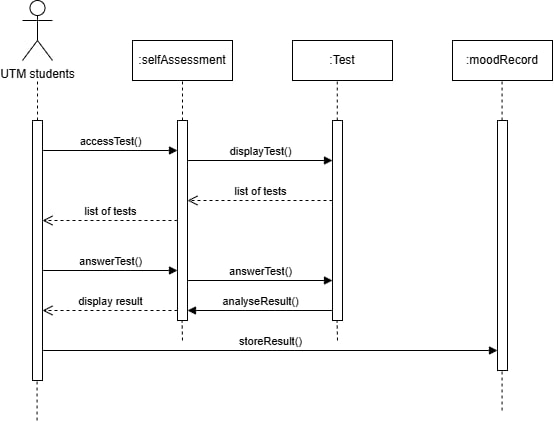


Figure 21. Sequence Diagram of UC09

### 2.3.10: UC10: Access Guided Routines

### Use Case Specification of UC10

| Use Case: Access Guided Routines |
| --- |
| ID: UC10 |
| Actors: UTM students |
| Preconditions: 1. Users must be logged into the system. |
| Flow of events:   1. The user navigates to the Guided Routines module. 2. The system displays a list of available guided routines. 3. The user selects a guided routine. 4. The system loads the selected routine's content. |
| Alternative flow: If the system cannot load the routine, it displays an error message and allows the user to select a  different routine. |
| Postconditions: The system stores the routine’s completed in the user’s profile. |
| Exception flow(if any): If the routine cannot load, the system displays an error message. |

### Activity Diagram of UC10

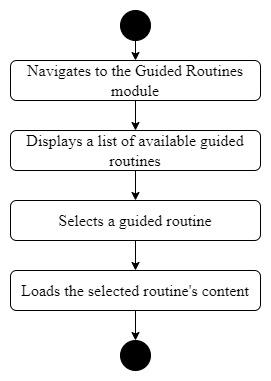


Figure 22. Activity Diagram of UC10

### System Sequence Diagram of UC10

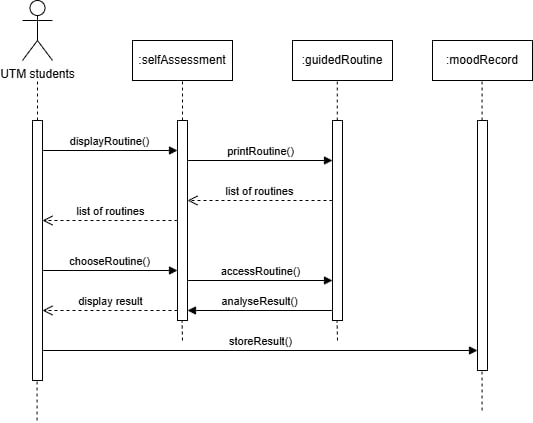


Figure 23. Sequence Diagram of UC10

### 2.3.11: UC11: Track Mood Patterns

| Use Case: Track Mood Patterns |
| --- |
| ID: UC11 |
| Actors: UTM students |
| Preconditions: 1. Users must be logged into the system. |
| Flow of events:   1. The user navigates to the Mood Tracker module. 2. The system displays options to record a mood entry or view history. 3. The user selects the "Record Mood" option. 4. The user inputs their mood and any additional notes. 5. The system stores the mood data. |
| Alternative flow: If the user exits without saving, the system does not store any mood data. |
| Postconditions: The user's mood entry is successfully stored in their mood records. |
| Exception flow(if any): If the system fails to save the data, it displays an error message and prompts the user to retry. |

### Activity Diagram of UC11

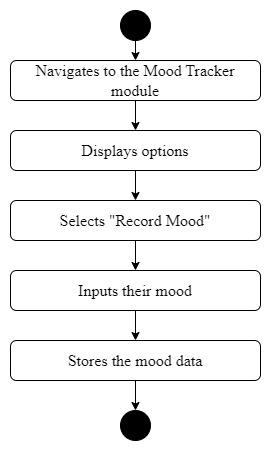


Figure 24. Activity Diagram of UC11

### System Sequence Diagram of UC11

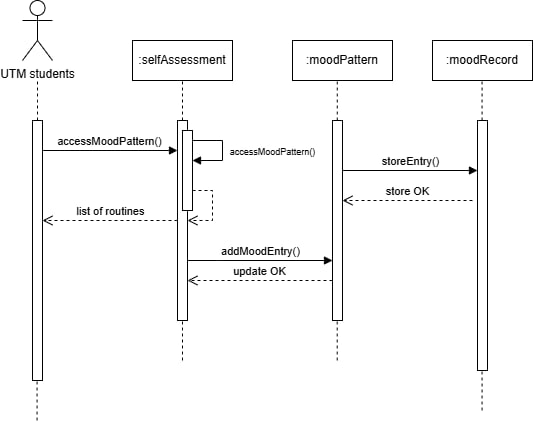


Figure 25. Sequence Diagram of UC11

### 2.3.12: UC12 View system analytics

| Use Case: View system analytics |
| --- |
| ID: UC12 |
| Actors: Administrators |
| Preconditions: 1. The administrator must be authenticated to view the analytics.  2. The data must be updated to the time of viewing. |
| Flow of events: 1. The administrator accesses the dashboard of the system.  2. The administrator chooses “System analytics” on the dashboard.  3. The system displays the different statistics of the system such as users registered, system uptime and others. |
| Alternative flow: The administrator can pick any specific data to be displayed at once. |
| Postconditions: 1. The system analytics is displayed to the administrator.  2. The administrator can download this data. |
| Exception flow(if any): |

### Activity Diagram of UC12

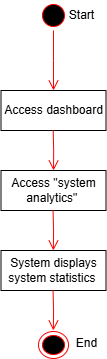


Figure 26: Activity diagram of UC12

### System Sequence Diagram of UC12

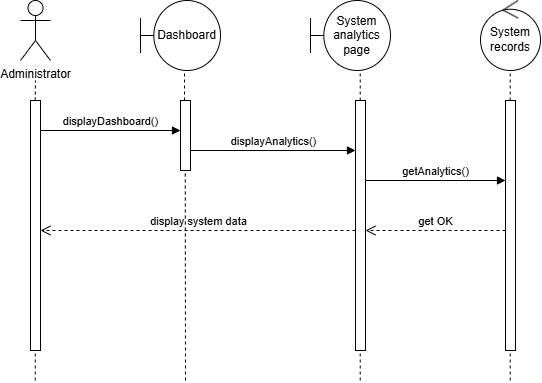


Figure 27: Activity diagram of UC12

### 2.3.13: UC13 Manage user accounts

| Use Case: Manage user accounts |
| --- |
| ID: UC13 |
| Actors: Administrators |
| Preconditions: 1. The user account must exist in the system.  2. The administrator must have permission to access the database. |
| Flow of events: 1. The administrator accesses the admin dashboard.  2. The administrator chooses “User database” in the dashboard.  3. If admin has permission  3.1 The administrator looks up a user by entering their user details.  3.2 The administrator can modify the status or information of the account.  3.3 The system saves changes made to the account.  4. else  4.1 Display “insufficient permission”. |
| Alternative flow: The administrator can change and search for another user at any time. |
| Postconditions: 1. The user’s account is updated in the database to reflect the changes made. |
| Exception flow(if any): The system displays “user does not exist” if the user can’t be found. |

### Activity Diagram of UC13

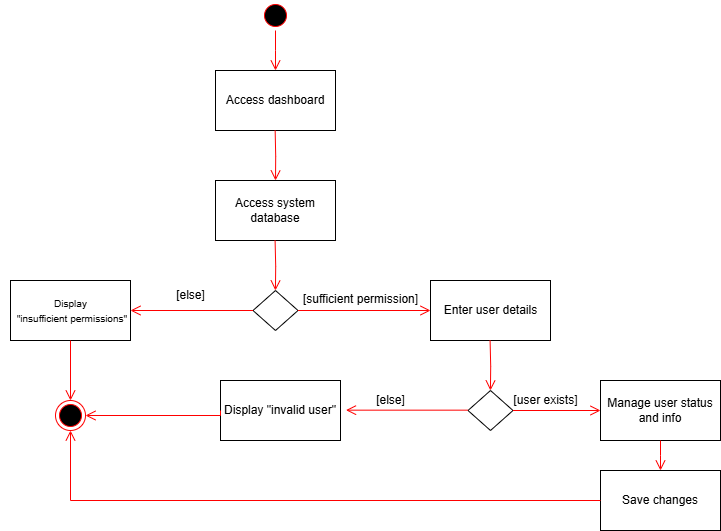


Figure 28: Activity diagram of UC13

### System Sequence Diagram of UC13

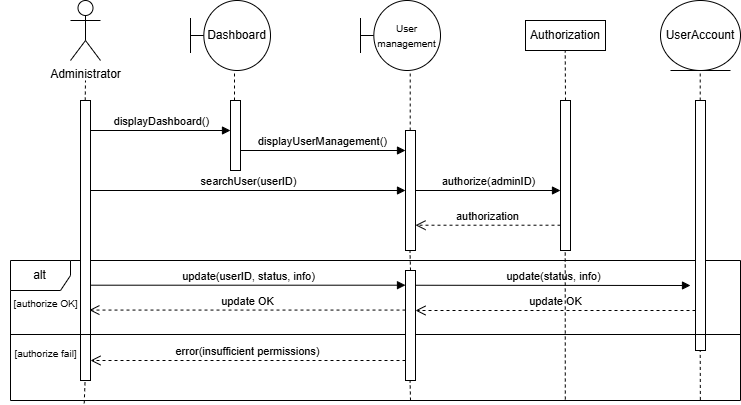


Figure 29: Sequence diagram of UC13

### 2.3.14: UC14: Generate system analytics report

| Use Case: Generate system analytics report |
| --- |
| ID: UC14 |
| Actors: Administrators |
| Preconditions: 1. The admin must be authenticated to generate reports.  2. The data must be recorded within the system. |
| Flow of events: 1. The administrator accesses the admin dashboard.  2. The administrator chooses the “view system analytics” option in the dashboard.  3. The administrator filters the data range.  4. The system returns the data to the administrator  5. The administrator downloads the data and picks the format(.doc, .xlsx, .pdf)  6. The system downloads the file. |
| Alternative flow: The administrator can change the data filter at any time. |
| Postconditions: 1. A report in the chosen format has been downloaded to the user’s device. |
| Exception flow(if any): The system will throw an exception if the requested data is not found in the system. |

### Activity Diagram of UC14

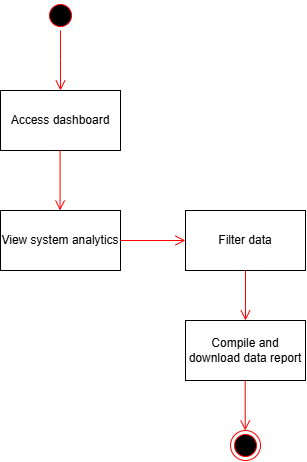


Figure 30: Activity diagram of UC14

### System Sequence Diagram of UC14

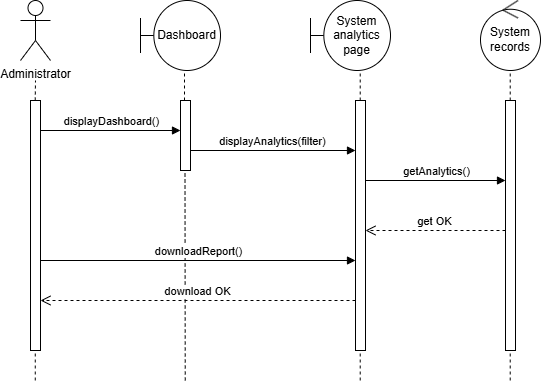


Figure 31: Sequence diagram of UC14

## 2.4 Performance and Other Requirements

The non-functional requirements of this new system can be categorised into its software system attributes, performance requirements and other requirements. In this section, we will describe in detail the different non-functional requirements that must be fulfilled in the system.

**Software system attributes:**

1. ***Compatibility.***

The system must be able to run on different operating systems and hardware, such as desktop OS (Windows, Linux) and mobile OS (Android, IOS). It must also be compatible with different web browsers available in those different devices.

1. ***Maintainability.***

The system must be simple for developers to modify and add new features, repair any bugs and issues in the system and enhance its performance by optimisation.

1. ***Usability.***

The system should have a short tutorial that teaches the user on the different features available in the system. There should also be a short documentation on the usage of the features for future reference.

**Performance requirements:**

1. ***Capacity.***

The system should be able to handle 100 peak users interacting with the system simultaneously, which includes students, administrators and mental health professionals. The system should also be able to store data for 5000 users and the various content uploaded onto the system.

1. ***Availability.***

The system must be available for users to access for 95% of the time. The downtime of the system should be less than 5 hours for any given day.

**Other requirements:**

1. ***Security.***

All sensitive data within the system must be strongly encrypted to ensure data integrity. Access to sensitive data must also be strictly controlled by the administrators of the system to prevent malicious users from gaining access to the data.

## 2.5 Design Constraints

In this section, we will describe the **organisational** and **external** requirements that the system must adhere to.

1. **Organisational requirement**

Users of the Digital Mental Health Literacy Hub should be able to access the system via their university credentials, or their medical credentials for mental health professionals. The system will also be allowed to collect data provided by the user to provide better user experience.

1. **External requirement**

The system should adhere to the PDPA 2010 enacted by the Malaysian Government.

# 3 Architectural Rationale

## 3.1 Architecture Style and Rationale

For this system, we will use the Client-Server architecture model to design it. The rationale behind this choice of architecture pattern is that the new system will have multiple services provided to the users, with data stored in a shared database used in multiple of these services. Using Client-Server architecture allows us to organize the functions of the system into services delivered from a server, distributed across a network.

Some advantages of using the client-server architecture is that it provides better security for the system. Since all data of the system is stored in a shared, central server, we can implement security protocols to ensure that all access to the server is monitored and regulated, preventing malicious individuals from gaining unauthorised access into the system.

Client-server architecture also allows for load-balancing, which distributes the system traffic to multiple servers, preventing a bottleneck of a server and ensuring that the system will have better performance.

## 3.2 Component Model

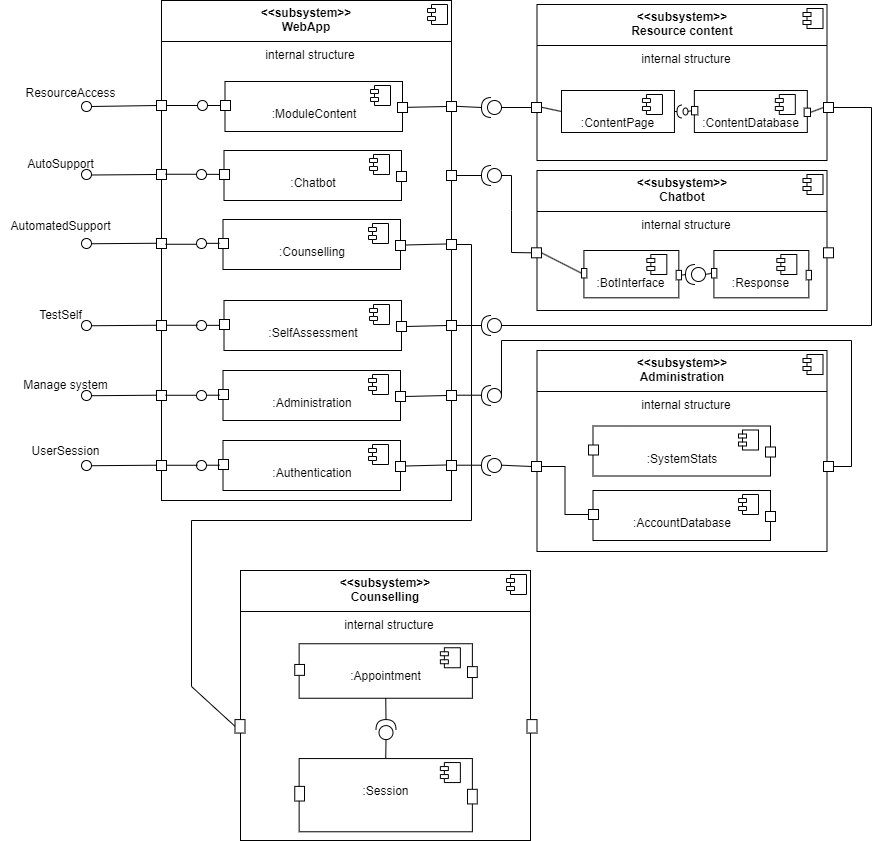


Figure 32: Component Diagram

In this component model, we have **five** subsystems that make up the whole system, namely the WebApp subsystem, the Resource Content subsystem, Artificial Intelligence subsystem, Administration subsystem and the Communication subsystem. The responsibility of each subsystem and their relations are described as below.

| Subsystem | Responsibility |
| --- | --- |
| WebApp | This subsystem provides the interface of the various components to the user to interact with the system. |
| Resource Content | This subsystem handles the management of the mental health resources stored in the system, provided by the ContentDatabase component. |
| Chatbot | This subsystem handles the AI support chatbot feature in this system, helping the user with support issues and generating personalised experiences for the user. |
| Administration | This subsystem comprises of all administration features in this system, |
| Counselling | This subsystem handles the appointment schedule features and the counselling features, including counselling sessions. |

# 4 Architecture Views

## 

## 4.1 Use Case View

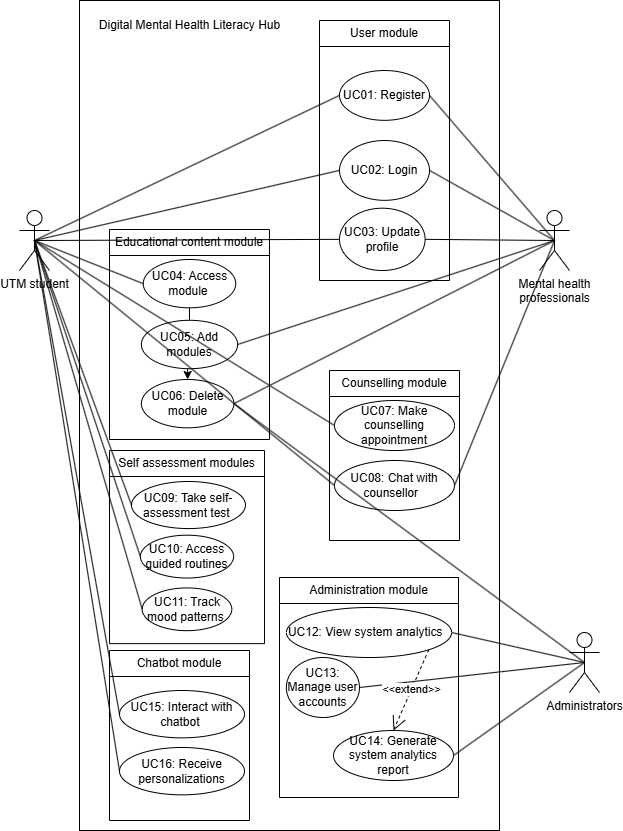


Figure 33: Use Case Diagram for Mental Health Literacy Hub

## 4.2 Implementation View

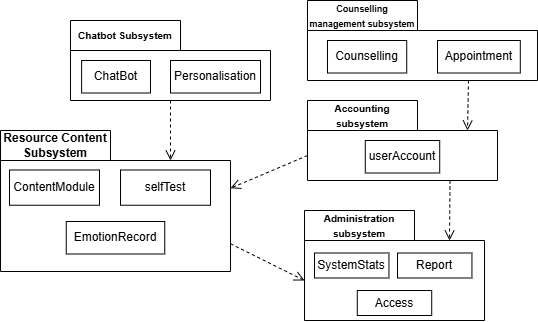


Figure 34: Overall package diagram

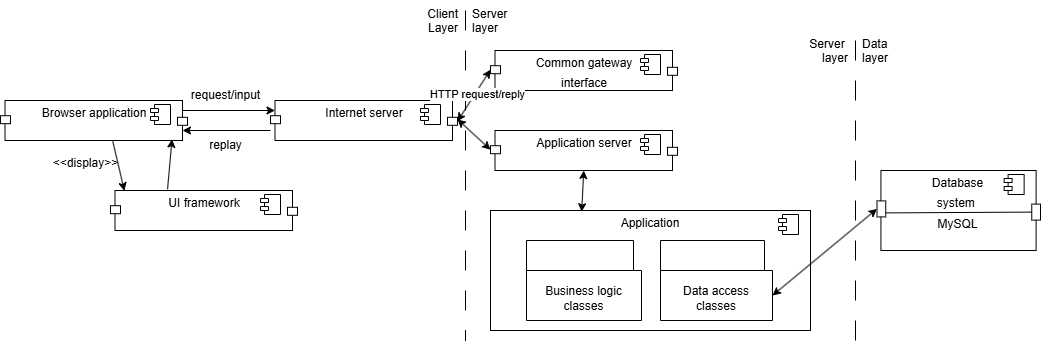


Figure 35: Architecture Diagram

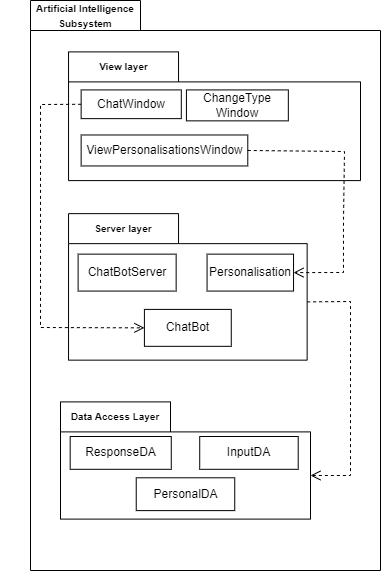


Figure 36: P001: Package Diagram for <<Artificial Intelligence>> Subsystem

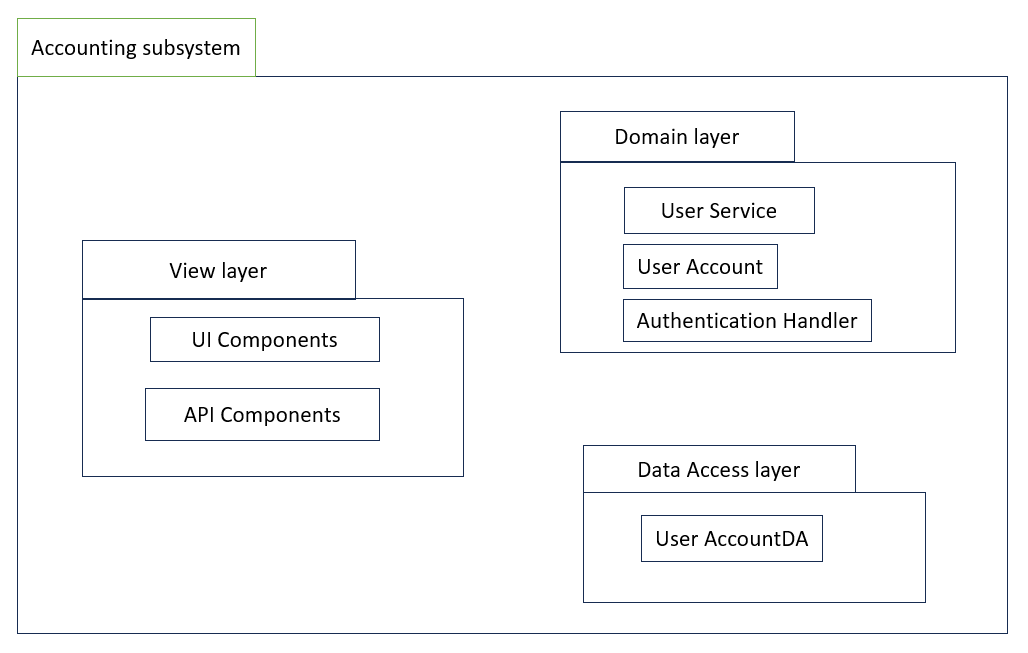


Figure 37: P002: Package Diagram for <<Accounting>> Subsystem

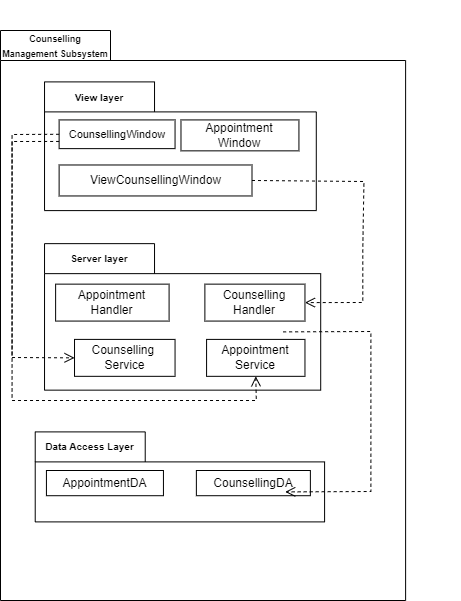


Figure 38: P003: Package Diagram for <<Counselling Management>> Subsystem

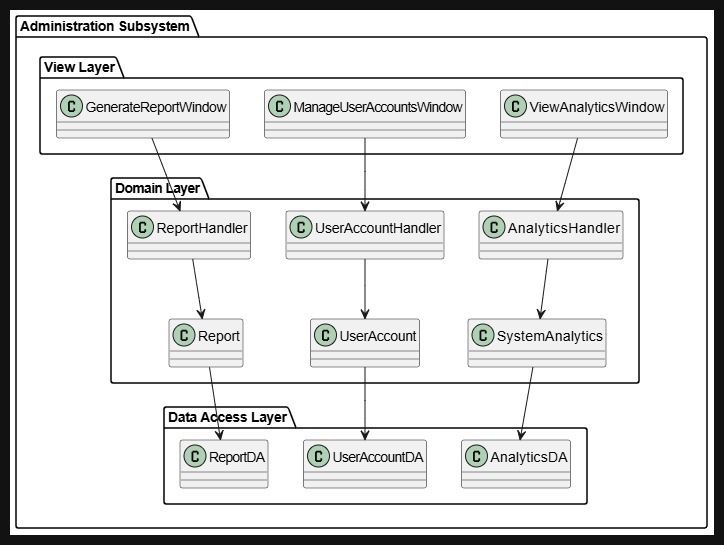


Figure 39: P004: Package Diagram for <<Administration>> Subsystem

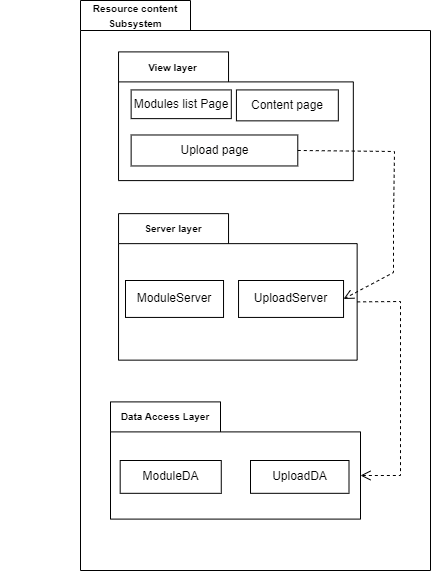


Figure 39: P004: Package Diagram for <<Resource content>> Subsystem

## 4.3 Logical View

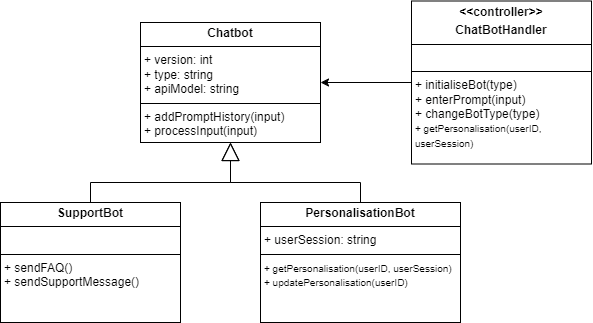


Figure 40: Class Diagram for <<Chatbot>> subsystem

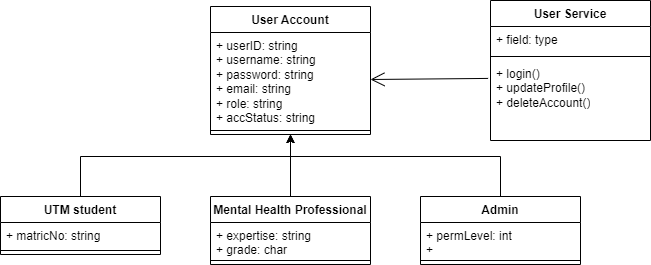


Figure 41: Class Diagram for <<Accounting>> subsystem

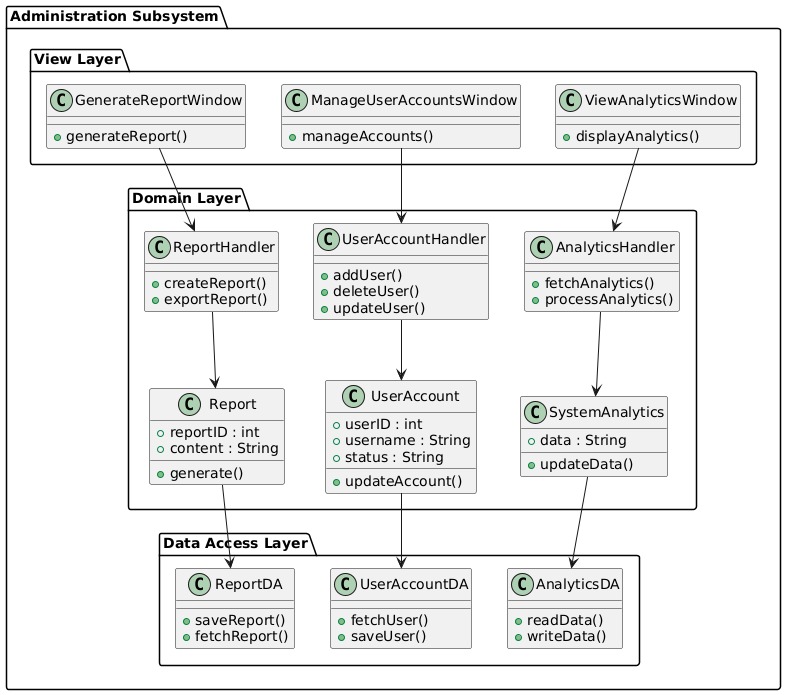


Figure 42: Class Diagram for <<Administration>> subsystem

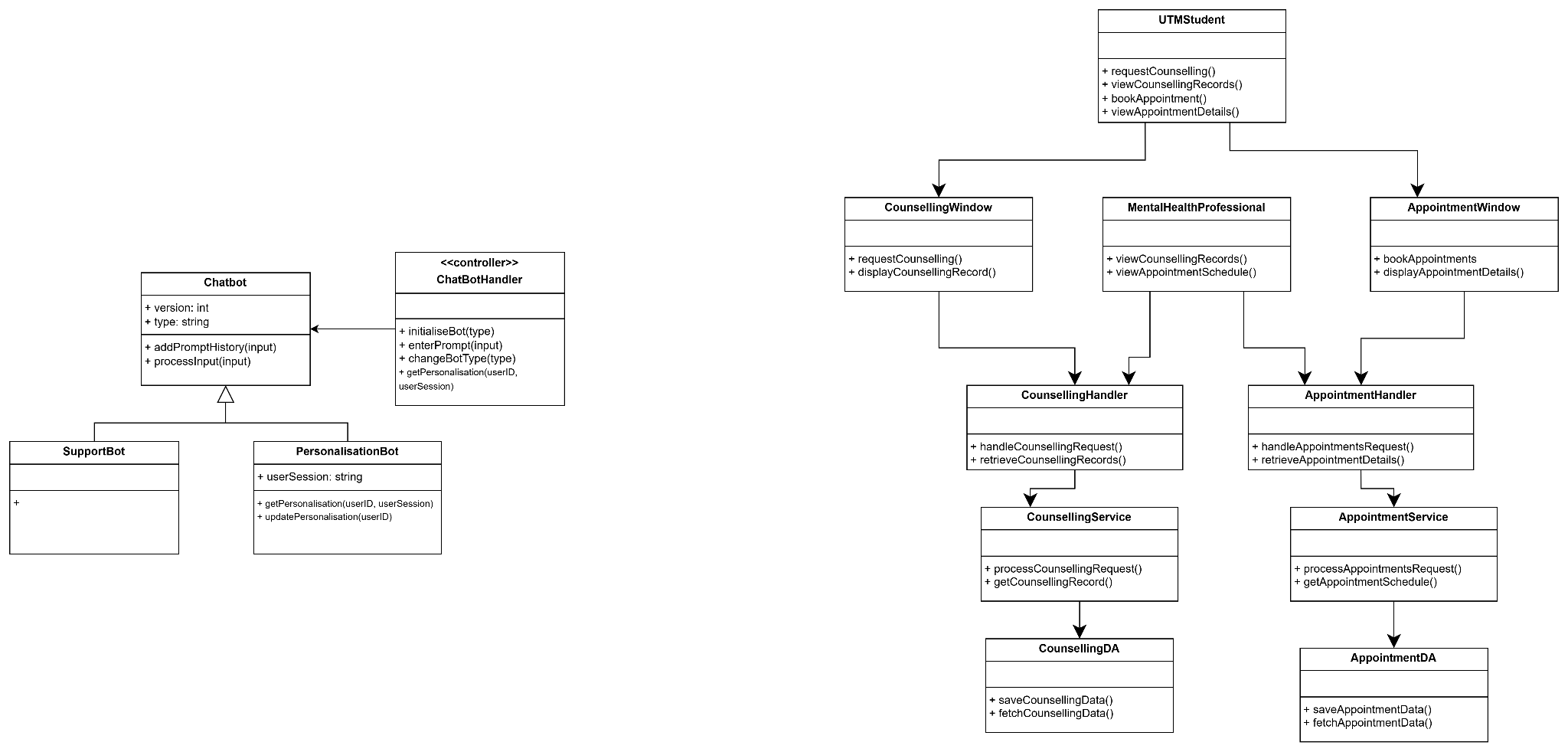


Figure 43: Class Diagram for <<Counselling Management>> subsystem

## 4.4 Process View

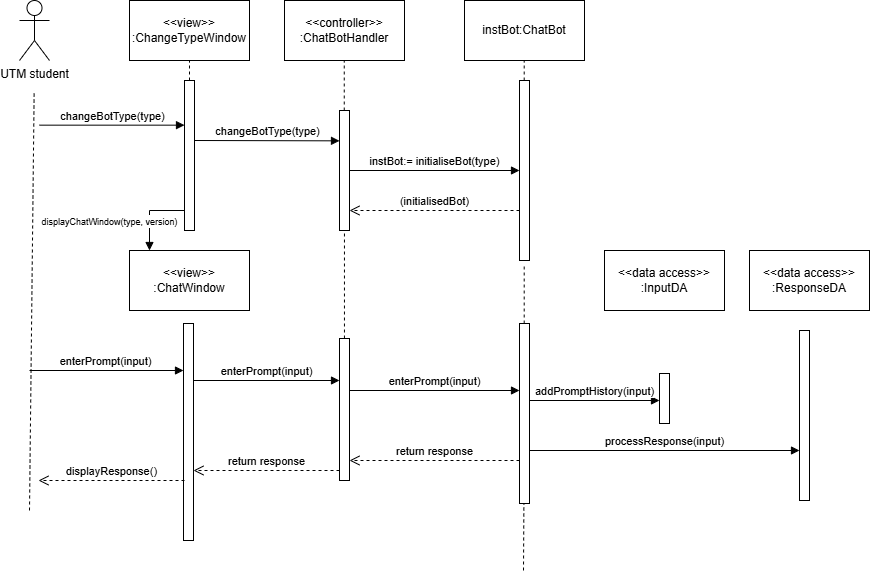


Figure 44: P001: SD001: Sequence Diagram for <Interact with Chatbot Scenario>

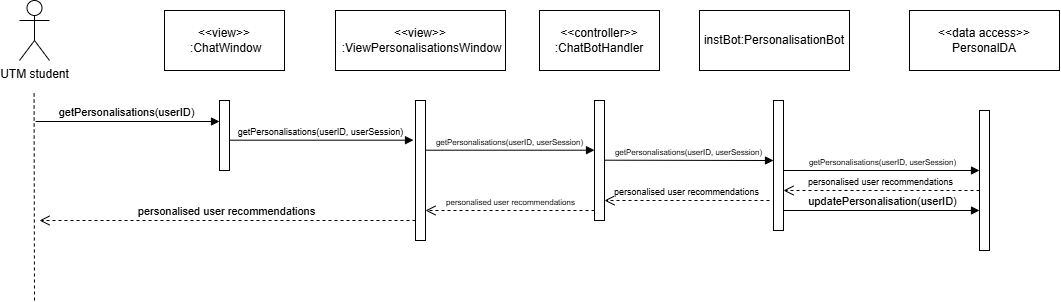


Figure 45: P001: SD002: Sequence Diagram for <Receive Personalisations Scenario>

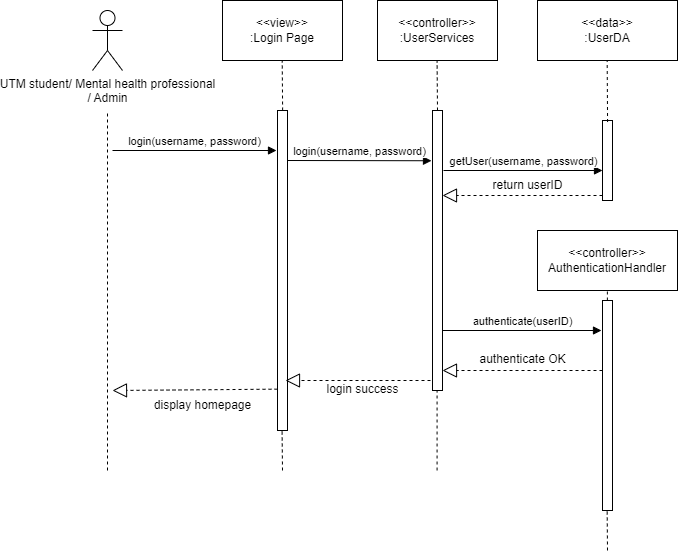


Figure 46: P002: SD003 :Sequence Diagram for <<Login>> Scenario

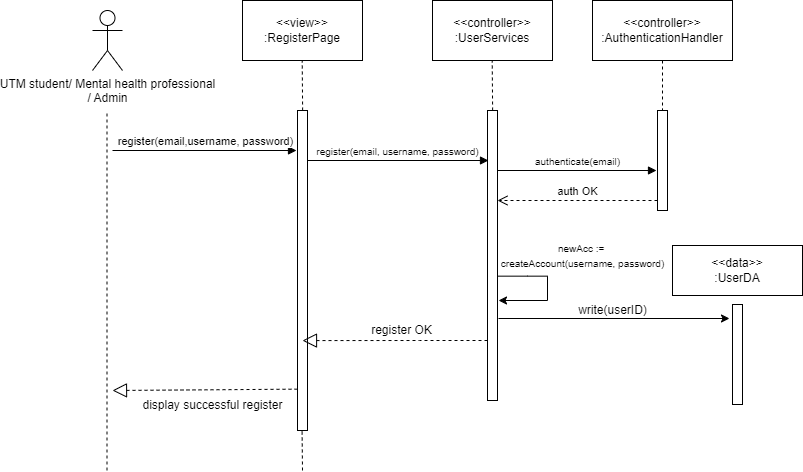


Figure 46: P002: SD004 :Sequence Diagram for <<Register>> Scenario

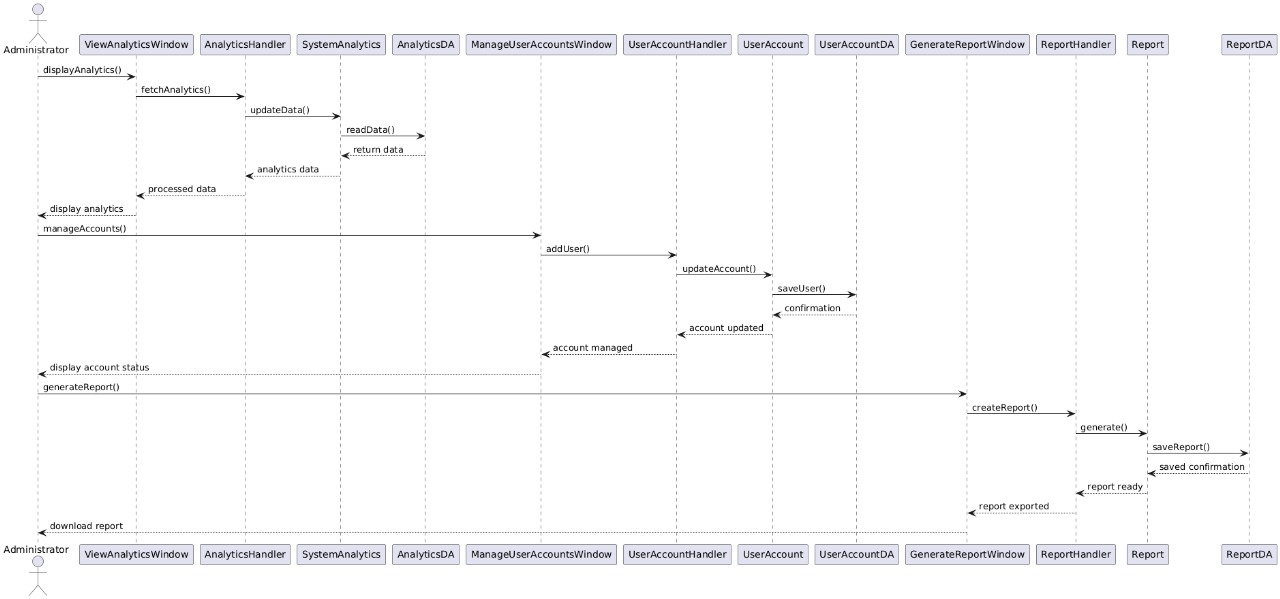


Figure 47: SD005: Sequence Diagram for <<Administration>> Scenario

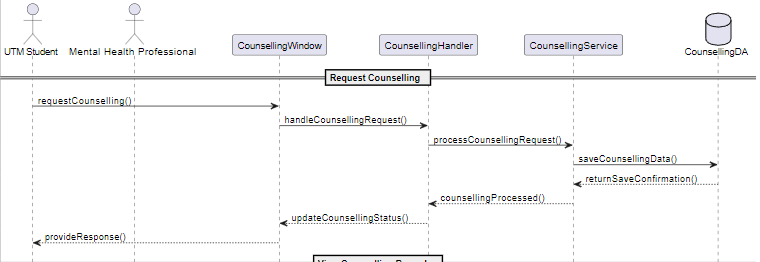


Figure 48: P003: SD006: Sequence Diagram for <<Chat with Counsellor>> Scenario

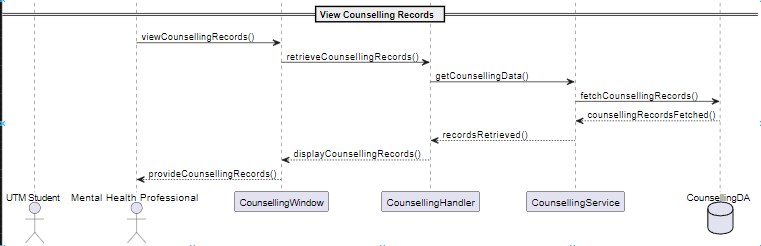


Figure 48: P003: SD007: Sequence Diagram for <<View counselling records>> Scenario

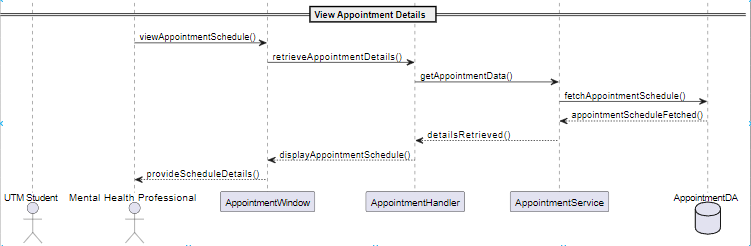


Figure 48: P003: SD008: Sequence Diagram for <<View appointment records>> Scenario

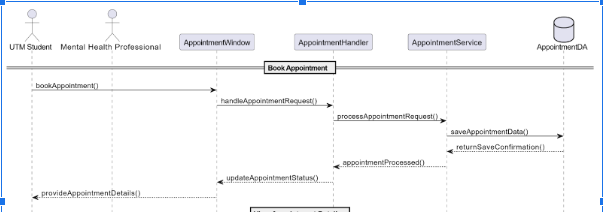


Figure 49: P003: SD009: Sequence Diagram for <<Book Appointment>> Scenario

## 4.5 Deployment View

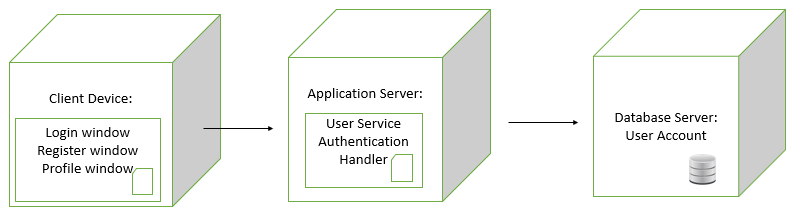


Figure 50: Deployment Diagram

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# 5. Data Design

## 5.1 Data Dictionary:

#### **5.1.1 Entity: UserAccount**

| Attribute Name | Type | Description |
| --- | --- | --- |
| user ID | Integer | Unique identifier for each user |
| username | String | Username chosen by the user |
| password | String | Encrypted password for authentication |
| email | String | User’s email address |
| role | String | User role |
| createdDate | Date Time | Account creation timestamp |

#### 

#### **5.1.2 Entity: EmotionRecord**

| Attribute Name | Type | Description |
| --- | --- | --- |
| record ID | integer | Unique identifier for each record |
| user ID | integer | Foreign key referencing user account |
| emotionDate | JSON | Data about user’s emotional state |
| testDate | DateTime | Date when the self-test was taken |

#### **5.1.3 Entity: ContentModule**

| Attribute Name | Type | Description |
| --- | --- | --- |
| content ID | Integer | Unique identifier for content |
| tittle | String | Title of the content |
| description | String | Description of the content |
| filepath | String | Path to access the content file |

#### **5.1.4 Entity: SelfTest**

| Attribute Name | Type | Description |
| --- | --- | --- |
| test ID | Integer | Unique identifier for the test |
| user ID | Integer | Foreign key referencing user account |
| testResult | String | Results of the self-test |
| completionDate | DateTime | Date the test was completed |

#### 

#### 

#### **5.1.5 Entity: CounsellingSession**

| Attribute Name | Type | Description |
| --- | --- | --- |
| session ID | Integer | Unique identifier for the session |
| user ID | Integer | Foreign key referencing user account |
| counseller ID | Integer | Foreign key referencing counsellors |
| date | DateTime | Date and time of the session |

#### **5.1.6 Entity: Appointment**

| Attribute Name | Type | Description |
| --- | --- | --- |
| appointment ID | Integer | Unique identifier for the appointment |
| user ID | Integer | Foreign key referencing user account |
| counseller ID | Integer | Foreign key referencing counsellors |
| appointmentDate | DateTime | Date and time of the appointment |
| status | String | Status of the appointment |

#### 

#### **5.1.7 Entity: SystemStats**

| Attribute Name | Type | Description |
| --- | --- | --- |
| state ID | Integer | Unique identifier for the stat entry |
| metricName | String | Name of the metric being tracked |
| metricValue | String | Value of the tracked metric |
| recordedDate | DateTime | Date when the metric was recorded |

#### **5.1.8 Entity: Report**

| Attribute Name | Type | Description |
| --- | --- | --- |
| report ID | Integer | Unique identifier for the report |
| tittle | String | Title of the report |
| content | String | Content or data of the report |
| generatedDate | DateTIme | Date when the report was generated |

#### 

#### **5.1.9 Entity: Chatbot**

| Attribute Name | Type | Description |
| --- | --- | --- |
| version | Integer | The version of the bot currently running |
| type | String | The type of the bot used |
| apimodel | String | The API model of the bot used |

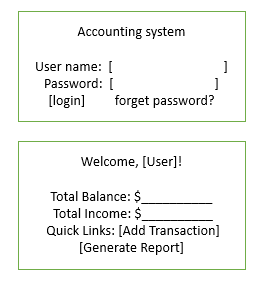
#### **5.1.10 Entity: Supportbot**

| Attribute Name | Type | Description |
| --- | --- | --- |
| version | Integer | The version of the bot currently running |
| type | String | The type of the bot used |
| apimodel | String | The API model of the bot used |

#### **5.1.11 Entity: Supportbot**

| Attribute Name | Type | Description |
| --- | --- | --- |
| version | Integer | The version of the bot currently running |
| type | String | The type of the bot used |
| apimodel | String | The API model of the bot used |
| userSession | String | A unique identifier for every session the user initiates |

# 6. User Interface Design



## 6.1 Screen Images

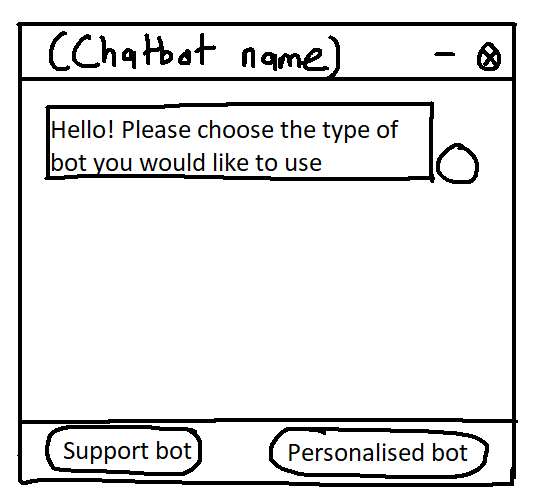


Figure 42: Interface for selecting the type of chatbot

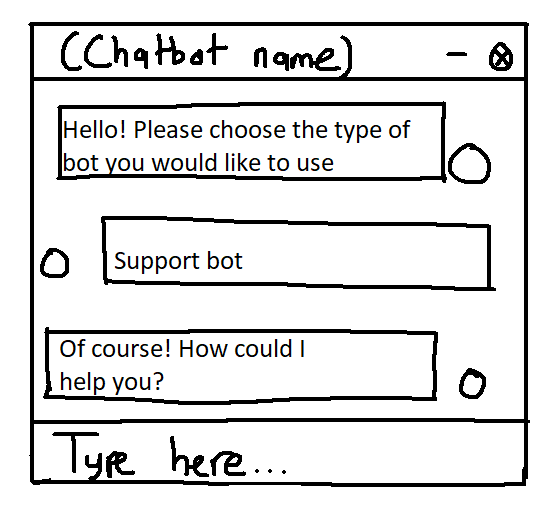


Figure 43: Interface for entering a prompt into the chatbot

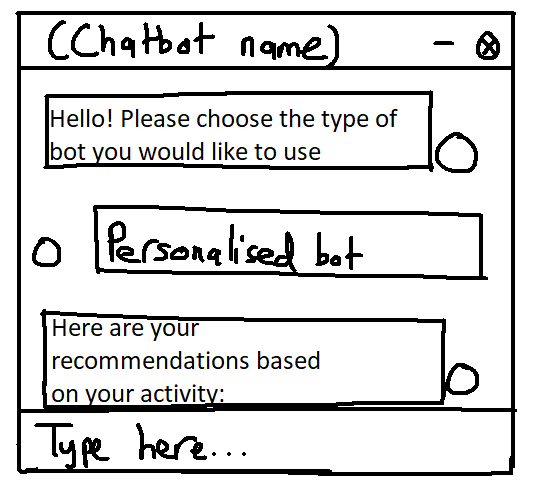


Figure 44: Interface for receiving recommendations

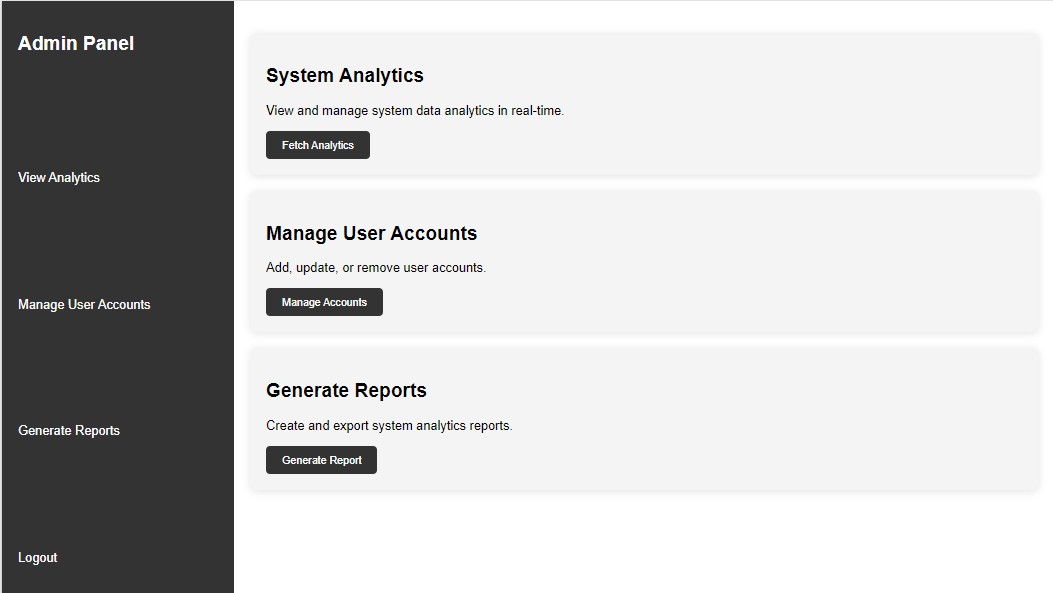


Figure 45: User Interface for Administration Subsystem



Figure 45: User Interface for Counselling Management Subsystem

# 7. Traceability

| Package UC, Sequence Diagram | User Account | EmotionRecord | ContentModule | SelfTest | CounsellingSession | Appointment | SystemStats | Report | Chatbot | Supportbot | PersonalisedBot |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| P001,  SD001,  UC15 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | / | / | / |
| P001  SD002,  UC16 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | / | / | / |
| P002,  SD003, UC01 | / | ✓ | ✓ | ✓ | ✓ | ✓ |  |  |  |  |  |
| P002  SD004, UC12 | / | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |  |  |  |
| P003,  SD005,  UC07 | / | / | ✓ | ✓ | / | ✓ | ✓ | ✓ |  |  |  |
| P003  SD006,  UC08 | / | / | ✓ | ✓ | ✓ | / | ✓ | ✓ | ✓ |  |  |

**Traceability Matrix**, which is used to track relationships between various functional modules of the system, corresponding use cases (UC), and sequence diagrams (SD).

### **Column Descriptions:**

1. **Package UC, Sequence Diagram**: Contains information about the package, use cases, and related sequence diagrams (e.g., P001, SD001, UC15).
2. **User Account**: Indicates whether the module is related to user account functionality.
3. **Emotion Record**: Specifies if the system includes emotional state recording.
4. **Content Module**: Describes the availability of educational content.
5. **Self Test**: Indicates whether self-assessment tests are supported.
6. **Counselling Session**: Shows the possibility of conducting professional counseling sessions.
7. **Appointment**: Addresses the functionality for scheduling appointments.
8. **System Stats**: Supports functionality for providing system statistics.
9. **Report**: The ability to generate reports on user states or system usage.
10. **Chatbot**: Includes an automated chatbot for interaction.
11. **Supportbot**: The presence of a bot for user support.
12. **Personalised Bot**: A personalized bot offering tailored recommendations.

### **Row Descriptions:**

Each row describes the relationship between a specific package, sequence diagram, and system functionality:

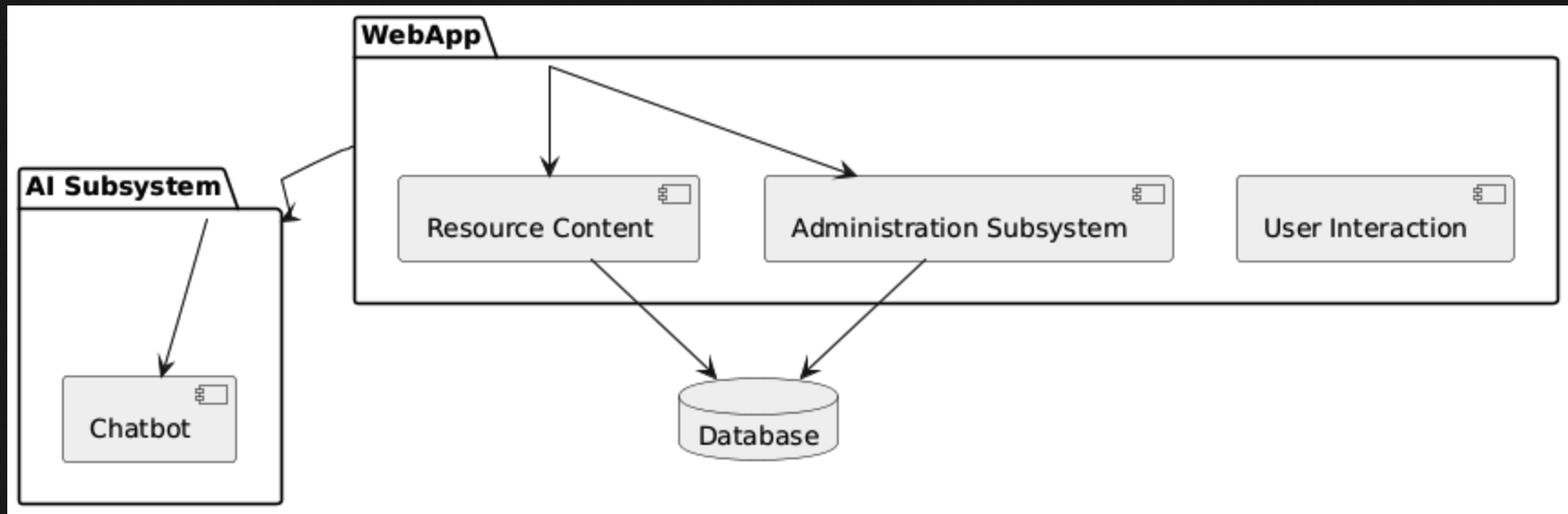
* **P001, SD001, UC15** and **P001, SD002, UC16**: Related to comprehensive functionality (all key elements except bots).
* **P002, SD003, UC01**: Does not include "User Account" but supports other elements like "Emotion Record," "Content Module," and "Self Test."
* **P002, SD004, UC12**: Extends functionality with "System Stats" and "Report."
* **P003, SD005, UC07** and **P003, SD006, UC08**: Focus on educational modules and counseling but lack additional bots.

### **Purpose:**

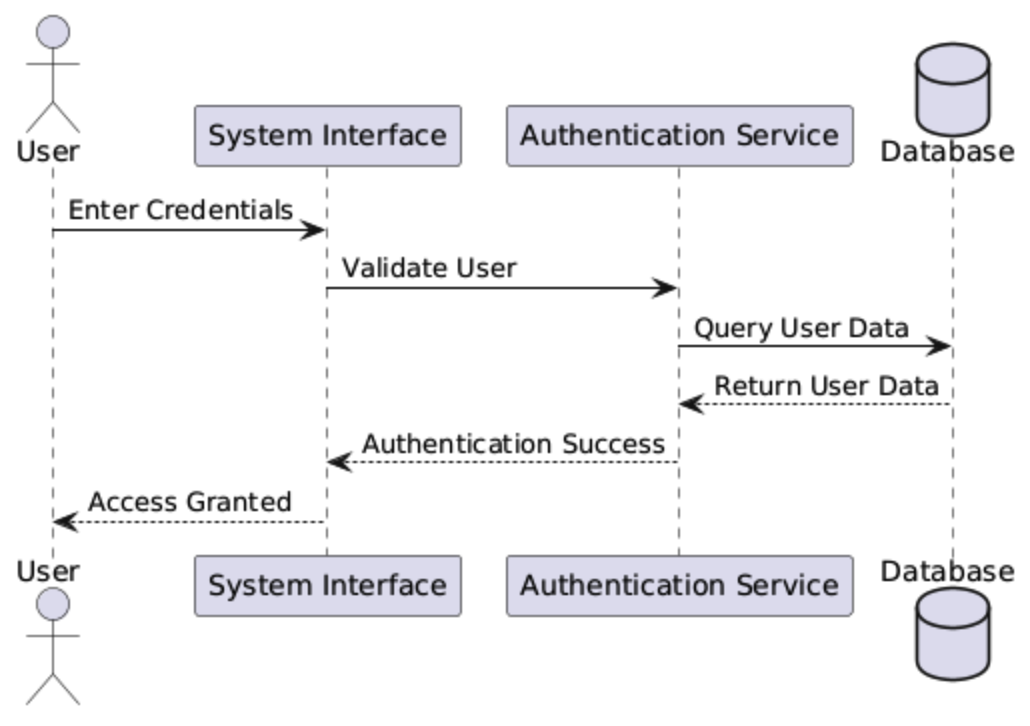
The table helps to:

1. Understand which features are implemented for each use case.
2. Ensure that every module and function is aligned with the corresponding requirements.
3. Provide traceability of requirements throughout the development process.

**The Subsystem Diagram**

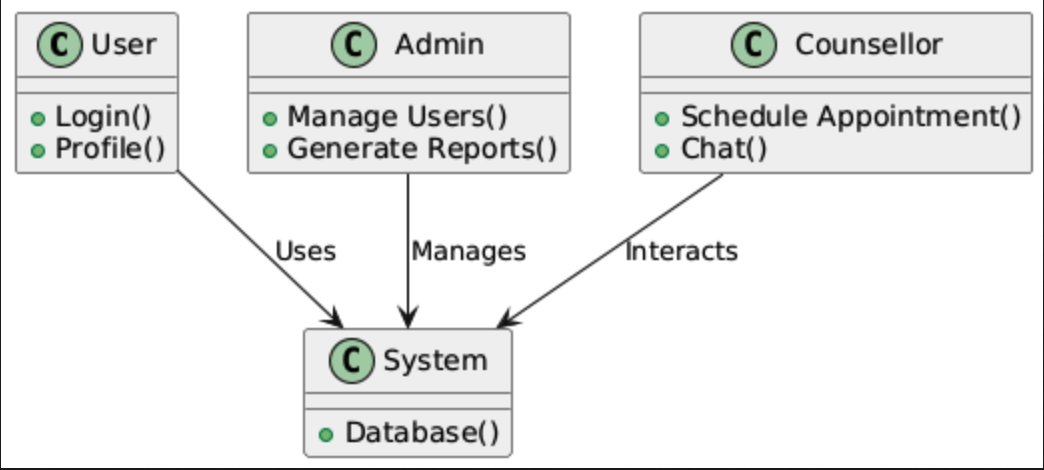
7.1 - subsystem diagram

**The Sequence Diagram**



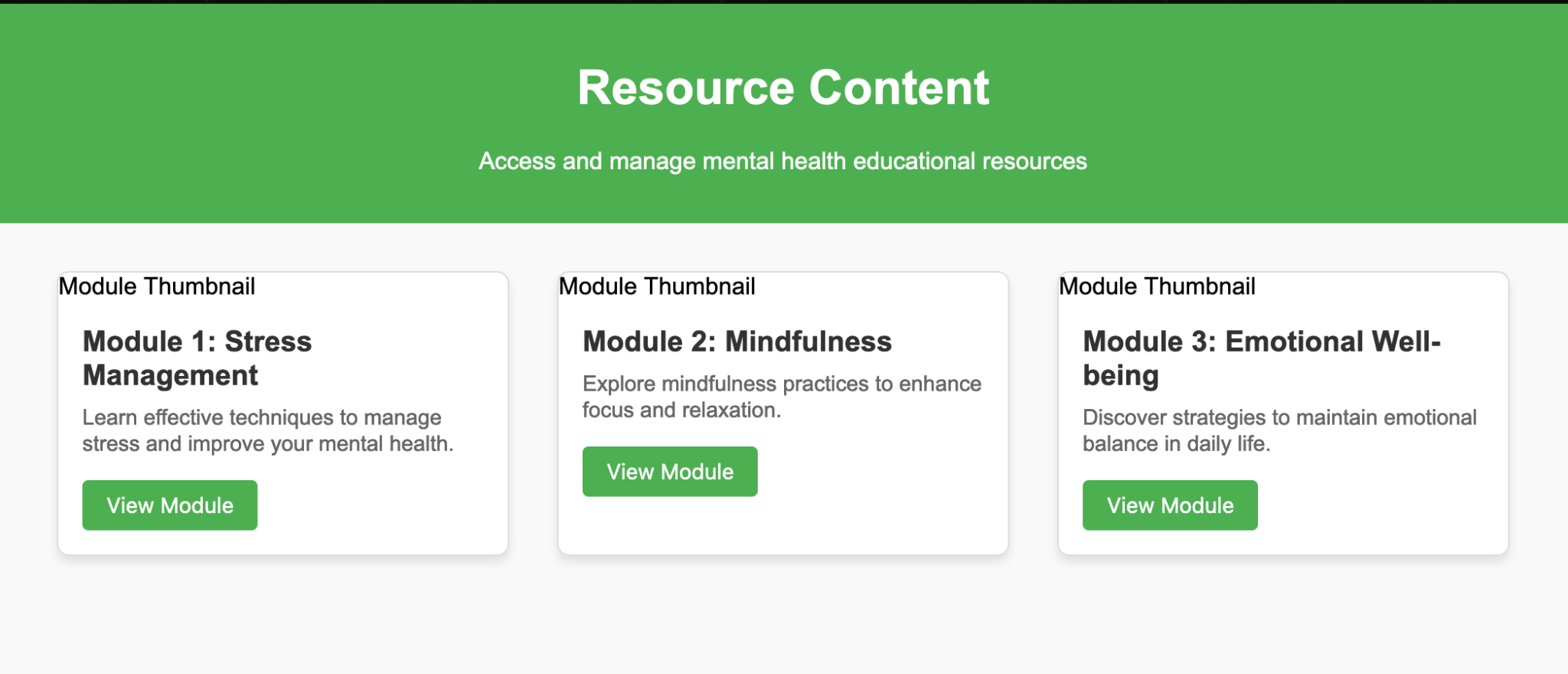
7.2 - Sequence Diagram

**The Class Diagram**



7.3 - Class Diagram

**UI(User interface)**



7.4 - User Interface

# 8. Test Cases

## 8.1 TC001: Test <Chatbot> Subsystem: <Interact with chatbot UC15, Receive personalisations UC16>

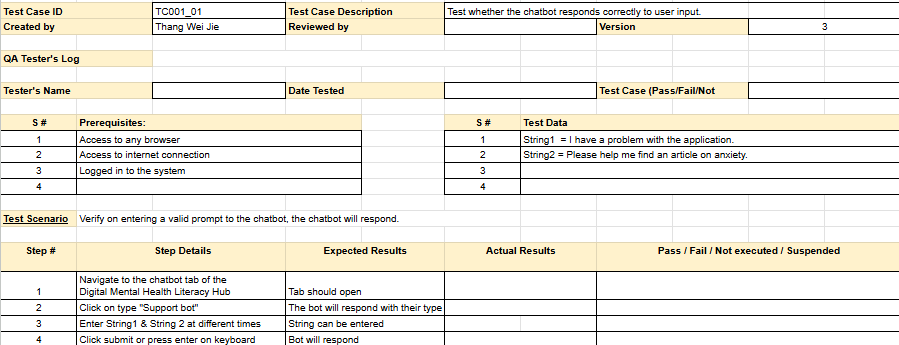
This test case contains the following test cases:

1. TC001\_01: Test <Interact with chatbot scenario (SD001)>
2. TC001\_02: Test <Receive personalisations scenario (SD002)>

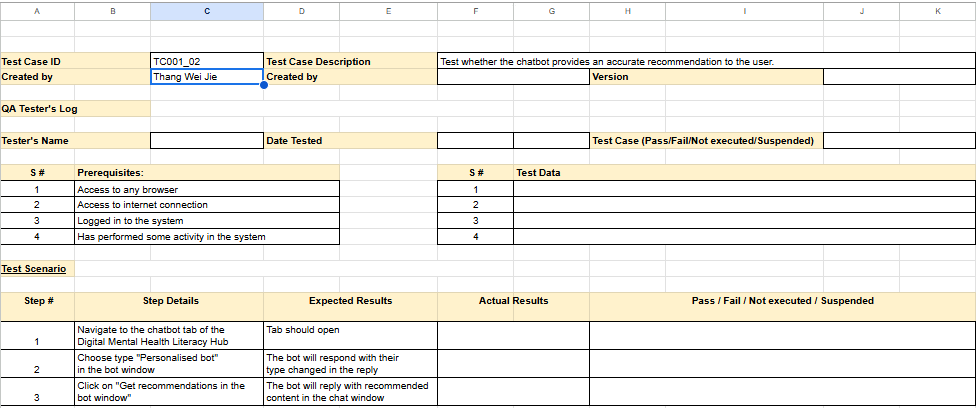
### 8.1.1 TC001\_01: Test <Interact with chatbot scenario (SD001)>

This test contains the following scenarios:

1. TC001\_01\_01: Test <normal scenario of sequence diagram1 (SD001)>



1. TC001\_01\_02: Test <normal scenario of sequence diagram2 (SD002)>



## 8.2 Test Case (TC002) “Accounting” subsystem

Test case 1:

TC002\_01 Register Module (registration functionality)

| **Test Case ID** | | TC002\_01 | **Test Case Description** | | Test whether the UserAccount subsystem handles user registration functionality correctly. | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Created by** | | Vasila Sujavudeen | **Created by** | |  | | **Version** | | 1.0 | |
|  |  |  |  |  |  |  |  |  |  |  |
| **QA Tester's Log** | |  | | | | | | | | |
|  |  |  |  |  |  |  |  |  |  |  |
| **Tester's Name** | |  | **Date Tested** | |  | | **Test Case (Pass/Fail/Not** | |  | |
|  |  |  |  |  |  |  |  |  |  |  |
| **S #** | **Prerequisites:** | | |  | **S #** | **Test Data** | | | | |
| 1 | Access to a web browser. | | |  | 1 | Valid user credentials. | | | | |
| 2 | Internet connection. | | |  | 2 | Invalid user credentials. | | | | |
| 3 | UserAccount subsystem is active in the system. | | |  | 3 | Non-registered email. | | | | |
|  | . | | |  | 4 | Empty fields. | | | | |
|  |  |  |  |  |  |  |  |  |  |  |
| **Test Scenario** | Define specific actions, expected results, and record actual results. | | | | | | | | | |
|  |  |  |  |  |  |  |  |  |  |  |
| **Step #** | **Step Details** | | **Expected Results** | | **Actual Results** | | **Pass/Fail/Not executed/Suspended** | | | |
| 1 | Navigate to the registration page of the UserAccount subsystem. | | Registration page should load successfully. | | Same as expected | | Pass | | | |
| 2 | Enter valid registration details and click "Register". | | User should be registered successfully and redirected to the login page or a success message should appear. | | Same as expected | | Pass | | | |
| 3 | Enter invalid details and click "Register". | | An error message "Invalid email format" or similar should appear. | | Same as expected | | Pass | | | |
| 4 | Leave required fields empty and click "Register". | | An error message "All fields are required" or similar should appear. | | Same as expected | | Pass | | | |
| 5 | Enter already registered email and click "Register". | | An error message "Email already in use" should appear. | | Same as expected | | Pass | | | |

Test case 2:

TC002\_02 Login Module (login functionality)

| **Test Case ID** | | TC002\_02 | **Test Case Description** | | Test whether the UserAccount subsystem handles user login functionality correctly. | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Created by** | | Vasila Sujavudeen | **Created by** | |  | | **Version** | | 1.0 | |
|  |  |  |  |  |  |  |  |  |  |  |
| **QA Tester's Log** | |  | | | | | | | | |
|  |  |  |  |  |  |  |  |  |  |  |
| **Tester's Name** | |  | **Date Tested** | |  | | **Test Case (Pass/Fail/Not** | |  | |
|  |  |  |  |  |  |  |  |  |  |  |
| **S #** | **Prerequisites:** | | |  | **S #** | **Test Data** | | | | |
| 1 | Access to a web browser. | | |  | 1 | Valid user credentials. | | | | |
| 2 | Internet connection. | | |  | 2 | Invalid user credentials. | | | | |
| 3 | User account credentials (valid and invalid). | | |  | 3 | Non-registered email. | | | | |
| 4 | UserAccount subsystem is active in the system. | | |  | 4 | Empty fields. | | | | |
|  |  |  |  |  |  |  |  |  |  |  |
| **Test Scenario** | Define specific actions, expected results, and record actual results. | | | | | | | | | |
|  |  |  |  |  |  |  |  |  |  |  |
| **Step #** | **Step Details** | | **Expected Results** | | **Actual Results** | | **Pass/Fail/Not executed/Suspended** | | | |
| 1 | Navigate to the login page of the UserAccount subsystem | | Login page should load successfully. | | Same as expected | | Pass | | | |
| 2 | Enter valid credentials and click "Login". | | User should be logged in and redirected to the dashboard. | | Same as expected | | Pass | | | |
| 3 | Enter invalid credentials and click "Login". | | An error message "Invalid credentials" should appear | | Same as expected | | Pass | | | |
| 4 | Enter non-registered email and click "Login". | | An error message "User not found" should appear. | | Same as expected | | Pass | | | |
| 5 | Leave fields empty and click "Login". | | An error message "Fields cannot be empty" should appear. | | Same as expected | | Pass | | | |

Test case 3:

TC002\_03 Update profile Module (profile update functionality)

| **Test Case ID** | | TC002\_03 | **Test Case Description** | | Test whether the UserAccount subsystem handles user profile update functionality correctly. | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Created by** | | Vasila Sujavudeen | **Created by** | |  | | **Version** | | 1.0 | |
|  |  |  |  |  |  |  |  |  |  |  |
| **QA Tester's Log** | |  | | | | | | | | |
|  |  |  |  |  |  |  |  |  |  |  |
| **Tester's Name** | |  | **Date Tested** | |  | | **Test Case (Pass/Fail/Not** | |  | |
|  |  |  |  |  |  |  |  |  |  |  |
| **S #** | **Prerequisites:** | | |  | **S #** | **Test Data** | | | | |
| 1 | Access to a web browser. | | |  | 1 | Valid user credentials. | | | | |
| 2 | Internet connection. | | |  | 2 | Invalid user credentials. | | | | |
| 3 | UserAccount subsystem is active in the system. | | |  | 3 | Empty fields. | | | | |
| 4 | User is logged in and has access to their profile. | | |  |  |  | | | | |
|  |  |  |  |  |  |  |  |  |  |  |
| **Test Scenario** | Define specific actions, expected results, and record actual results. | | | | | | | | | |
|  |  |  |  |  |  |  |  |  |  |  |
| **Step #** | **Step Details** | | **Expected Results** | | **Actual Results** | | **Pass/Fail/Not executed/Suspended** | | | |
| 1 | Navigate to the profile settings page of the UserAccount subsystem. | | Profile settings page should load successfully. | | Same as expected | | Pass | | | |
| 2 | Update the profile details with valid information and click "Save". | | The profile should be updated, and a success message or notification should appear. | | Same as expected | | Pass | | | |
| 3 | Enter invalid profile details and click "Save". | | An error message should appear, indicating the issue with the details entered | | Same as expected | | Pass | | | |
| 4 | Leave required fields empty and click "Save". | | An error message should appear, indicating that the required fields cannot be empty. | | Same as expected | | Pass | | | |
| 5 | Enter a non-unique email and click "Save". | | An error message should appear, indicating that the email is already in use | | Same as expected | | Pass | | | |
| 6 | Cancel the update and navigate away from the profile page without saving changes. | | The profile should remain unchanged, and no updates should be saved. | | Same as expected | | Pass | | | |

## 8.3 Test Case (TC003) “Counselling Management” subsystem

This test case consist of 2 test cases module:  
 1. TC003\_01 : Counselling Module (Chat with Counselor)

2. TC003\_02 : Appointment Module (Make Counselling Appointment)

Test case 1: Counselling Module (Chat with Counselor)

| **Test Case ID** | | TC003\_01 | **Test Case Description** | | Check if a user can start and carry out a real-time chat session with a counselor. | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Created by** | | Baqir Tsaqib Hakim | **Created by** | |  | | **Version** | | 1.0 | |
|  |  |  |  |  |  |  |  |  |  |  |
| **QA Tester's Log** | |  | | | | | | | | |
|  |  |  |  |  |  |  |  |  |  |  |
| **Tester's Name** | |  | **Date Tested** | |  | | **Test Case (Pass/Fail/Not** | |  | |
|  |  |  |  |  |  |  |  |  |  |  |
| **S #** | **Prerequisites:** | | |  | **S #** | **Test Data** | | | | |
| 1 | Registered user account | | |  | 1 | Username: Baqir88  Password: user123 | | | | |
| 2 | Registered Counselor account | | |  | 2 | Username: Tsaqib99  Password: counselor123 | | | | |
| 3 |  | | |  | 3 |  | | | | |
| 4 |  | | |  | 4 |  | | | | |
|  |  |  |  |  |  |  |  |  |  |  |
| **Test Scenario** | 1. Both the counselor and user accounts are registered and active in the system. 2. Both the counselor and the user have access to the internet. | | | | | | | | | |
|  |  |  |  |  |  |  |  |  |  |  |
| **Step #** | **Step Details** | | **Expected Results** | | **Actual Results** | | **Pass/Fail/Not executed/Suspended** | | | |
| 1 | After logging in as a user, go to the "Counselling Module." | | The "Chat with Counselor" option is displayed to the user. | | Same as expected | | Pass | | | |
| 2 | Press the "Chat with Counselor." button. | | A list of counselors who are available is displayed by the system. | | Same as expected | | Pass | | | |
| 3 | From the list, pick a counselor who is available. | | With the chosen counselor, a chat session is started. | | Same as expected | | Pass | | | |
| 4 | Communicate with the counselor via messaging. | | There are no errors or delays in the real-time delivery of messages. | | Same as expected | | Pass | | | |
| 5 | Click the "End Chat" button to close the chat window. | | The session is logged and a confirmation message appears. | | Same as expected | | Pass | | | |

Test case 2: Appointment Module (Make Counselling Appointment)

| **Test Case ID** | | TC003\_02 | **Test Case Description** | | Check that it is possible for users to make an appointment with a counselor. | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Created by** | | Baqir Tsaqib Hakim | **Created by** | |  | | **Version** | | 1.0 | |
|  |  |  |  |  |  |  |  |  |  |  |
| **QA Tester's Log** | |  | | | | | | | | |
|  |  |  |  |  |  |  |  |  |  |  |
| **Tester's Name** | |  | **Date Tested** | |  | | **Test Case (Pass/Fail/Not** | |  | |
|  |  |  |  |  |  |  |  |  |  |  |
| **S #** | **Prerequisites:** | | |  | **S #** | **Test Data** | | | | |
| 1 | Registered user account | | |  | 1 | Username: Baqir88  Password: user123 | | | | |
| 2 | Registered Counselor account | | |  | 2 | Username: Tsaqib99  Password: counselor123 | | | | |
| 3 | Appointment slot | | |  | 3 | January 20, 2025 (10:00 AM) - available | | | | |
| 4 |  | | |  | 4 |  | | | | |
|  |  |  |  |  |  |  |  |  |  |  |
| **Test Scenario** | 1. Both the counselor and user accounts are registered and active in the system. 2. The calendar and notification functions of the system are functional. | | | | | | | | | |
|  |  |  |  |  |  |  |  |  |  |  |
| **Step #** | **Step Details** | | **Expected Results** | | **Actual Results** | | **Pass/Fail/Not executed/Suspended** | | | |
| 1 | After logging in as a user, go to the "Appointment Module." | | A list of available counselors and their timeslots is displayed to the user. | | Same as expected | | Pass | | | |
| 2 | Choose a counselor and a time that works best for you. | | The chosen slot's availability is confirmed by the system. | | Same as expected | | Pass | | | |
| 3 | Verify the appointment's information. | | The calendar is updated and the appointment is scheduled by the system. | | Same as expected | | Pass | | | |
| 4 | Verify the notifications that were delivered to the counselor and user. | | Confirmation notifications with the appointment details are sent to the counselor and the user. | | Same as expected | | Pass | | | |

## 8.4 Test Case (TC004) “Administration” subsystem

| **Test Case ID** | | TC004\_01 | **Test Case Description** | | Verify that administrators can view system analytics data correctly. | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Created by** | | Sumaita Alam | **Created by** | |  | | **Version** | |  | |
|  |  |  |  |  |  |  |  |  |  |  |
| **QA Tester's Log** | |  | | | | | | | | |
|  |  |  |  |  |  |  |  |  |  |  |
| **Tester's Name** | |  | **Date Tested** | |  | | **Test Case (Pass/Fail/Not** | |  | |
|  |  |  |  |  |  |  |  |  |  |  |
| **S #** | **Prerequisites:** | | |  | **S #** | **Test Data** | | | | |
| 1 | Administrator account with report generation permission. | | |  | 1 | Valid administrator credentials. | | | | |
| 2 | System is operational and analytics data is up-to-date. | | |  | 2 | Preloaded system analytics data (e.g., uptime, user count). | | | | |
|  |  |  |  |  |  |  |  |  |  |  |
| **Test Scenario** | Verify that the analytics data is correctly displayed when accessed by an authenticated administrator. | | | | | | | | | |
|  |  |  |  |  |  |  |  |  |  |  |
| **Step #** | **Step Details** | | **Expected Results** | | **Actual Results** | | **Pass/Fail/Not executed/Suspended** | | | |
| 1 | Login as an administrator. | | Admin dashboard is displayed. | | Same as expected | | Pass | | | |
| 2 | Navigate to the "System Analytics" tab. | | The analytics page opens, showing system metrics. | | Same as expected | | Pass | | | |
| 3 | Verify the displayed data. | | Correct metrics (uptime, user count) are displayed. | | Same as expected | | Pass | | | |
| 4 | Download the analytics report. | | The report is successfully downloaded in the chosen format. | | Same as expected | | Pass | | | |

| **Test Case ID** | | TC004\_02 | **Test Case Description** | | Verify that administrators can manage user accounts. | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Created by** | | Sumaita Alam | **Created by** | |  | | **Version** | |  | |
|  |  |  |  |  |  |  |  |  |  |  |
| **QA Tester's Log** | |  | | | | | | | | |
|  |  |  |  |  |  |  |  |  |  |  |
| **Tester's Name** | |  | **Date Tested** | |  | | **Test Case (Pass/Fail/Not** | |  | |
|  |  |  |  |  |  |  |  |  |  |  |
| **S #** | **Prerequisites:** | | |  | **S #** | **Test Data** | | | | |
| 1 | Administrator account with permissions to modify user data. | | |  | 1 | Valid administrator credentials. | | | | |
| 2 | A set of user accounts in the system database. | | |  | 2 | Target user details for modification. | | | | |
|  |  |  |  |  |  |  |  |  |  |  |
| **Test Scenario** | Verify that the administrator can update user statuses and details. | | | | | | | | | |
|  |  |  |  |  |  |  |  |  |  |  |
| **Step #** | **Step Details** | | **Expected Results** | | **Actual Results** | | **Pass/Fail/Not executed/Suspended** | | | |
| 1 | Login as an administrator. | | Admin dashboard is displayed. | | Same as expected | | Pass | | | |
| 2 | Access the "User Database" tab. | | A list of user accounts is displayed. | | Same as expected | | Pass | | | |
| 3 | Search for a specific user account. | | The correct user account is displayed. | | Same as expected | | Pass | | | |
| 4 | Modify the user's status to "suspended." | | The system confirms the update to the user's account. | | Same as expected | | Pass | | | |

| **Test Case ID** | | TC004\_03 | **Test Case Description** | | Verify that administrators can generate and download system analytics reports. | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Created by** | | Sumaita Alam | **Created by** | |  | | **Version** | |  | |
|  |  |  |  |  |  |  |  |  |  |  |
| **QA Tester's Log** | |  | | | | | | | | |
|  |  |  |  |  |  |  |  |  |  |  |
| **Tester's Name** | |  | **Date Tested** | |  | | **Test Case (Pass/Fail/Not** | |  | |
|  |  |  |  |  |  |  |  |  |  |  |
| **S #** | **Prerequisites:** | | |  | **S #** | **Test Data** | | | | |
| 1 | Administrator account with report generation permissions. | | |  | 1 | Valid administrator credentials. | | | | |
| 2 | System analytics data is available. | | |  | 2 | Desired data range for report generation. | | | | |
|  |  |  |  |  |  |  |  |  |  |  |
| **Test Scenario** | Verify that the administrator can filter and download analytics reports in the chosen format. | | | | | | | | | |
|  |  |  |  |  |  |  |  |  |  |  |
| **Step #** | **Step Details** | | **Expected Results** | | **Actual Results** | | **Pass/Fail/Not executed/Suspended** | | | |
| 1 | Login as an administrator. | | Admin dashboard is displayed. | | Same as expected | | Pass | | | |
| 2 | Open the "Generate Reports" tab. | | The report generation page is displayed. | | Same as expected | | Pass | | | |
| 3 | Filter the data by date range. | | The system displays data based on the selected range. | | Same as expected | | Pass | | | |
| 4 | Choose the report format. | | The system prepares the report in the selected format. | | Same as expected | | Pass | | | |
| 5 | Download the report. | | The report is downloaded successfully. | | Same as expected | | Pass | | | |

## 8.5 Test Case (TC\_ADMIN\_01) “Administration” Verify that the administrator can manage system settings.

| **Test Case ID** | | TC\_ADMIN\_01 | **Test Case Description** | | Verify that the administrator can manage system settings. | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Created by** | | Ruslan | **Created by** | | Ruslan |  | **Version** | | 0.4 | |
|  |  |  |  |  |  |  |  |  |  |  |
| **QA Tester's Log** | |  | | | |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
| **Tester's Name** | | Ruslan | **Date Tested** | | 19.01.2025 |  | **Test Case (Pass/Fail/Not** | | Pass | |
|  |  |  |  |  |  |  |  |  |  |  |
| **S #** | **Prerequisites:** | | |  | **S #** | **Test Data** | | | | |
| 1 | Administrator account with permissions to manage settings. | | |  | 1 | Valid administrator credentials. | | | | |
| 2 | System settings configured in the database. | | |  | 2 | Target settings for modification. | | | | |
| 3 |  |  |  |  | 3 |  |  |  |  |  |
| 4 |  |  |  |  | 4 |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
| **Test Scenario** |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
| **Step #** | **Step Details** | | **Expected Results** | | **Actual Results** | | **Pass / Fail / Not executed / Suspended** | | |  |
| 1 | Login as an administrator. | | Admin dashboard is displayed. | |  |  | Pass | | |  |
| 2 | Access the "System Settings" tab. | | A list of configurable settings is displayed. | |  |  | Pass | | |  |
| 3 | Search for a specific setting to modify. | | The correct setting is displayed. | |  |  | Pass | | |  |
| 4 | Modify the setting (e.g., change timeout duration). | | The system confirms the update to the settings. | |  |  | Pass | | |  |
|  |  |  |  |  |  | |  | | |  |
|  |  |  |  |  |  |  |  |  |  |  |

# 9. Traceability Matrix

| Package item | Use case ID | Use case description | | Sequence diagram ID | | Sequence diagram description | | Test case ID |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Package 1  (Chatbot) | UC15 | Interact with chatbot | | SD001 | | Interact with chatbot | | TC001\_01 |
| UC16 | Receive personalisations | | SD002 | | Receive personalisations | | TC001\_02 |
| Package 2  (Accounting) | UC01 | Login | | SD003 | | Login | | TC002\_01 |
| UC02 | Register | | SD004 | | Register | | TC002\_02 |
| Package 3  (Counselling  management) | UC07 | Chat with Counsellor | | SD006 | | Chat with counsellor | | TC003\_01 |
| UC08 | Make appointment | | SD009 | | Make appointment | | TC003\_02 |
| Package 4  (Administration) | UC12 | View System Analytics | | SD005 | | View System Analytics | | TC004\_01 |
| UC13 | Manage User Accounts | | SD005 | | Manage User Accounts | | TC004\_02 |
| UC14 | Generate System Analytics Report | | SD005 | | Generate System Analytics Report | | TC004\_03 |
| Package 5  (Resource content) | UC04 | Add module | | SD009 | | Add module | | TC005\_01 |
| UC05 | Delete module | | SD010 | | Delete Module | | TC005\_02 |
| UC06 | Access module | | SD011 | | Access module | | TC005\_03 |

video link : <https://youtu.be/PHAEMUb3veg>