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## **System Requirement Specification**

### **1. Introduction**

#### **1.1. Purpose**

The reasons behind developing the web-based mental health diary are:

- To promote mental wellness and organization and reduce stigma around mental health.
- To reach a broad audience and benefit all types of people struggling with mental health.
- To encourage users to be consistent with their mental health activities.
- To allow users a place to vent, and to manage their lifestyle related to mental health.
- To allow users to combine everything related to mental health in one place for easy navigation.
- To provide users with access to a mental health journaling platform that is available 24/7, and from anywhere with a working internet connection.
- To provide users with a dedicated safe and private space to comfortably practice self-expression, self-reflection, and self-discovery.
- To allow users to monitor their mental health journey over time, thus allowing them to notice patterns in their behavior or moods and to track their personal growth.
- To provide users with practical tools for managing their mental health such as challenges and guided exercises

#### **1.2. Scope**

- a) Title: Clear My Mind
- b) We are addressing the user's problem of struggling with their mental well-being
- c) and not having a structured space to vent their feelings and manage their mental health needs.

The system will:

- i) Provide users with a 24/7 journaling platform to express and record their feelings (whether it's free journaling, or reflecting on therapy sessions).
- ii) Provide users with a calendar element to log their therapy appointments.
- iii) Provide users with a pill tracking feature to log their medication amounts and their time taking them.

- iv) Provide users with daily challenges for them to improve their mental conditions.
- v) Provide users with a feature to input their moods daily and view a weekly or monthly mood chart.
- vi) Provide users with the option to set reminders for appointments, pill refills, pill taking, journaling & mood tracking.
- vii) Provide users with a reward system for completing challenges.
- viii) Show alerts & encouragements to users when the mood chart is below a specific threshold.
- ix) Provide a communication tab for users to connect with other users or form support groups

The system will not:

- i) Offer professional mental health medical advice
  - ii) Provide users with a way to order pills
  - iii) Book appointments with therapists
  - iv) AI Chatbots to respond to their thoughts
- d) Broadly, we want the user's mental health to improve and for them to gain healthier mental wellbeing habits by expressing their feelings through journal entries, keeping on top of their appointments and medications, and practicing self care.

### **1.3. Product Overview**

#### **1.3.1. Product Perspective**

Our system is not officially affiliated with any clinic or therapist, but they may recommend our app to their patients.

The system will communicate with a third party notification system to send reminders to the users.

#### **1.3.2. Product functions**

- Provide space for user journaling
- Provide option to record and track mood
- Send reminders
- Community support spaces for anonymous posts and commenting
- Log in their therapy appointments
- Provide daily challenges
- Allow users to track their pills
- Updates for when their pills are expired

#### **1.3.3. User characteristics**

- Users who are able to read, write, and type

- Users who have a computer, and internet connection
- Users who speak English because the website is in English
- Users with limitations such as dyslexia or ADHD are also accommodated

#### **1.3.4. Limitations**

- Must comply with Data Privacy Laws, Cybercrime Laws, and mental health guidelines from professionals
- Computer with internet connection and browser (that supports HTML5, CSS3, and JavaScript)
- Can't completely fix their mental health
- Permissions to send in notifications
- Due to budget limits, can't include services from mental health professionals

#### **1.4. Definitions**

N/A

### **2. References**

- Data Privacy Laws in the UAE:  
<https://u.ae/en/about-the-uae/digital-uae/data/data-protection-laws>
- Dubai Mental Health Policy and Procedure:  
<https://www.dhcc.ae/gallery/MentalHealtdPP.pdf>
- National Institute of Mental Health Guidelines:  
<https://www.nimh.nih.gov/health/topics/caring-for-your-mental-health>
- Media regulations in the UAE:  
<https://u.ae/en/media/media-in-the-uae/media-regulation>
- A guide for designing a webpage for people with different abilities:  
<https://uxdesign.cc/designing-for-people-of-different-abilities-ccdf56535433>

### **3. Requirements**

#### **3.1. Functions**

1. The system shall allow users to create an account using their name, email address and a password.
  - 1.1. User must provide a valid email address
  - 1.2. User must set a password containing at least 8 characters, including at least one uppercase letter and one number
  - 1.3. Users can edit their profile to optionally add date of birth, and gender
2. System shall allow users, if they wish, to add a phone number to their account in account settings.
3. System shall allow users to log their therapy appointments on a calendar interface.

- 3.1. Users must add a name, time, location, therapist name, and an optional description to create the appointment.
4. The system shall provide a dedicated diary space for the user to submit a journal entry.
5. The system shall allow users to select their mood every day on an emoji scale with 9 different moods
  - 5.1. The system shall present weekly and monthly trendline views of the user's mood progress
    - 5.1.1. The system shall display a line chart through entered mood points, regardless of whether some dates are missing
  - 5.2. The system shall provide an alert and encouragement message notifying the user to seek help if the user's past weekly mood average falls below a score of 4
6. The system shall provide daily self-care-related challenges
  - 6.1. The system shall allow the user to mark a suggestion as done
  - 6.2. The system must have a supply of challenges to provide.
7. The system shall give 3 reward points to the user for marking each challenge as done
  - 7.1. The system shall grant users badges for reaching point thresholds above each multiple of 10. If they complete every single challenge, they get a 10th badge, as there are up to 10 badges per month
  - 7.2. The system shall reset each user's point score at the end of each month
8. The system shall allow users to log their medical prescriptions in the pill tracking interface.
  - 8.1. The system shall allow users to add the expiry date, the total amount of pills procured, and the name of the prescription
9. The system shall allow users to log when they take their medication in the pill tracking interface.
  - 9.1. The system shall allow users to choose an available prescription, the total amount of pills taken, and the date of intake
10. The system shall allow users to edit or delete any existing data on the website (appointments, journal entries, mood entries, pill tracking entries)
11. The system shall allow users to personalize their reminder preferences in account settings.
  - 11.1. Users shall opt to receive reminders for therapy appointments, taking medication, refilling prescriptions, or submitting journal entries
  - 11.2. Users shall opt to receive the reminder either through email SMS or both.
12. The system shall include support group spaces for users to connect anonymously under the community tab.
  - 12.1. Users shall be able to create posts.
  - 12.2. Users shall be able to comment on other users' posts anonymously.

### **3.2. Performance requirements**

13. The system shall handle 1000 simultaneous users performing any available website feature without crashing.
  - 13.1. The website load time shall be less than 3 seconds for 90% of users.
14. MTBF shall be 200 hours of continuous operation.
15. The system shall be able to display information from the database under 25 milliseconds.
16. The system shall be able to add an entry to the database successfully under 25 milliseconds.

### 3.3. Usability requirements

17. The system shall use the font Century Gothic as a default to accommodate users with ADHD.
18. The system shall be accessible to people with dyslexia by using a dyslexia-friendly sans-serif font.
19. The system shall have a calming theme with pastel and muted colors.
20. The system shall be free for use without having any subscriptions required.
21. The system shall be compatible with all browser types (Chrome, Firefox,...) and all device sizes (laptop, tablets, phones)

### 3.4. Design constraints

22. Reminder and notification features are implemented through external services since a web-based app can't send real-time messages to the user.
23. System doesn't offer offline functionalities.

### 3.5. Software system attributes

24. The system shall encrypt the user's password to secure their account.
25. The system shall permit access only to authorized users (users with accounts).
26. The system shall be maintainable and updatable through modularity and organized data structures.

### 3.6. Interface requirements

#### **Login interface (referencing the example provided by Prof Dena)**

1. **Name of item:** User Login Interface
2. **Description of purpose:** The User Login Interface allows users to input their email and password in order to access their account.
3. **Source of input or destination of output:**  
Source of input: User inputs from a web browser.  
Destination of output: Database verification of the inputs
4. **Valid range, accuracy, and/or tolerance:**  
Valid range for the password length: at least 8 characters, including at least one uppercase letter and one number

Accuracy: User emails & passwords must match the stored email and hashed password values with 100% accuracy.

5. **Units of measure:** None

6. **Timing:** Within 3 seconds (given a stable network connection over 100mbps)

7. **Relationships to other inputs/outputs:**

User login is related to:

User Registration module: allows users to create accounts.

User's personal data storage module: stores the user's personal data attached to their login info

8. **Data formats:** Data format for the Email: “\*@\*.\*” . Data format for the password: Encrypted text.

9. **Command Formats:** To verify login credentials: Post request to the backend with the username and password.

10. **Data items or information included in the input and output:** Input data items: Email, Password

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#### **External Notification System:**

1. **Name of item:** External Notification-Sending System

2. **Description of purpose:** The External notification-sending system allows users to receive notifications via methods such as email or sms

3. **Source of input or destination of output:**

Source of input:

- a. User inputs the reminder details from a web browser.
- b. User email/phone number

Destination of output: timely notification signal to user at their preferred contact

4. **Valid range, accuracy, and/or tolerance:**

Notification must include the specified event name and reminder details.

5. **Units of measure:** None

6. **Timing:** Must send reminder within a standard deviation of 2 minutes from the intended reminder time.

7. **Relationships to other inputs/outputs:**

External Notification-Sending System is related to:

Appointment Detail Logging

Medication Schedule Logging

Journal Entry Logging

8. **Data formats:** Textual notifications through email or SMS

Data format for the reminder:

Time: dd/mm/yy HH:MM

Data format for the Email: “\*@\*.\*”

9. **Command Formats:** None

10. **Data items or information included in the input and output:** Information included with output: correct reminder event details

### **3.7. Logical database requirements**

1. Frequency of use: 1-2 times per user per day
2. Accessing capabilities: System administrators will not be able to read the encrypted sensitive user data. Users will not be able to access other users' data entries.
3. Data entities:
  - a. UserInfo: contains UserID, date of birth, gender, email address, password, phone number
  - b. Posts: contains attributes such as journal entry text, author ID, date of entry.
  - c. Mood Info: contains mood score and a date.
  - d. Therapy event: contains date, time, event name, additional information, color.
  - e. Pill Info: medication name, quantity, date taken
4. Integrity constraints: A unique email address shall only be associated with one account.
5. Data retention requirements: System shall store user data entries in the database forever unless the user chooses to edit their entries or delete some/all of their data.

### **3.8. Supporting information**

#### **4. Verification (parallel to subsections in Section 3)**

##### **4.1. Functions**

1. Unit testing our individual methods to verify they are performing as expected
2. System testing: verifying our system as a whole functions properly, and all the individual methods work together as expected.
3. Peer reviews by other software engineers to catch inefficiencies or issues

##### **4.2. Performance requirements**

1. Load testing: we will verify that the system still performs when high volumes of users are on the website simultaneously
2. Benchmarking: comparing our system's performance to industry standards or other competing systems.

##### **4.3. Usability requirements**

1. Usability testing with possible users with unique accessibility needs (dyslexia, ADHD) to get their feedback
2. Compatibility testing: asking users with different devices and different web browsers for feedback

##### **4.4. Interface requirements**

1. Create test cases for various login scenarios, including valid and invalid email/password combinations.
2. Create test cases for different types of reminders (e.g., therapy appointment, medication refills, journaling reminders, ...)
3. Check that the system can support edge cases, such as recurring appointments/medications and reminders/events scheduled at midnight

#### **4.5. Logical database requirements**

1. Validating the accuracy and efficiency of database queries and data manipulation operations by comparing the retrieved data with expected results.
2. Verifying that transactions are handled correctly by making sure that data changes are committed appropriately.

#### **4.6. Design constraints**

1. Testing the software under various real-world conditions to validate the constraints.

#### **4.7. Software system attributes**

1. Review the code for modularity, documentation, and adherence to coding standards.
2. Verify that authorization and data encryption mechanisms work as intended.

### **5. Appendices**

#### **5.1. Assumptions and dependencies**

Assumptions:

- We assume that users want to track their mental progress
- We assume this is only used in the UAE
- We assume that for their own sake, the user enters accurate information
- We assume the availability and reliability of third party APIs we are integrating with

Dependencies:

- Dependencies on specific database systems for data storage and retrieval.
- Dependence on third-party API for reminders
- Dependencies on effective communication and collaboration among team members.
- Availability of testing environments and resources to conduct thorough testing.



## **5.2. Acronyms and abbreviations**

SMS: Short Message Service

AI: Artificial Intelligence

ADHD: Attention Deficit Hyperactivity Disorder

MTBF: Mean Time Between Failures

UAE: United Arab Emirates

HTML: HyperText Markup Language

CSS: Cascading Style Sheets