Software Requirements Specification (SRS)

Project: Medita - Healing Together

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1. Introduction

1.1 Purpose

The purpose of this document is to define the functional and non-functional requirements for the development of "Medita - Healing Together," a mental health application designed to provide users with personalized support for managing stress, anxiety, and other mental health challenges. By offering a variety of evidence-based mental health tools, "Medita" aims to empower users to take control of their mental well-being through informed choices and community engagement. The application seeks to reduce the stigma surrounding mental health discussions and facilitate access to essential resources and professional help.

1.2 Scope

"Medita - Healing Together" is a web and mobile application that integrates evidence-based tools such as guided meditations, cognitive behavioral exercises, and virtual support groups. The app will connect users with local healthcare professionals, enabling them to access timely support and advice. Additionally, "Medita" will provide a community space for open discussions on mental health topics, allowing users to share experiences, advice, and coping strategies. The scope also includes features for mental health assessments and personalized content delivery, ensuring a holistic approach to user well-being.

1.3 Overview

The application will feature a user-friendly interface that emphasizes accessibility and ease of navigation. Secure access to resources will be ensured through robust user authentication methods and data protection protocols. Privacy-focused data handling will be a cornerstone of the application's design, reassuring users that their personal information will be protected and used solely for enhancing their mental health experience. Users will have access to personalized mental health tools tailored to their needs and preferences, as well as the ability to connect with licensed therapists and participate in support groups for shared experiences and guidance.

2. System Requirements

2.1 Functional Requirements

User Registration and Login

- **Secure Registration**: Users must be able to create accounts using secure registration processes that require email verification. The application will capture essential user information, including name, email address, and password, with all data securely encrypted.
- **Login Authentication:** Users must log in securely with encrypted credentials. The system will support password recovery and two-factor authentication to enhance security.

Personalized Resources

- **User Input and Preferences:** The system should collect user data, including stress levels and mental health goals, to generate personalized exercise recommendations. This can include guided meditations, journaling prompts, and cognitive exercises tailored to individual user profiles.
- **Content Recommendations:** Based on user interactions and feedback, the app will continually refine the recommendations provided to enhance engagement and effectiveness.

Virtual Support Groups

- **Group Creation and Management:** Users can join or create virtual support groups moderated by licensed mental health professionals. These groups will focus on specific topics such as anxiety management, coping strategies, or personal experiences.
- **Real-Time Communication:** The application will support real-time chat and video conferencing within these groups, allowing users to communicate effectively and build community.

Therapist Access

- **Appointment Scheduling:** The app must allow users to view available therapists, read their profiles, and schedule appointments directly through the platform.
- **Secure Messaging:** Users should have the option to communicate securely with their therapists via an in-app messaging feature for questions or support between appointments.

Community Forum

- **Discussion Topics:** Users can participate in forums categorized by topics, enabling discussions on various mental health issues. Users will be able to post questions, share experiences, and receive feedback from peers and professionals.
- **Moderation and Safety:** All discussions will be monitored by professionals to ensure a safe and supportive environment.

Mental Health Assessments

- **Assessment Tools:** The app will include tools for conducting self-assessments related to stress and anxiety. Users will receive immediate feedback on their assessment results and suggestions for follow-up actions.
- **Progress Tracking:** Users can track their mental health journey over time through periodic assessments, helping them to visualize their progress and identify areas for improvement.

2.2 Non-Functional Requirements

Security

- **Data Encryption:** The system should implement robust encryption protocols for data storage and transmission to ensure user privacy and compliance with relevant data protection regulations (e.g., GDPR, HIPAA).
- **User Anonymity:** Options for anonymous participation in forums and support groups will be provided to encourage open discussions without fear of judgment.

Scalability

- **Concurrent Users:** The system should be designed to scale efficiently, supporting a growing number of users without degradation in performance. Load balancing and cloud infrastructure will be considered to manage user demand effectively.
- **Feature Expansion:** The architecture must allow for future enhancements, enabling the addition of new features and tools as user needs evolve.

Usability

- **Intuitive Design:** The interface should be user-centric, prioritizing ease of use with clear navigation and minimal steps to access resources. User feedback will be actively sought to continuously improve usability.
- **Accessibility Features:** The application will include features for users with disabilities, such as text-to-speech, adjustable font sizes, and high-contrast modes.

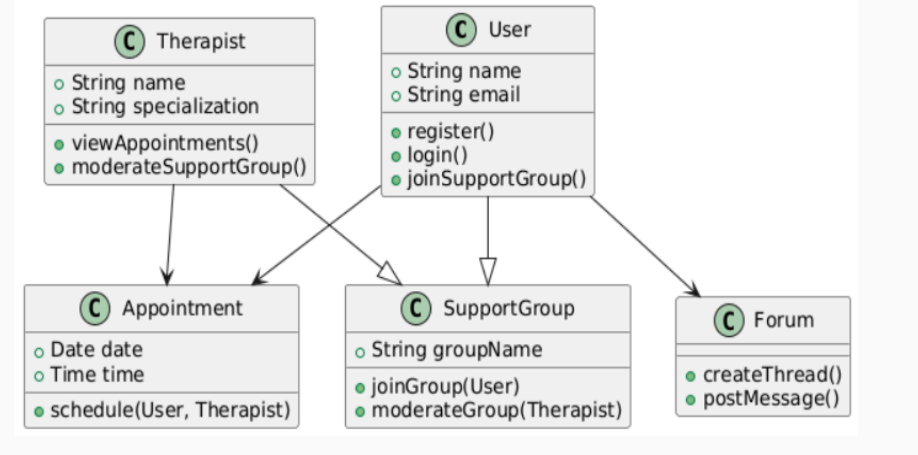
Performance

- **Response Times:** The system must deliver a seamless experience, with quick load times (ideally under two seconds) and minimal latency during user interactions, especially in real-time support group sessions.
- **Reliability:** The application should maintain high availability with minimal downtime, ensuring users can access mental health resources whenever needed.

3. System Design

3.1 Class Diagram

The class diagram depicts the relationships between various entities, such as User, Therapist, Appointment, SupportGroup, and Forum.



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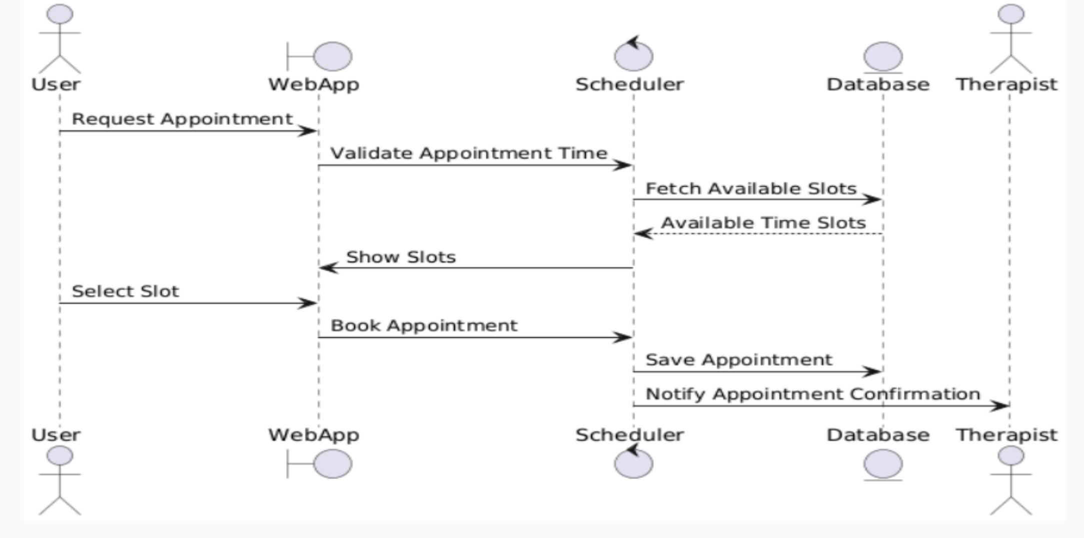
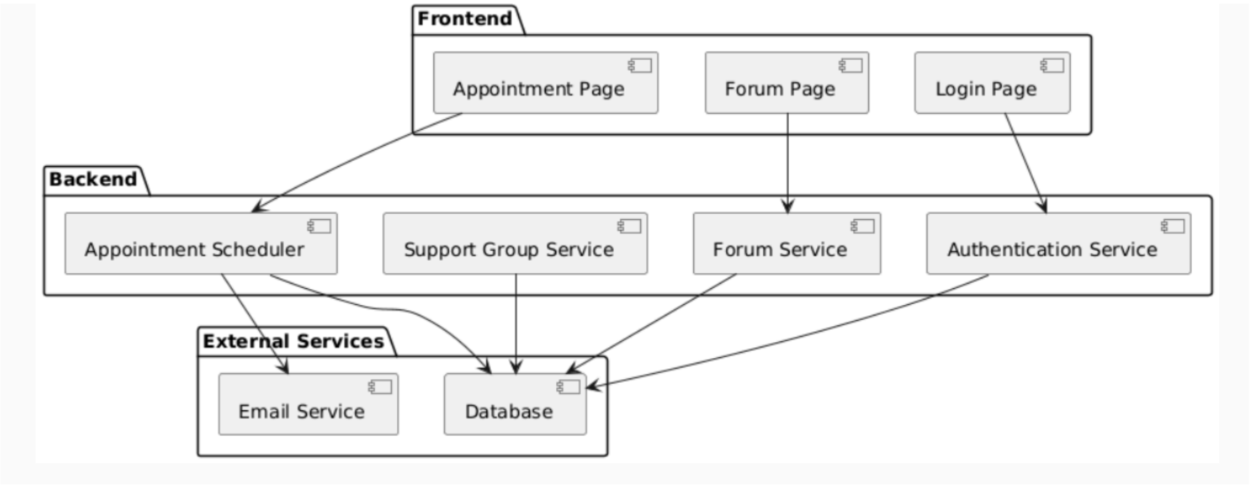
3.2 Sequence Diagram

The sequence diagram demonstrates the interaction between the user, the system, and the therapist during an appointment booking process.



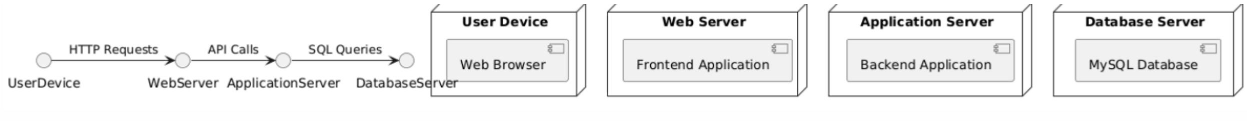
3.3 Component Diagram

This diagram shows the logical components of the system, including the frontend, backend, and external services.



3.4 Deployment Diagram

This diagram represents how the system will be deployed across different nodes, including the web server, application server, and database server.



4. System Architecture

4.1 High-Level System Architecture

The high-level system architecture of **"Medita - Healing Together"** is designed to ensure modularity, scalability, and security. The application comprises multiple layers:

1. **User Interface Layer:** This layer includes the web and mobile interfaces built with React.js. It allows users to interact with the application, providing access to mental health resources, forums, and therapist appointments.
2. **Application Layer:** Built using Node.js and Express.js, this layer handles the business logic, processing user requests, and facilitating communication between the user interface and the database. It manages user sessions, authentication, and data retrieval.
3. **Data Layer:** MongoDB serves as the database, storing user profiles, session data, forum posts, therapist information, and assessment results. It provides flexible data management and scalability to handle varying loads.
4. **External Services:** The application integrates with external APIs for functionalities such as video conferencing for support groups and chat features. It also connects with healthcare databases for therapist verification and resources.

4.2 Data Flow

The data flow within **"Medita - Healing Together"** follows a structured process:

1. **User Registration and Login:**
   - Users submit registration/login details through the UI.
   - The application layer processes these details, checks against the database, and establishes a session.
2. **Resource Access:**
   - Users access personalized resources by submitting preferences and inputs.
   - The application layer queries the database and returns tailored exercises and tools to the user interface.
3. **Forum Participation:**
   - Users create or respond to forum posts via the UI.
   - These posts are sent to the application layer, which stores them in the database and retrieves relevant discussions for display.
4. **Therapist Appointments:**
   - Users can schedule appointments with therapists through the UI.
   - The application layer manages appointment data, sending confirmations and reminders via email or notifications.

5. Security Design

5.1 Authentication and Authorization

- **User Authentication:** The application employs secure authentication methods, including email/password verification and multi-factor authentication (MFA), to ensure only authorized users can access sensitive information.
- **Role-Based Access Control:** Users will have different access levels (e.g., regular users, therapists, moderators), with the system enforcing permissions based on roles to protect confidential data and functionality.
- **Session Management:** The application will implement robust session management practices, including session timeouts and revocation mechanisms, to minimize the risk of unauthorized access due to inactive sessions or session hijacking.

5.2 Data Encryption

- **In-Transit Encryption:** All data transmitted between the user interface and the server will be encrypted using HTTPS protocols to protect against interception.
- **At-Rest Encryption:** Sensitive user data stored in the MongoDB database will be encrypted, ensuring that even if unauthorized access occurs, data remains protected.
- **Encryption Key Management:** The application will utilize secure key management practices, including periodic key rotation and the use of environment-specific keys, to enhance the security of encrypted data.

5.3 User Privacy

- **Anonymized Data:** Users will have the option to participate anonymously in forums, with no personally identifiable information displayed.
- **Privacy Policies:** The application will include clear privacy policies outlining data collection, usage, and retention practices to build user trust and comply with regulations like GDPR.
- **User Data Control:** Users will have control over their personal data, including the ability to view, modify, and delete their information, ensuring transparency and compliance with user rights under data protection regulations.

6. Scalability and Performance

6.1 Horizontal and Vertical Scaling

- **Horizontal Scaling:** The application will be designed to scale horizontally by adding more instances of servers as user demand increases, ensuring a consistent experience during high traffic periods.
- **Vertical Scaling:** Individual server resources can be enhanced (e.g., adding more CPU and RAM) to manage increased loads without significant restructuring.
- **Load Balancing:** A load balancer will be implemented to distribute incoming traffic across multiple server instances, preventing any single server from becoming a bottleneck and enhancing fault tolerance.
- **Microservices Architecture:** By adopting a microservices architecture, the application will enable independent scaling of different services (e.g., authentication, data processing, user management), allowing for targeted resource allocation based on specific needs.

6.2 Caching and Optimization

- **Caching Strategies:** Implementing caching mechanisms (e.g., Redis) will store frequently accessed data, reducing load times and database queries.
- **Performance Optimization:** The application will utilize techniques such as lazy loading, code splitting, and optimized asset delivery to improve overall performance and user experience.
- **Content Delivery Network (CDN):** Utilizing a CDN will enhance the delivery speed of static assets (e.g., images, scripts) by caching them at various geographical locations, ensuring faster load times for users regardless of their location.
- **Database Indexing:** Implementing appropriate indexing strategies in MongoDB will improve query performance, allowing for quicker data retrieval and reducing response times during high traffic.

7. Risk Management

7.1 Security Risks

- **Potential Threats:** The application must consider potential threats such as SQL injection, cross-site scripting (XSS), and denial-of-service (DoS) attacks. Security best practices will be implemented to mitigate these risks.
- **Regular Audits:** Conducting regular security audits and vulnerability assessments will be critical to identify and resolve potential weaknesses in the system.

7.2 Data Breaches

- **Incident Response Plan:** A robust incident response plan will be developed to handle potential data breaches effectively, including notification procedures for affected users and regulatory compliance.
- **User Education:** Users will be educated on best practices for maintaining their account security, such as creating strong passwords and recognizing phishing attempts.

7.3 Privacy Concerns

- **User Consent:** Explicit user consent will be obtained before collecting personal data, ensuring transparency about what information is collected and how it is used.
- **Data Minimization:** The application will adopt data minimization principles, collecting only the necessary information required for functionality, thereby reducing the risk of exposure.

Conclusion

The **"Medita - Healing Together"** application aims to revolutionize mental health support by offering a secure, user-friendly platform for individuals seeking assistance and community. With a robust architecture that prioritizes security, scalability, and user privacy, the application is well-equipped to address the challenges of mental health management. By continually evolving and enhancing its features based on user feedback and emerging trends, **"Medita"** strives to create a positive impact on users' mental well-being and foster a supportive environment for open discussions about mental health.