AMERICAN INTERNATIONAL UNIVERSITY–BANGLADESH

SOFTWARE ENGINEERING (SPRING 2023-2024)

Group 2: Section: B

Project Proposal Title:

Tracking Mental Health Through Web and Mobile Check-Ins

Report No.: 3

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SOFTWARE REQUIREMENT ANALYSIS

Introduction:

This report will provide a software requirement specification (SRS) document for the Mental Health Check in App that will discuss the system's functional requirements to demonstrate the functionality of the software. The non-functional requirements will also be discussed to demonstrate the qualities of the software. In addition, the project development constraints will be discussed. By addressing key questions regarding the evaluation of functional and non-functional aspects, the SRS will ensure that the software's functionality, quality, and constraints are clearly defined, leveled, and prioritized.

1. Functional requirements:

This section contains the requirements for Mental Health Check-in App. The functional requirements, as collected from the users, have been categorized as follows to support the types of user interactions that the system shall have.

User Role: Patients

1. Patients: Structured Self-Assessment
Description: Users can access a well-designed questionnaire within the application interface to systematically gauge the intensity of their symptoms. This feature aids in self-awareness and mental health monitoring.

Functional Requirements:
1.1 Users can access the structured self-assessment questionnaire within the application.
1.2 The questionnaire covers various aspects of mental health symptoms systematically.
1.3 Users can complete the questionnaire to gauge the intensity of their symptoms.
1.4 Completed assessments are stored securely for future reference and analysis.

Priority Level: High
Precondition: The application must have a comprehensive self-assessment questionnaire integrated.
Cross-Reference: None.

2. Patients: Skill Development
Description: Users have access to short, daily exercises within the application aimed at cultivating skills such as mindfulness and appreciation, contributing to overall mental health improvement.

Functional Requirements:
2.1 Users can access skill development exercises within the application.
2.2 Exercises focus on cultivating skills such as mindfulness and appreciation.
2.3 Users receive guidance and feedback on their progress in skill development.
2.4 Completed exercises are tracked to monitor user engagement and improvement over time.

Priority Level: Medium
Precondition: The application must provide a variety of skill development exercises.
Cross-Reference: None.

3. Patients: Mood Monitoring
Description: Users can log their current mood, emotions, and relevant factors such as sleep, exercise, or medication within the application. Mood data is aggregated and presented over time in visual formats for users to observe patterns and trends.

Functional Requirements:
3.1 Users can log their current mood and relevant factors within the application interface.
3.2 The application aggregates mood data over time and presents it in visual formats such as charts or graphs.
3.3 Users can observe patterns and trends in their mood through the visual representations.
3.4 The application provides insights and suggestions based on mood data analysis.

Priority Level: High
Precondition: The application must provide a user-friendly interface for mood logging and visualization.
Cross-Reference: None.

4. Patients: Experimental Monitoring
Description: Users can monitor and analyze the results of personalized experiments within the application. Reports with suggestions for improved well-being are generated based on experiment data.

Functional Requirements:
4.1 Users can initiate personalized experiments within the application.
4.2 The application collects data from experiments and analyzes results.
4.3 Reports with suggestions for improved well-being are generated based on experiment data.
4.4 Users can access and review experiment reports within the application.

Priority Level: High
Precondition: The application must integrate a feature for personalized experiment initiation and data analysis.
Cross-Reference: None.

5. Patients: Professional Assistance
Description: Users can get in touch with knowledgeable psychiatrists for assistance through the application. Psychiatrists' profiles include qualifications, areas of expertise, and contact details for convenient meetings.

Functional Requirements:
5.1 Users can access a list of psychiatrists within the application.
5.2 Psychiatrists' profiles include qualifications, areas of expertise, and contact details.

5.3 Users can schedule convenient meetings with psychiatrists through the application.
5.4 The application facilitates secure communication between users and psychiatrists.

Priority Level: High
Precondition: The application must integrate a feature for accessing psychiatrists' profiles and scheduling meetings.
Cross-Reference: None.

6. Patients: Patient Profile
Description: Users can manage essential information within their profiles, including name, age, and unique IDs. This feature enables efficient management of user data and personalization of services.

Functional Requirements:
6.1 Users can access and update their profiles within the application.
6.2 Profiles include essential information such as name, age, and unique IDs.
6.3 Users can securely manage and maintain their profile data.

Priority Level: Medium
Precondition: The application must provide a user-friendly interface for profile management.
Cross-Reference: None.

7. Patients: Weekly Check-in Reminders
Description: Users receive timely notifications to ensure frequent check-ins with the application. This feature promotes regular engagement and monitoring of mental well-being.

Functional Requirements:
7.1 Users receive weekly check-in reminders through notifications within the application.
7.2 The frequency and timing of reminders are customizable by users.
7.3 Reminders prompt users to engage with various features and functionalities of the application.

Priority Level: Medium
Precondition: The application must integrate a feature for setting and sending weekly check-in reminders.
Cross-Reference: None.

8. Patients: Reward System
Description: Users can earn recognition through achievement badges, such as 4- and 5-star ratings, within the application. This feature incentivizes user engagement and participation in mental health activities.

Functional Requirements:
8.1 Users earn achievement badges based on their engagement and progress within the application.
8.2 Badges include recognition for accomplishments such as completing self-assessments, participating in skill development exercises, and maintaining regular check-ins.
8.3 The application tracks and displays earned badges within user profiles.

Priority Level: Low
Precondition: The application must integrate a reward system feature for recognizing user achievements.
Cross-Reference: None.

User Role: Administrator

1. Administrator: User Management
Description: The administrator oversees user accounts and permissions within the application to ensure smooth functioning and data security.

Functional Requirements:
1.1 The administrator can create, update, and delete user accounts within the application.
1.2 The administrator can assign and manage user permissions based on roles and responsibilities.
1.3 User data management includes ensuring data security and privacy measures are implemented.
1.4 The administrator can monitor user activity and usage trends for system optimization.

Priority Level: High
Precondition: The application must have robust user management functionalities integrated.
Cross-Reference: None.

2. Administrator: Content Management
Description: The administrator manages the content available within the application to ensure relevance, accuracy, and compliance with policies and regulations.

Functional Requirements:
2.1 The administrator can create, edit, and delete content modules within the application.
2.2 Content management includes reviewing and approving user-generated content.
2.3 The administrator ensures content alignment with mental health guidelines and best practices.
2.4 Content updates are scheduled and communicated to users effectively.

Priority Level: Medium
Precondition: The application must provide a content management system with administrative controls.
Cross-Reference: None.

3. Administrator: System Configuration
Description: The administrator configures system settings and parameters to customize the application according to organizational requirements and user needs.

Functional Requirements:
3.1 The administrator can configure notification settings, user roles, and access permissions.
3.2 System configurations include setting up integration with external tools and platforms.
3.3 The administrator ensures data backup and recovery mechanisms are in place for system resilience.

3.4 Configuration changes are documented and audited for accountability and compliance.

Priority Level: High
Precondition: The application must provide comprehensive system configuration options accessible to the administrator.
Cross-Reference: None.

4. Administrator: User Support
Description: The administrator provides technical support and assistance to users experiencing issues or difficulties with the application.

Functional Requirements:
4.1 The administrator responds to user inquiries and troubleshoots technical problems promptly.
4.2 User support includes providing guidance on application features, functionalities, and usage.
4.3 The administrator maintains a knowledge base or FAQ section for self-service support options.
4.4 User support interactions are logged and tracked for quality assurance and continuous improvement.

Priority Level: Medium
Precondition: The administrator must have access to adequate support resources and documentation.
Cross-Reference: None.

User Role: Therapist

1. Therapist: Data Analysis and Interpretation
Description: Therapists analyze user-provided data within the application to gain insights into clients' mental health states and progress. Data analysis informs therapeutic interventions and treatment plans.

Functional Requirements:
1.1 Therapists can access and analyze client data securely within the application.
1.2 Data analysis includes identifying patterns, trends, and correlations in client-reported information.
1.3 Therapists interpret data to assess clients' mental health states and progress over time.
1.4 Data-driven insights inform therapeutic interventions and treatment planning decisions.

Priority Level: High
Precondition: Therapists must have access to comprehensive client data and analysis tools within the application.
Cross-Reference: None.

2. Therapist: Remote Counseling
Description: Therapists provide remote counseling and support to clients through secure communication channels within the application.

Functional Requirements:
2.1 Therapists can communicate with clients securely via text, voice, or video chat within the application.
2.2 Remote counseling sessions are scheduled and conducted based on client and therapist availability.
2.3 Therapists can access client profiles and relevant data during counseling sessions for context and continuity of care.
2.4 Communication logs and session records are securely stored within the application for documentation and review.

Priority Level: High
Precondition: The application must provide secure and reliable communication channels for remote counseling sessions.
Cross-Reference: None.

3. Therapist: Treatment Planning and Progress Tracking
Description: Therapists develop and track client treatment plans within the application, documenting goals, interventions, and progress over time.

Functional Requirements:
3.1 Therapists can create and update individualized treatment plans for clients within the application.
3.2 Treatment plans include goals, objectives, interventions, and progress tracking measures.
3.3 Therapists monitor client progress regularly and adjust treatment plans as needed based on data analysis and client feedback.
3.4 Treatment plan documentation is securely stored and accessible for ongoing review and collaboration.

Priority Level: High
Precondition: The application must provide customizable treatment planning templates and progress tracking tools for therapists.
Cross-Reference: None.

User Role: Data Analyst

1. Data Analyst: Data Aggregation and Analysis
Description: Data analysts aggregate and analyze user-generated data within the application to identify trends, patterns, and insights related to mental health and well-being.

Functional Requirements:
1.1 Data analysts can access and aggregate user-generated data securely within the application.
1.2 Data analysis includes identifying trends, patterns, and correlations in mental health data.
1.3 Analysts utilize statistical techniques and data visualization tools to present findings effectively.
1.4 Data-driven insights inform decision-making processes for product enhancement and service optimization.

Priority Level: High
Precondition: The application must provide comprehensive data aggregation and analysis capabilities accessible to data analysts.
Cross-Reference: None.

2. Data Analyst: Report Generation and Visualization
Description: Data analysts generate reports and visualizations based on aggregated data within the application, providing actionable insights for stakeholders and decision-makers.

Functional Requirements:
2.1 Data analysts can generate customized reports and visualizations based on user-generated data within the application.
2.2 Reports include key metrics, trends, and actionable insights related to mental health and well-being.
2.3 Visualizations such as charts, graphs, and dashboards present data findings effectively for stakeholder understanding.
2.4 Reports are shared securely with stakeholders and decision-makers for strategic planning and decision-making.

Priority Level: High
Precondition: The application must provide report generation and visualization tools with customizable features for data analysts.
Cross-Reference: None.

3. Data Analyst: Data Quality Assurance
Description: Data analysts ensure the accuracy, completeness, and reliability of user-generated data within the application through quality assurance measures and validation checks.

Functional Requirements:
3.1 Data analysts conduct regular quality assurance checks on user-generated data within the application.
3.2 Data validation techniques are employed to identify and rectify errors, inconsistencies, and anomalies in the data.
3.3 Data cleaning and normalization processes are implemented to maintain data integrity and consistency.
3.4 Data quality reports and metrics are generated to track and monitor data quality over time.

Priority Level: High
Precondition: The application must implement data quality assurance mechanisms and validation checks accessible to data analysts.
Cross-Reference: None.

User Role: Notification Manager

1. Notification Manager: Notification Configuration

Description: The notification manager configures and manages notification settings within the application to ensure timely and relevant communication with users.

Functional Requirements:
1.1 The notification manager can configure notification settings, including frequency, timing, and delivery channels, within the application.
1.2 Notification settings are customizable based on user preferences and engagement patterns.
1.3 Automated notifications are triggered based on user interactions, milestones, and system events.
1.4 Notification logs and metrics are maintained to track delivery and user engagement rates.

Priority Level: High
Precondition: The application must provide comprehensive notification management features accessible to the notification manager.
Cross-Reference: None.

2. Notification Manager: Notification Monitoring
Description: The notification manager monitors notification delivery and user engagement rates within the application to optimize communication strategies and improve user experience.

Functional Requirements:
2.1 The notification manager can monitor notification delivery and engagement metrics in real-time within the application.
2.2 Delivery and engagement data are analyzed to identify trends, patterns, and areas for improvement in notification strategies.
2.3 A/B testing and experimentation techniques are employed to optimize notification content, timing, and frequency.
2.4 Insights from notification monitoring inform iterative improvements to notification strategies for enhanced user engagement and satisfaction.

Priority Level: High
Precondition: The application must provide real-time notification monitoring and analytics features accessible to the notification manager.
Cross-Reference: None.

3. Notification Manager: User Communication
Description: The notification manager communicates with users through various channels within the application to provide updates, reminders, and relevant information.

Functional Requirements:
3.1 The notification manager can send personalized messages, updates, and reminders to users based on their preferences and engagement history.
3.2 Communication channels include in-app notifications, emails, and push notifications, depending on user preferences and accessibility.

3.3 Messages are tailored to specific user segments, preferences, and engagement levels for maximum relevance and impact.
3.4 User feedback and responses to notifications are tracked and analyzed for continuous improvement of communication strategies.

Priority Level: High
Precondition: The application must provide seamless communication channels and message personalization features accessible to the notification manager.
Cross-Reference: None.

User Role: Community Moderator

1. Community Moderator: Community Management
Description: The community moderator manages community features within the application, fostering a positive and supportive environment for users to engage, share experiences, and seek peer support.

Functional Requirements:
1.1 The community moderator can create, edit, and delete community forums, discussion boards, and group channels within the application.
1.2 Community features are monitored regularly to ensure compliance with community guidelines and policies.
1.3 Moderation actions, including content moderation, user warnings, and bans, are implemented as needed to maintain a positive and safe community environment.
1.4 Community engagement metrics, including participation rates, user feedback, and sentiment analysis, are tracked to assess community health and effectiveness.

Priority Level: High
Precondition: The application must provide comprehensive community management tools and moderation controls accessible to the community moderator.
Cross-Reference: None.

2. Community Moderator: User Support and Engagement
Description: The community moderator provides user support and fosters engagement within the community by facilitating discussions, responding to inquiries, and organizing community events.

Functional Requirements:
2.1 The community moderator engages with users proactively within community forums, discussion boards, and group channels to foster participation and interaction.
2.2 User inquiries and requests for assistance are addressed promptly and effectively by the community moderator.
2.3 Community events, such as webinars, Q&A sessions, and virtual meetups, are organized and facilitated by the community moderator to enhance user engagement and collaboration.
2.4 User feedback and suggestions are collected and relayed to the development team for product improvement and feature enhancements.

Priority Level: High
Precondition: The application must provide robust community engagement tools and support features accessible to the community moderator.
Cross-Reference: None.

User Role: Security Officer

1. Security Officer: Data Security Management
Description: The security officer oversees data security measures within the application to protect user information and maintain compliance with privacy regulations and standards.

Functional Requirements:
1.1 The security officer conducts regular security audits and assessments to identify vulnerabilities and risks within the application.
1.2 Data encryption, access controls, and authentication mechanisms are implemented and maintained to safeguard user data against unauthorized access and breaches.
1.3 Security policies and procedures, including incident response plans and data breach protocols, are documented, communicated, and enforced effectively.
1.4 Compliance with privacy regulations, such as GDPR and HIPAA, is ensured through ongoing monitoring, auditing, and adherence to industry best practices.

Priority Level: High
Precondition: The application must implement robust data security measures and compliance protocols accessible to the security officer.
Cross-Reference: None.

2. Security Officer: Threat Detection and Prevention
Description: The security officer monitors and mitigates potential threats and security incidents within the application to minimize risks and protect user data and privacy.

Functional Requirements:
2.1 The security officer employs intrusion detection and prevention systems to monitor network traffic and identify suspicious activities or anomalies.
2.2 Real-time alerts and notifications are generated for potential security threats and incidents, triggering immediate response and investigation.
2.3 Security incidents, breaches, and vulnerabilities are documented, investigated, and remediated promptly by the security officer and response team.
2.4 Regular security training and awareness programs are conducted for staff and users to promote cybersecurity hygiene and best practices.

Priority Level: High
Precondition: The application must integrate threat detection and prevention mechanisms accessible to the security officer.
Cross-Reference: None.

3. Security Officer: Access Control Management

Description: The security officer manages access controls and user permissions within the application to ensure appropriate levels of access and privileges based on roles and responsibilities.

Functional Requirements:
3.1 User access rights and permissions are defined, assigned, and managed by the security officer based on role-based access control (RBAC) principles.
3.2 Access controls include user authentication, authorization, and session management features to regulate user interactions and data access within the application.
3.3 Access requests and permissions changes are processed and approved by
the security officer following established procedures and guidelines.
3.4 Access logs and audit trails are maintained to track user activities and ensure accountability and compliance with access policies.

Priority Level: High
Precondition: The application must provide robust access control management features accessible to the security officer.
Cross-Reference: None.

User Role: Customer Support

1. Customer Support: Technical Assistance
Description: The customer support team provides technical assistance and troubleshooting guidance to users experiencing issues or difficulties with the application.

Functional Requirements:
1.1 The customer support team responds to user inquiries and support requests promptly and courteously through various communication channels, including live chat, email, and phone support.
1.2 Technical issues and software bugs reported by users are documented, triaged, and escalated to the appropriate teams for resolution and follow-up.
1.3 User support interactions are logged, tracked, and monitored for quality assurance and continuous improvement of customer service standards.
1.4 Self-service support options, such as knowledge base articles, FAQs, and video tutorials, are available to users for quick resolution of common issues and inquiries.

Priority Level: High
Precondition: The customer support team must have access to comprehensive technical documentation and support resources for effective troubleshooting and assistance.
Cross-Reference: None.

2. Customer Support: User Training and Onboarding
Description: The customer support team provides training and onboarding assistance to users to familiarize them with the application's features, functionalities, and best practices.

Functional Requirements:

2.1 The customer support team conducts user training sessions, webinars, and workshops to onboard new users and educate existing users on advanced features and capabilities.
2.2 Training materials, such as user manuals, tutorials, and how-to guides, are developed and maintained by the customer support team for user reference and self-paced learning.
2.3 Onboarding assistance includes account setup, configuration, and customization support tailored to individual user needs and preferences.
2.4 User feedback and training evaluations are collected and analyzed to assess training effectiveness and identify areas for improvement.

Priority Level: High
Precondition: The customer support team must have access to comprehensive training materials and resources for effective user onboarding and education.
Cross-Reference: None.

3. Customer Support: User Feedback and Feature Requests
Description: The customer support team collects and analyzes user feedback and feature requests to identify opportunities for product improvement and enhancement.

Functional Requirements:
3.1 The customer support team actively solicits user feedback and suggestions through surveys, polls, and feedback forms within the application.
3.2 User feedback and feature requests are collected, organized, and prioritized based on their impact, feasibility, and alignment with product goals and strategies.
3.3 Feedback analysis includes sentiment analysis, trend identification, and feature gap analysis to inform product roadmap planning and development prioritization.
3.4 Regular communication and updates are provided to users regarding the status of their feedback submissions and feature requests, fostering transparency and engagement.

Priority Level: High
Precondition: The customer support team must have access to user feedback collection and analysis tools for effective feedback management and prioritization.
Cross-Reference: None.

User Role: Integration Specialist

1. Integration Specialist: Third-Party Integration Management
Description: The integration specialist manages third-party integrations with external tools and platforms to enhance the application's functionality and interoperability.

Functional Requirements:
1.1 The integration specialist evaluates and selects third-party tools and platforms for integration based on compatibility, reliability, and alignment with user needs and preferences.
1.2 Integration configurations, including API endpoints, authentication credentials, and data mapping rules, are set up and tested by the integration specialist to ensure seamless interoperability.

1.3 Data synchronization and exchange processes between the application and integrated systems are monitored and optimized for performance, reliability, and data integrity.
1.4 Regular maintenance and updates are performed on integrated systems and APIs to address compatibility issues, security vulnerabilities, and performance bottlenecks.

Priority Level: High
Precondition: The integration specialist must have access to comprehensive integration management tools and resources for seamless third-party integration setup and maintenance.
Cross-Reference: None.

2. Integration Specialist: Compatibility Testing and Validation
Description: The integration specialist conducts compatibility testing and validation of third-party integrations to ensure interoperability, performance, and reliability.

Functional Requirements:
2.1 The integration specialist collaborates with third-party vendors and developers to conduct compatibility testing and validation of integration endpoints, data formats, and communication protocols.
2.2 Test scenarios and use cases are developed and executed to verify the compatibility, functionality, and performance of integrated systems and APIs.
2.3 Compatibility test results are documented, analyzed, and reported to stakeholders for review and decision-making regarding integration deployment and rollout.
2.4 Ongoing monitoring and regression testing are performed to ensure continued compatibility and reliability of integrated systems and APIs.

Priority Level: High
Precondition: The integration specialist must have access to comprehensive testing environments and tools for effective compatibility testing and validation of third-party integrations.
Cross-Reference: None.

3. Integration Specialist: Integration Documentation and Support
Description: The integration specialist develops and maintains documentation for third-party integrations and provides technical support to users and stakeholders regarding integration setup and usage.

Functional Requirements:
3.1 Integration documentation includes integration guides, API reference manuals, troubleshooting guides, and best practices for users and developers.
3.2 Technical support is provided to users and stakeholders regarding integration setup, configuration, and usage through various communication channels, including helpdesk tickets, forums, and webinars.
3.3 Knowledge base articles and FAQs are created and maintained to address common integration issues, questions, and concerns raised by users and stakeholders.
3.4 Regular updates and announcements regarding integration enhancements, changes, and maintenance activities are communicated to users and stakeholders to ensure transparency and awareness.

Priority Level: High
Precondition: The integration specialist must have access to comprehensive documentation authoring and support tools for effective integration documentation and user support.
Cross-Reference: None.

User Role: Content Curator

1. Content Curator: Educational Content Development

Description: The content curator develops and curates educational materials within the application to provide users with valuable resources and information related to mental health and well-being.

Functional Requirements:

1.1 The content curator researches, develops, and creates educational materials, including articles, videos, infographics, and interactive modules, on various mental health topics and skills.
1.2 Educational content is curated from reputable sources, experts, and organizations to ensure accuracy, relevance, and reliability.
1.3 Content curation involves reviewing and updating existing materials, as well as sourcing new content based on user feedback, trends, and emerging topics.
1.4 Educational materials are organized and categorized within the application for easy access and navigation by users, aligned with their interests and learning needs.

Priority Level: High
Precondition: The content curator must have access to comprehensive content development and curation tools and resources for creating and maintaining educational materials.
Cross-Reference: None.

2. Content Curator: Content Review and Approval

Description: The content curator reviews and approves user-generated content within the application to ensure quality, relevance, and compliance with community guidelines and standards.

Functional Requirements:

2.1 User-generated content, including forum posts, comments, and shared resources, is monitored, and reviewed by the content curator for adherence to content guidelines and policies.
2.2 Content moderation actions, such as editing, approving, or rejecting user submissions, are performed promptly and consistently based on established criteria and guidelines.
2.3 User feedback and reports regarding content quality and compliance issues are addressed and resolved by the content curator through appropriate moderation measures and communication channels.
2.4 Regular audits and assessments are conducted to evaluate content moderation effectiveness and identify areas for improvement and optimization.

Priority Level: High
Precondition: The content curator must have access to comprehensive content moderation tools and resources for effective content review and approval.
Cross-Reference: None.

2. Non- Functional requirements:

- **Usability:**

  The app's interface should prioritize simplicity and clarity, ensuring that users, including those who may be experiencing mental health challenges, can easily navigate through the various functionalities. User interfaces should be designed with clear instructions and intuitive layouts to facilitate seamless interaction (Team, 2021).

  Priority Level: High

- **Performance:**

  The Mental Health Check-in App must prioritize loading times for all its features and functionalities. Specifically, the app and website's load time should not exceed one second for users accessing the platform. This ensures that users can swiftly access content, complete self-assessments, engage in skill development exercises, and log their mood without experiencing undue delays. Regular performance monitoring and optimization measures should be implemented to uphold these standards and address any potential issues that may arise.

  Priority Level: Critical

- **Reliability:**

  It is important that users can consistently access their search results with a success rate of 98% or higher. This ensures that users can rely on the app to deliver accurate and timely information without experiencing frequent failures or disruptions. By maintaining such a high level of reliability, the app instills confidence in users and fosters trust in its functionality. Regular testing and quality assurance measures should be implemented to identify and address any potential issues that may arise.

  Priority Level: High

- **Availability:**

  The Mental Health Check-in App must be accessible to users 24/7, ensuring uninterrupted availability of its services at any time of day or night. This continuous availability allows users to seek support and access resources whenever they need them, promoting timely assistance and facilitating tracking of ongoing mental health (Sanjana, 2019).

  Priority Level: Critical

- **Security:**
  Access to view patient requests, profiles, and verified phone numbers should be limited to users assigned the administrator role. The patients' personal data needs to be stored in the encrypted database. Moreover, to avoid abusive registration, all the users in the proposed system can register only one account for each person. Additionally, a security mechanism for the users can be offered when they want to change the password or forget their password. This role-based access control mechanism ensures that only authorized individuals can access specific features and information within the app, thereby enhancing data confidentiality and privacy (Research Article, 2021) .

  Priority Level: Critical

- **Capacity:**
  The app must be capable of supporting a minimum of 5,000 users at any given time. This capacity ensures that the app can accommodate a significant volume of users accessing its services simultaneously without experiencing performance degradation or service interruptions. Regular capacity testing and optimization efforts should be conducted to maintain the app's ability to handle user traffic efficiently.

  Priority Level: High

- **Documentation:**
  Comprehensive documentation should be provided to support both users and developers. This includes user guides, frequently asked questions, and technical documentation to help users understand how to use the app effectively and assist developers in maintaining and extending the app's functionality over time. Regular updates to documentation should be provided to reflect changes and improvements to the app.

  Priority Level: Medium

- **Maintainability:**
  The app should prioritize simplicity to facilitate easy maintenance and updates. This includes well-commented and modular code, along with documentation to assist developers in understanding the app's structure and functionality. Regular code reviews, version control practices and offering efficiency for data backup, will further ensure smooth management of changes and updates over time, minimizing disruptions to the app's functionality.
  Priority Level: High

3. System Development Constraints of our Software:

1. Technology Stack Constraint: The Mental Health Check-in App must be developed using specific technologies and frameworks, including but not limited to React.js for front-end development, Node.js for backend development, and MongoDB for database management.

- Priority Level: High

2. Compliance Constraint: The software must comply with relevant regulations and standards in the healthcare industry, such as HIPAA (Health Insurance Portability and Accountability Act) and GDPR (General Data Protection Regulation), ensuring the security and privacy of user data.

- Priority Level: Critical

3. Scalability Constraint: The application architecture must be designed to accommodate future scalability requirements, allowing for seamless expansion of features, functionalities, and user base without significant architectural changes.

- Priority Level: High

4. Resource Constraint: The development team must adhere to specific resource constraints, including budget limitations, time constraints, and available human resources, to ensure timely and cost-effective delivery of the software.

- Priority Level: High

5. Integration Constraint: The software must integrate with existing systems, databases, and platforms used by healthcare institutions and professionals, facilitating seamless data exchange and interoperability.

- Priority Level: High

6. Accessibility Constraint: The application must comply with accessibility standards, such as WCAG (Web Content Accessibility Guidelines), ensuring that users with disabilities can access and use the software effectively.

- Priority Level: High

7. Localization Constraint: The software must support multiple languages and cultural preferences to cater to diverse user demographics and geographical regions, enhancing user experience and accessibility.

- Priority Level: Medium

8. Data Backup Constraint: Regular data backups must be performed to prevent data loss in the event of system failures, security breaches, or other unforeseen incidents, ensuring data integrity and availability.

- Priority Level: High

9. Training Constraint: Adequate training and onboarding resources must be provided to users, administrators, and other stakeholders to familiarize them with the software's features, functionalities, and best practices.

- Priority Level: Medium

10. Regulatory Constraint: The software development process must adhere to regulatory constraints imposed by relevant authorities and governing bodies in the healthcare sector, ensuring legal compliance and risk mitigation.

- Priority Level: Critical

These constraints will guide the development and implementation of the Mental Health Check-in App, ensuring that it meets the necessary standards, regulations, and user requirements within specified limitations and resources.

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