Requirement Gathering

Date: 19/06/2024

Project Overview

This project aims to develop a comprehensive Unified Medical System (UMS) for India. The UMS addresses the challenges of fragmented healthcare data, limited accessibility to medical records, and reactive disease management.

Main objectives

- Enhance healthcare delivery efficiency through data sharing, appointment booking, and secure medical record access.
- Implement data-driven disease surveillance using machine learning for early outbreak detection.
- Empower patients with a patient support chatbot for information access and improved health education.

System Scope

The initial phase will focus on developing a Minimum Viable Product (MVP) with core functionalities. This MVP will be piloted in a specific region before a full-scale national implementation.

Target Audience

- Patients (General Public)
- Doctors and other healthcare providers (Doctors, Nurses, etc.)
- Hospitals (Hospital Administration)
- Lab technicians
- Public health officials
- Epidemiologists
- Authorized researchers

Modules

1. **Patient Module**
   - Functionalities: User registration and login, appointment booking and management, secure access to personal medical records (including prescriptions, lab results, medical history), downloadable medical certificates, symptom logging for disease outbreak detection, interaction with the patient support chatbot for basic medical guidance and appointment scheduling.
2. **Hospital Module**
   - Functionalities: User registration and login (for doctors, nurses, etc.), secure access to patient medical records (with patient consent), appointment management, data exchange

with other healthcare providers within the system (adhering to data privacy regulations). (Main Project) Lab Integration, (Main Project) Telepharmacy Integration.

3. **Unified Health Data Platform Module**
    - Functionalities: Standardized data storage for medical records, secure data exchange between patient portals, healthcare provider portals, and disease outbreak detection module, user authentication and authorization.
4. **(Main Project) Disease Outbreak Detection Module**
    - Functionalities: Real-time data collection and analysis of patient symptoms from various regions, machine learning algorithms for anomaly detection to identify potential disease outbreaks, alert generation for public health authorities.
5. **(Main Project) Patient Support Chatbot**
    - Functionalities: Answer frequently asked medical questions, guide patients towards appropriate resources within the system (e.g., booking appointments, symptom logging), provide basic health information and self-care guidance.

User Roles

- **Patients (General Public)**
  Register and manage profile, book appointments, access and manage medical records, download certificates and records, get test results, log symptoms, interact with chatbot.
- **Doctors**
  Register and manage profile, access patient records (with consent), manage appointments, record diagnosis, exchange data within the system, view potential disease outbreak information.
- **Hospitals**
  Register and manage profiles, manage doctor appointments, access anonymized data for internal analytics (Main Project), view potential disease outbreak information.
- **Lab Tech**
  Add and manage lab results, view limited patient information (Main Project).
- **Admins**
  System administration, user management, access control.
- **(Main Project) Main Users with Access to Health Symptoms and Outbreak Findings (Restricted Access)**
  Public health officials, epidemiologists, authorized researchers.

System Ownership

This UMS can be a collaborative project between the Indian government (Ministry of Health and Family Welfare) and private healthcare organizations.

Industry/Domain

Healthcare

Data Collection Contacts

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Questionnaire for Data Collection:

Current Practices and Challenges:

1. **Do you currently utilize a digital system for patient appointment booking and management?** (Yes/No)
   - Yes, we use a basic online system, and integrate with all departments in a single hospital.
2. **How often do you share patient medical records with other healthcare providers (e.g., specialists, hospitals)?** (Always/Sometimes/Rarely/Never)
   - We share records occasionally with specialists, typically by physical records and emails, which are insecure.
3. **In your experience, what are the biggest challenges related to managing patient medical records in the current system?** (e.g., data fragmentation, accessibility, security)
   - Fragmentation is a big issue. Labs and specialists often have separate systems, making it time-consuming to get a complete picture of a patient's history.
4. **How much time on average do you spend per day searching for or retrieving patient medical records?** (Minutes/Hours)
   - On average, 5-10 minutes per patient, searching through different systems and paper charts.

Perceptions on a Unified Medical System:

5. **How beneficial do you believe a national Unified Medical System (UMS) would be for improving patient care in India?** (Very beneficial/Somewhat beneficial/Neutral/Not beneficial)
   - I believe a UMS could be very beneficial for patient care. Streamlined records and easier data sharing would improve efficiency and continuity of care.
6. **What functionalities within a UMS would be most valuable to you in your daily practice?** (e.g., secure data sharing, appointment scheduling, patient portal access)
   - Secure data sharing, online appointment scheduling, and a patient portal for accessing medical history would be most valuable.
7. **Would you be comfortable using a UMS for accessing patient information from other hospitals or clinics?** (Yes/No)
   - Yes, I would be comfortable using a UMS to access patient information from other hospitals, as long as it's secure and reliable.

Security and Privacy:

8. **What security measures are most important to you regarding patient data stored within a UMS?** (e.g., encryption, access control, audit logs)
    - Encryption, access control based on user roles, and a strong audit log to track data access are crucial.
9. **How can a UMS ensure patient privacy while still facilitating data exchange for improved healthcare delivery?**
    - A UMS should ensure privacy through strong authentication, clear patient consent for data sharing, and anonymized data for research and outbreak detection.

Looking Ahead:

10. **Do you have any suggestions or specific requirements for a UMS that would be helpful in your practice?**
    - A user-friendly interface for doctors and patients would be essential. Additionally, the system should be designed with offline functionality in case of internet disruptions.