

Electronic Health Records System: Project Proposal

CSCI-SHU 410: Software Engineering

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I. General Purpose of an EHR System

The purpose of the EHR system is dual-faceted, focusing on aiding and assisting patients as well as providing a smoother data management experience for healthcare personnel (e.g. Physicians, Nurses, etc.). Patients might expect features such as access to their healthcare records (e.g. vaccine history, allergy screenings, test results, etc.), the capacity to schedule appointments/checkups online, as well as more advanced features such as email alerts, automated reminders, forum, and chat availability, and even geo-location-based health advisory. Healthcare personnel, on the other hand, might require different levels of authorization/security clearance to access and manipulate patient records or scheduling features for managing personnel availability. It is important to target a specific market (typically at the Nation Level) given that Healthcare is a regulated industry. Certain features possible to engineer in certain markets may be illegal in others or infeasible given data or privacy legislation. Our primary market of choice is the United States as a result of its decentralized Healthcare system (i.e. data “ownership” structure), heightened focus on healthcare reform and security, and history of accessibility issues regarding safe-access to Healthcare Data.

II. Requirements Analysis

The requirements of the EHR system are split into three groups: Core Requirements, Major Functionalities, and Minor Functionalities. Core Requirements reflect the most fundamental level of the EHR system, that is; Maintaining the patient’s personal information and health history. Major functionalities aim to capture the underlying technology and features necessary to develop a successful EHR system. Minor Functionalities represent features that we expect will be challenging to implement but which, nevertheless, would add to the user experience, and provide a more unique value proposition.

A. Core Requirements

- User login interface: this user is defined as any person who through an electronic device logs in to the system. This definition allows for specific roles for the type of user currently accessing the platform. For instance: primary physicians have higher security clearance.
- Medical History: View most recent checkup and health information at a glance in a brief and concise format. View recent, and past test results on an additional tap within the patient information page. Detailed patient records can also be found under an additional separate tab.

- File Management System: Encrypted file storage for sensitive information files (e.g. Allergy Records, Blood Tests, etc.)
- Transaction Log: IT administrators have a tool to see changes in the system. The transaction log will resemble the insertion/deletions log infrastructure commonly seen in Git logs.

B. Major Functionalities

- Appointment and scheduling system: patients are able to request check-ups with their primary care physician.
- Q&A Social Forum: an anonymized forum with features such as support groups, Q&A, and certified personnel feedback/responses. This feature also includes user-to-user chat functionality.
- Automated Reminders: Email reminders for taking medication and refilling prescriptions

C. Minor Functionalities

- Advisory Feature: Gives recommendations for checkups based on consolidated data
- Symptom Checker: Non-verdict based symptom checker that provides advice on how to relieve symptoms while waiting for appointment e.g.(WebMD API integration)
- Chat Bot System: Basic Q&A functionality with recommendations for follow-ups with your physician

III. Stakeholders

Stakeholders represent the individuals for whom the EHR system is being developed, and can include users, customers, maintainers, investors and more. We provide a breakdown of the expected stakeholders as follows:

- Users: these are the individuals who will be interacting with and benefiting from the features implemented in the EHR System
 - Patients: users with the capacity to book appointments, view schedules, medical history, prescriptions, get recommendations, check symptoms, look up hospital staff, etc.
 - Physicians: users that may move appointments, check medical histories of all direct patients, issue prescriptions, offer recommendations, look up other hospital staff/patients etc.
 - Nurses: users that may see schedules, input data, and look up hospital staff/patients etc.
- Maintainers:
 - Technical Administrators: able to maintain stability and make corrections where necessary, able to view changes in the system to track changes in a well documented manor etc.
- Customers:
 - Hospitals: represents the target customer for our product. Hospitals needs, practices, and existing infrastructure will have to be taken into account throughout the development of the EHR System