**SOFTWARE ENGINEERING**

**Project Title:**

**Mobile-based Online Hospital Management System: Streamlining Patient-Doctor Appointments**

**Team Members:**

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**Goals and Objectives:**

* Reduce waiting times for patients: The goal is to minimize the amount of time patients have to wait for an appointment with a doctor. Improvements could include a system that allows patients to book appointments online or through a mobile app, with real-time updates on available slots and automated notifications if appointments are canceled or rescheduled.
* Increase efficiency of healthcare providers: The objective is to streamline the appointment booking process and reduce the administrative burden on healthcare providers. Improvements could include features such as online booking and scheduling, automated appointment reminders, and electronic medical record integration.
* Improve patient satisfaction: The goal is to increase patient satisfaction with the appointment booking process and overall healthcare experience. Improvements could include patient feedback mechanisms, personalized communication, and the ability to securely access medical records online.
* Ensure data privacy and security: The objective is to maintain the privacy and security of patient data by adhering to established data protection regulations and implementing robust security measures. Improvements could include multi-factor authentication, data encryption, and regular vulnerability assessments.
* Expand access to healthcare: The goal is to increase access to healthcare services, particularly for underserved populations. Improvements could include telemedicine integration, support for multiple languages and currencies, and the ability to integrate with other healthcare systems and platforms.
* By focusing on these goals and objectives and implementing improvements that meet the needs of patients and healthcare providers, the Python-based doctor appointment booking system can provide a valuable and effective solution for managing healthcare appointments.

**Motivation**:

The motivation behind the proposed Android-based online hospital management application is to address the inconvenience and challenges patients face when making appointments with doctors. With the rapid development of mobile communication technology, the solution aims to provide a reliable, efficient, and convenient way for patients to access healthcare services. The application allows patients to easily view hospital and doctor details, request appointments, and receive notifications of successful

appointments. By offering features such as location mapping and contact options, the application enhances the patient experience and improves the accessibility of healthcare services. Overall, the motivation for the project is to improve patient satisfaction and provide a more streamlined approach to hospital management.

**Objectives:**

* Streamline appointment booking process: The system should provide an easy and convenient way for patients to book doctor appointments online, reducing the administrative burden on hospital staff and increasing the efficiency of appointment scheduling. Improvements could include features such as real-time availability, automated appointment reminders, and the ability to reschedule or cancel appointments online.
* Enhance patient engagement: The system should empower patients to take control of their healthcare needs by allowing them to view available appointment slots and choose a time that suits them best. Improvements could include patient feedback mechanisms, automated appointment notifications, and the ability to securely access medical records online.
* Improve doctor-patient communication: The system should facilitate better communication between doctors and patients before and after appointments, leading to improved care coordination and health outcomes. Improvements could include telemedicine integration, chat functionality, and the ability to share medical records securely and in real-time.
* Ensure data security and privacy: The system should maintain the privacy and security of patient data by adhering to established data protection regulations and implementing robust security measures. Improvements could include multi-factor authentication, data encryption, and regular vulnerability assessments.
* Provide a scalable and flexible platform: The system should be flexible enough to accommodate the changing needs of healthcare providers and patients, and should be designed to scale as the user base grows. Improvements could include the ability to add new features and functionality, support for multiple languages and currencies, and the ability to integrate with other healthcare systems and platforms.
* By focusing on these objectives and implementing improvements that meet the needs of patients and healthcare providers, the Python-based doctor appointment booking system can continue to provide a valuable and effective solution for managing healthcare appointments

**Significance:**

* Increased convenience: The system provides patients with an easy and convenient way to book doctor appointments online, eliminating the need for them to physically go to the hospital or clinic and wait in queues.
* Improved efficiency: The system streamlines the appointment booking process, reducing the administrative burden on hospital staff and increasing the efficiency of appointment scheduling.
* Improved patient engagement: The system empowers patients to take control of their healthcare needs by allowing them to view available appointment slots and choose a time that suits them best.
* Increased access: The system provides an online platform for patients to book appointments, which can be especially beneficial for people with mobility issues or those who live in remote areas.
* Better patient-doctor communication: The system allows doctors to securely access patient medical records and communicate with patients before and after appointments, leading to better care coordination and improved health outcomes.

**Features:**

* Patients can create an account on the system by providing basic information such as their name, contact information, and medical history.
* Doctor profiles: The system should show a roster of physicians who are accessible for booking, along with their specialties, availability, and prior customer reviews.
* Appointment scheduling: Patients should be able to view available appointment slots for their preferred doctor and book an appointment at a time that works for them.
* Automated reminders: To reduce the likelihood of missed appointments, the system should send automated reminders to patients prior to their scheduled appointment.
* If a patient is unable to obtain an appointment on their preferred date and time, they can be placed on a waiting list. If an earlier appointment becomes available as a result of this, the system will notify them.

**Technologies used:**

* Android platform for developing the mobile application
* HTML and CSS for front-end development.
* Java programming language for developing the application
* SQLite database for storing data related to hospitals, doctors, patients, and appointments
* Google Maps API for displaying the location of hospitals on the map
* Email and calling functionality for contacting the doctor and hospital
* Online appointment scheduling tool for managing appointments
* User authentication and session management for security purposes

**Github Source:**

<https://github.com/anith462/Software-Engineering>

**References:**

<https://nevonprojects.com/python-doctor-appointment-booking-system/>

<https://www.academia.edu/26066176/Design_and_Development_of_Online_Doctor_Appointment_System>

<https://ijcrt.org/papers/IJCRT1812133.pdf>

<https://arxiv.org/ftp/arxiv/papers/1701/1701.08786.pdf>