CS 3773 Project II

For this project, each group will develop a prototype of the Electronic Medical Information System (EMIS) using web technologies. Any major web technologies can be used, such as Python, Ruby on Rails, PHP and MySQL. You might want to use XAMPP (http://www.apachefriends.org/en/xampp.html), which is a free web server stack you can use to test and demonstrate your system. It will provide you with all the necessary tools (Apache web server, MySQL database, and PHP interpreter) to test your project locally.

For project, each group must implement the following features of the EMIS.

• User Login
  o The system shall provide a mechanism to permit each user, including patient, doctor, nurse, and receptionist, to create an account of appropriate type with the EMIS, thus each user shall have access to the system with a username and password to maintain his or her own account. The password shall contain at least 8 characters, containing at least one upper case letter, one digit, and one special character. If a user forgets his or her username or password, the user shall have to ability to reset the password by providing the name, date of birth, and SSN to the EMIS, which shall send an internal message to the user to facilitate him or her to reset the password.
  o Both receptionists and patients shall be able to add personal information to the new patients’ accounts and maintain the patients’ personal information and accounts.

• Scheduling an appointment
  o Patients and receptionists shall be able to schedule appointments with the doctors as well as cancelling and rescheduling appointments.
    ▪ When requesting appointments, the patients and receptionists shall indicate the types of appointments, such as annual physical exams that will take 40 minutes, follow-ups of medical tests that will take 30 minutes, or regular appointment that will take 20 minutes.
    ▪ If a cancelation happens at least the day before the appointment time, there will be no charge. Otherwise, a $30 late fee shall be charged and a bill shall be generated, saved in the patient’s chart, and sent to the patient via an internal message.
      ▪ The system shall send a reminder of the appointment to the patient 24 hours before the appointment time via an internal message.
  o Receptionists shall be able to view doctors’ calendars graphically to schedule or cancel appointments, but patients shall not have access to doctors’ calendars.
  o Doctors shall be able to view their respective calendars graphically and maintain their calendars respectively by adding or removing calendar items. Receptionists shall be able to view doctors’ calendars graphically and maintain the calendars on behalf of doctors. If a doctor needs to cancel an appointment with a patient, a notification shall be sent to the patient via an internal message 48 hours before the scheduled time.
  o You shall ensure the system can handle concurrency errors (e.g., if two patients try to schedule the same block of time for appointments at the same time).

• Managing patient’s chart
  o If a patient checks in more than 30 minutes late, a $30 late fee shall be charged, and a bill shall be generated, put in the patient’s chart, and printed.
  o Only doctors and nurses shall have the ability to view patients’ charts.
- Only doctors and nurses shall have the ability to add medical history, current condition, and current prescribed drugs to patients’ charts.
- Doctors shall have the ability to add diagnosis and treatment plan to patients’ charts.
- Doctors shall have the ability to order tests, issue prescriptions, and record the test orders and prescriptions in the patients’ charts.
- No data shall be overwritten; everything shall be appended to the chart.
- After each visit, the EMIS will generate an itemized receipt of the visit. The receipt shall be put in the patient’s chart.

- **Basic messaging**
  - All users shall have access to a **basic messaging system** to send and receive messages within the system

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**Demos**

Each group will have to schedule a 30-minute appointment with the TA to demonstrate their implementation on May 6, May 7, and May 8. Please bring a laptop that can host your project. The web interface should be publically accessible. Ensure that your project works with at least Google Chrome.

**Presentation**

Each group will present the design, implementation, and testing strategies of your project within 20 minutes. The time of the final project presentation will be scheduled in the classes of the last week. Every group member must present the part that he or she is responsible for.

**Deliverables**

Each group will create a design and testing document for EMIS system. You will present an overall structure of the system, including a description of each major component and of the interaction among the components. These components may include modules, processes, files, and databases, concentrating on goals, requirements, and maintainability. You need to indicate what style of architecture that you are using and use diagrams that clearly illustrate the structure of your system. You will also need to include all the test cases you developed to test your system.

**Due date of the document**

The hard copy of the design and testing document is due in class on Tuesday, April 29. The zipped source code should be sent to the TA on or before May 8 at 10:30am.