

Smart Health Project

IMPORTANT Instructions:

1. It's mandatory that you attend all the deadlines in this project as per the schedule. No request for rescheduling the demo will be entertained. In case of any unavoidable circumstances you have to take email approval from me well in advance.
2. You **MUST** have a **PRIVATE** git repository for your project and every group member should very frequently check in their code in this repository.
3. No extensions will ever be provided. Any submission after the deadline will not be evaluated. If you see any ambiguity or inconsistency in a question, please seek a clarification from the teaching staff.

PROJECT DEADLINES:

1. **Deadline 1 (17th October):** Draw the UML class (along with relationships) and sequence diagrams for the proposed system, take the screenshots or the pictures and upload them as a single word (.doc) file. Bonus marks will be given for state diagram.
2. **Deadline 2 (2nd November):** Take the screenshots of the GUI or console screens of your project, submit them along with the code in a single word file.
3. **Deadline 3 (17th November):** Complete project submission

Plagiarism: All submitted deliverables are expected to be the result of your individual effort. You should never misrepresent someone else's work as your own. In case any plagiarism case is detected, it will be dealt as per new plagiarism policy of IIITD.

The project relates to design and development of a Smart Healthcare System (SHS) that will allow a hospital to assign doctors to patients. The patients can get all the required details like availability, OPD timings, contact information about the doctors etc.

A. The operational requirements of the system are:

1. Patient can search the doctors based on the categories listed in the SHS application i.e. Orthopedic, General Physician etc. Patients can select a particular doctor as per their requirements. Patients can also see doctor's profile. Also, the patient can view doctor's schedule, contact details like address and phone number to look for an appointment.
2. After successful registration, each patient is allocated a unique id. The id should be meaningful so that it is easy to identify the category or department in which a patient is registered.
3. When a patient registers, an option of "location" is provided. The "location" can be OPD or LOCAL. OPD means that a patient needs a consultation in the hospital. LOCAL means the patient needs to be hospitalized in the hospital.
4. Either a patient has an option to select a doctor or the SHS will allocate the doctor to patient. In case of SHS allocating the doctor, one should add an intelligent algorithm for such matching.

5. SHS will maintain the details about all the doctors in the hospital. The doctors are divided into junior residents, senior residents, specialists and senior specialists. Each department/category is headed by a head of the department (HoD). The HoD is a senior specialist with some administrative responsibilities. Some of the doctors are also surgeons and senior surgeons. A department consists of a team of doctors – a combination of junior and senior residents, one or more specialist and senior specialist.
6. All doctors conduct OPD and the timings are specified in their profile. Any junior doctor can refer patients to a doctor senior to him in the same department.
7. Only the specialist or senior specialist can refer a patient to another department.
8. Whenever a patient visits hospital, either as OPD patient or as LOCAL patient, all his data like day and time of visit, day and time of discharge, department, doctor or doctors, disease identified, medicines prescribed, other tests advised etc. are recorded.
9. When a doctor logs into the SHS system, it shows the list of assigned patients (since his last login). The doctor can sort the patients based on patient id, name and type.
10. The system will also show the patient available history to the assigned doctor
11. The patients can also be critical or non-critical. The critical patients may need a surgeon.

B. Users of the system

There are three main type of users of SHS and all users are allowed to access the system by login id and password,

1. **Patients:** Patients need to register and create login for the first time. Later on, they can use same login and password to access the system. Patients can edit their profile. The new user needs to register by providing few details like name, phone number etc. The doctor can be searched by doctor's ID or name or address or specialization.
2. **Doctors:** A doctor can also edit his profile. Once the doctor logs in, he can check the patients who need his help. Doctor should able to sort the list of patients.
3. **Admin:** Admin can add the doctors in the SHS. The login and password for admin is created by default by SHS. Reassignment of doctors in patients record, if any, can be done by the admin. Also, the admin has the right to view the details of any patient and any doctor.

C. System Requirements:

1. The system can be console based or can have a GUI for user interactions .
2. The system must include a database in which records of patients and the doctors will be stored.
3. Exception handling must be implemented wherever possible. All the exceptions must be logged into a log file.
4. Once your project is complete, design the test cases for each subsystem. At least 5 test cases for each class must be made. (Optional: Junit or Pyunit can be used for unit testing.)
5. Some data for patients as well as doctors should be available in the Mysql DB for testing and for demo.

Bonus: The bonus points will be provided for extra features you add in the system and it will be evaluated on case to case basis. For example, some bonus points will be awarded if you construct state diagrams also in UML diagrams before deadline 1.