Project: Object Oriented Programming: Java

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Your objective for this semester will be to prepare a system to manage the day to day functioning of a hospital. The hospital consists of Doctors, Patients and support staff (Nurses). Each patient is assigned one doctor but a doctor can have multiple patients assigned. Patients can be of two types: outpatient and inpatient. Outpatients will be assigned a doctor but will not be assigned a room. Inpatients will be assigned a room. Support staff will be assigned a maximum of 10 rooms.

Each patient has his/her data that needs to be stored into a database. The data should include the name, gender, age, assigned doctor and a description of the problem.

A doctor or a support staff member should be able to input data about a patient. An inpatient data will have a room assigned to him/her.

The system needs to measure the following set of vitals for an inpatient:

1) blood pressure
2) rate of breathing
3) Pulse rate
4) body temperature

As soon as any of these values go lower or higher than the ideal values an alert is generated to the doctor and support staff that are assigned to the room number.

All of this functionality needs to be presented via a GUI. The GUI needs to have the following elements.

A login screen

A main screen which will be different for different classes of users.

A doctor should be able to see

1) list of patients assigned to him/her
2) A list of all the alerts and the room number from
3) A search option to search for a particular patient
4) Alert a staff member in order to call him
5) Vital signs of a patient

A support staff member should be able to see

1) The rooms he/she is assigned to
2) Vital signs of a patient
3) Alerts and the room number from which they are generated

4) Alerts from doctors, a staff member should be able see which doctor has called him/her

Only a doctor should be able to view data for a patient. The doctor should also be able to edit that data.

Tips for the project

1) You can use any GUI framework you like (JavaFX, Swing etc.) A basic introduction to Java based graphical user interfaces will be given in the lecture
2) The alerts should occur 'live' which means that if you are to open two windows of your program. Login to one window as a doctor and one window as a support staff. Send an alert as a doctor to a support staff member. The other window where the support staff member is logged in should be able to view the alert.
3) Since we are not handling actual patients you need to simulate each patient using the concept of threads. This concept will be covered in the lectures.

General guidelines for the project

The project will be developed in a group of minimum 4 and maximum 6 students

Language of Programming will be Java

Update the status of your project: Make sure you use the exercise session to update the status of your project. You can present your project plan, status of your documentation and milestones which you have achieved and are yet to achieve.

Final deliverable will be a running application and a report which needs to be divided into sections based on the individual contribution of each member of the project group

Guidelines for the report

The report should be minimum 10 and maximum 15 pages. It should include at the very least

1) The task distribution amongst the members of the project
2) A description of the architecture of the application
3) A description of any 3rd party library used in the project
4) Milestones of the project
5) Description of the GUI of the project