Lab task 2 - QUEUES

Hospital triage

Problem description

When patients enter through the hospital emergencies, they must first go through triage, where they are classified considering the severity and the specialty department. We need to implement a software for the triage to simulate the entry of patients and their triage.

For this simulation we are considering 3 specialties: traumatology, cardiology, and neurology. Additionally, we consider 3 severity levels: mild, severe, and vital.

Furthermore, some departments present restrictions. Neurology specialty is not covered 24 hours a day because of the lack of clinicians, so, a maximum of 1 hour is allowed each day, the rest of patients are moved to another hospital. Also, due to the need of attending their patients as soon as possible, the cardiology service must prioritize their patients according to their severity and entry time.

To do

Implement a simulation which reads a file containing randomly generated patients and triages them in the corresponding queues. Consider as parameters for your simulation that a patient enters each 10 seconds and the hospital mean time to attend a patient is 10 minutes, however the simulation is not in real time. You must use the adequate Java queue implementations (a static memory, a dynamic memory, and a priority queues). The result of the simulation should be the 3 queues printed out through the console.

Technical requirements

- Every class that will be generated should be in a different file, including the possible classes that define exceptions. Try to modularize the code properly.
- Each class/method in the program should include appropriate internal documentation to make it fully understandable. In “Campus Virtual” you can find information to write internal doc (see Lab section).
- In order to use anti-plagiarism and semantic similarity detection systems, source code files may not contain personal data about students such as name, email… Instead, the authors and the group will be identified in the comments of the code with the initials of the students and the assigned group code.

Additional improvements

- Generation of a .jar file with all classes of the program
- Generation of a batch process file .bat that executes the program using the mentioned library as .jar file.

Running and delivery rules

- The project must be carried out by each of the work groups that have been previously formed in practical classes. It cannot be done individually.
- The delivery and evaluation will be made on the day previously indicated in the Campus Virtual. One of the members of the group will send a compressed file with all the classes that compose the program. Individually, you must also submit the participation template, which will be available in “Campus Virtual”.
- For the practice to be evaluated, the program must compile and run correctly.
- Remember that this activity is mandatory to pass the subject.