CSE306: Spring 2019

Project 3 – Device Management

Out: April 11
Due: May 2 – No extensions!

What to do. Implement the *Devices* module of OSP2.

The project files are found on Blackboard in the Assignments section.

Details of what you are supposed to do are provided in the OSP2 documentation (the chapter on device management). It is required that you implement the following scheduling strategy:

- Initially there is one queue of I/O requests.
- When the device starts processing the first request in that queue, the queue is closed and any subsequent I/O requests are added to another queue.
- When the device is done with the first queue, it switches to the second. That second queue is then closed and new requests go into a third queue, etc.

  Note: This does *not* mean your implementation should use an unbounded number of queues. The above is a description of the desired behavior, not an implementation guideline.
- Within each queue, requests are processed using SSTF (shortest seek time first).

Your objective in this project is to get your implementation to run under OSP2 without errors and warnings with the parameter files that appear in the `Misc` subdirectory (the files with the `.osp` extension). As explained previously, occasional errors (every 5-10^{th} run) should not be a cause for concern due to some synchronization issues in OSP2.

Statistics. Compare and explain your statistics with respect to those produced by Demo.jar (Demo.jar uses the FIFO algorithm). The statistics of interest are:

- Total number of tracks swept on each device.
- Average number of tracks swept per I/O request.
- Average turnaround time for I/O requests.
- System throughput.

These statistics are part of the snapshots in the file OSP.log, which is produced when OSP2 runs. The meaning of these statistics is explained both in the textbook and in the OSP2 manual.

Important notice on the use of Git. You **must** use Git to maintain your project files **and** you must make frequent commits to your repository. The Git repository must be in *Github classroom*. Follow this link to create a repository in this course's classroom for Project 3:

`https://classroom.github.com/a/UKvxd7a5`

After a few clicks you will get a repository named `cse306-project-3-`*YourGuthubId*. The repository will automatically become private and you should not attempt to change that.

We will be checking your repository and your commit logs to make sure that substantial activity has been taking place over a period of time. If there are less than 4 **nontrivial** commits, significant penalty will apply.

Otherwise, same requirements to your code as in Project 1.

How to submit. Zip-up your main repository branch and submit the zip file via Blackboard. Github has a button for that: *Clone or download/Download ZIP*. Normally, the zip file will have a top folder with a name like `cse306-project-3-`*YourGuthubId*`-master`, but if not then make sure that your submitted zip file has a top folder with such a name. Do not forget to include your **name** and **Student Id** in the program source-files. Do **not** submit paper-based material.

This project is to be done **individually**. Each source file should include the following pledge:

> **I pledge my honor that all parts of this project were done by me individually, without collaboration with anyone, and without consulting external sources that help with similar projects.**

GOOD LUCK!