21.12.2016

Due Date: 04.01.2017, 23:55

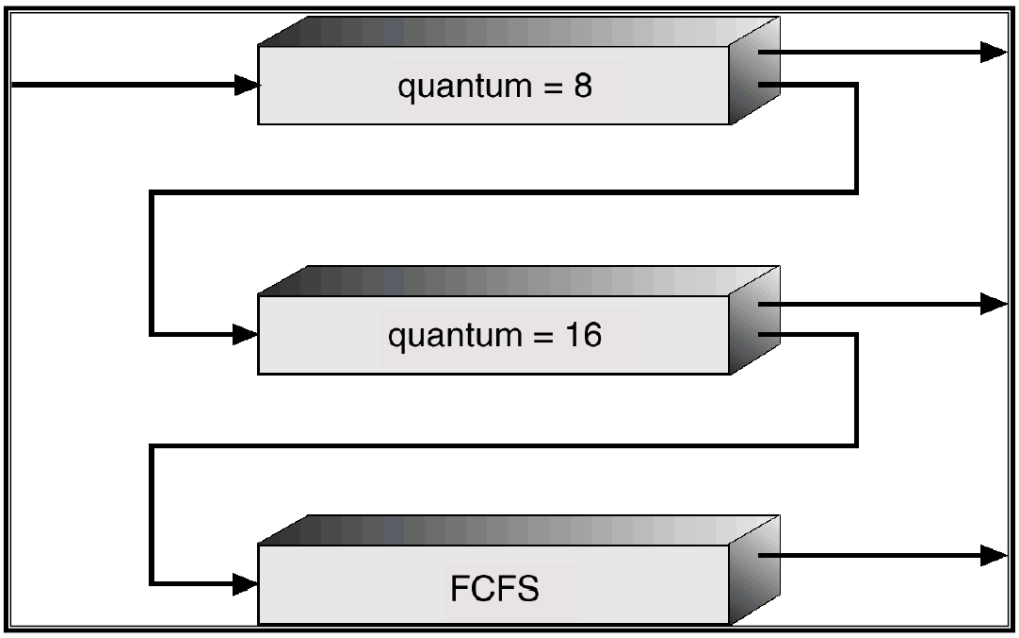
CENG 313 – Operating Systems
Homework #3

Implement a C program that is explained below using WinAPI operating system.

In this homework we want you to implement a scheduling on multilevel feedback queue. However, you are not expected to exactly implement a multilevel feedback queue, but implement its simulation.

You should assume that you have 3 queues. Each queue will have its own single scheduling algorithm. The first 2 queues will have RR (Round Robin) algorithm and the last queue will have FCFS (First Come First Serve) algorithm. The first two queues must have different quantum times. The first queue's quantum time should be set to 8 and the second should be set to 16.

When a process enters the first queue it can run at most as the quantum time (8ms) defined for this queue. If it still needs time to finish its work (burst time > quantum time) it should be dropped to the second queue. When the process is dropped to the second queue it can run at most as the quantum time (16ms), but if it still needs time to finish its work, it is dropped to the third (last) queue. **(See 9_UniProcessor_CPU_Scheduling.pdf on CMS)**



Your program should have 20 processes. Each process' burst time should be assigned randomly in between 4ms – 50ms. Please make sure that you have at least one process in each interval time given below.

- 4ms <= burst time <= 8ms
- 8ms < burst time <=24 ms
- 24ms < burst time

HINT: While defining your processes, you can use a structure that keeps the information of the processes.

ASSIGNMENT RULES!

- Cheating will **NOT** be tolerated!
- For any detected cheating will be **graded as 0.**
- Late Submissions will not be allowed.

GRADE REDUCTIONS

Since you are Junior students you are expected that you are aware of; error handling, controls, software design etc. Please code your programs wisely. Possible grade reductions,

- **Lack of comment usage!**
- **Missing controls!**
- **No error handling!**
- **Unused/dead codes!**
- **Naming conventions!**

Please do not discuss with us why your grades decreased just because you have done the programming sins listed above!

IMPORTANT NOTES

- **Do not ask from us about the possible errors that could occur. From this lecture and labs, you are expected to be aware of the possible errors.**
- **Your question will not be answered in the last 48 hours to your homework submissions. This also include e-mails as well.**