**Assignment 3**

**Due**: 11:55PM Sept. 25, 2023

**Submission**: Complete your submission on Blackboard.

Email submission will NOT be accepted. If you cannot complete the assignment before the deadline due to Covid-19, you must contact the instructor **BEFORE** the deadline. Otherwise, **late submission will NOT be accepted**.

**Total points**: 20 points

1. Use your words to explain the difference between program and process. (5 points)

A process is a program in execution that has resources allocated to it. A program is just stored code that isn’t loaded and running.

2. Process A is loaded to memory space from 1000 to 1004. Process B is loaded to memory space from 2000 to 2011. Round robin policy is used to schedule processes A and B. In the beginning, Process A is in the first position in the ready queue.

In order to prevent monopolizing, we assume OS only allows a process to continue execution for a maximum of 6 instruction cycles. The dispatcher is in the memory from 100 to 105. Simulate the execution. (10 points).

A white paper with writing on it

Description automatically generated

3. Use your own words to explain the motivation for designing the state transition from blocked/suspend to blocked in the 7-state model. (5 points)

Going from Blocked/Suspend to Blocked makes sense because moving a high priority process to main memory allows the CPU to move the process more quickly to the Ready state after an IO operation. Moving the process from Blocked/Suspend to Ready/Suspend to Ready is much slower because these states are in the external Disk which is much slower than Main Memory.

END