Final Exam, CS – 405, Fall 2020

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Given below are the system and job descriptions. Assume load time for jobs is 50 and I/O is 25; FIFO for job scheduling.

Timer value = 50

Degree of multiprogramming = 2

Job1 100, I/O, 100, I/O, 100

Job2 25, I/O, 25, I/O, 25

Job3 25, I/O, 25, I/O, 25

Complete the chronological events for the jobs to be loaded and executed – the table should help.

**My thoughts on the timer value are as follows: A context switch will only occur when the timer value ticks. That is to say with a 50 value timer that if a job only needs 25 units of cpu time, it will use the 25 units and then the cpu will sit idle for 25 units. Only then will the next job in the queue take over the cpu. An IO request will be made once ready, even if the cpu is sitting idle for that time. IO can occur simultaneously with Loading.**

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| --- | --- | --- | --- |
| Time | Event | Job Queue | Job on CPU |
| 0 | Loading |  |  |
| 50 | Loaded | Job1 |  |
| 50 | Schedule/Loading |  | Job1 |
| 100 | Loaded | Job2 |  |
| 100 | Timeout/Schedule | Job1 | Job2 |
| 125 | Job2 Request IO | Job1 | Job2 |
| 125 | Timeout | Job1 | Job2(waiting) |
| 150 | Job2 IO Received |  | Job1 |
| 150 | Scheduling | Job2 | Job1 |
| 200 | Job1 IO Request | Job2 | Job1 |
| 200 | Timeout |  | Job2 |
| 225 | Job1 IO Received |  | Job2 |
| 225 | Scheduling | Job1 | Job2 |
| 225 | Job2 IO Request | Job1 | Job2 |
| 225 | Timeout | Job1 | Job2(waiting) |
| 250 | Job2 IO Received |  | Job1 |
| 250 | Scheduling | Job2 | Job1 |
| 300 | Timeout/Scheduling | Job1 | Job2 |
| 325 | Timeout/Job2 Done | Job1 | Job2(done) |
| 325 | Loading Job3 | Job1 | Job2(done) |
| 350 | Job2 Done |  | Job1 |
| 375 | Job3 Loaded/Scheduled | Job3 | Job1 |
| 400 | Job1 IO Request | Job3 | Job1 |
| 400 | Timeout |  | Job3 |
| 425 | Job1 IO Received |  | Job3 |
| 425 | Scheduling | Job1 | Job3 |
| 425 | Job3 IO Request | Job1 | Job3 |
| 425 | Timeout | Job1 | Job3(waiting) |
| 450 | Job3 IO Received/Schedule | Job3 | Job1 |
| 500 | Timeout/Scheduling | Job1 | Job3 |
| 525 | Job3 IO Request | Job1 | Job3 |
| 525 | Timeout | Job1 | Job3(waiting) |
| 550 | Job3 IO Receive/Scheduling | Job3 | Job1 |
| 600 | Timeout/Job1 Done |  | Job3 |
| 625 | Timeout/Job3 Done |  | Job3(done) |
| 650 | System Done |  |  |
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