

# **CISC-361: Operating Systems : Programming Project: Supplementary Document**

*Instructor: Dr. Mashayekhy*

## Test set 1

Job assignment, scheduling and process scheduling.

### Test set 1:

C 1 M=200 S=12 Q=4

A 3 J=1 M=120 S=5 R=10 P=1

A 4 J=2 M=70 S=2 R=12 P=2

A 5 J=3 M=100 S=8 R=4 P=1

A 7 J=4 M=1000 S=5 R=12 P=2

A 8 J=5 M=10 S=8 R=4 P=1

D 10

D 26

In addition to display, your program should generate json files(in the following schema) for each 'D' command.

```
1  {
2    "current_time": 26,
3    "total_memory": 200,
4    "available_memory": 30,
5    "total_devices": 12,
6    "available_devices": 12,
7    "quantum": 4,
8    "turnaround" : ,
9    "weighted_turnaround": ,
10   "readyq": [
11     3
12   ],
13   "running": 2,
14   "submitq": [],
15   "holdq2": [],
16   "holdq1": [],
17   "completeq": [
18     5,
19     1
20   ],
21   "waitq": [],
22   "job": [
23     {
24       "arrival_time": 4,
25       "devices_allocated": 0,
26       "id": 2,
27       "remaining_time": 3
28     },
29     {
30       "arrival_time": 8,
31       "id": 5,
32       "remaining_time": 0,
33       "completion_time": 19
34     },
35     {
```

```
36     "arrival_time": 3,  
37     "id": 1,  
38     "remaining_time": 0,  
39     "completion_time": 25  
40 },  
41 {  
42     "arrival_time": 5,  
43     "devices_allocated": 0,  
44     "id": 3,  
45     "remaining_time": 4  
46 }  
47 ]  
48 }
```

Listing 1: Test 1 output at D 26

1. Jobs inside the queues are in iterative order(starting at index 0).
2. 'running' maps to just one 'job.id'.
3. All attributes(except 'weighted\_turnaround') are integer valued.
4. 'completion\_time' is only valid for a job on the complete queue.
5. 'devices\_allocated' is only valid for a job on the ready or the wait queue.

The output files are uploaded Sakai.

## Test set 2

Process Scheduling and banker's algorithm

C 1 M=200 S=12 Q=4  
A 3 J=1 M=120 S=10 R=10 P=1  
A 4 J=2 M=70 S=3 R=12 P=2  
Q 6 J=1 D=10  
Q 7 J=2 D=3  
D 8  
L 9 J=1 D=4  
A 10 J=3 M=10 S=8 R=4 P=1  
D 11  
D 20

The output files are uploaded Sakai.

## Sample Input

This input set was provided with the project description. It contains external device requests, even when a job is not running on the CPU. You should neglect such a request.

```
C 1 M=200 S=12 Q=4
A 3 J=1 M=20 S=5 R=10 P=1
A 4 J=2 M=30 S=2 R=12 P=2
A 9 J=3 M=10 S=8 R=4 P=1
Q 10 J=1 D=5
A 13 J=4 M=20 S=4 R=11 P=2
Q 14 J=3 D=2
A 24 J=5 M=20 S=10 R=9 P=1
A 25 J=6 M=20 S=4 R=12 P=2
Q 30 J=4 D=4
Q 31 J=5 D=7
L 32 J=3 D=2
D 9999
```

The output json is uploaded on Sakai.