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

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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 25

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

```json
{
  "current_time": 26,
  "total_memory": 200,
  "available_memory": 30,
  "total_devices": 12,
  "available_devices": 12,
  "quantum": 4,
  "turnaround" : ,
  "weighted_turnaround": ,
  "readyq": [
    3
  ],
  "running": 2,
  "submitq": [],
  "holdq2": [],
  "holdq1": [],
  "completeq": [
    5,
    1
  ],
  "waitq": [],
  "job": [
    {
      "arrival_time": 4,
      "devices_allocated": 0,
      "id": 2,
      "remaining_time": 3
    },
    {
      "arrival_time": 8,
      "id": 5,
      "remaining_time": 0,
      "completion_time": 19
    },
    {
```

```
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.