

Team 3

Team members

Name	Sec	BN
Ahmed Sherif	1	3
Ahmed Mohamed	1	6
Adel Mohamed	1	31
Abdallah Ahmed	2	1

Data structures used

Algo/Part	DS
Processes WTA	Linked list
HPF - SRTN	Priority queue
RR - Waiting list	Queue
Buddy	Binary tree

Algorithm explanation and results


1. Phase 1

- Algo Explanation:
 1. Recieve and push all processes came in the current second
 2. Check the running process if it finishes or not (Check its remaining time through the according shared memory)
 3. Check if the ready queue is not empty:
 - True: based on the algo, we decide that we will switch or not
 4. Wait till the next second
- Results:
 - HPF

 scheduler.log - Notepad

File Edit Format View Help

```
#At time x process y state arr w total z remain y wait k
At time 1 process 1 started arr 1 total 6 remain 6 wait 0
At time 7 process 1 finished arr 1 total 6 remain 0 wait 0 TA 6 WTA 1.00
At time 7 process 2 started arr 3 total 3 remain 3 wait 4
At time 10 process 2 finished arr 3 total 3 remain 0 wait 4 TA 7 WTA 2.33
```

 scheduler.perf - Notepad

File Edit Format View Help


```
CPU utilization = 100%
Avg WTA = 1.67
Avg Waiting = 2.00
Std WTA = 0.94
```

■ SRTN

 scheduler.log - Notepad

File Edit Format View Help

```
#At time x process y state arr w total z remain y wait k
At time 1 process 1 started arr 1 total 6 remain 6 wait 0
At time 3 process 1 stopped arr 1 total 6 remain 4 wait 0
At time 3 process 2 started arr 3 total 3 remain 3 wait 0
At time 6 process 2 finished arr 3 total 3 remain 0 wait 0 TA 3 WTA 1.00
At time 6 process 1 resumed arr 1 total 6 remain 4 wait 3
At time 10 process 1 finished arr 1 total 6 remain 0 wait 3 TA 9 WTA 1.50
```

 scheduler.perf - Notepad

File Edit Format View Help


```
CPU utilization = 100%
Avg WTA = 1.25
Avg Waiting = 1.50
Std WTA = 0.35
```

■ RR

 scheduler.log - Notepad

File Edit Format View Help

```
#At time x process y state arr w total z remain y wait k
At time 1 process 1 started arr 1 total 6 remain 6 wait 0
At time 3 process 1 stopped arr 1 total 6 remain 4 wait 0
At time 3 process 2 started arr 3 total 3 remain 3 wait 0
At time 5 process 2 stopped arr 3 total 3 remain 1 wait 0
At time 5 process 1 resumed arr 1 total 6 remain 4 wait 2
At time 7 process 1 stopped arr 1 total 6 remain 2 wait 2
At time 7 process 2 resumed arr 3 total 3 remain 1 wait 2
At time 8 process 2 finished arr 3 total 3 remain 0 wait 2 TA 5 WTA 1.67
At time 8 process 1 resumed arr 1 total 6 remain 2 wait 3
At time 10 process 1 finished arr 1 total 6 remain 0 wait 3 TA 9 WTA 1.50
```

 scheduler.perf - Notepad

File Edit Format View Help

```
CPU utilization = 100%
Avg WTA = 1.58
Avg Waiting = 2.50
Std WTA = 0.12
```


2. Phase 2

○ Algo Explanation:

1. Recieve processes came in the current second and based on the memory free space:

1. In case of free space: Allocate space for it and push it in the ready queue


2. Else: Push it in the waiting list
 2. Check the running process if it finishes or not:
 1. True: Free its allocated space and check the waiting list
 2. False: Pass (continue the code flow)
- Results:
- HPF

 memory.log - Notepad

File Edit Format View Help

```
#At time x allocated y bytes for process z from i to j
At time 1 allocated 200 bytes for process 1 from 0 to 255
At time 3 allocated 170 bytes for process 2 from 256 to 511
At time 7 freed 200 bytes from process 1 from 0 to 255
At time 10 freed 170 bytes from process 2 from 256 to 511
|
```


- SRTN

 memory.log - Notepad

File Edit Format View Help

```
#At time x allocated y bytes for process z from i to j
At time 1 allocated 200 bytes for process 1 from 0 to 255
At time 3 allocated 170 bytes for process 2 from 256 to 511
At time 6 freed 170 bytes from process 2 from 256 to 511
At time 10 freed 200 bytes from process 1 from 0 to 255
```

- RR

 memory.log - Notepad

File Edit Format View Help

```
#At time x allocated y bytes for process z from i to j
At time 1 allocated 200 bytes for process 1 from 0 to 255
At time 3 allocated 170 bytes for process 2 from 256 to 511
At time 8 freed 170 bytes from process 2 from 256 to 511
At time 10 freed 200 bytes from process 1 from 0 to 255
```

Assumptions

- Number of input file lines = number of processes + 1

Workload distribution & Time taken

Phase	Workload	Time (hours)
1	The Whole Team	24
2	Ahmed Mohamed - Abdallah Ahmed	12
3	Ahmed Sherif - Adel Mohamed	6