

# **LAPORAN PRAKTIKUM SISTEM OPERASI**



Disusun oleh :

FAIZAL AHMAD DENA L200210264

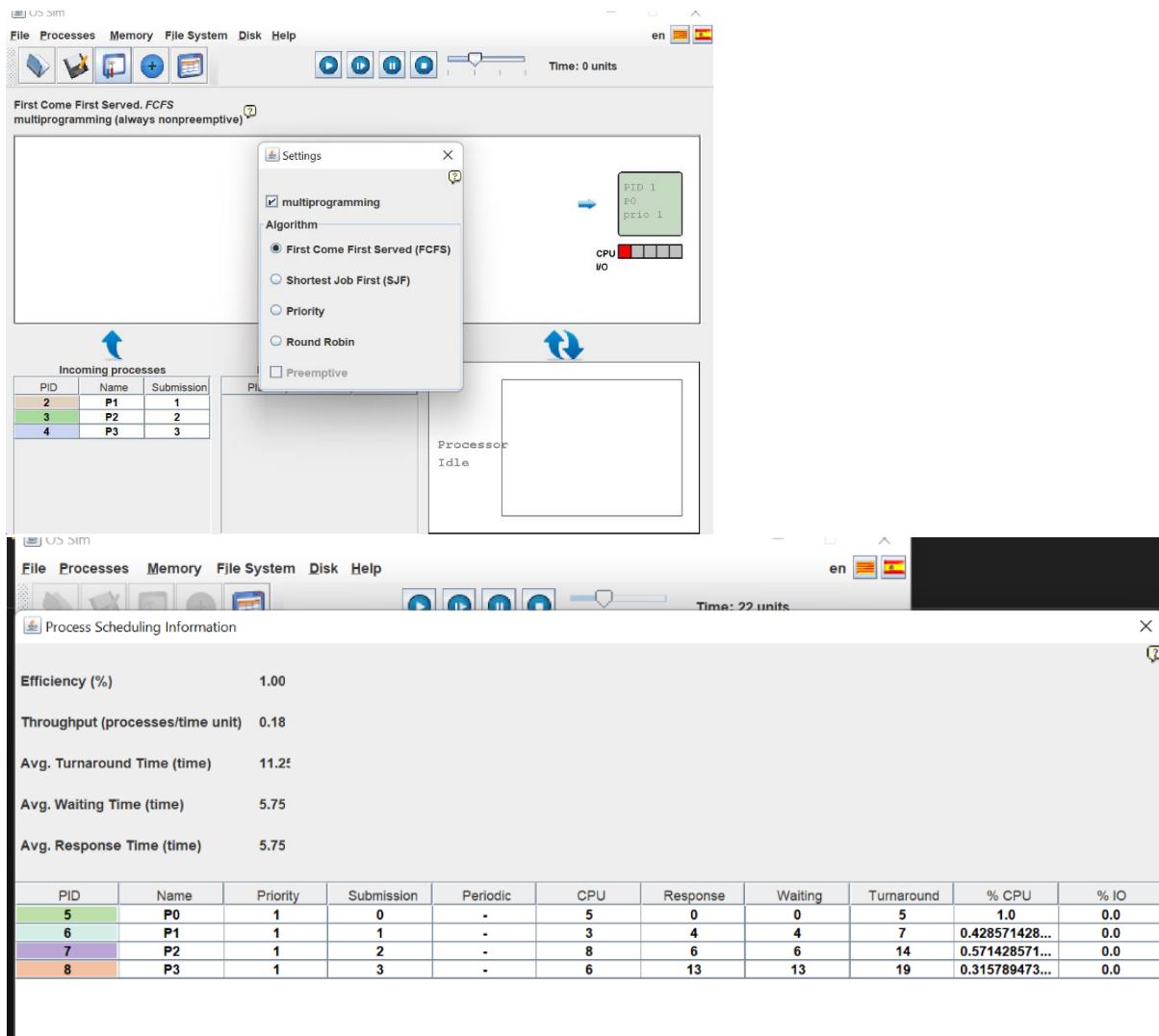
**PROGRAM STUDI TEKNIK INFORMATIKA  
FAKULTAS KOMUNIKASI DAN INFORMATIKA  
UNIVERSITAS MUHAMMADIYAH SURAKARTA  
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## Lembar Kerja Modul 11

Nama : Faizal Ahmad Dena	Nilai Praktek :
NIM : L200210264	
Nama Asisten :	Tanda Tangan :
Tanggal Praktikum : -	

## TUGAS

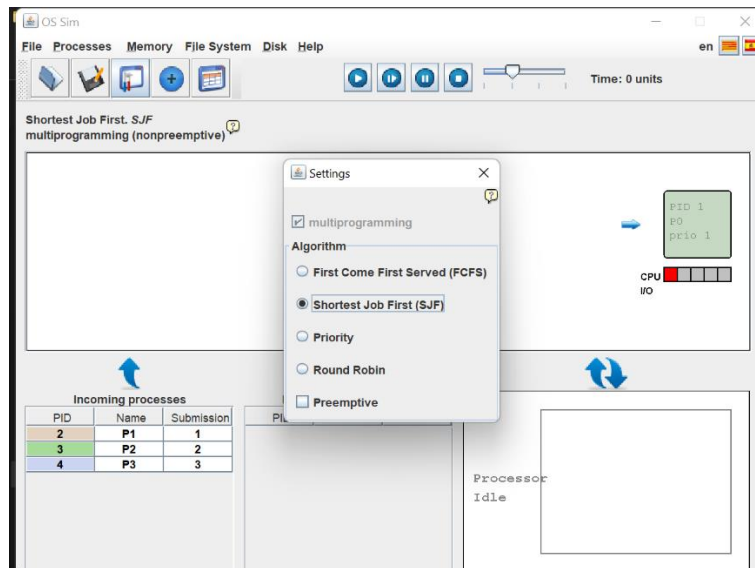
### 1.FCFS



Process	Wait time : Service Time – Arrival Time
P0	0
P1	4
P2	6
P3	13

<b>AV wait time</b>	5.75
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## 2. SJF-Non Preventive

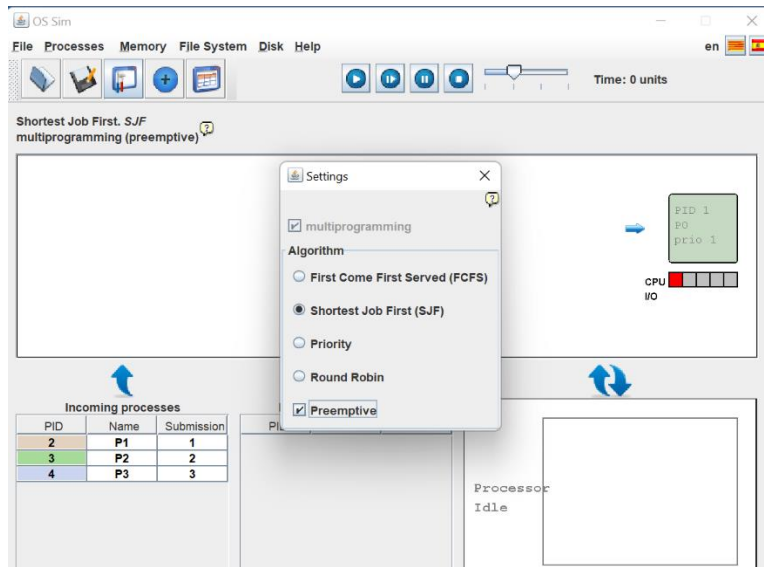


Process Scheduling Information											
Efficiency (%)		0.66									
Throughput (processes/time unit)		0.13									
Avg. Turnaround Time (time)		10.25									
Avg. Waiting Time (time)		5.00									
Avg. Response Time (time)		5.00									
PID	Name	Priority	Submission	Periodic	CPU	Response	Waiting	Turnaround	% CPU	% IO	
1	P0	1	0	-	5	0	0	5	1.0	0.0	
2	P1	1	1	-	3	4	4	7	0.4285714...	0.0	
4	P3	1	3	-	5	5	5	10	0.5	0.0	
3	P2	1	2	-	8	11	11	19	0.4210526...	0.0	

## Non-Preemptive

Process	Wait time : Service Time – Arrival Time
P0	0
P1	4
P2	5
P3	11
AV wait time	5

### 3.SJF-Preemptive



Process Scheduling Information											
Efficiency (%)		0.78									
Throughput (processes/time unit)		0.15									
Avg. Turnaround Time (time)		10.00									
Avg. Waiting Time (time)		4.75									
Avg. Response Time (time)		4.00									
PID	Name	Priority	Submission	Periodic	CPU	Response	Waiting	Turnaround	% CPU	% IO	
2	P1	1	1	-	3	0	0	3	1.0	0.0	
1	P0	1	0	-	5	0	3	8	0.625	0.0	
4	P3	1	3	-	5	5	5	10	0.5	0.0	
3	P2	1	2	-	8	11	11	19	0.4210526...	0.0	

#### Preemptive

Process	Wait time : Service Time – Arrival Time
P0	0
P1	3
P2	5
P3	11
AV wait time	4.75

## 4.Priority

The screenshot shows the OS Sim interface with the 'Settings' dialog box open. The 'Algorithm' section is set to 'Priority'. The 'Incoming processes' table is visible below the settings.

PID	Name	Submission
2	P1	1
3	P2	2
4	P3	3

The 'Process Scheduling Information' window is also open, displaying the following statistics:

- Efficiency (%): 0.79
- Throughput (processes/time unit): 0.14
- Avg. Turnaround Time (time): 11.50
- Avg. Waiting Time (time): 6.00
- Avg. Response Time (time): 6.00

PID	Name	Priority	Submission	Periodic	CPU	Response	Waiting	Turnaround	% CPU	% IO
1	P0	1	0	-	5	0	0	5	1.0	0.0
4	P3	3	3	-	6	2	2	8	0.75	0.0
2	P1	2	1	-	3	10	10	13	0.2307692...	0.0
3	P2	1	2	-	8	12	12	20	0.4	0.0

### Priority

Process	Wait time : Service Time – Arrival Time
P0	0
P1	2
P2	10
P3	12
AV wait time	6

## 5. Round Robin

OS Sim

File Processes Memory File System Disk Help

Time: 0 units

Round Robin, RR  
multiprogramming. Quantum : 3, (always preemptive)

Settings

☒ multiprogramming

Algorithm

☐ First Come First Served (FCFS)

☐ Shortest Job First (SJF)

☐ Priority

☒ Round Robin 3 quantum

☒ Preemptive

Incoming processes

PID	Name	Submission
2	P1	1
3	P2	2
4	P3	3

PID 1  
P0  
prio 1

CPU I/O

Processor Idle

Time: 28 units

Process Scheduling Information

Efficiency (%) 0.79

Throughput (processes/time unit) 0.14

Avg. Turnaround Time (time) 14.00

Avg. Waiting Time (time) 8.50

Avg. Response Time (time) 3.00

PID	Name	Priority	Submission	Periodic	CPU	Response	Waiting	Turnaround	% CPU	% IO
2	P1	2	1	-	3	2	2	5	0.6	0.0
1	P0	1	0	-	5	0	9	14	0.3571428...	0.0
4	P3	3	3	-	6	6	11	17	0.3529411...	0.0
3	P2	1	2	-	8	4	12	20	0.4	0.0

### Round Robin

Process	Wait time : Service Time – Arrival Time
P0	2
P1	9
P2	11
P3	12
AV wait time	8.50

Kesimpulan :

- Program FCFS akan mendahulukan proses dari yang pertama kali datang
- Program SJF akan mendahulukan proses yang punya burst time paling sedikit. Preemptive yang punya burst time paling pendek, akan didahulukan. Sedangkan non preemptive akan menjalankan proses yang punya burst time paling pendek tanpa melihat antrian siapa yang datang terlebih dahulu.
- Program Priority akan mendahulukan proses yang memiliki priority utama. Jika punya priority yang sama, maka yang datang pertama akan dijalankan terlebih dahulu
- Program round robin akan menjalankan proses berurutan sesuai dengan antrian kedatangan tetapi dengan quantum tertentu. Dan ketika burst time melebihi quantum maka akan dijalankan pada step berikutnya.