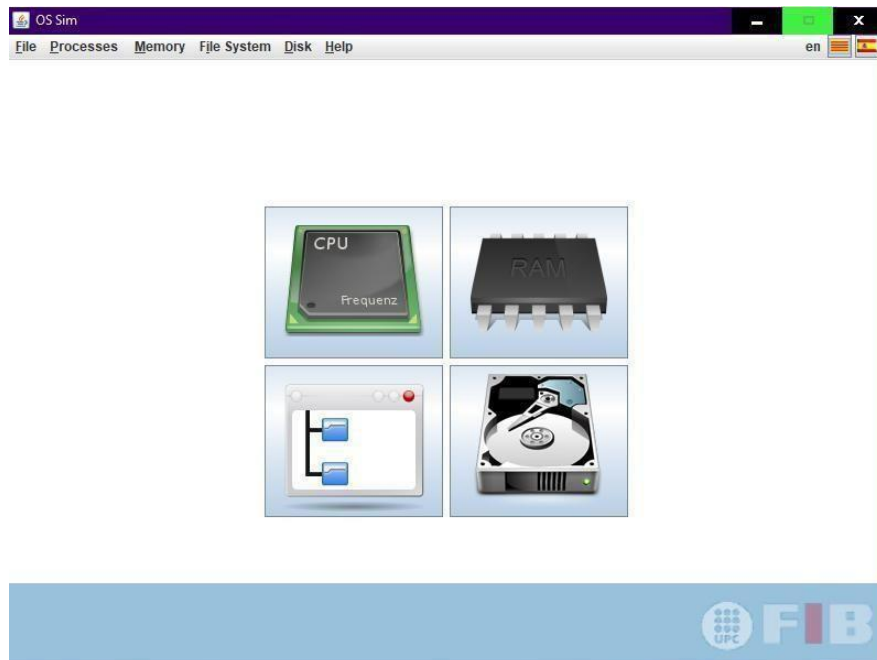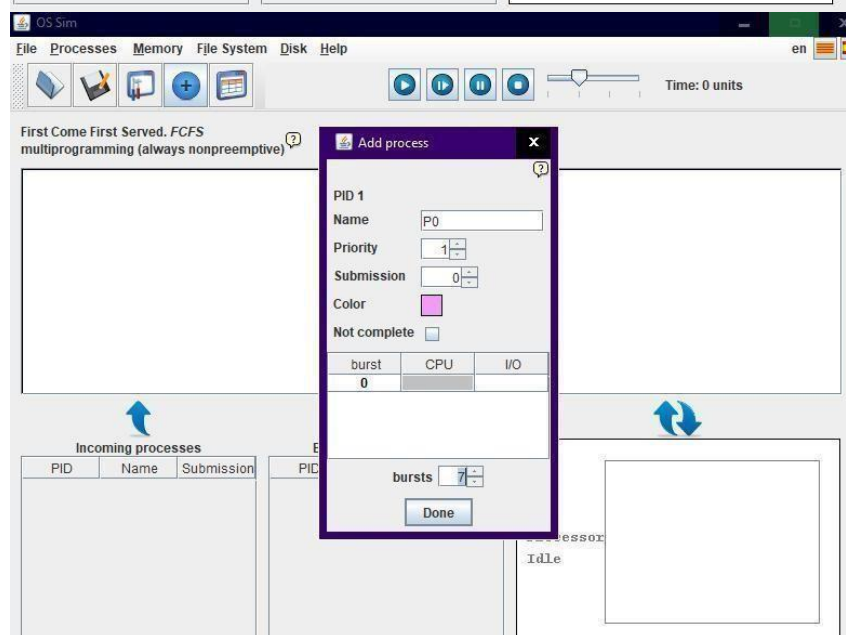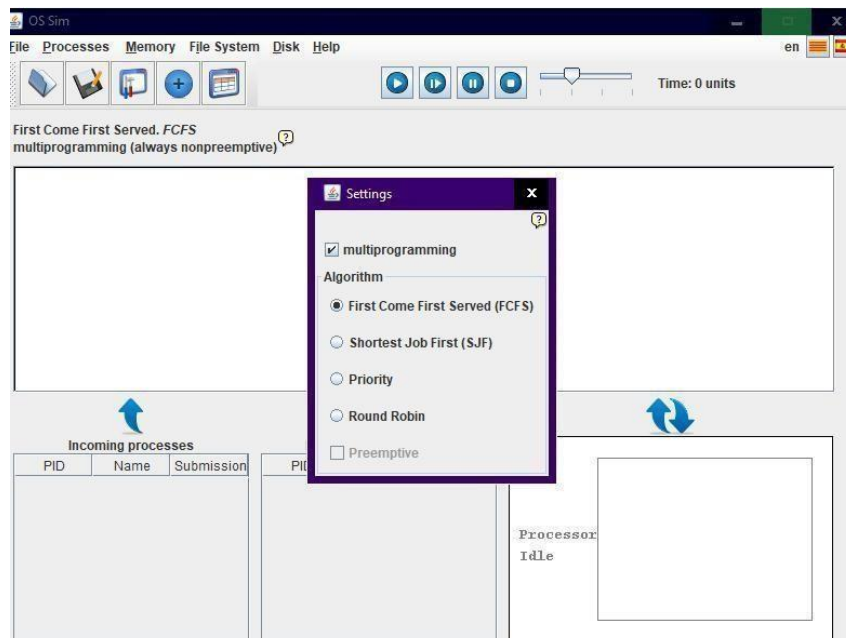Nama   : Chandika Aulia Chandra S
NIM   : L200180097
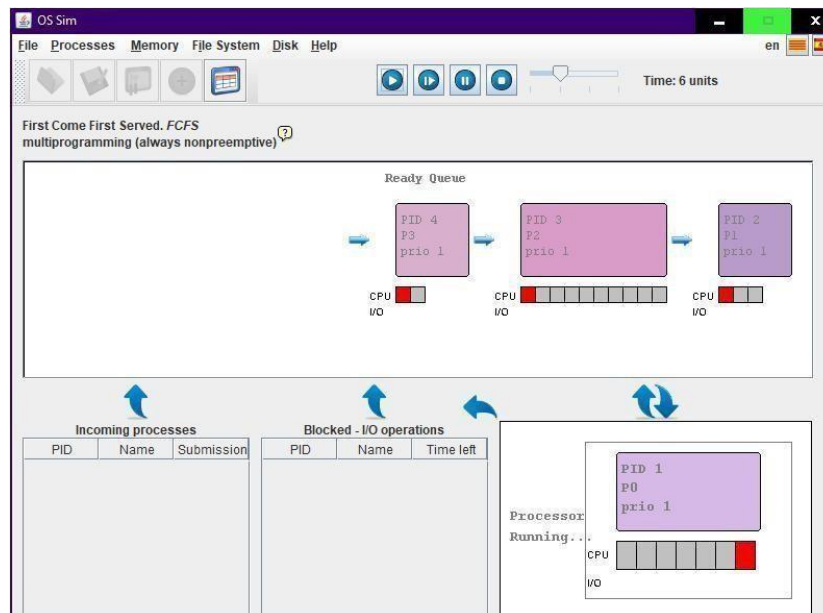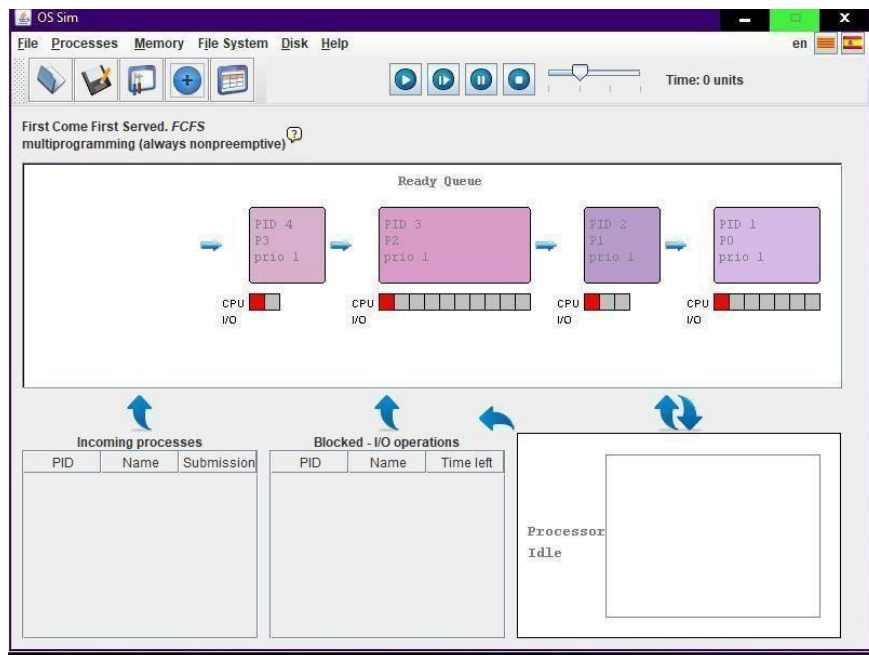Kelas   : C

MODUL 11

1. FCFS

Proses	Arrival time	Burst time	Service time	Priority
P0	0	7	0	4
P1	1	3	7	2
P2	2	10	10	1
P3	3	2	20	3

OS Sim

File Processes Memory File System Disk Help   en

Time: 0 units

First Come First Served. *FCFS*
multiprogramming (always nonpreemptive)

Settings

☑ multiprogramming

Algorithm

◉ First Come First Served (FCFS)

○ Shortest Job First (SJF)

○ Priority

○ Round Robin

☐ Preemptive

Incoming processes

PID	Name	Submission	PI

Processor
Idle

OS Sim

File Processes Memory File System Disk Help   en

Time: 0 units

First Come First Served. *FCFS*
multiprogramming (always nonpreemptive)

Add process

PID 1

Name   P0

Priority   1

Submission   0

Color   ▮

Not complete ☐

burst	CPU	I/O
0		

bursts 7

Done

Incoming processes

PID	Name	Submission	PID

Processor
Idle

First Come First Served. *FCFS*
multiprogramming (always nonpreemptive)

Time: 0 units

Ready Queue

| | PID 4 P3 prio 1 | PID 3 P2 prio 1 | PID 2 P1 prio 1 | PID 1 P0 prio 1 |

Incoming processes

| PID | Name | Submission |

Blocked - I/O operations

| PID | Name | Time left |

Processor Idle

First Come First Served. *FCFS*
multiprogramming (always nonpreemptive)

Time: 6 units

Ready Queue

| | PID 4 P3 prio 1 | PID 3 P2 prio 1 | PID 2 P1 prio 1 |

Incoming processes

| PID | Name | Submission |

Blocked - I/O operations

| PID | Name | Time left |

Processor Running...

PID 1 P0 prio 1

Process Scheduling Information

Efficiency (%)   1.00

Throughput (processes/time unit)   0.18

Avg. Turnaround Time (time)   14.75
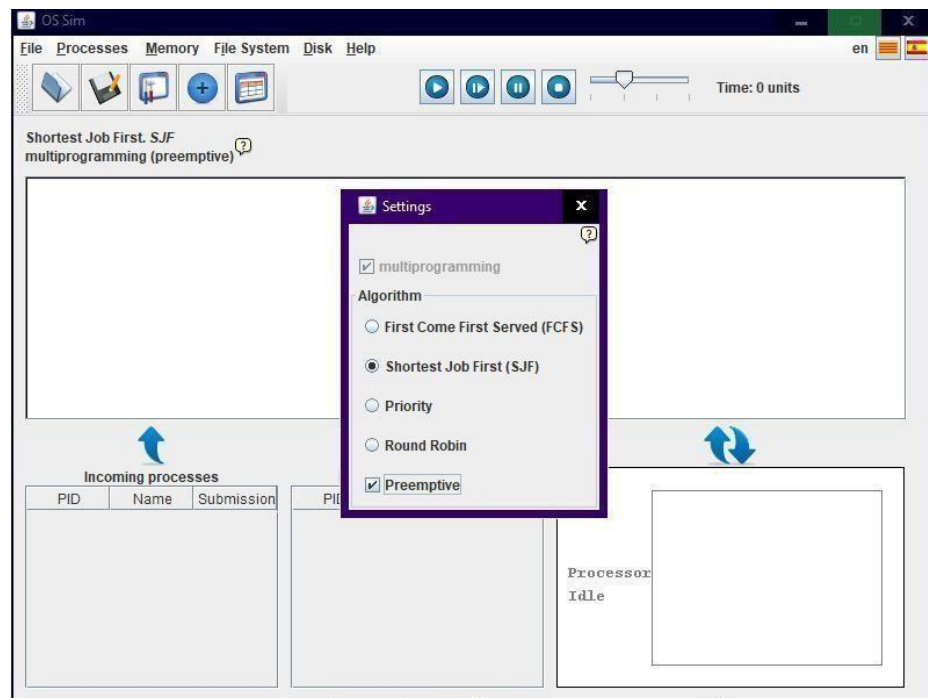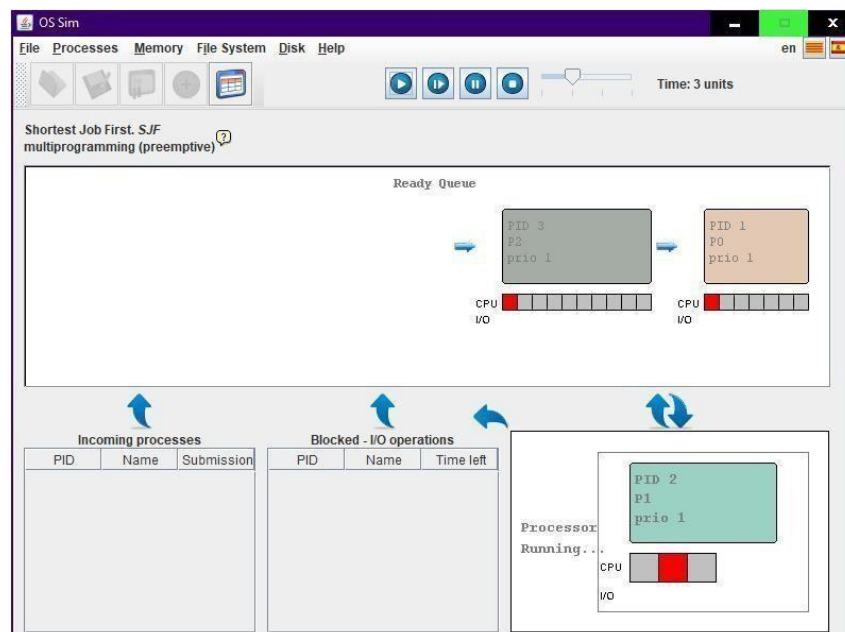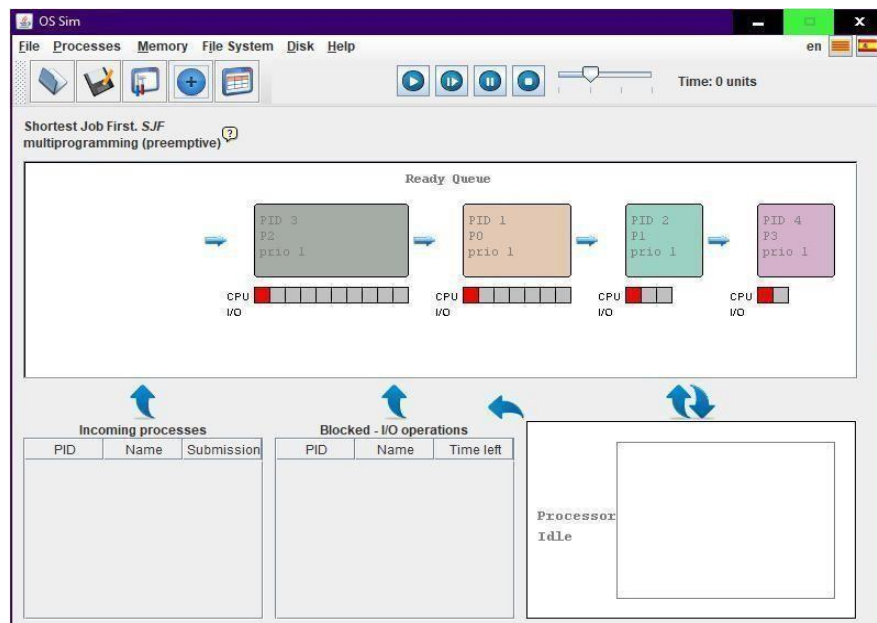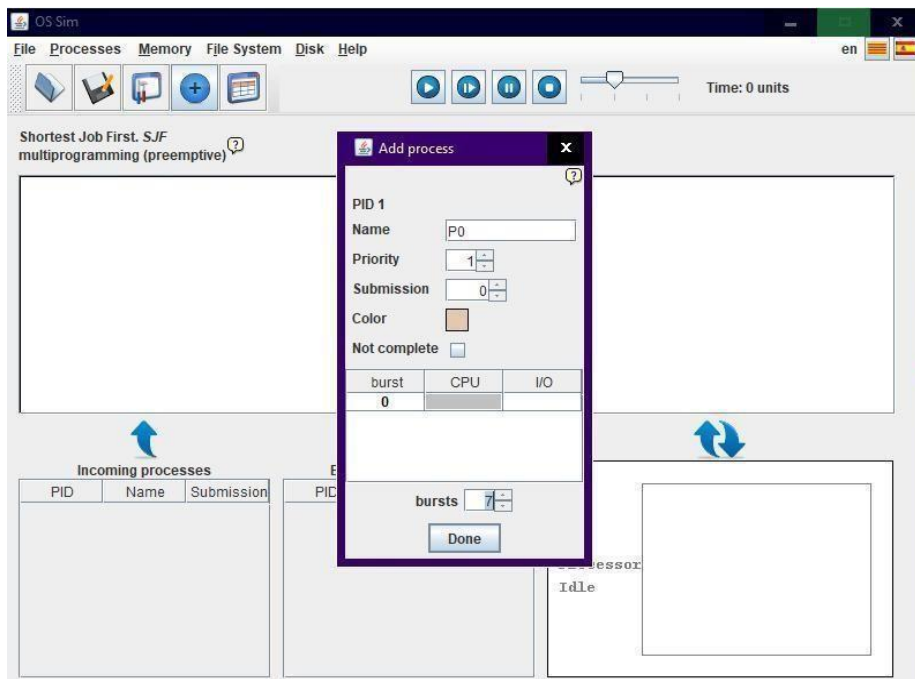
Avg. Waiting Time (time)   9.25

Avg. Response Time (time)   9.25

PID	Name	Priority	Submission	Periodic	CPU	Response	Waiting	Turnaround	% CPU	% IO
1	P0	1	0	-	7	0	0	7	1.0	0.0
2	P1	1	0	-	3	7	7	10	0.3	0.0
3	P2	1	0	-	10	10	10	20	0.5	0.0
4	P3	1	0	-	2	20	20	22	0.0909090...	0.0

Process	Wait time
P0	0
P1	7
P2	10
P3	20
Avg. waiting time	9.25
Avg. Turnaround	14.75
Avg. Response	9.25

2. SJFS a. Premivite

Process Scheduling Information

Efficiency (%)	1.00
Throughput (processes/time unit)	0.18
Avg. Turnaround Time (time)	10.25
Avg. Waiting Time (time)	4.75
Avg. Response Time (time)	4.75

PID	Name	Priority	Submission	Periodic	CPU	Response	Waiting	Turnaround	% CPU	% IO
4	P3	1	0	-	2	0	0	2	1.0	0.0
2	P1	1	0	-	3	2	2	5	0.6	0.0
1	P0	1	0	-	7	5	5	12	0.5833333...	0.0
3	P2	1	0	-	10	12	12	22	0.4545454...	0.0

Process	Wait time
P0	5
P1	2
P2	12
P3	0
Avg. waiting time	4.75
Avg. Turnaround	10.25
Avg. Response	4.75

b. Non premitive

File Proces se s memory File System Disk Help   en

Time! 0 units

Priority s cheduling.
multiprogramming (nonpreemptive)

Ready Queue

| PID 3 P2 prio 1 | PID 2 P1 prio 2 | PID 4 P3 prio 3 | PID 1 P0 prio 4 |

CPU
I/O

CPU
I/O

CPU
I/O

CPU
I/O

Incoming processes

| PID | Name | Submission |

Blocked - I/O operations

| PID | Name | Time left |

Process Scheduling Information

Efficiency (%)   1.00

Throughput (processes/time unit)   0.18

Avg. Turnaround Time (time)   10.25

Avg. Waiting Time (time)   4.75
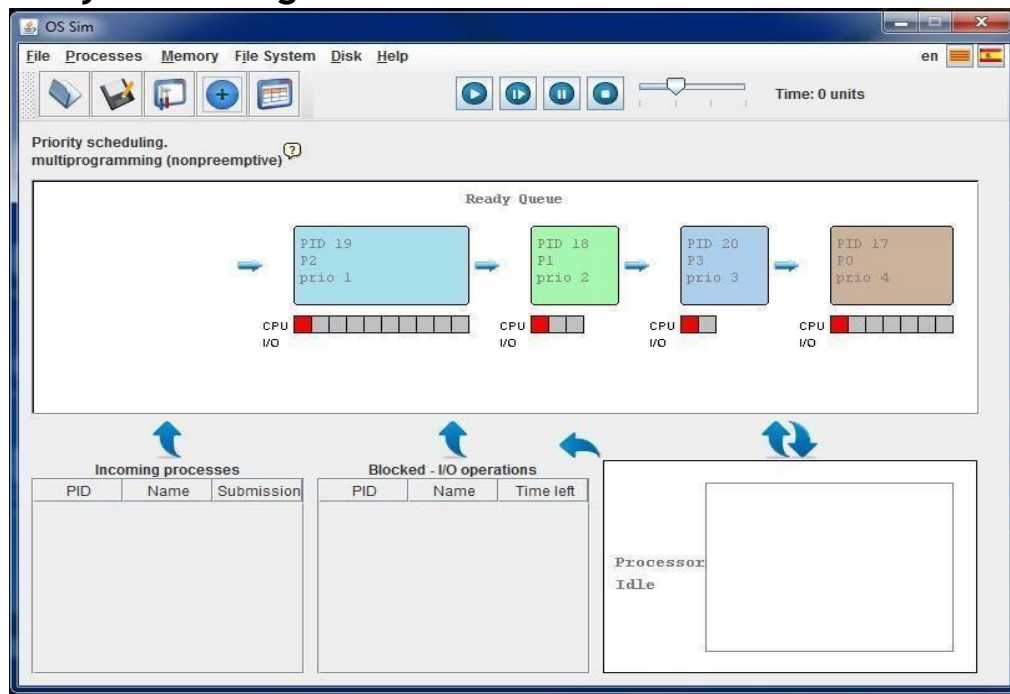
Avg. Response Time (time)   4.75

PID	Name	Priority	Submission	Periodic	CPU	Response	Waiting	Turnaround	% CPU	% IO
4	P3	1	0	-	2	0	0	2	1.0	0.0
2	P1	1	0	-	3	2	2	5	0.6	0.0
1	P0	1	0	-	7	5	5	12	0.5833333...	0.0
3	P2	1	0	-	10	12	12	22	0.4545454...	0.0

Process	Wait time
P0	5
P1	2
P2	12
P3	0
Avg. waiting time	4.75
Avg. Turnaround	10.25

Avg. Response	4.75

3. Priority scheduling

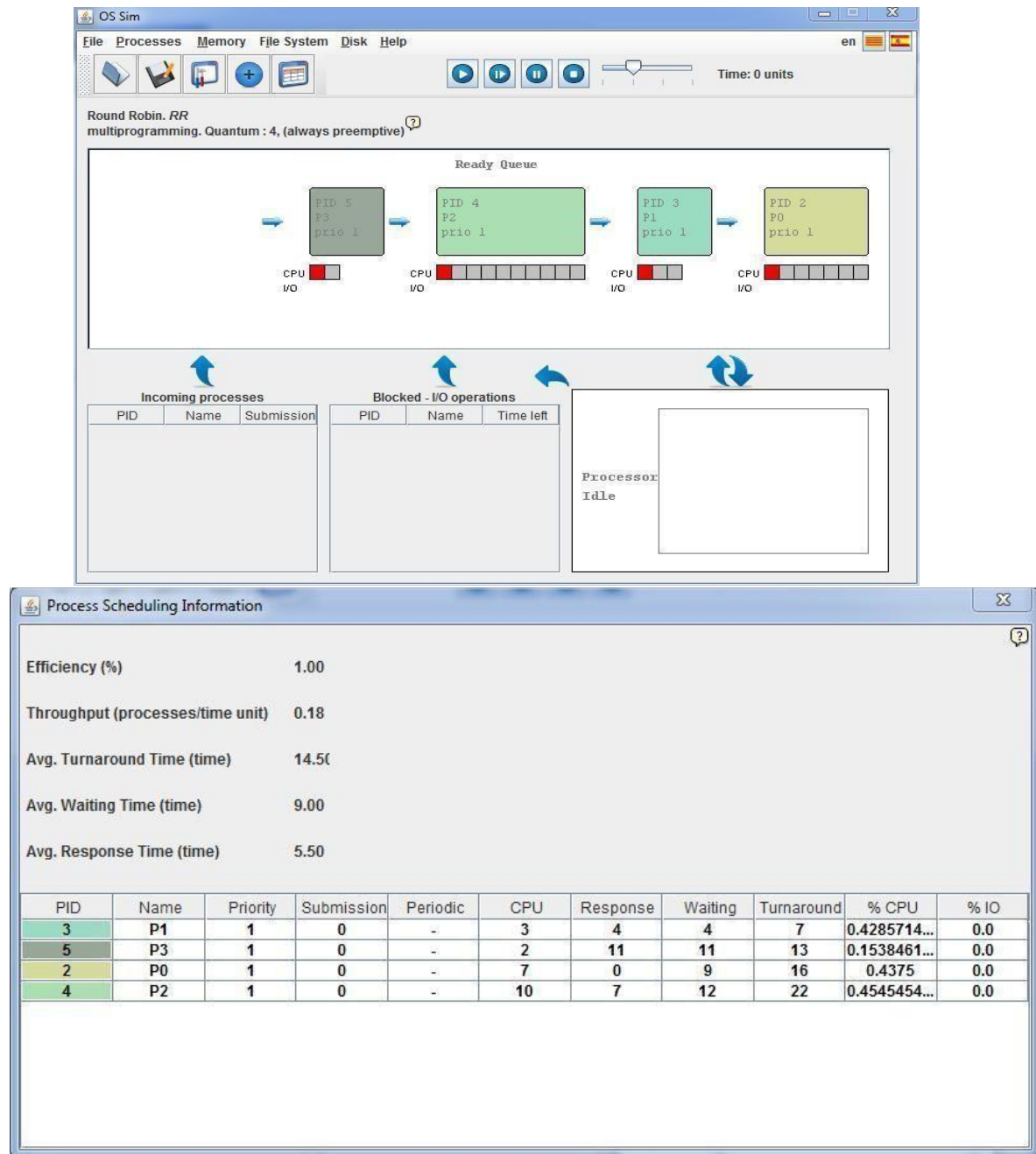| PID	Name	Priority	Submission	Periodic	CPU	Response	Waiting	Turnaround	% CPU	% IO
1	P0	4	0	-	7	0	0	7	1.0	0.0
4	P3	3	0	-	2	7	7	9	0.2222222...	0.0
2	P1	2	0	-	3	9	9	12	0.25	0.0
3	P2	1	0	-	10	12	12	22	0.4545454...	0.0

Efficiency (%) 1.00

Throughput (processes/time unit) 0.18

Avg. Turnaround Time (time) 12.50

Avg. Waiting Time (time) 7.00

Avg. Response Time (time) 7.00

Process	Wait time
P0	0
P1	9
P2	12

P3	7
Avg. waiting time	7.00
Avg. Turnaround	12.50
Avg. Response	7.00

4. Round robin (Quantum = 4)

PID	Name	Priority	Submission	Periodic	CPU	Response	Waiting	Turnaround	% CPU	% IO
3	P1	1	0	-	3	4	4	7	0.4285714...	0.0
5	P3	1	0	-	2	11	11	13	0.1538461...	0.0
2	P0	1	0	-	7	0	9	16	0.4375	0.0
4	P2	1	0	-	10	7	12	22	0.4545454...	0.0

Process	Wait time
P0	9

P1	4
P2	12
P3	11
Avg. waiting time	9.00
Avg. Turnaround	14.50
Avg. Response	5.50