

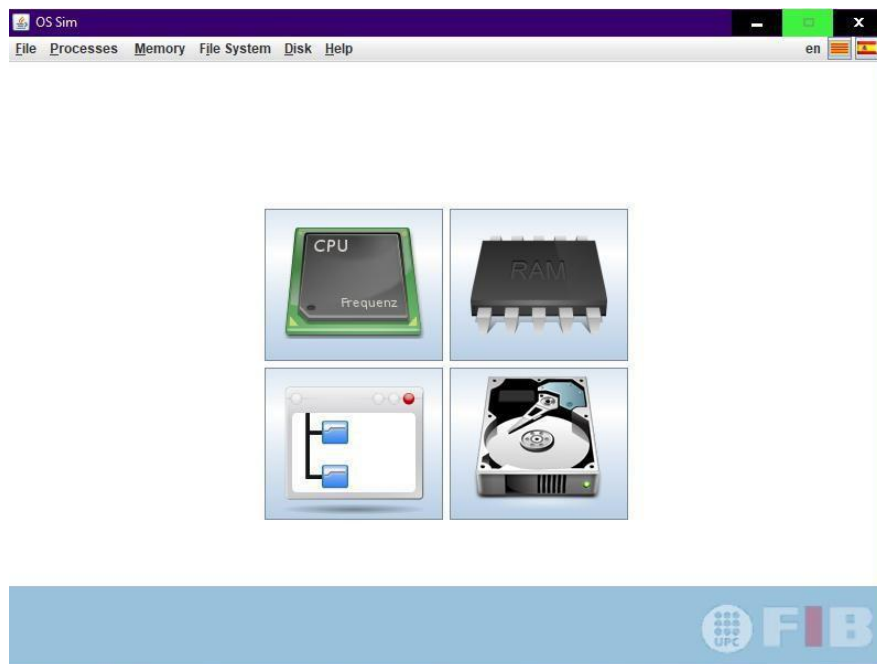
Nama : Aji Mustaqim

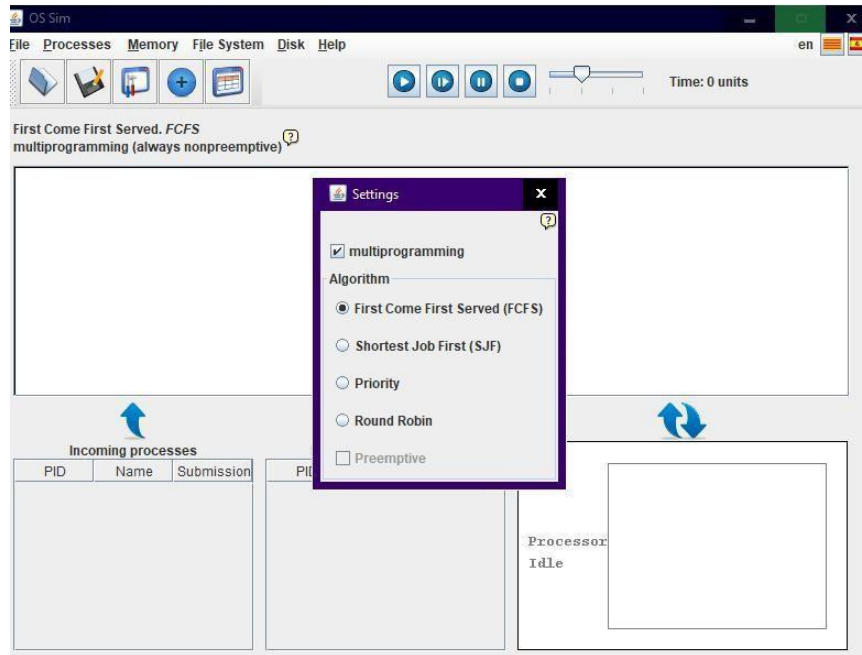
NIM : L200180141/C

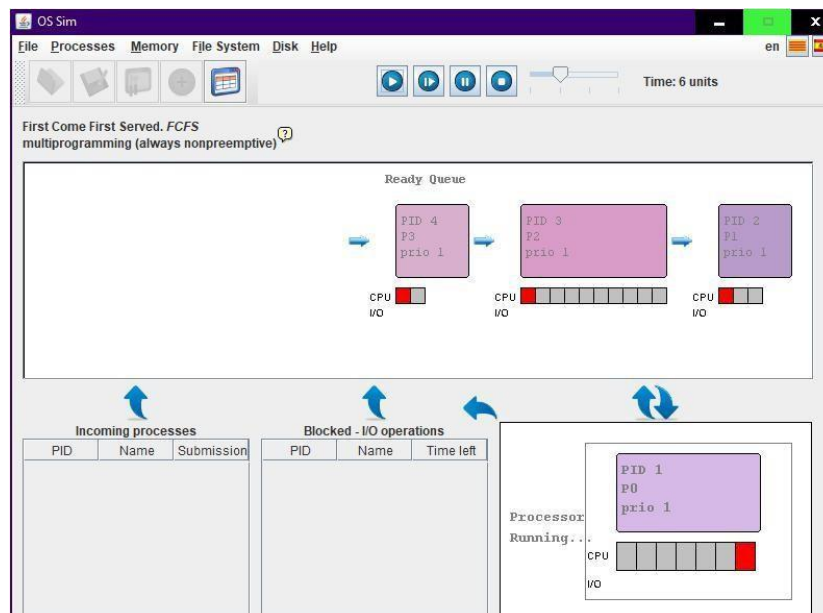
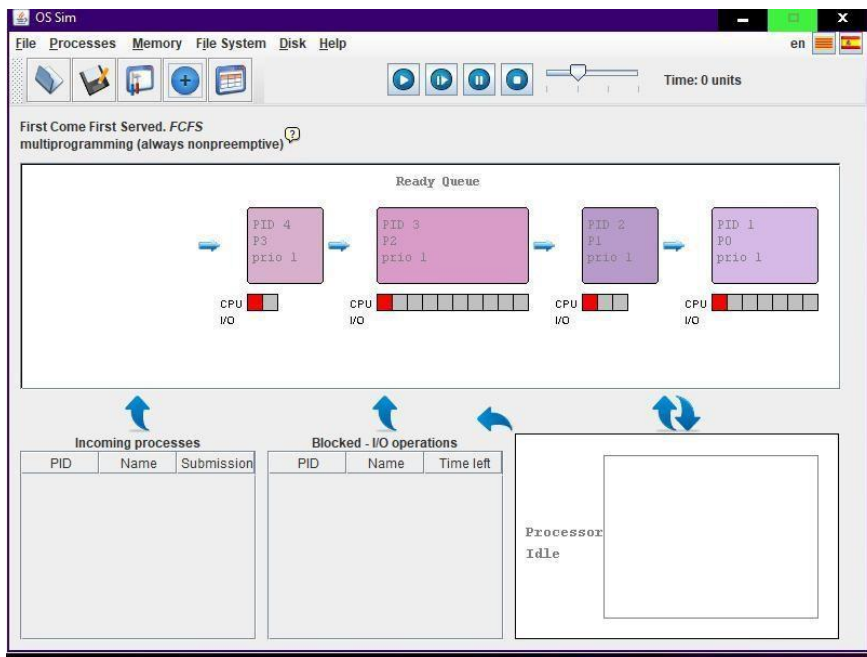
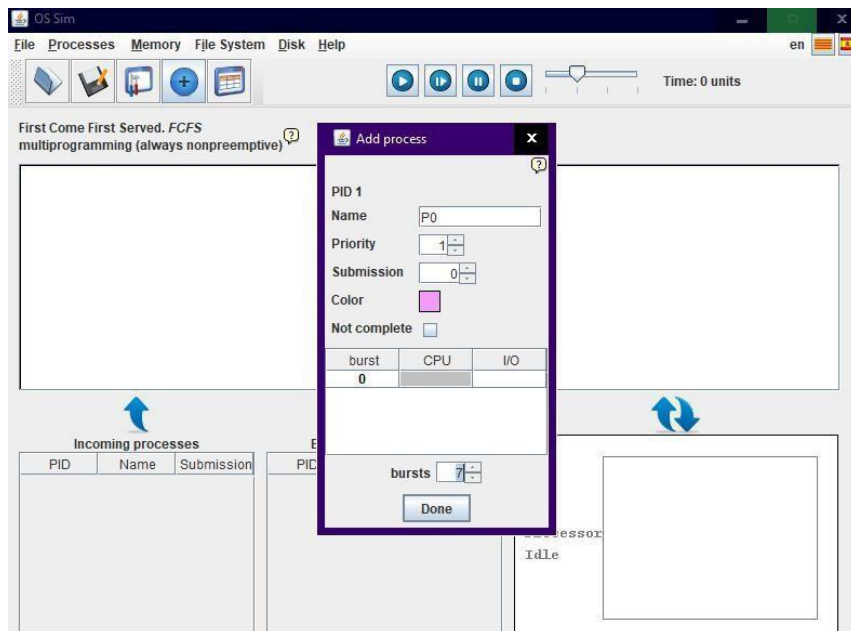
SO MODUL 11

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 |





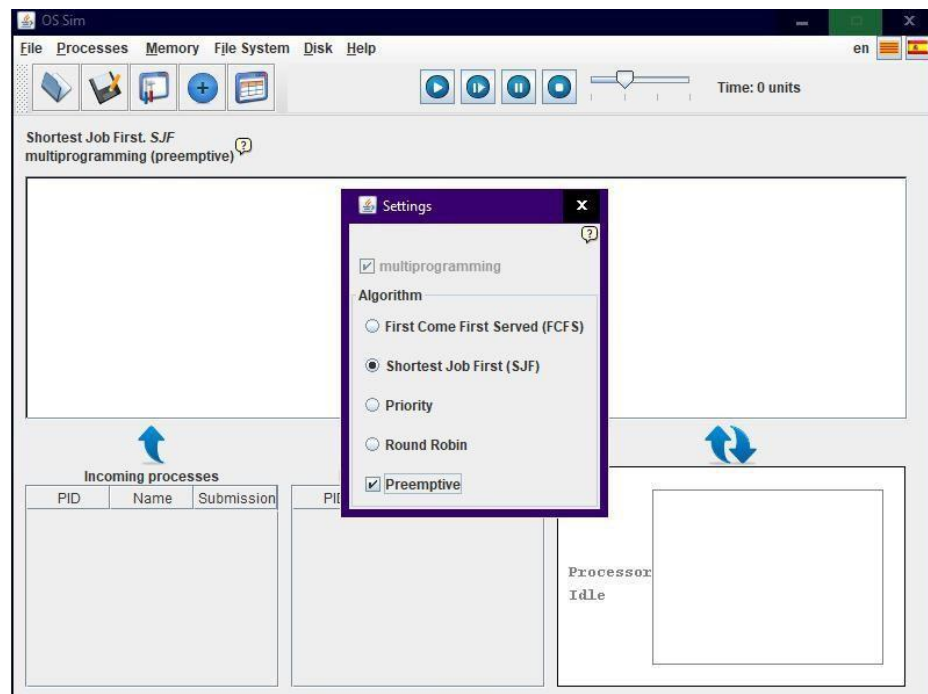


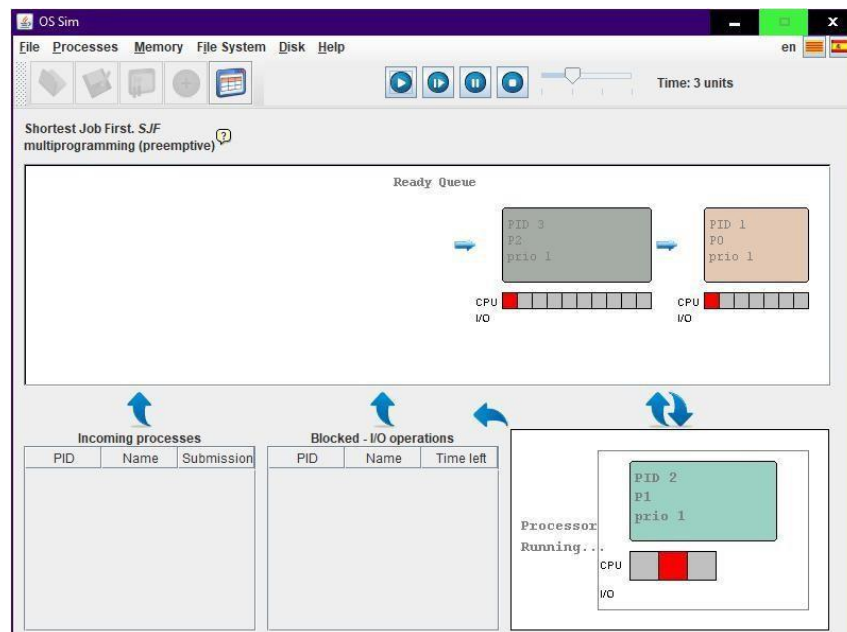
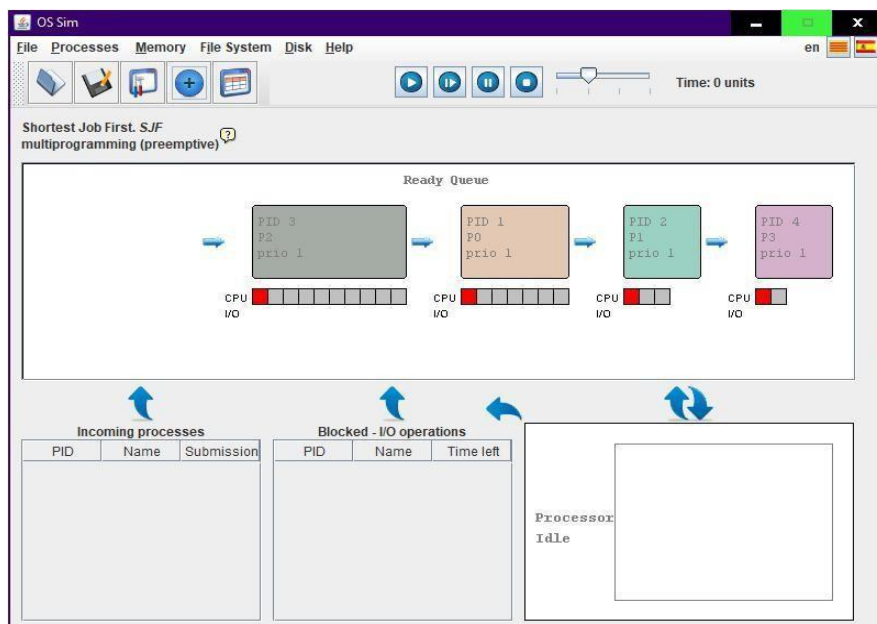
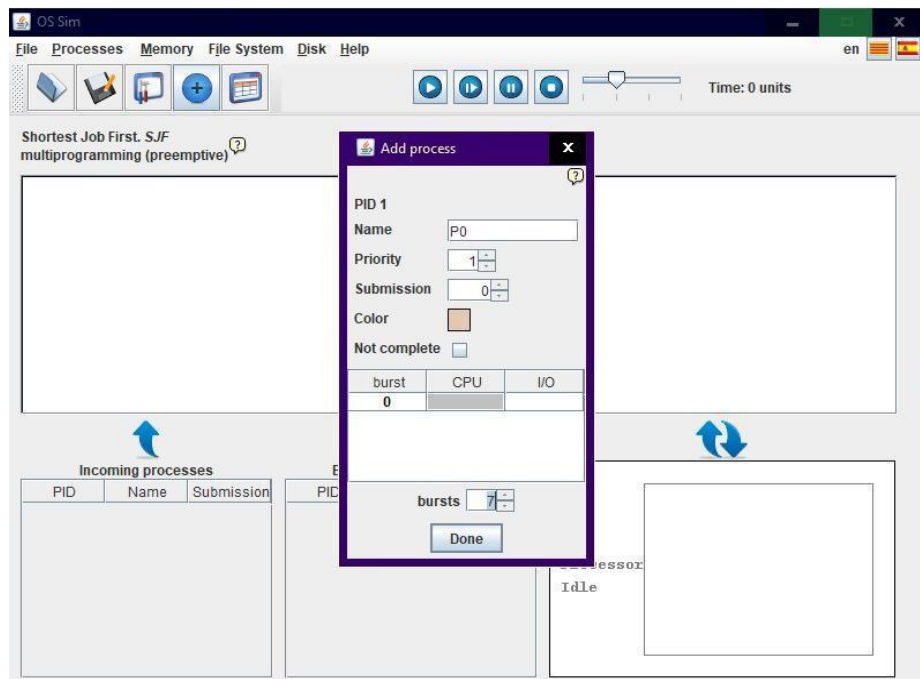
| Process Scheduling Information | | | | | | | | | | |
|----------------------------------|------|----------|------------|----------|-----|----------|---------|------------|--------------|------|
| Efficiency (%) | | 1.00 | | | | | | | | |
| Throughput (processes/time unit) | | 0.18 | | | | | | | | |
| 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

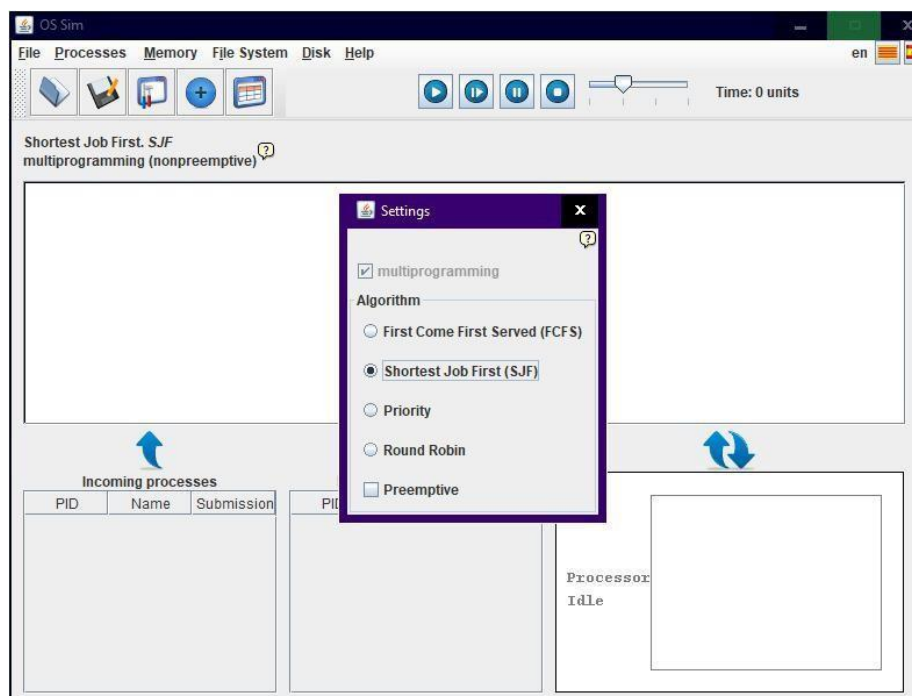


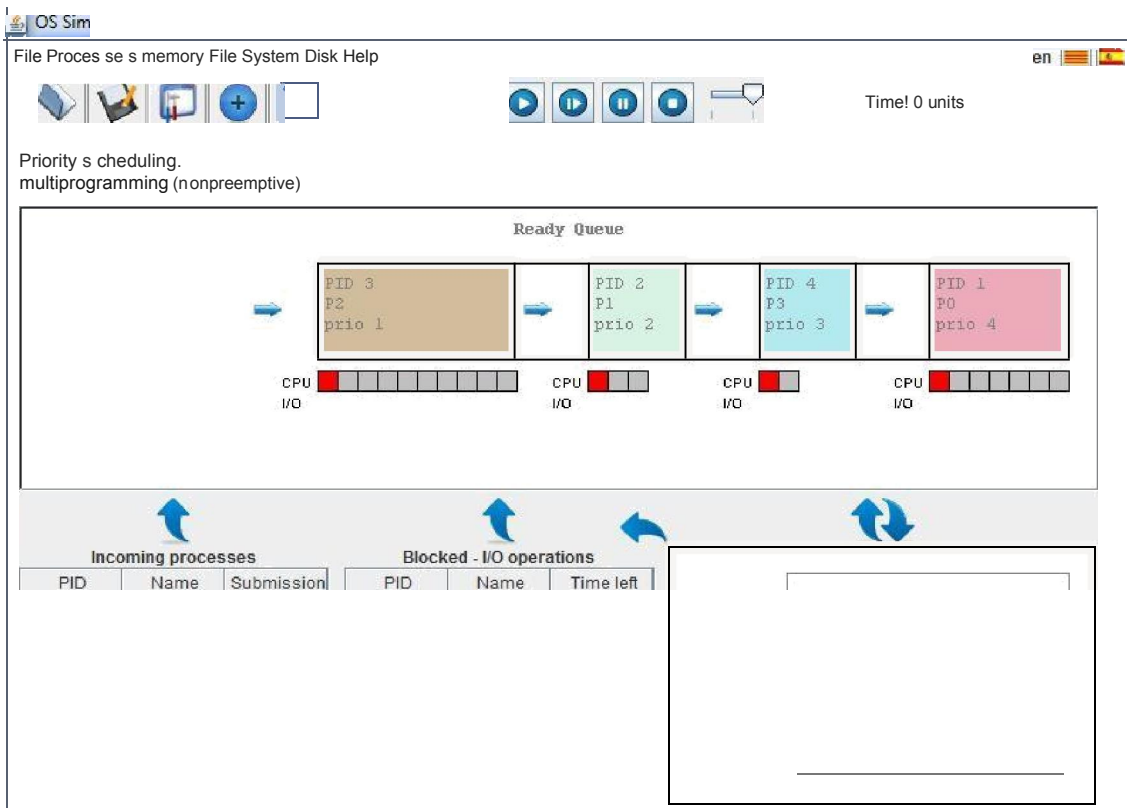
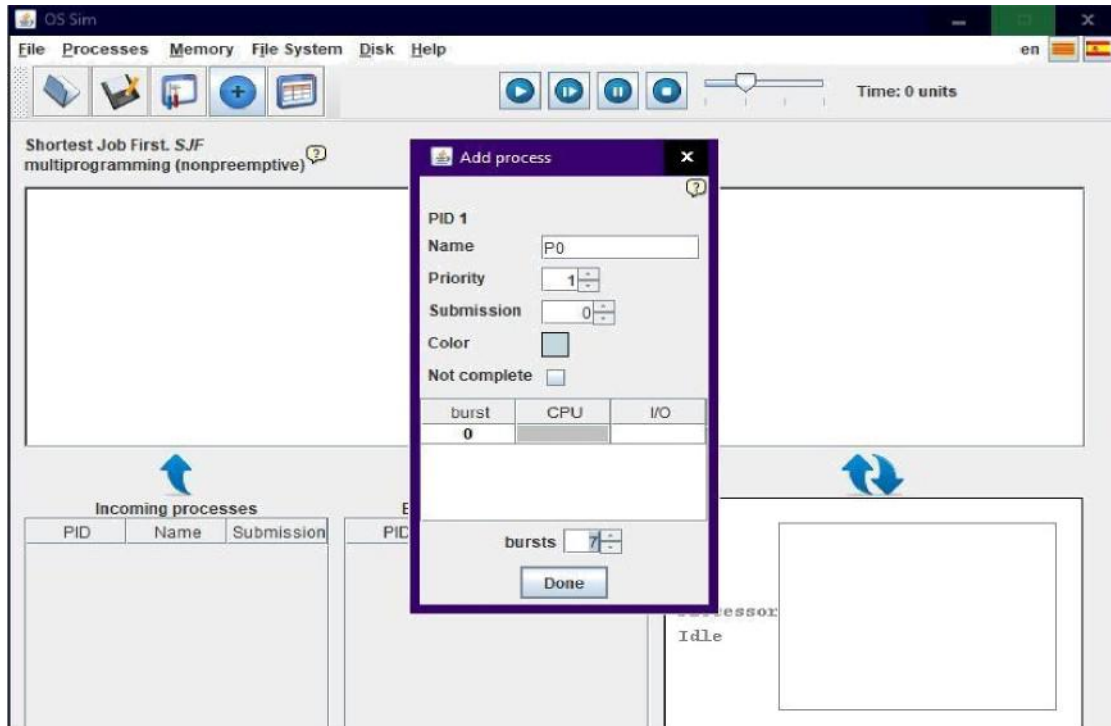


| Process Scheduling Information | | | | | | | | | | |
|----------------------------------|-------|----------|------------|----------|-----|----------|---------|------------|--------------|------|
| Efficiency (%) | 1.00 | | | | | | | | | |
| Throughput (processes/time unit) | 0.18 | | | | | | | | | |
| 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

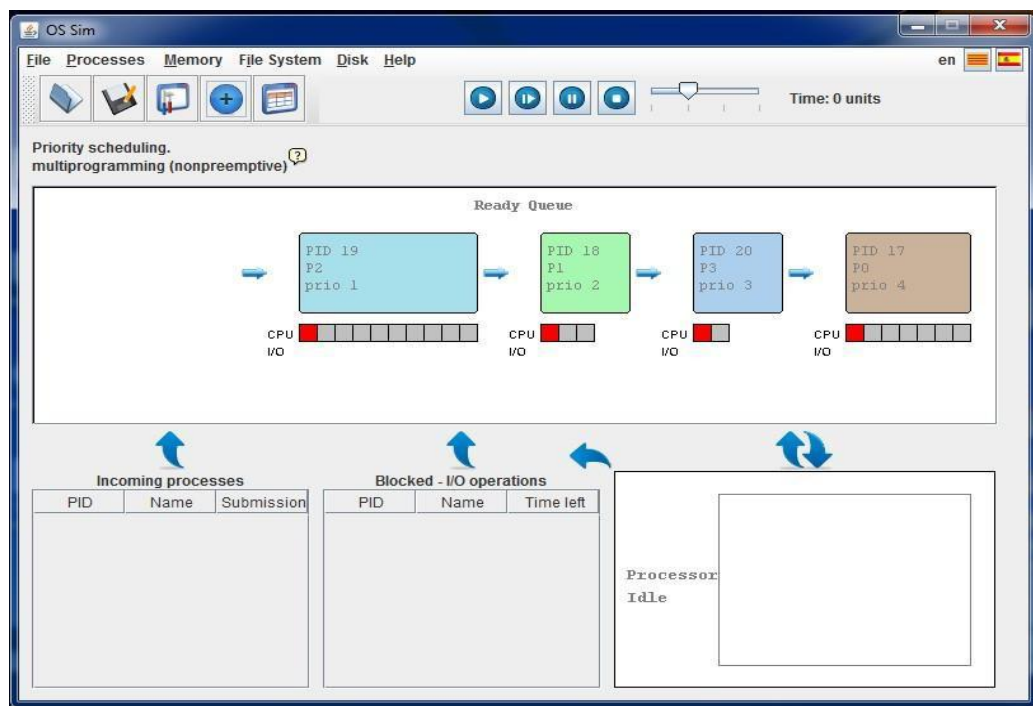




| Process Scheduling Information | | | | | | | | | | |
|----------------------------------|------|----------|------------|----------|-----|----------|---------|------------|--------------|------|
| Efficiency (%) | | 1.00 | | | | | | | | |
| Throughput (processes/time unit) | | 0.18 | | | | | | | | |
| 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 |

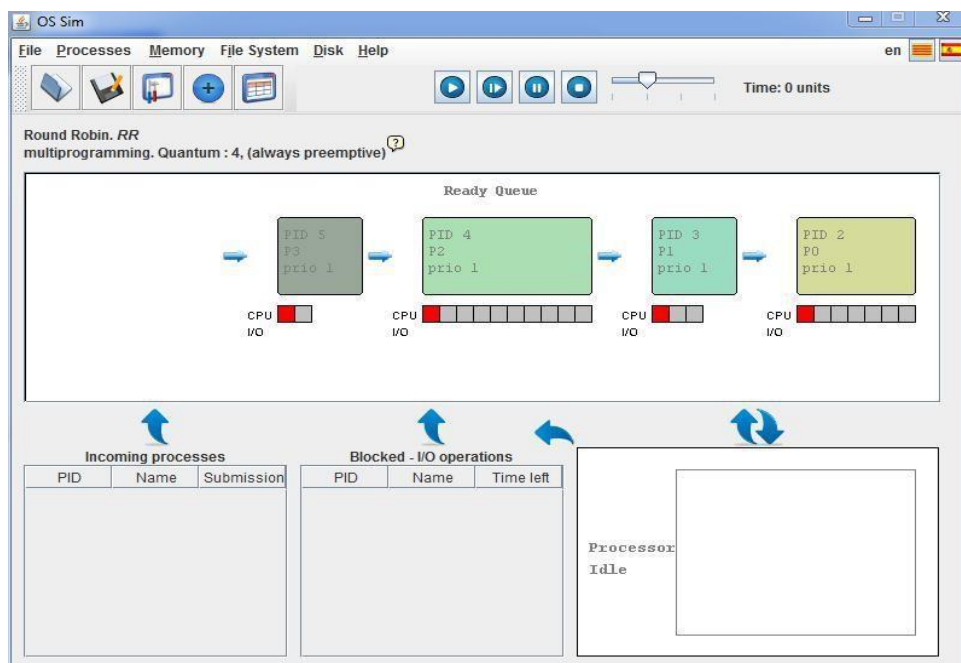
3. Priority scheduling



| Process Scheduling Information | | | | | | | | | | |
|----------------------------------|------|----------|------------|----------|-----|----------|---------|------------|-------------|------|
| 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 | | | | | | | | |
| 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 | 0.222222... | 0.0 |
| 2 | P1 | 2 | 0 | - | 3 | 9 | 9 | 12 | 0.25 | 0.0 |
| 3 | P2 | 1 | 0 | - | 10 | 12 | 12 | 22 | 0.454545... | 0.0 |

| 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)



| Process Scheduling Information | | | | | | | | | | |
|---|------|----------|------------|----------|-----|----------|---------|------------|--------------|------|
| <div> <div>Efficiency (%)</div> <div>1.00</div> </div> <div> <div>Throughput (processes/time unit)</div> <div>0.18</div> </div> <div> <div>Avg. Turnaround Time (time)</div> <div>14.50</div> </div> <div> <div>Avg. Waiting Time (time)</div> <div>9.00</div> </div> <div> <div>Avg. Response Time (time)</div> <div>5.50</div> </div> | | | | | | | | | | |
| 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 |

