

Tugas Praktikum

Sistem Operasi

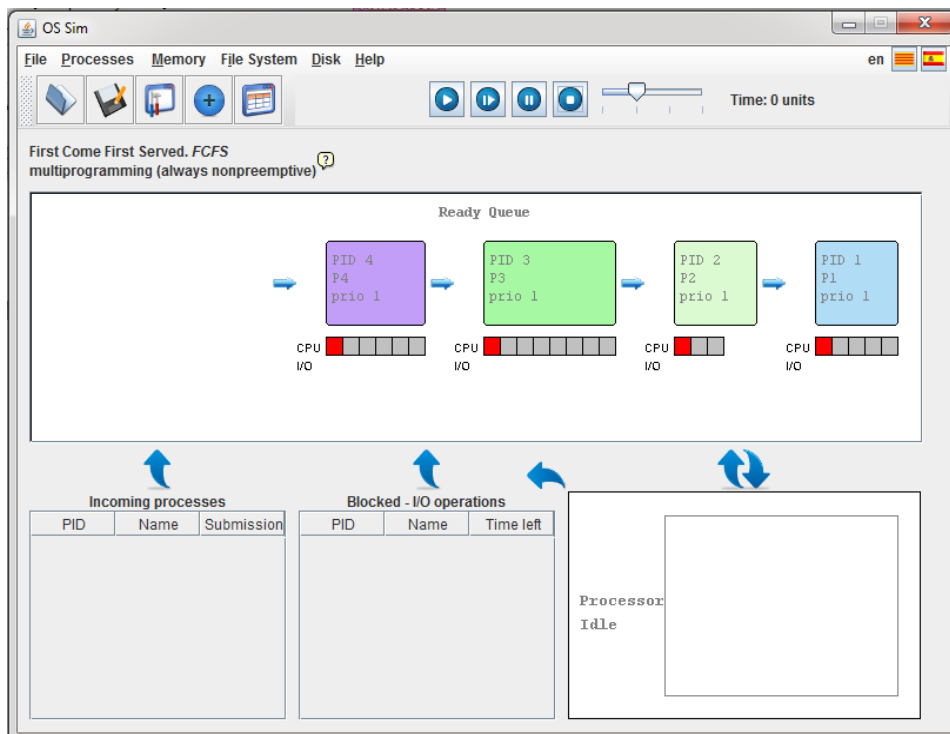
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NIM : L200180136

Kelas : C

A. FCFS (First Come First Serve)

| Proses | Burst time | Priority |
|--------|------------|----------|
| P0 | 5 | 1 |
| P1 | 3 | 1 |
| P2 | 8 | 1 |
| P3 | 6 | 1 |



| 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>12,75</div> </div> <div> <div>Avg. Waiting Time (time)</div> <div>7,25</div> </div> <div> <div>Avg. Response Time (time)</div> <div>7,25</div> </div> | | | | | | | | | | |
| PID | Name | Priority | Submission | Periodic | CPU | Response | Waiting | Turnaround | % CPU | % IO |
| 1 | P1 | 1 | 0 | - | 5 | 0 | 0 | 5 | 1.0 | 0.0 |
| 2 | P2 | 1 | 0 | - | 3 | 5 | 5 | 8 | 0.375 | 0.0 |
| 3 | P3 | 1 | 0 | - | 8 | 8 | 8 | 16 | 0.5 | 0.0 |
| 4 | P4 | 1 | 0 | - | 6 | 16 | 16 | 22 | 0.272727... | 0.0 |

| PROSES | WAIT TIME |
|------------------|-----------|
| P0 | 0 |
| P1 | 5 |
| P2 | 8 |
| P3 | 16 |
| AV. WAITING TIME | 7.35 |
| AV. TURNAROUND | 12.75 |
| AV. RESPONSE | 7.35 |

B. SJFS (Shortest Job First Serve)

a. Non-Preemptive

| 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>11,75</div> </div> <div> <div>Avg. Waiting Time (time)</div> <div>6,25</div> </div> <div> <div>Avg. Response Time (time)</div> <div>6,25</div> </div> | | | | | | | | | | |
| PID | Name | Priority | Submission | Periodic | CPU | Response | Waiting | Turnaround | % CPU | % IO |
| 2 | P2 | 1 | 0 | - | 3 | 0 | 0 | 3 | 1.0 | 0.0 |
| 1 | P1 | 1 | 0 | - | 5 | 3 | 3 | 8 | 0.625 | 0.0 |
| 4 | P4 | 1 | 0 | - | 6 | 8 | 8 | 14 | 0.4285714... | 0.0 |
| 3 | P3 | 1 | 0 | - | 8 | 14 | 14 | 22 | 0.3636363... | 0.0 |

| PROSES | WAIT TIME |
|------------------|-----------|
| P0 | 0 |
| P1 | 3 |
| P2 | 8 |
| P3 | 14 |
| AV. WAITING TIME | 6.25 |
| AV. TURNAROUND | 11.75 |
| AV. RESPONSE | 6.25 |

b. Preemptive

| Process Scheduling Information | | | | | | | | | | |
|----------------------------------|------|----------|------------|----------|-----|----------|---------|------------|--------------|------|
| Efficiency (%) | | 1,00 | | | | | | | | |
| Throughput (processes/time unit) | | 0,18 | | | | | | | | |
| Avg. Turnaround Time (time) | | 11,75 | | | | | | | | |
| Avg. Waiting Time (time) | | 6,25 | | | | | | | | |
| Avg. Response Time (time) | | 6,25 | | | | | | | | |
| PID | Name | Priority | Submission | Periodic | CPU | Response | Waiting | Turnaround | % CPU | % IO |
| 2 | P2 | 1 | 0 | - | 3 | 0 | 0 | 3 | 1.0 | 0.0 |
| 1 | P1 | 1 | 0 | - | 5 | 3 | 3 | 8 | 0.625 | 0.0 |
| 4 | P4 | 1 | 0 | - | 6 | 8 | 8 | 14 | 0.4285714... | 0.0 |
| 3 | P3 | 1 | 0 | - | 8 | 14 | 14 | 22 | 0.3636363... | 0.0 |

| PROSES | WAIT TIME |
|------------------|-----------|
| P0 | 0 |
| P1 | 3 |
| P2 | 8 |
| P3 | 14 |
| AV. WAITING TIME | 6.25 |
| AV. TURNAROUND | 11.75 |
| AV. RESPONSE | 6.25 |

C. Priority

| Proses | Burst time | Priority |
|--------|------------|----------|
| P0 | 5 | 1 |
| P1 | 3 | 2 |
| P2 | 8 | 1 |
| P3 | 6 | 3 |

a. Non-Premptive

| Process Scheduling Information | | | | | | | | | | |
|----------------------------------|------|----------|------------|----------|-----|----------|---------|------------|--------------|------|
| Efficiency (%) | | 1,00 | | | | | | | | |
| Throughput (processes/time unit) | | 0,18 | | | | | | | | |
| Avg. Turnaround Time (time) | | 12,75 | | | | | | | | |
| Avg. Waiting Time (time) | | 7,25 | | | | | | | | |
| Avg. Response Time (time) | | 7,25 | | | | | | | | |
| PID | Name | Priority | Submission | Periodic | CPU | Response | Waiting | Turnaround | % CPU | % IO |
| 4 | P4 | 3 | 0 | - | 6 | 0 | 0 | 6 | 1.0 | 0.0 |
| 2 | P2 | 2 | 0 | - | 3 | 6 | 6 | 9 | 0.3333333... | 0.0 |
| 1 | P1 | 1 | 0 | - | 5 | 9 | 9 | 14 | 0.3571428... | 0.0 |
| 3 | P3 | 1 | 0 | - | 8 | 14 | 14 | 22 | 0.3636363... | 0.0 |

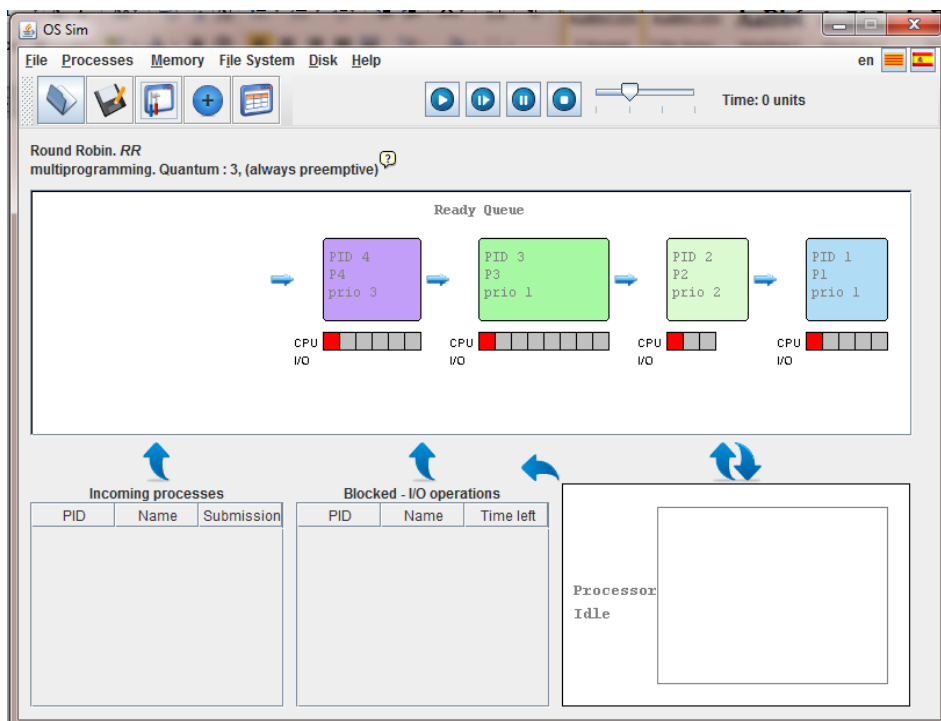
| PROSES | WAIT TIME |
|------------------|-----------|
| P0 | 9 |
| P1 | 6 |
| P2 | 14 |
| P3 | 0 |
| AV. WAITING TIME | 7.25 |
| AV. TURNAROUND | 12.75 |
| AV. RESPONSE | 7.25 |

b. Preemptive

| Process Scheduling Information | | | | | | | | | | |
|----------------------------------|------|----------|------------|----------|-----|----------|---------|------------|--------------|------|
| Efficiency (%) | | 1,00 | | | | | | | | |
| Throughput (processes/time unit) | | 0,18 | | | | | | | | |
| Avg. Turnaround Time (time) | | 12,75 | | | | | | | | |
| Avg. Waiting Time (time) | | 7,25 | | | | | | | | |
| Avg. Response Time (time) | | 7,25 | | | | | | | | |
| PID | Name | Priority | Submission | Periodic | CPU | Response | Waiting | Turnaround | % CPU | % IO |
| 4 | P4 | 3 | 0 | - | 6 | 0 | 0 | 6 | 1.0 | 0.0 |
| 2 | P2 | 2 | 0 | - | 3 | 6 | 6 | 9 | 0.3333333... | 0.0 |
| 1 | P1 | 1 | 0 | - | 5 | 9 | 9 | 14 | 0.3571428... | 0.0 |
| 3 | P3 | 1 | 0 | - | 8 | 14 | 14 | 22 | 0.3636363... | 0.0 |

| PROSES | WAIT TIME |
|------------------|-----------|
| P0 | 9 |
| P1 | 6 |
| P2 | 14 |
| P3 | 0 |
| AV. WAITING TIME | 7.25 |
| AV. TURNAROUND | 12.75 |
| AV. RESPONSE | 7.25 |

D. Round Robin (Quantum time = 3)

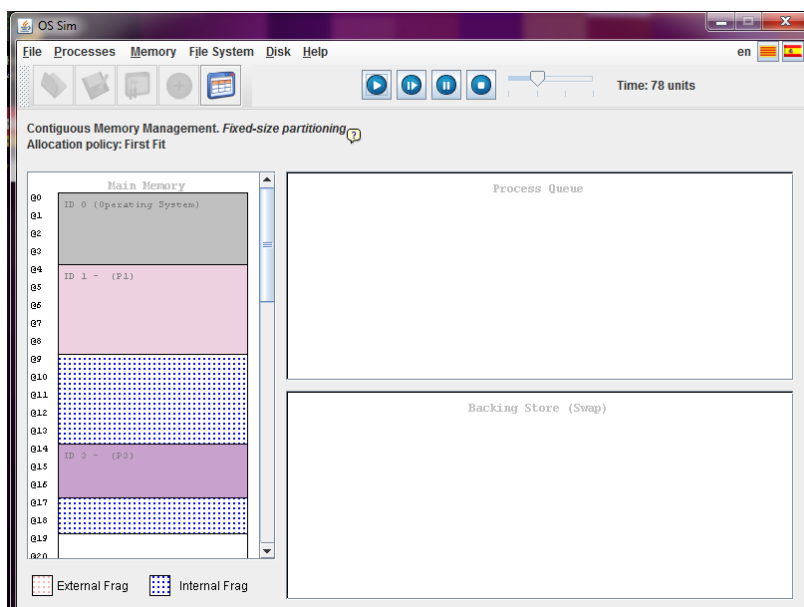


| Process Scheduling Information | | | | | | | | | | | |
|----------------------------------|------|----------|------------|----------|-----|----------|---------|------------|--------------|------|--|
| Efficiency (%) | | 1,00 | | | | | | | | | |
| Throughput (processes/time unit) | | 0,18 | | | | | | | | | |
| Avg. Turnaround Time (time) | | 15,50 | | | | | | | | | |
| Avg. Waiting Time (time) | | 10,00 | | | | | | | | | |
| Avg. Response Time (time) | | 4,50 | | | | | | | | | |
| PID | Name | Priority | Submission | Periodic | CPU | Response | Waiting | Turnaround | % CPU | % IO | |
| 2 | P2 | 2 | 0 | - | 3 | 3 | 3 | 6 | 0.5 | 0.0 | |
| 1 | P1 | 1 | 0 | - | 5 | 0 | 9 | 14 | 0.3571428... | 0.0 | |
| 4 | P4 | 3 | 0 | - | 6 | 9 | 14 | 20 | 0.3 | 0.0 | |
| 3 | P3 | 1 | 0 | - | 8 | 6 | 14 | 22 | 0.3636363... | 0.0 | |

| PROSES | WAIT TIME |
|------------------|-----------|
| P0 | 9 |
| P1 | 3 |
| P2 | 14 |
| P3 | 14 |
| AV. WAITING TIME | 10,00 |
| AV. TURNAROUND | 15.50 |
| AV. RESPONSE | 4.50 |

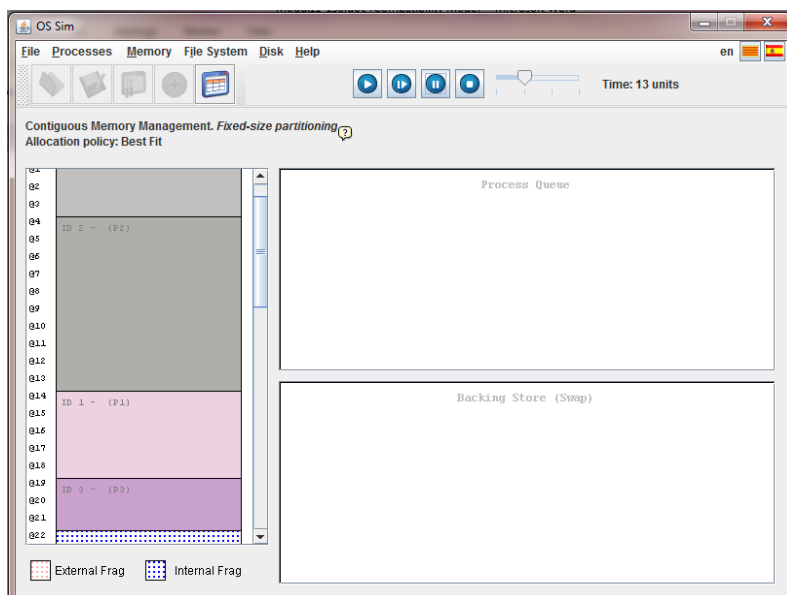
Management Memory

1. *Contiguous memory management dengan menggunakan partisi berukuran tetap (fixed-size partition) dan aturan first fit*



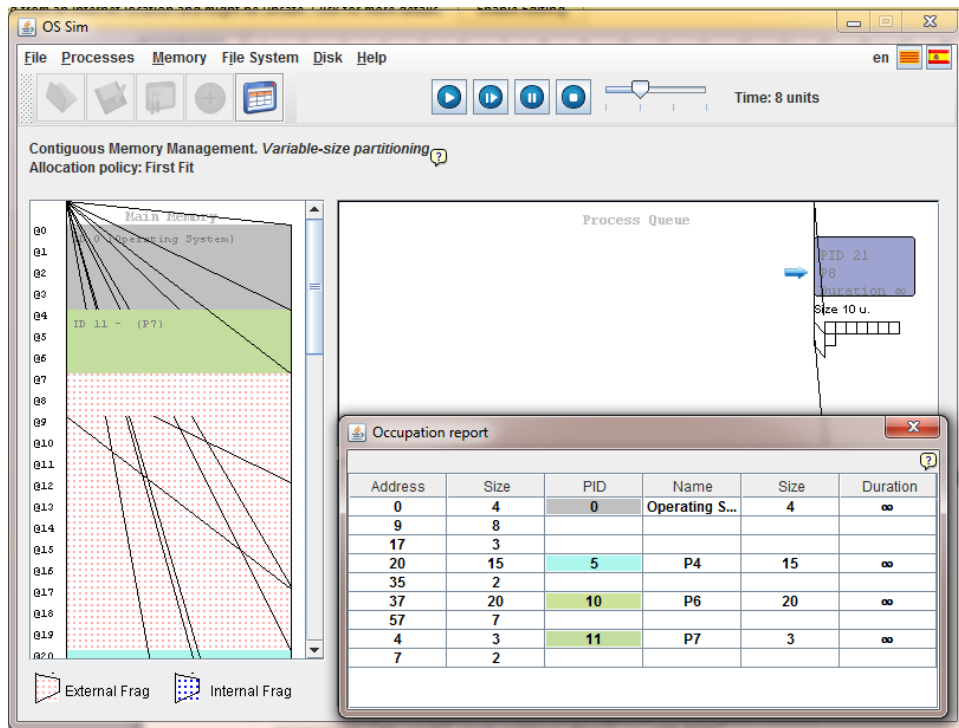
| Occupation report | | | | | |
|-------------------|------|-----|----------------|------|----------|
| Address | Size | PID | Name | Size | Duration |
| 0 | 4 | 0 | Operating S... | 4 | ∞ |
| 4 | 10 | 1 | P1 | 5 | ∞ |
| 14 | 5 | 3 | P3 | 3 | ∞ |
| 19 | 4 | | | | |
| 23 | 15 | 2 | P2 | 10 | ∞ |
| 38 | 10 | | | | |
| 48 | 16 | | | | |

2. *Contiguous memory management dengan menggunakan partisi berukuran tetap (fixed-size partition) dan aturan best fit*

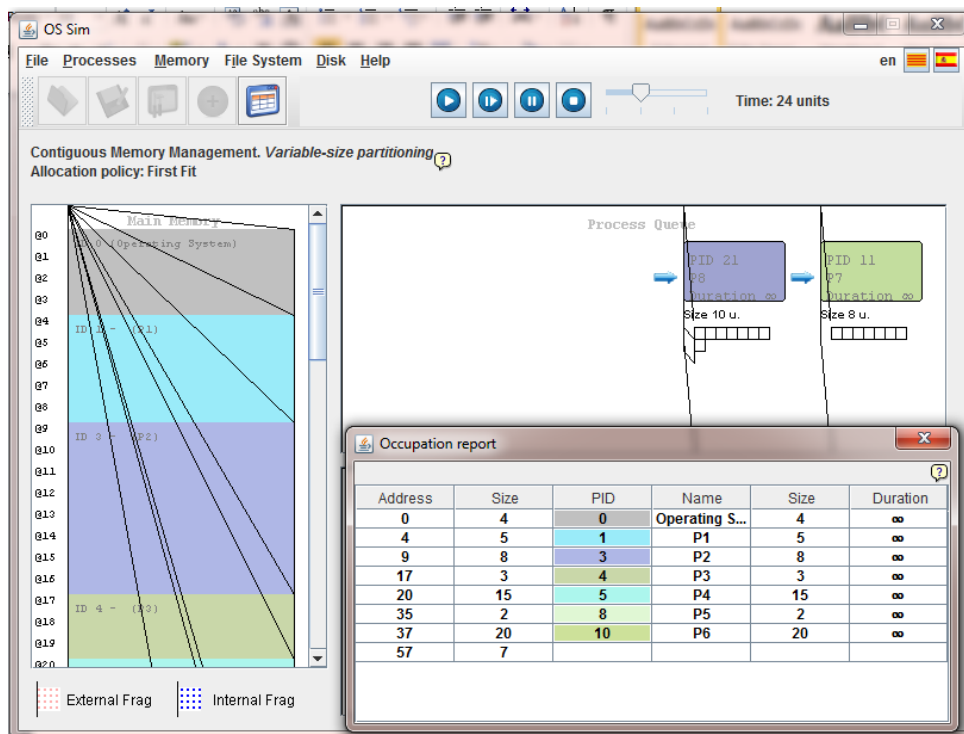


| Occupation report | | | | | |
|-------------------|------|-----|----------------|------|----------|
| Address | Size | PID | Name | Size | Duration |
| 0 | 4 | 0 | Operating S... | 4 | ∞ |
| 4 | 10 | 2 | P2 | 10 | ∞ |
| 14 | 5 | 1 | P1 | 5 | ∞ |
| 19 | 4 | 3 | P3 | 3 | ∞ |
| 23 | 15 | | | | |
| 38 | 10 | | | | |
| 48 | 16 | | | | |

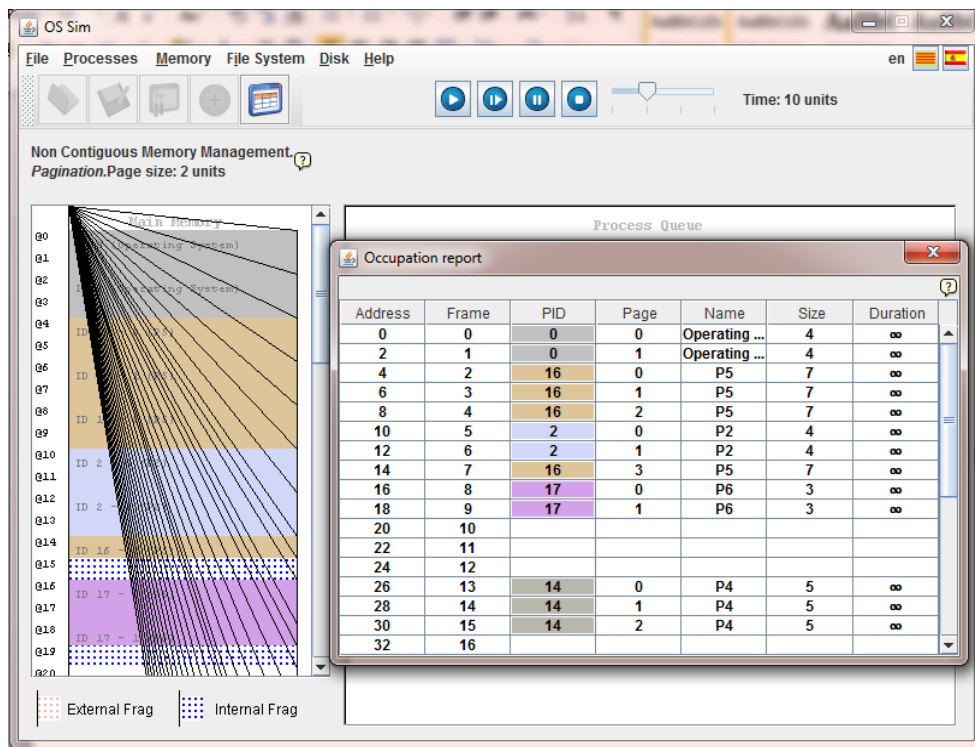
- Contiguous memory management dengan menggunakan partisi berukuran tidak tetap (variable-size partition) >> defragmentasi (mengalami error)



- Contiguous memory management dengan menggunakan partisi berukuran tidak tetap (variable-size partition) >> swap (mengalami error)



5. Pagination (ukuran page 2 unit)



6. Segmentation (alokasi parsial)

