

# EOPSY

## LAB 3

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### 2 processes:

#### Config:

```
// # of Process  
numprocess 2
```

```
// mean deviation  
meandev 2000
```

```
// standard deviation  
standdev 0
```

```
// process # I/O blocking  
process 500  
process 500
```

```
// duration of the simulation in milliseconds  
runtime 10000
```

#### Summary-processes output:

```
Process: 0 registered... (2000 500 0 0)  
Process: 0 I/O blocked... (2000 500 500 500)  
Process: 1 registered... (2000 500 0 0)  
Process: 1 I/O blocked... (2000 500 500 500)  
Process: 0 registered... (2000 500 500 500)  
Process: 0 I/O blocked... (2000 500 1000 1000)  
Process: 1 registered... (2000 500 500 500)  
Process: 1 I/O blocked... (2000 500 1000 1000)  
Process: 0 registered... (2000 500 1000 1000)  
Process: 0 I/O blocked... (2000 500 1500 1500)  
Process: 1 registered... (2000 500 1000 1000)  
Process: 1 I/O blocked... (2000 500 1500 1500)  
Process: 0 registered... (2000 500 1500 1500)  
Process: 0 completed... (2000 500 2000 2000)  
Process: 1 registered... (2000 500 1500 1500)  
Process: 1 completed... (2000 500 2000 2000)
```

#### Summary-results output:

```
Scheduling Type: Batch (Nonpreemptive)  
Scheduling Name: First-Come First-Served  
Simulation Run Time: 4000  
Mean: 2000  
Standard Deviation: 0
```

Process #	CPU Time	IO Blocking	CPU Completed	CPU Blocked
0	2000 (ms)	500 (ms)	2000 (ms)	3 times
1	2000 (ms)	500 (ms)	2000 (ms)	3 times

### Conclusion:

Maximal duration time for simulation time was 10000ms. There were 2 processes launched, each maximally 2000ms. It results in their maximum time equal to 4000ms. Therefore, there was no possibility to reach the maximum simulation time.

## 5 processes:

### Config:

```
// # of Process
numprocess 5
```

```
// mean deviation
meandev 2000
```

```
// standard deviation
standdev 0
```

```
// process # I/O blocking
process 500
process 500
process 500
process 500
process 500
```

```
// duration of the simulation in milliseconds
runtime 10000
```

### Summary-processes output:

```
Process: 0 registered... (2000 500 0 0)
Process: 0 I/O blocked... (2000 500 500 500)
Process: 1 registered... (2000 500 0 0)
Process: 1 I/O blocked... (2000 500 500 500)
Process: 0 registered... (2000 500 500 500)
Process: 0 I/O blocked... (2000 500 1000 1000)
Process: 1 registered... (2000 500 500 500)
Process: 1 I/O blocked... (2000 500 1000 1000)
Process: 0 registered... (2000 500 1000 1000)
Process: 0 I/O blocked... (2000 500 1500 1500)
Process: 1 registered... (2000 500 1000 1000)
Process: 1 I/O blocked... (2000 500 1500 1500)
Process: 0 registered... (2000 500 1500 1500)
Process: 0 completed... (2000 500 2000 2000)
Process: 1 registered... (2000 500 1500 1500)
Process: 1 completed... (2000 500 2000 2000)
Process: 2 registered... (2000 500 0 0)
Process: 2 I/O blocked... (2000 500 500 500)
Process: 3 registered... (2000 500 0 0)
Process: 3 I/O blocked... (2000 500 500 500)
```

Process: 2 registered... (2000 500 500 500)  
 Process: 2 I/O blocked... (2000 500 1000 1000)  
 Process: 3 registered... (2000 500 500 500)  
 Process: 3 I/O blocked... (2000 500 1000 1000)  
 Process: 2 registered... (2000 500 1000 1000)  
 Process: 2 I/O blocked... (2000 500 1500 1500)  
 Process: 3 registered... (2000 500 1000 1000)  
 Process: 3 I/O blocked... (2000 500 1500 1500)  
 Process: 2 registered... (2000 500 1500 1500)  
**Process: 2 completed... (2000 500 2000 2000)**  
 Process: 3 registered... (2000 500 1500 1500)  
**Process: 3 completed... (2000 500 2000 2000)**  
 Process: 4 registered... (2000 500 0 0)  
 Process: 4 I/O blocked... (2000 500 500 500)  
 Process: 4 registered... (2000 500 500 500)  
 Process: 4 I/O blocked... (2000 500 1000 1000)  
 Process: 4 registered... (2000 500 1000 1000)  
 Process: 4 I/O blocked... (2000 500 1500 1500)  
 Process: 4 registered... (2000 500 1500 1500)

### Summary-results output:

Scheduling Type: Batch (Nonpreemptive)  
 Scheduling Name: First-Come First-Served  
 Simulation Run Time: 10000  
 Mean: 2000

Standard Deviation: 0

Process #	CPU Time	IO Blocking	CPU Completed	CPU Blocked
0	2000 (ms)	500 (ms)	2000 (ms)	3 times
1	2000 (ms)	500 (ms)	2000 (ms)	3 times
2	2000 (ms)	500 (ms)	2000 (ms)	3 times
3	2000 (ms)	500 (ms)	2000 (ms)	3 times
4	2000 (ms)	500 (ms)	2000 (ms)	3 times

### Conclusion:

Maximal duration time for simulation time was 10000ms. There were 5 processes launched, each maximally 2000ms. It results in their maximum time equal to 10000ms. However, one can see that last process was not completed in processes output (but in results output we can see that even the 5<sup>th</sup> process was blocked 3 times, respectively after 500, 1000 and 1500ms). The simulation ended faster than all 5 processes. We can also observe that processes are completed in pairs.

## 10 processes:

### Config:

```
// # of Process
numprocess 10
```

```
// mean deviation
meandev 2000
```

```
// standard deviation
standdev 0
```

```
// process # I/O blocking
```

process 500  
process 500  
process 500  
process 500  
process 500  
process 500  
process 500  
process 500  
process 500  
process 500

// duration of the simulation in milliseconds  
runtime 10000

### Summary-processes output:

Process: 0 registered... (2000 500 0 0)  
Process: 0 I/O blocked... (2000 500 500 500)  
Process: 1 registered... (2000 500 0 0)  
Process: 1 I/O blocked... (2000 500 500 500)  
Process: 0 registered... (2000 500 500 500)  
Process: 0 I/O blocked... (2000 500 1000 1000)  
Process: 1 registered... (2000 500 500 500)  
Process: 1 I/O blocked... (2000 500 1000 1000)  
Process: 0 registered... (2000 500 1000 1000)  
Process: 0 I/O blocked... (2000 500 1500 1500)  
Process: 1 registered... (2000 500 1000 1000)  
Process: 1 I/O blocked... (2000 500 1500 1500)  
Process: 0 registered... (2000 500 1500 1500)  
**Process: 0 completed... (2000 500 2000 2000)**  
Process: 1 registered... (2000 500 1500 1500)  
**Process: 1 completed... (2000 500 2000 2000)**  
Process: 2 registered... (2000 500 0 0)  
Process: 2 I/O blocked... (2000 500 500 500)  
Process: 3 registered... (2000 500 0 0)  
Process: 3 I/O blocked... (2000 500 500 500)  
Process: 2 registered... (2000 500 500 500)  
Process: 2 I/O blocked... (2000 500 1000 1000)  
Process: 3 registered... (2000 500 500 500)  
Process: 3 I/O blocked... (2000 500 1000 1000)  
Process: 2 registered... (2000 500 1000 1000)  
Process: 2 I/O blocked... (2000 500 1500 1500)  
Process: 3 registered... (2000 500 1000 1000)  
Process: 3 I/O blocked... (2000 500 1500 1500)  
Process: 2 registered... (2000 500 1500 1500)  
**Process: 2 completed... (2000 500 2000 2000)**  
Process: 3 registered... (2000 500 1500 1500)  
**Process: 3 completed... (2000 500 2000 2000)**  
Process: 4 registered... (2000 500 0 0)  
Process: 4 I/O blocked... (2000 500 500 500)  
Process: 5 registered... (2000 500 0 0)  
Process: 5 I/O blocked... (2000 500 500 500)  
Process: 4 registered... (2000 500 500 500)  
Process: 4 I/O blocked... (2000 500 1000 1000)  
Process: 5 registered... (2000 500 500 500)

**Summary-results output:**

Scheduling Type: Batch (Nonpreemptive)

Scheduling Name: First-Come First-Served

Simulation Run Time: 10000

Mean: 2000

Standard Deviation: 0

Process #	CPU Time	IO Blocking	CPU Completed	CPU Blocked
0	2000 (ms)	500 (ms)	2000 (ms)	3 times
1	2000 (ms)	500 (ms)	2000 (ms)	3 times
2	2000 (ms)	500 (ms)	2000 (ms)	3 times
3	2000 (ms)	500 (ms)	2000 (ms)	3 times
4	2000 (ms)	500 (ms)	1000 (ms)	2 times
5	2000 (ms)	500 (ms)	1000 (ms)	1 times
6	2000 (ms)	500 (ms)	0 (ms)	0 times
7	2000 (ms)	500 (ms)	0 (ms)	0 times
8	2000 (ms)	500 (ms)	0 (ms)	0 times
9	2000 (ms)	500 (ms)	0 (ms)	0 times

**Conclusion:**

Maximal duration time for simulation time was 10000ms. There were 10 processes launched, each maximally 2000ms. It results in their maximum time equal to 20000ms. Therefore, we can see that similarly to the previous case – 5<sup>th</sup> process did not manage to be completed. Also, 6<sup>th</sup> process was started but just like 5<sup>th</sup> one – did not manage to be completed. 5<sup>th</sup> process was blocked 2 times (after 500ms and 1000ms), while 6<sup>th</sup> process was blocked just one time (after 500ms only). Processes 7<sup>th</sup> to 10<sup>th</sup> did not even manage to start due to lack of time.