Dr. Onur Tolga Sehitoğlu's Scheduler Simulator

http://sehitoglu.web.tr/scheddemo/#

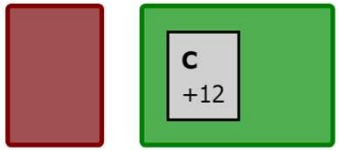
Scheduling Policies Animation

Choose policy ›

P	Pattern	Pri	Arrive
A	10 3 3	1	2
B	5 2 1	2	0
C	2 15 10	1	1

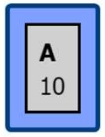
CPU

Sleep Queue



Time:	Context switches:	Waiting total:	Maximum wait:
13	1	24	7

First Come First Served



History

t	0	1	2	3	4	5	6	7	8	9	10	11	12	13
A	.	.	W	W	W	W	W	W	W	W	W	W	W	W
B	R	R	R	R	R	S	S	R						
C	.	W	W	W	W	W	W	W	R	R	S	S	S	S

Events

```
(0) process B has arrived
(0) process B is now running
```

P	Pattern	Pri	Arrive
A	3 1 3	1	0
B	2 2 1	2	0
C	2 2 2	1	0

t	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
A	R	R	R	S	R	R	R											

t	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
B	R	R	S	S	R													

t	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
C	R	R	S	S	R	R												

FCFS

- Batch processing.
- Each process runs to its completion, before the next one in the queue.

P	Pattern	Pri	Arrive
A	3 1 3	1	0
B	2 2 1	2	0
C	2 2 2	1	0

t	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
A	R	R	R	S	R	R	R											
B	W	W	W	W	W	W	W	R	R	S	S	R						
C	W	W	W	W	W	W	W	W	W	W	W	W	R	R	S	S	R	R

FCFS

t	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
A	R	R	R	S	R	R	R											
B	W	W	W	W	W	W	W	R	R	S	S	R						
C	W	W	W	W	W	W	W	W	W	W	W	W	R	R	S	S	R	R

Events

```
(0) process A has arrived
(0) process B has arrived
(0) process C has arrived
(0) process A is now running
(3) process A is going to sleep for 1 ticks
(3) CPU is idle
(4) process A woke up
(4) process A is now running
(7) process A terminated
(7) process B is now running
(9) process B is going to sleep for 2 ticks
(9) CPU is idle
(10) CPU is idle
(11) process B woke up
(11) process B is now running
(12) process B terminated
(12) process C is now running
(14) process C is going to sleep for 2 ticks
(14) CPU is idle
(15) CPU is idle
(16) process C woke up
(16) process C is now running
(18) process C terminated
```

FCFS – switch on sleep

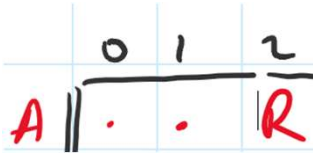
- When the current process goes to sleep, it switches to the next one on the ready queue.

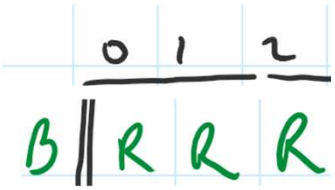
t	0	1	2	3	4	5	6	7	8	9	10	11	12	13
A	R	R	R	S	W	W	W	R	R	R				
B	W	W	W	R	R	S	S	W	W	W	R			
C	W	W	W	W	W	R	R	S	S	W	W	R	R	

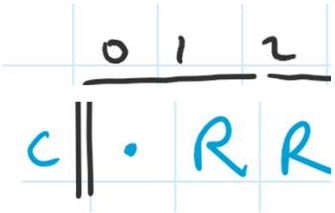
Process patterns

- Arrival times indicate the insertion of that process into the ready queue.
- The execution of each of the processes, if they were the only ones in the system.

P	Pattern	Pri	Arrive
A	10 3 3	1	2
B	5 2 1	2	0
C	2 15 10	1	1

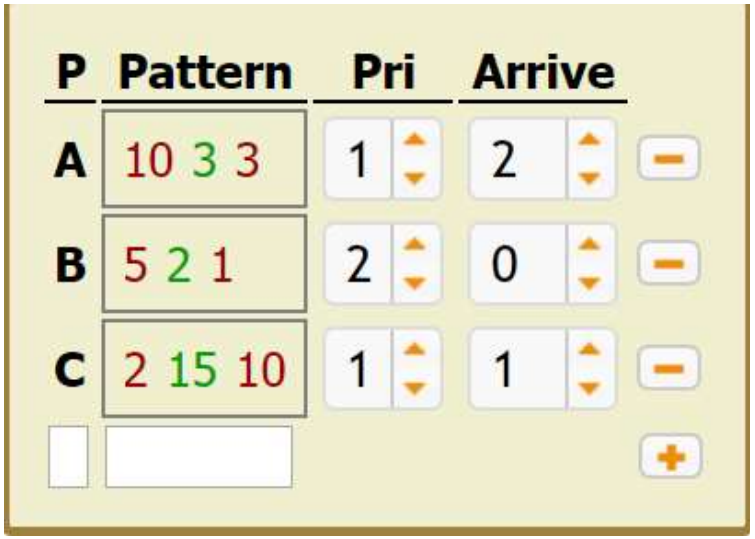






Round Robin (RR) - 3

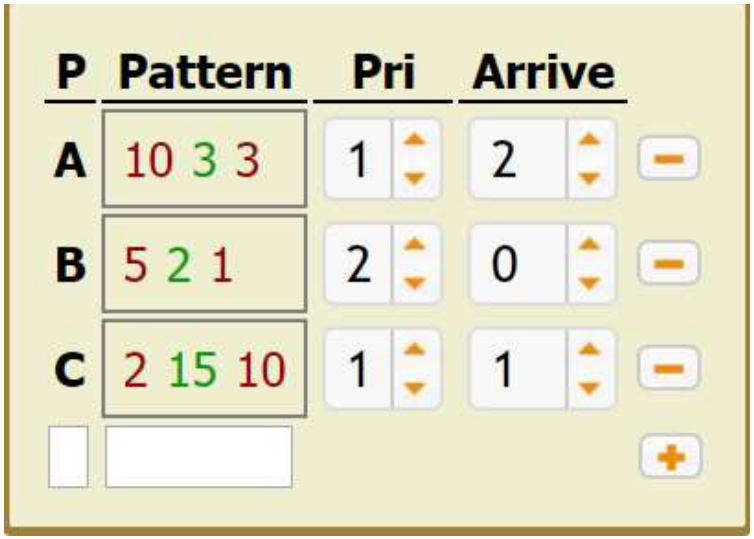
- **Maximum CPU allocation before the timer interrupt preempts the process.**



t	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33
A	.	.	W	W	W	R	R	R	W	W	R	R	R	W	R	R	R	R	S	S	S	W	W	R	R	R								
B	R	R	R	W	W	W	W	W	R	R	S	S	W	R																				
C	.	W	W	R	R	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	R	R	R	W	W	W	R	R	R	R	R	R	R	

Round Robin (RR) - 5

- **Maximum CPU allocation before the timer interrupt preempts the process.**



t	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34
A	.	.	W	W	W	W	W	R	R	R	R	R	W	R	R	R	R	R	S	S	S	R	R	R											
B	R	R	R	R	R	S	S	W	W	W	W	W	R																						
C	.	W	W	W	W	R	R	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	W	W	R	R	R	R	R	R	R	R	R	R	

Shortest Job First (SJF)

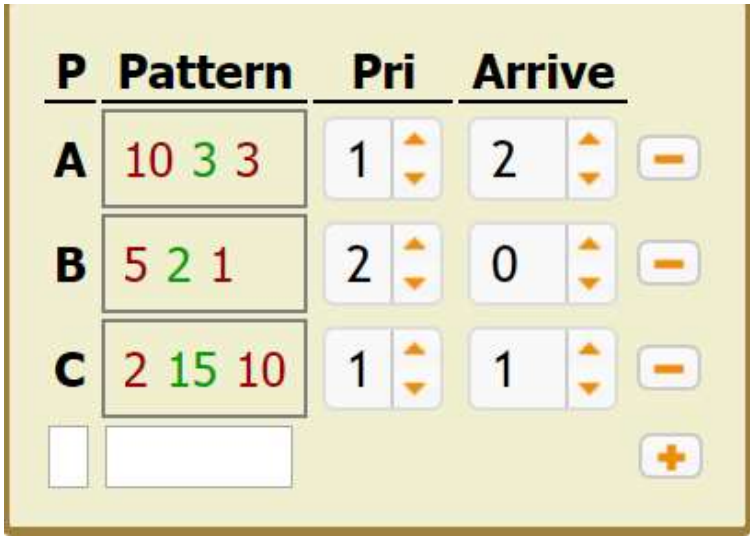
P	Pattern	Pri	Arrive
A	10 3 3	1	2
B	5 2 1	2	0
C	2 15 10	1	1

- **Assume that the process execution pattern is known by the scheduler**
  - Note that, this is not possible in real life. The scheduler can only gather statistics from prior execution behavior of the process and uses that.

t	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34
A	.	.	W	W	W	W	W	W	R	R	R	R	R	R	R	R	R	R	S	S	S	R	R	R											
B	R	R	R	R	R	S	S	R																											
C	.	W	W	W	W	R	R	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	W	W	R	R	R	R	R	R	R	R	R	R	

Shortest Remaining Time First (SRTF)

- **Assume that the process execution pattern is known by the scheduler**
  - Note that, this is not possible in real life. The scheduler can only gather statistics from prior execution behavior of the process and uses that.



t	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
A	.	.	W	W	W	W	W	R	R	W	R	R	R	R	R	R	R	R	S	S	S	R	R	R								
B	R	W	W	R	R	R	R	S	S	R																						
C	.	R	R	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	R	R	R	W	W	W	R	R	R	R	R	R	R	