

Quiz 3 – Section 2

April 24, 2003, Thursday

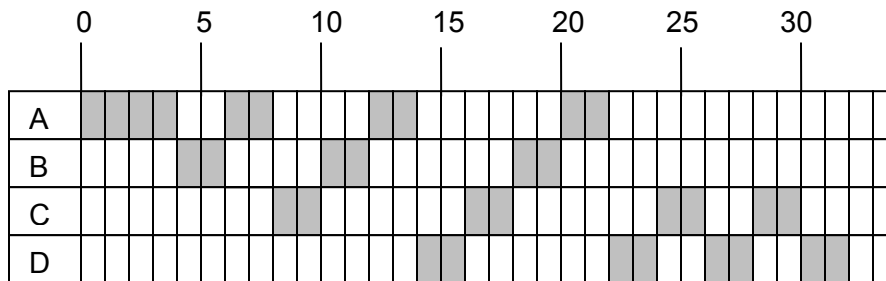
Question

4 processes arrive to a system that uses Round Robin scheduling with quantum of 2 time units. The arrival times of each process and their required CPU time is given below. Calculate their finish times and turnaround times. Assume each process is 100 percent CPU-bound.

Process	Arrival Time	Required CPU Time
0	0	10
1	3	6
2	5	8
3	9	8

Answer

Lets denote process 0 with A, process 1 with B, process 2 with C, and process 3 with D. The figure below shows which process is using the Cpu at which times in detail. The table below that shows events occurring in some time instances.



Time	Event	Ready Queue State
0	A arrives	A
2	A quantum expires	A
3	B arrives	A B
4	A quantum expires	B A
4	B is scheduled	B A
5	C arrives	B A C
6	B quantum expires	A C B
6	A isscheduled	A C B
8	A quantum expires	C B A
8	C is scheduled	C B A
9	D arrives	C B A D
10	C quantum expires	B A D C

10	B is scheduled	B A D C
12	A is scheduled	A D C B
14	D is scheduled	D C B A
16	C is scheduled	C B A D
18	B is scheduled	B A D C
20	B finished, A is scheduled	A D C
22	A is finished, D is scheduled	D C
24	C is scheduled	C D
26	D is scheduled	D C
28	C is scheduled	C D
30	C finished, D is scheduled	D
32	D is finished	-

	Arrival Time	Finish Time	Turnaround Time
A	0	20	20
B	3	22	19
C	5	30	25
D	9	32	23