CSC 112: Computer Operating Systems Lecture 5

Scheduling Exercises Solution

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Scheduling

- Here is a table of processes and their arrival and execution times.
- 1) Fill in the scheduling table with the Process ID (PID) that runs at each time instant, under 4 policies: First Come First Serve (FCFS), Shortest Job First (SJF), Shortest-Remaining-Time-First (SRTF), Round-Robin (RR) with timeslice quantum = 1. Assume that context switch overhead is 0. For RR, assume that an arriving process is scheduled to run at the beginning of its arrival time, i.e., it is added to the head of the queue upon arrival.
- 2) Compute the finish times and response times for all 5 processes, and the average response time. (If the division is hard, write a fraction like 28/5 instead of 5.6)

Scheduling I

P I D	Arriv. time	Exec Time	Fir	CFS nish Time	Re	FCF spons Tim	e	Fir	JF nish ime	Res	SJF pons Time	F	SRTF Finish Time	Res	SRTF spons Time	F	RR Finish Time	RR Respons e Time
1	0	2																
2	1	6																
3	4	2																
				Avg RT				Av	g RT			A۱	vg RT			Avg RT		
			-	FCF: SJF														
				SRT	F													
				RR														
			Ti	me	C) 1		2	3	4	5	6	7	8	9	10		
	Gantt Chart																	

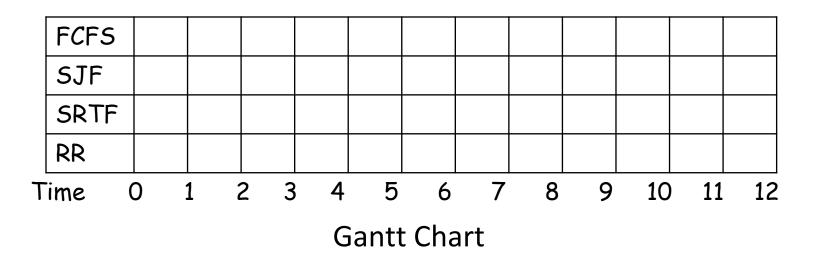
Scheduling I ANS

P I D	Arriv. time	Exec Time	FCFS Finish Time	FCFS Response Time	SJF Finish Time	SJF Respons e Time	SRTF Finish Time	SRTF Respons e Time	RR Finish Time	RR Respons e Time
1	0	2	2	2	2	2	2	2	3	3
2	1	6	8	7	8	7	10	9	10	9
3	4	2	10	6	10	6	6	2	7	3
				Avg RT 5.6		Avg RT 5.6		Avg RT 4.3		Avg RT 5

				_	_		_			
FCFS	1	1	2	2	2	2	2	2	3	3
SJF	1	1	2	2	2	2	2	2	3	3
SRTF	1	1	2	2	3	3	2	2	2	2
RR	1	2	1	2	3	2	3	2	2	2
ime (0	1 7	2 ;	3	4	5 (6	7	8	9 10
Gantt Chart										

Scheduling II

P I D	Arriv. time	Exec Time	Response	SJF Finish Time	Respons	SRTF Finish Time	Respons	RR Finish Time	RR Respons e Time
1	0	3							
2	1	5							
3	3	2							
4	9	2							
			Avg RT		Avg RT		Avg RT		Avg RT



Scheduling II ANS

P I D	Arriv. time	Exec Time	FCFS Finish Time	FCFS Response Time	SJF Finish Time	SJF Respons e Time	SRTF Finish Time	SRTF Respons e Time	RR Finish Time	RR Respons e Time
1	0	3	3	3	3	3	3	3	6	6
2	1	5	8	7	8	7	10	9	11	10
3	3	2	10	7	10	7	5	2	7	4
4	9	2	12	3	12	3	12	3	12	3
				Avg RT 5		Avg RT 5		Avg RT 4.25		Avg RT 5.75

FCFS	1	1	1	2	2	2	2	2	3	3	4	4
SJF	1	1	2	2	2	2	2	2	3	3	4	4
SRTF	1	1	1	3	3	2	2	2	2	2	4	4
RR	1	2	1	3	2	1	3	2	2	4	2	4
ime ()	1 7	2 3	4	5	6	7	8	9	10	11	12
Gantt Chart												