Assignment 9

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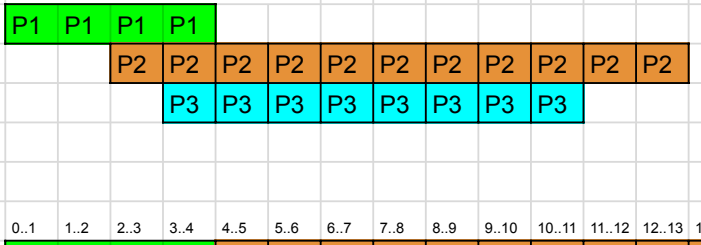
Part 9.1

Process arrival and duration



Processes	P1	P2	P3	P4	P5
Arrival time	0	2	3	14	18
Service time	4	11	8	5	4
Priority	mid	low	high	mid	high

	0..1	1..2	2..3	3..4	4..5	5..6	6..7	7..8	8..9	9..10	10..11	11..12	12..13	13..14	14..15	15..16	16..17	17..18	18..19	19..20	20..21	21..22	22..23	23..24	24..25	25..26	26..27	27..28	28..29	29..30	30..31	31..32
FCFS	P1	P1	P1	P1	P2	P2	P2	P2	P2	P2	P2	P2	P2	P2	P2	P3	P3	P3	P3	P3	P3	P3	P3	P4	P4	P4	P4	P4	P5	P5	P5	P5
SJF	P1	P1	P1	P1	P3	P3	P3	P3	P3	P3	P3	P3	P2	P2	P2	P2	P2	P2	P2	P2	P2	P2	P2	P5	P5	P5	P5	P4	P4	P4	P4	P4
SRTF	P1	P1	P1	P1	P3	P3	P3	P3	P3	P3	P3	P3	P2	P2	P4	P4	P4	P4	P4	P5	P5	P5	P5	P2	P2	P2	P2	P2	P2	P2	P2	P2
RR	P1	P1	P1	P1	P2	P2	P2	P2	P3	P3	P3	P3	P2	P2	P2	P2	P3	P3	P3	P3	P4	P4	P4	P4	P2	P2	P2	P5	P5	P5	P5	P4
RR-Prio	P1	P1	P1	P1	P3	P3	P3	P3	P3	P3	P3	P3	P2	P2	P2	P2	P4	P4	P4	P4	P5	P5	P5	P5	P4	P2	P2	P2	P2	P2	P2	P2
RR queue																																
RR hi queue																																
RR mid queue																																
RR low queue																																

Note: time quantum used by Round Robin is 4!

For your own notes, it may help to note down here the state of the ready queue(s) of RR and RR prio after each step. This get's not graded.

Average residence time									Average waiting time						
				4	11	8	5	4							
FCFS	13	4	13	20	14	14			FCFS	6.6	0	2	12	9	10
SJF	12.2	4	9	21	9	18			SJF	5.8	0	10	1	13	5
SRTF	10.6	4	9	30	5	5			SRTF	4.2	0	19	1	0	1
RR	15.4	4	25	17	18	13			RR	9	0	14	9	13	9
RR-Prio	12	4	9	30	11	6			RR-Prio	5.6	0	19	1	6	2

Part 9.2

Why can in practise no two processes arrive at the same time (at least when considering a single-processor/single core system)?

A new process is created with a call to CreateProcess or fork during the running of another process. On a single processor system only one such call can be made at a time by this process and therefore in practice no two processes can arrive at the same time.