Deliverables Lesson 4

Sistemas Operativos

Grado en Ingeniería Informática
Departamento de Ingeniería Informática

Universidad de Cádiz

Deliverable 4.2 - Exercise 1

Deliverables Lesson 4

Sistemas Operativos

Deliverable 4.2 - Exercise 1

Deliverable 4.2 - Exercise 2

Time: 35 minutes

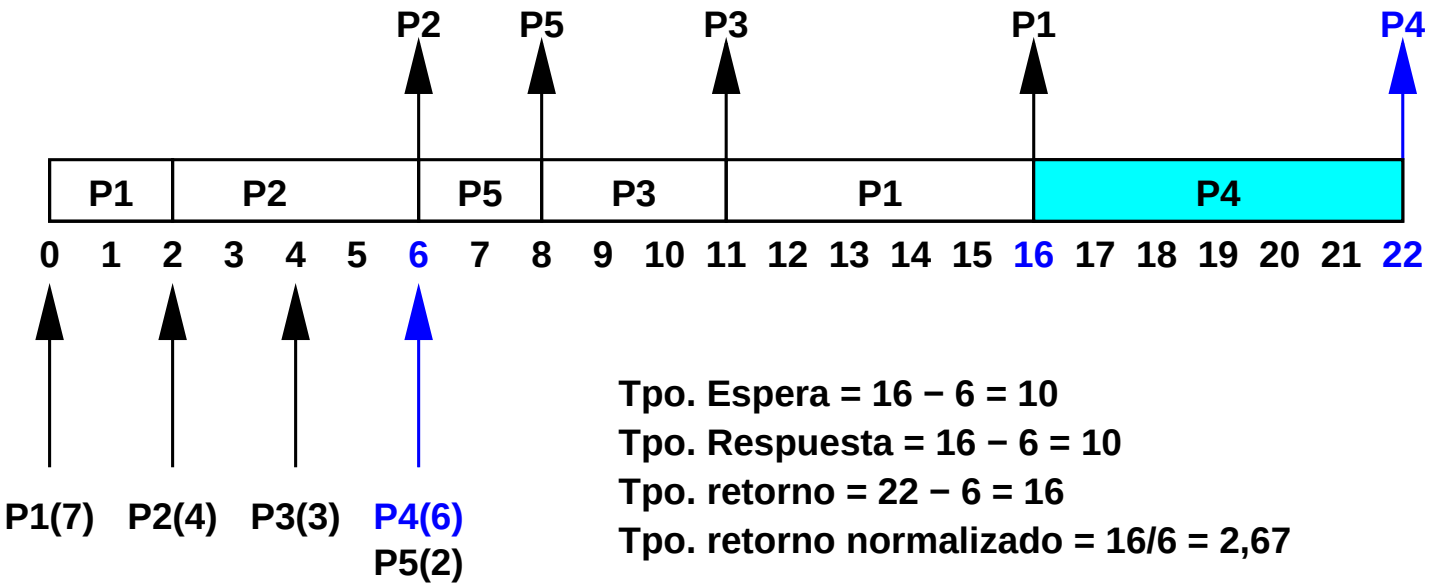
Consider the following processes:

Process	P1	P2	P3	P4	P5
Arrival time	0	2	4	6	6
CPU time	7	4	3	6	2
Priority	4	1	2	3	5 (max.)

1. Draw the Gantt charts that illustrate the execution of these processes using SRT and RR (q = 3) scheduling. The arbitration rule is priority. You must show the calculations for the selection function (SRT) or the ready processes queue (RR) at the moments when it is necessary, i.e., when a new process arrives at the system or when a process returns to the ready queue.
2. Calculate waiting, response, return, and normalized return times for process P4 in both algorithms.
3. Is there any relation between waiting time and response time? Observe the values obtained.

Solution Deliverable 4.2: Exercise 1

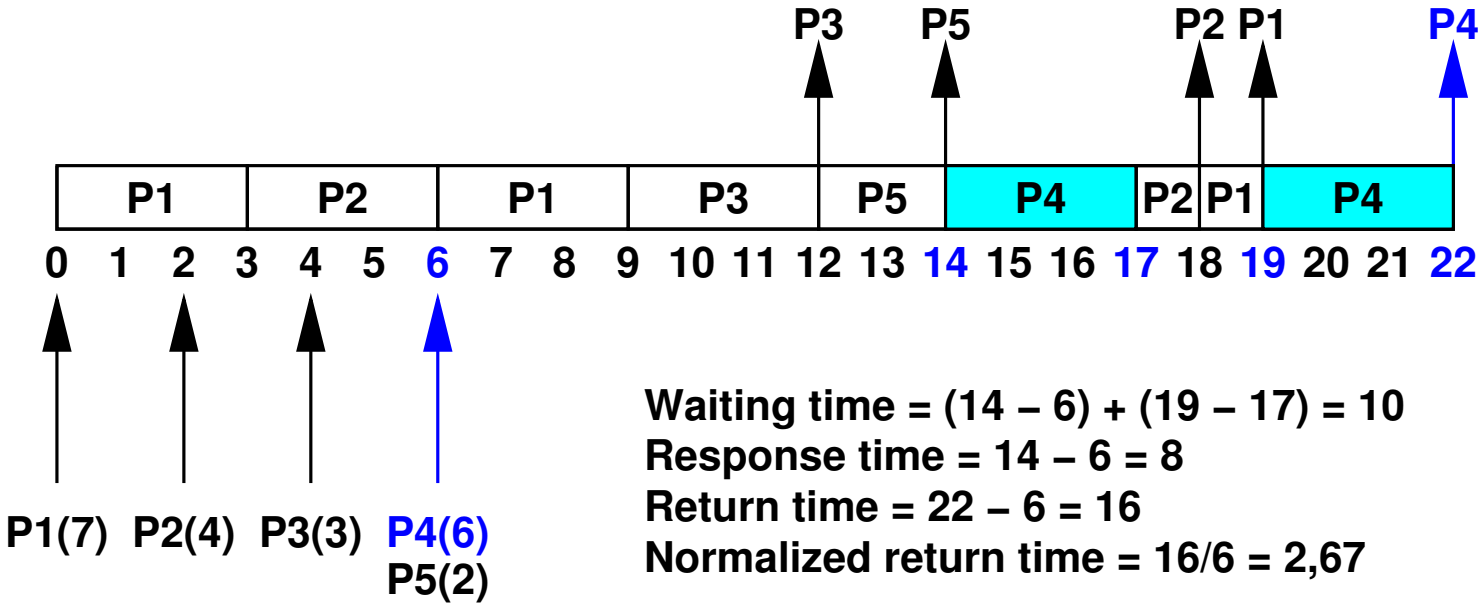
SRT scheduling



Tpo. Espera = 16 − 6 = 10
Tpo. Respuesta = 16 − 6 = 10
Tpo. retorno = 22 − 6 = 16
Tpo. retorno normalizado = 16/6 = 2,67

Solution Deliverable 4.2: Exercise 1

RR scheduling (q=3)



Waiting time = (14 – 6) + (19 – 17) = 10
Response time = 14 – 6 = 8
Return time = 22 – 6 = 16
Normalized return time = 16/6 = 2,67

Deliverable 4.2: Exercise 2

Time: 25 minutes

Consider the following processes:

Process	P1	P2	P3	P4	P5
Arrival time	0	2	4	6	6
CPU time	4	7	3	6	2
Priority	4	1	2	3	5 (max.)

1. Draw the Gantt chart that illustrate the execution of these processes using multilevel scheduling with three queues, with quantums $q_1 = 1, q_2 = 2, q_3 = 4$. Show the ready processes queues at the moments when it is necessary. The arbitration rule is priority.

Solution Deliverable 4.2: Exercise 2

Deliverables Lesson 4

Sistemas Operativos

Deliverable 4.2 - Exercise 1

Deliverable 4.2 - Exercise 2

Multilevel feedback scheduling ($q_1 = 1, q_2 = 2, q_3 = 4$)