操作系统第1次作业

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作业 1

例 1：假定要在一台处理器上执行如下图所示的作业，它们在 0 时刻以 1，2，3，4，5 的顺序到达。给出采用下列调度算法时的调度顺序、平均周转时间(turnaround time)和平均响应时间(response time)

（1）FCFS

（2）RR(时间片为 1，不考虑优先级)

（3）非抢占式 SJF(shortest job first)

（4）非抢占式优先级调度（数字小的优先级大）

作业	执行时间	优先级
1	10	3
2	1	1
3	2	2
4	3	4
5	5	2

作业 2

There are five tasks P_1-P_5 in a single processor system. Assuming that the arrival time and the burst time is shown in the table below. Assuming that all five tasks need only CPU and do not need I/O processing.

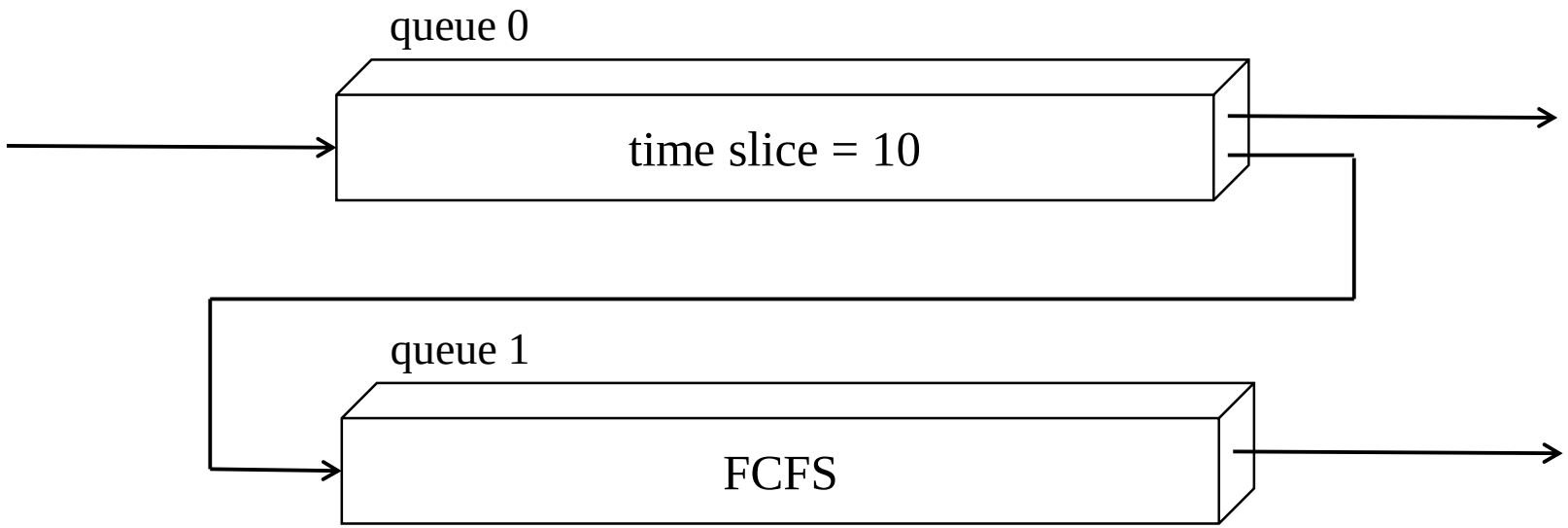
process	Arrival time	Burst time
P_1	0	16
P_2	4	5
P_3	1	8
P_4	3	3
P_5	6	4

1) If the system uses HRRF to schedule, please draw a Gantt chart and calculate the average waiting time and the average turnaround time.

2) If the system uses preemptive SJF schedule (if the shortest remaining job time is the same, using first come first serve), please draw a Gantt chart and calculate the average waiting time and the average turnaround time

作业 3

- As shown below, OS takes a two-level feedback-queue scheme to allocate CPU for concurrent processes. A process entering the system is at first put in queue 0, and sequentially given a CPU time slice of 10 milliseconds. If it does not finish within this time, it is moved to the tail of queue 1. Processes in queue 1 run on FCFS scheduling, but are permitted to run only when there is no process in queue 0. When a process P_i in queue 1 is running on CPU and a new process P_j enters the system, P_j will preempt the CPU occupied by P_i.



作业 3

- Consider the processes P_0, P_1, P_2, P_3. For $0 \leq i \leq 3$, the arrival time, the length of the CPU burst time, and the priority of each P_i are given as below

Process	Arrival time	Burst Time	Priority
P_0	0.0	6.0	10
P_1	4.0	15.0	8
P_2	8.0	4.0	6
P_3	12.0	13.0	4

- For the snapshot shown above, suppose that two-level feedback-queue scheduling is employed
  - (1) Draw the Gantt chart that illustrates the execution of these processes.
  - (2) What are the turnaround times for the four processes?

作业提交方式

- 使用电子版提交作业，可以提交word或者pdf格式的文档
- 邮件和作业文件命名方式：学号-姓名-操作系统第1次作业
- 电子版作业发送至课程邮箱：kcsjbupt@126.com
- 作业提交截止时间：2022年10月30日