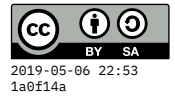


# Quiz 5

22 April 2019



## Solutions

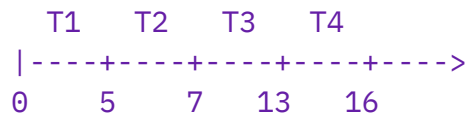
Both questions are about how an operating system may schedule tasks to run on the CPU.

- In this question, we'll use **batch** processing, which means that once we start a task, we will run it to completion without interruption. There are two ways to select the next task to run: First-Come, First-Served (FCFS) and Shortest Job First (SJF).

Draw timelines and calculate the **average turnaround time** for scheduling the following jobs using both FCFS and SJF.

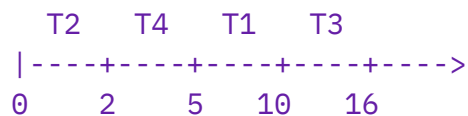
Task	Duration (sec)
T1	5
T2	2
T3	6
T4	3

FCFS:



$$(5+7+13+16)/4 = 41/4 = 10.25$$

SJF:



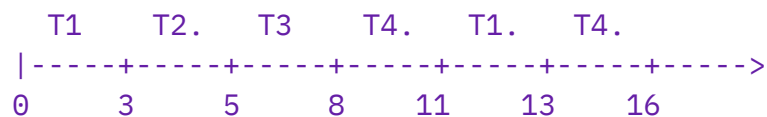
$$(2+5+10+16)/4 = 33/4 = 8.25$$

(over)

2. Now, we'll consider a **preemptive** "Round-Robin" scheduling. In this operating environment, we are allowed to interrupt long-running tasks so that other tasks have a chance to run. (When an interrupted task is resumed, it is able to continue where it left off.)

Using the same sequence of tasks, draw a timeline and calculate the **average turnaround time** for Round-Robin scheduling where a each task is preempted **after 3 seconds** on the CPU.

Task	Duration (sec)
T1	5
T2	2
T3	6
T4	3



Only average the completion times. (I used dots following the task number to indicate in which interval the task is finished.)

$$(5+11+13+16)/4 = 45/4 = 11.25$$