Q1 Results for Mualla Argin

Score for this attempt: **5** out of 5

Submitted Jan 22 at 7:46am

This attempt took 42 minutes.

Question 1   1 / 1 pts

Second generation computers still executed programs in a sequential/batch manner.

Correct!

◉ True

◯ False

2nd gen computers did not implement multiprogramming. They succeeded in separating programming from operation and allowing batch mode of computation, but still sequentially one after another.

Question 2   1 / 1 pts

Multiprogramming can be effective even with one single-core CPU

Correct!

◉ True

◯ False

> Multiprogramming was introduced in 3rd gen computer systems and it allowed the existence of multiple jobs in memory and allowed CPU to be time-shared or allocated to different jobs.

Question 3   1 / 1 pts

Say your program is running along with many other programs on a timeshared computer. For some reason, your program runs into a deadlock and never comes out of that. Do you think the monitor (aka operating system in modern speak) software has the capability (features) to ensure that the computer is able to make forward progress with the other jobs? **If so, write a sentence or two to describe the key feature we talked about in L1 that'd make this possible.**

Your Answer:

Yes, the OS can do 3 things when a deadlock occurs: preemption, rollback, and process killing. premption is when a resource held by 1 process is given to another process (In this case we let deadlock occur, then do preemption to handle it) ; In rollback the OS keeps a record of the state of process & then rollsback to the previous state before deadlock ; by killing process you kill the processes the create the deadlock and continue making forward progress with other jobs.

Question 4   2 / 2 pts

In a single CPU single core system, we plan to schedule the following jobs to take the full advantage of multiprogramming. The following table shows how the jobs would look like if they ran in isolation.

	JOB1	JOB2	JOB3
Type of job	Only CPU	Only I/O	Only I/O
Duration	5 min	15 min	10 min

For simplicity, please assume the following:

- JOB2 and JOB3 interact with different IO devices
- There is 0 overhead in job scheduling i.e. the monitor (OS) is able to schedule jobs in 0 time.

With the above assumptions, the time to complete all the jobs

sequentially is [30] and time to complete all the jobs with

multiprogramming is [15] . Only write the numerical value

without units (for e.g, write 55 instead of 55 min).

Answer 1:

Correct!

30

Answer 2:

Correct!

15

orrect Answer

20

Total time = 5+10+15 = 30 for sequential and 15 with multiprogramming since all three jobs are running in parallel effectively. The longest job is 15.

Quiz Score: **5** out of 5