

CS460: Exercise on processor management-II

Consider a computing system with 13 tape drives. All jobs running on this system require a maximum of 5 tape drives to complete. Assume all of the jobs run for long periods of time with just 4 drives and request the 5th one only at the very end of the run. The job request stream is endless.

a. If your OS supports a very conservative device allocation policy that no job will be started unless all tapes required have been allocated to it for the duration of its run:

(2.1) What is the maximum number of jobs that can be active at once?

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(2.2) What are the minimum and maximum number of tape drives that may be idle as a result of the policy? Why?

$\text{min} = 3, \text{max} = 5$

b. If your OS supports the Banker's algorithm:

(2.3) What is the maximum number of jobs that can be in progress at once?

3

(2.4) What are the minimum and maximum number of tape drives that may be idle as a result of the policy? Why?

$\text{min} = 0, \text{max} = 1$