

COMP SCI/SFWR ENG 4/6E03 — Assignment 6

1. We have a two server system that we describe as follows. The interarrival times follow an exponential distribution with rate 6. The processing time distribution at server 1 is exponential with rate 4 and the processing time distribution at server 2 is exponential with rate 3. Suppose that there is a separate queue for each server. An arrival goes to server 1 with probability p , independent of everything else. Using M/M/1 formulas, find the value of p that minimizes the mean number of jobs in the system (sum of jobs at both servers).

Now, write a CSIM program that simulates this system. Does your choice of p still work if the processing times are constant with mean $1/4$ at the first server and mean $1/3$ at the second server?