

CS 241, Spring 2009

Quiz #2

A server has an average service time of 0.2 seconds per request. Requests arrive at a rate of 4 requests per second.

a) What is the server utilization?

$$\text{Utilization} = \text{arrival rate} / \text{service rate} = 4 / 5 = 80\% \text{ (or } 0.8\text{)}$$

b) What is the average waiting time in queue?

$$\text{waiting time} = \text{Utilization} / (\text{service rate} - \text{arrival rate}) = 0.8 \text{ seconds}$$

c) What is the average turnaround time in system?

$$\text{turn-around time} = 1 / (\text{service rate} - \text{arrival rate}) = 1 \text{ second}$$

d) What is the average number of requests waiting in the server queue?

$$\text{number of requests} = \text{arrival rate} * \text{waiting time} = 4 * 0.8 = 3.2 \text{ requests}$$

Grading Scheme:

+4 points for attendance

+1 point /question correct (for a total of +4 points)