

Homework 3 – Chapter 3, page 94, problem 4.

Prepare a table in the manner of Table 3.2, until the CLOCK reaches time 15, using the interarrival and service times given below in the order shown. The stopping event will be time 30.

Interarrival times: 1 5 6 3 8

Service times: 3 5 4 1 5

| Clock | System State | | List | FEL | S | N _D |
|-------|--------------|-------|----------------|------------------------------|----|----------------|
| | LQ(t) | LS(t) | | | | |
| 0 | 0 | 1 | (C1,0) | (A,1,C2), (D,3,C1), (E,30) | 0 | 0 |
| 1 | 1 | 1 | (C1,0), (C2,1) | (D,3,C1), (A,6,C3), (E,30) | 0 | 0 |
| 3 | 0 | 1 | (C2,1) | (A,6,C3), (D,8,C2), (E,30) | 3 | 1 |
| 6 | 1 | 1 | (C2,1), (C3,6) | (D,8,C2), (A,12,C4), (E,30) | 3 | 1 |
| 8 | 0 | 1 | (C3,6) | (A,12,C4), (D,12,C3), (E,30) | 10 | 2 |
| 12 | 0 | 1 | (C4,12) | (D,13,C4), (A,15,C5), (E,30) | 16 | 3 |
| 13 | 0 | 0 | () | (A,15,C5), (E,30) | 17 | 4 |
| 15 | 0 | 1 | (C5, 15) | (D,20,C5), (A,23,C6), (E,30) | 17 | 4 |

Clock – advanced whenever there is an arrival or departure scheduled.

LQ(t) – counts the number of customers waiting in queue

LS(t) – counts the number of customers on the server

List – stores the customers who are currently in the system and when they arrived

FEL – is the future event list in the form: (event, time, customer)

S – Sum of customer response times: When customer departed minus when they arrived

N_D – Number of customers who have departed