SIE431/531 Simulation Modeling and Analysis
Homework 1

Problem 1: (simulation by hand) Consider the following interarrival and service times for the first 5 customers to a single server queuing system.

Customer Number	Interarrival Time (min)	Service Time (min)
1	3	4
2	1	4
3	3	5
4	1	3
5		2

For the above table, the first customer arrives at t = 0. The interarrival time between customer 1 and 2 is 3 minutes, and the interarrival time between customer 2 and 3 is 1 minute. Suppose the simulation ends at t= 16 minutes. Based on the above information, compute the following (show the intermediate steps):

1. The average number of people in queue;
2. The average time in system (time in queue + time in service) for those who have completed service;
3. The average time in system (time in queue + time in service) for the entire simulation run.
4. The server utilization.

Problem 2: Exercise 3-1 in the textbook.

Problem 3: Exercise 3-9 in the textbook.