Lehrstuhl für Simulation

Introduction to Simulation

Assignment 6: Output Analysis

1. At certain times of day, customers arrive at a cash machine in front of a bank at intervals which are *exp*(2) minutes. The service time of the machine is *N*(2.0,0.1) minutes. The manager of the bank is considering upgrading this machine to achieve shorter queue lengths. He has the choice of either
   a) replacing the existing machine by one machine with a service time of *N*(1.0,0.1) minutes or
   b) adding a second identical machine to the one already there.

   (Note that both strategies have the same average service time of 1.0 minutes!)
2. Create AnyLogic models for cases a) and b) above.
3. Create an AnyLogic experiment that computes 95% confidence intervals for the average queue lengths in cases a) and b) over a two-hour period.

Use your simulation program to answer the following questions:

1. How many replications are necessary to achieve confidence intervals for cases a) and b) which do not overlap?
2. State the confidence interval obtained in each case.
3. Which service machine strategy is better? Why?