## Assignment # 4

In the handout on "Simulation", do **Assignment** on page 11. This is an exercise in implementing random number generator, and simulating a single server queue via the recursive formula. The theoretical formulae for the M/M/1 queue are on page 16.

**Hints**:

You need to have the following routines (procedures) in your code.

1. A random number generator.
2. A routine to generate exponentially distributed random numbers.
3. A routine to compute the waiting time in the queue (use the formula). Use the formula on top of the page 11 of the notes on simulation. This is a recursive formula.
4. A routine to collect data.
5. A routine to reduce data.
6. A routine to compute the theoretical results of the M/M/1 queue on page 16 of the *Simulation* paper.
7. Main part of the program.

You need to use two different seeds for the customer arrival stream and the customer service completion time. Pick any two numbers from Table 26.2, page 455 of the textbook by R. Jain.