

```

import org.junit.Test;

/**
 * Unit tests for questions 4 simulations
 */
public class Question4 {
    // The length time that simulation will run for in seconds
    public double simTime = 600;

    // Create a new simulator
    public NetworkSimulator sim = new NetworkSimulator(1);

    /**
     * Run simulations for queue sizes K = [10, 25, 50]
     */
    @Test
    public void Run()
    {
        double M;           // Number of times to run simulation
        double lambda;       // Packet arrival rate
        double L = 2000;     // Packet length is 2000 bits
        double C = 1e+6;     // Service speed is 1 Mbps
        double rho;          // Utilization of the queue

        // Run for different queue sizes
        int[] queueSize = {10, 25, 50};
        for (int K : queueSize)
        {
            // Simulation for different simulation
            for (rho = 0.5; rho < 1.55; rho += 0.1)
            {
                // Calculate the arrival rate
                lambda = rho * ( C / L );

                System.out.print("M, simTime, lambda, L, C, K\n");

                // Run N simulations
                for(M = 0; M <10; M++)
                {
                    // Simulate for 20 minutes
                    sim.discreteEventSimulator(simTime, lambda, L, C, K);

                    // Record the results of the test
                    Reporter.Report("Q4.csv");

                    String simFormat = "%1$f, %2$f, %3$f, %4$f, %5$f, %6$d\n";
                    String simResults = String.format(simFormat, M, simTime, lambda, L, C, K);
                    System.out.print(simResults);
                }
            }
        }
    }
}

```