PROJECT DESCRIPTION

Part 1 (ProjectCode1):

The first code is about the simulation of a simple queuing system with a finite buffer to study the loss probability as the function of buffer size and traffic intensity.

Things to do:

- Modify the first code so that queue will have a finite buffer.
- Play with arrival rate (λ) and buffer size. Then, comment about the total number of packets, number of dropped packets, utilization. (You can show your results as a table)
- Make inter-arrival time and service time deterministic (constant) instead of Poisson Distribution. Comment on results.
- Don't forget to reduce simulation time to not waste too much time!

Initial Assumptions for Part 1:

- The service time has Poisson distribution with a parameter (μ (MU) =2 (packets per second))

Part 2 (ProjectCode2):

The second code is about the network of queues in which it sets up arrival times and packet size distribution and creates some packet generators, packet sinks and switch ports, then wires them together.

Things to do:

- Modify the second code so that new simulation will look like Figure 1.
- Play with buffer sizes (K) and port rates. Then, comment about the throughput, average wait times, number of packets sent / received / dropped.

Initial Assumptions for Part 2:

- The inter-arrival times have Poisson distribution with parameters (λ_1=1.5, λ_3=0.7, λ_4=0.5 (packets per second)).
- Port rate is 1000 (packets per second).
- The packet sizes are exponentially distributed with a parameter (0.01(mean size is 100 bytes)).
- The capacities of the buffers are finite and equal to K=120000 bytes.

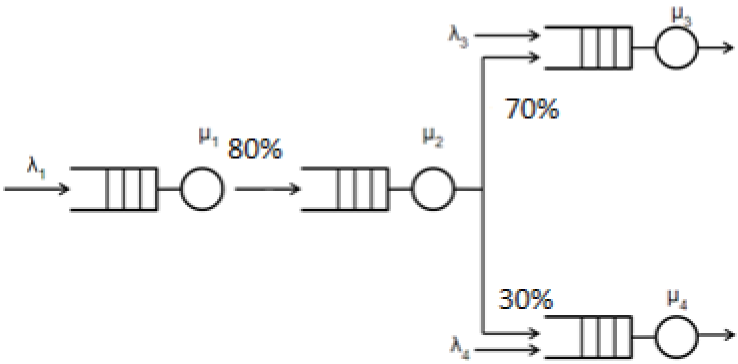

Figure 1. Topology of our system

SUBMISSION

- Submit your codes and report as a single zip file.