Discrete event traffic simulation

Part 1

Simulation of a Poisson arrival process

Completion date: lesson 3

Consider a traffic source that generates calls with a given arrival rate *lambda*, according to a Poisson process.

a) Based on the event-driven simulation method, and considering the distribution of the interval between call arrivals is exponential, develop a simulation program in C for this source, enabling it to obtain:

- the histogram of the interval between the arrival of consecutive calls;
- the estimator of the average value of the interval between consecutive calls.

Compare the results obtained in the simulation with the theoretically predicted values, assuming a rate of lambda1 = 5 calls/second.

b) Develop an alternative version of the simulation program, based on the definition of a Poisson process, i.e., taking into account that the probability of an event in a basic time interval *delta* is *delta* x *lambda*.