**Assignment # 4**

**Queue Simulation in Omnet++**

1. Open the omnetpp-5.6.1/samples/queuenet example in Omnet++ IDE and select “OneFIFO—a single queue” as the configuration.
2. Run the simulation but make sure it’s being recorded so that you can later view the event log file of the simulation.
3. Let the simulation run till there are more events generated. Note down the number of events generated and the time stamp of the last event.
4. Observe the event log file and answer the following questions. (Provide the screenshot of the event log file).
   1. How many jobs are there in the system?
   2. What’s the capacity of the queue?
   3. What’s the pattern of the storage of jobs in the queue and their service?
5. Change the number of jobs or the capacity of the queue or both to ensure that no job is dropped off.
6. Change the service time or the inter-arrival time of the jobs or both to ensure that the queue is always empty i.e. every job is served as soon as it arrives without being made to wait. Demonstrate the output with the event log.
7. Change the service time or the inter-arrival time of the jobs or both to ensure that there is at least one job in the queue and the queue doesn’t reach its full capacity. Demonstrate the output with the event log.
8. Change the distribution of the service time and the inter-arrival time of the jobs from the exponential to uniform and explain with the help of the event log file, the difference it would make.
9. What’s meant by the simulation time, CPU-time and the real-time in Omnet++. Provide different limits of these time values and observe the impact on the simulation time displayed on the screen and the time it takes to complete the simulation.