**CE412 – PROJECT 3**

**“SIMULATION OF A SINGLE SERVER QUEUE”**

In this project, you will write a program which simulates a single server queuing system. Suppose that you have a single server queue where the inter arrival times and the service times are from Exponential distribution.

Your simulation will ask the user to enter

* The average arrival rate λ (packets/sec)
* The average service rate µ (packets/sec)
* The capacity of the system
  + The system will have an infinite capacity – no losses will occur
  + The system will have a finite capacity – losses can occur

Your simulation will produce the following outputs.

* the average number of customers in the system
* the average waiting time in the system
* the average waiting time in the queue
* the average number of customers in the queue
* the loss ratio

In this project, you will use the discrete event simulation method. In the project report, explain how you have implemented the project and print out a sample output. For example, a system with an average arrival rate of 5 packets/sec and an average service rate of 6 packets/sec.

***Project 3 Submission***:

Name your program as *yournamePrj3.X* and submit it to Blackboard or e-mail it to [tamer.dag@khas.edu.tr](mailto:tamer.dag@khas.edu.tr) before April 3rd, 2014. You have to submit your project report (hard copy) in class on April 3rd, 2014. Late submissions up to one week has a penalty of 50%. Late submissions beyond one week will not be accepted.

***Project 3 Grading:***

* Project Report 30%
* Program 70% (If your program do not produce correct results, you might only get at most 35%)