**CE 412 – PROJECT 1**

**“SIMULATION OF STORE AND FORWARD TRANSMISSION ON A RING NETWORK”**

In this project, you will write a program,which simulates the behaviour of store and forward transmission on a ring network with *N* nodes and *N* links where all the links are full-duplex.

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The program will ask the user to input the following parameters:

* the number of nodes in the network,
* the data rate of the links in *Mbps* (assume that all links have the same data rate),
* the propagation delay of a link in (assume that all links have the same propagation delay),
* the sender node (any node from node *1* to node *N*),
* the receiver node (any node from node *1* to node *N*),
* the total size of the message to be transmitted in *Mb*,
* the number of packets that the message will be divided into,

Based on the information that has been entered by the user, the program will calculate how much time it takes to send the whole message from the sender node to the receiver node by printing out each possible event in time order, such as

* Pkt *i* has arrived at node *k* at time *t*
* Pkt *i* has been transmitted from node *k* at time *t* for all packets and nodes.

In addition to your program, you also need to submit a project report. In the project report, you will make an introduction by describing your knowledge about ring networks and store and forward transmission. Make a research on ring networks and store and forward transmission, then describe them in your own words. After the introduction part, clearly explain how you wrote the program. You need to specify, what kind of approach you have used, what assumptions you have made and what type of output you get. Indicate if you are getting correct outcomes and if not explain possible reasons. In the last stage of your project report, indicate how you could have simulated this network if the links had different data rates. Clearly, state your approch. You do not need simulate for such a case.

***Project 1 Submission***:

Name your program as *yournamePrj1.X* and submit it to Blackboard or e-mail it to [tamer.dag@khas.edu.tr](mailto:tamer.dag@khas.edu.tr) by February 20th, 2014. You have to submit your project report (hard copy) in class on February 20th, 2014. You will also make a demo of your project in class. Late submissions up to one week has a penalty of 50%. Late submissions beyond one week will not be accepted.

***Project 1 Grading:***

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