Assignment for the lecture

**Computer Networks**

Spring 2023

Department of Computer Science

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**Assignment 1 (LAN Messenger)**

**Due Date: Submission February 20 and Demo February 21 2023**

**Guidelines:**

* **Assignment must be submitted in group of two.**
* **This is a programming assignment and the submission will be based on 2-5 mins demo followed by a short viva.**
* **The student ID, names and section of the group members must be mentioned clearly.**

## Assignment 1 (10 points)

Develop a simple “Chat Messenger” that is connection oriented (i.e. it uses TCP) and that consists of a Client and a Server Program.

1. The Server runs first and waits for some client to contact it.
2. Client Program starts and connects to the server.
3. Client-Server sends and receives messages.

An Example for each step is shown below.

**Step 1)** A Server should listen to a specific Port as shown in the diagram. In Diagram It is **6789**

**Step 2)** A Client should specify IP Address And Port of the Server as shown in the Diagram. In the Diagram it is **127.0.0.1:6789**

**Step 3)** Both Programs can send/receive messages successfully through socket (Port). If you are running both programs on the same system then server IP can be ‘127.0.0.1’ while you can also use your private IP in place of ‘localhost’ IP.

Both the programs should be able to send and receive messages simultaneously and for this purpose you can use threads. Each Program will have one “**Input Thread**” and one “**Output Thread**”. Input Thread waits for the input that may come from the other program while Output Thread sends the typed message to the other program using sockets.

### *(Hint: You can understand basics of Socket Programming with TCP by reading and practicing the code given in book “Computer Networking – A Top Down Approach by Kurose.Ross”)*