ASSIGNMENT 1

EE673 DIGITAL COMMUNICATION NETWORKS

2024-2025 (Even)

4th March 2025 Deadline: 18th March 2025

Instructions:

1. Submissions are to be made through the HelloIITK portal
2. You are required to submit a single zip file containing well commented and easy to understand codes. There should also be a readme file with clear instructions on how to run the codes.
3. Kindly name your submission file as <RollNo>_<Name>, eg: 18204269_LavishArora
4. Marks will be deducted for all submissions that do not follow the above guidelines.

Question 1: Basics of Socket Programming

Refer to the UDP and TCP socket programming examples given in Section 2.7 of Computer Networking A Top-Down Approach 8th Edition, Kurose and Ross. Using the above examples, create UDP and TCP client and server applications where:

- The client reads a line of characters from its keyboard and sends the data to the server
- The server receives the data and converts the characters into uppercase
- Server sends the modified data to the client
- The client receives the modified data and displays the line on its screen

[*10 marks*]

Question 2: UDP Chat application

Create a UDP chat application for communicating with your phone using the UDP monitor

- Install the UDP monitor application on your android phone. Connect your phone and PC such that they are on the same network. This can be done either by
  - Connecting them to the same wifi network
  - Connecting your PC to phone's mobile hot-spot, or
  - Connecting phone and PC via USB tethering
- Once you ensure phone and PC are on the same network, open the UDP monitor application on the phone.
- The IPv4 address of your phone will be displayed on the top left corner. Also select the local port on the phone. Use this address while designing your UDP chat application.
- For two way communication give the remote address and port of your PC in the UDP monitor mobile application.

Design a two way chat application with the UDP monitor [*15 marks*]

HINT: For parallel two way communication, you may need to use the 'threading' feature in python that implements parallel processes.
UDP Monitor application link:(`https://tinyurl.com/udpMonitor`)

END OF ASSIGNMENT