National University of Sciences & Technology
School of Electrical Engineering and Computer Science
Department of Computing

EE353: Computer Network (3+1): BSCS-8 A, Fall 2020

Semester Project	
CLO4: Design and implement solutions to overcome network unreliability (through hands on programming)	
Maximum Marks: 50	Instructor: Dr. Muhammad Zeeshan
Announcement Date: Dec 11, 2020	Due Date : Jan 17, 2021 (10 pm) on LMS

Specifications

This project requires you to write code for a sender and receivers that implements *video file transfer over UDP* protocol using Linux/GNU C sockets. Sender is required to open a video file, read data chunks from file and write UDP segments, send these segments on UDP. Receiver must be able to receive, reorder and write data to a file at the receiving end.

Sender:

The sender will read the file specified by the filename and transfer it using UDP sockets. On completing the transfer, the sender should terminate and exit. The sender should bind to listen port to receive acknowledgments and other signaling from the receiver. You should only use a single UDP socket for both sending and receiving data. Note that although UDP will allow you to send large packets using IP fragmentation, but make sure that you restrict your packets to 500 bytes (in payload).

Receiver:

The receiver will need to bind to the UDP port specified on the command line and receive a file from the sender sent over the port. The file should be saved to a different filename. Note that you should make sure in your testing that the filename used by the receiver is not the same as the one used by the sender. The receiver should exit once the transfer is complete.

Implementing reliability in UDP

You will be required to implement following to make UDP reliable:
a) Sequence numbers
b) Retransmission (selective repeat)
c) Window size of 5-10 UDP segments (stop n wait)
d) Re ordering on receiver side

Submission:

Only two students can form a group and one of the students in a group is required to make both the following submissions on LMS.
a) Submit a single compressed folder containing codes and readme file that must include Linux commands with proper file names used.
b) Submit a single MS Word file containing title page followed by functionality, 3-4 pages text that explains behavior, design and development of both sender and receiver. You can be as much as innovative with design details and can include diagrams as well.
c) You are required to paste the code at the end of the word document, it is mandatory other will surely affect the grades

Note:

a) Try to follow a technical report format.
b) Use 12 font sizes with 1.5 line spacing.