Programming Assignment 1

CST 311, Introduction to Computer Networks, Spring 2020

READ INSTRUCTIONS CAREFULLY BEFORE YOU START THE ASSIGNMENT.

This programming assignment is due at 11:59 pm on Tuesday, January 21, 20209.

Assignment must be submitted electronically to iLearn on https://ilearn.csumb.edu before the due date and time . Late assignments have a 15% penalty per day and will not be accepted after 2 days late.

Use the same Teams as the Pre-Midterm Assignment.

This first assignment is a warmup practice. As such, select your Team leader, also Team leader backup, client and sever programmers, etc per the Programming Process instructions.

This assignment basically requires you to submit the Python client and server code for the UDP socket programming example in Section 2.7.1 and then also the TCP socket programming example in Section 2.7.2. You should each try to do this on your own first but you will then work with your assigned team for this assignment. Split up your team to have one group do the UDP example together and another group to do the TCP example. The goal of this assignment is a) to learn about how UDP and TCP works and how to program with UDP and TCP and also b) to make sure your computer is set up and working, ready for the next assignment where you will be writing your own code. You are welcome to use whatever IDE the team prefers; for this assignment with about 10 lines of code, you may prefer to simply use an editor but this is up to you. Since you are essentially copying the example code from the textbook, there is no need for pseudo code, selection of the best method nor code review. Just code it, test it with the following cases:

abcdef

abc123def

ABcdEF

AB12cdEF

Two Words HERE !!

The naming convention of the file should be PA1_your_last_names_in_alphabetic_order.py. Put your names in the program as well. Put in sufficient comments for you to understand what the code is doing and to clearly explain how your code works.

This assignment is worth 150 points. The grading objectives for the assignment are given below.

Grading Objectives

For TCP and for UDP each:

(10 points) Socket set up correctly on server

(10 points) Socket set up correctly on client

(10 points) Server waits for input

(15 points) Client sends message to server

(15 points) Server takes input and changes it to all CAPS

(15 points) Client receives and prints out the modified message

What to Hand in

You will hand in a print out of the run with the 4 test cases.

Optional Extra-credit Exercises

You will be using your PC to run both the client and server code.

(10 points)
If you have time, try to do this in the mininet virtual machine.