SE375 - Laboratory Assignment 07

Part 1: Subnetting

We will be working on Linux to demonstrate subnetting as mentioned in the class. Simply put, a subnet is a logical (virtual) subdivision of an IP network.

Type `ifconfig` on command line. Observe the details in your Ethernet interface to figure out

- which class of network the lab belongs to
- how many subnets there are at max
- how many hosts each subnet can have

As a collective exercise, we will create 8 subnets in the lab and each host will designate the proper subnet mask, and a proper host address statically so that it belongs to one of these subnets.

- Compute the required subnet mask, also a proper IP (depending on which subnet you will be in)
- Configure your computer properly using `ifconfig` command, which will now take arguments. You will need to use `sudo` additionally as this process needs elevated privileges.
- After proper configuration, try pinging a host in your own subnet, and another host in a different subnet. Report your results.

Part 2: Client-server example

Please switch to Windows on your computer for this exercise.

You are provided with a simple client program written in Java named `client.jar`. You do not have direct access to its source code. Provided with a target IP, this client connects to the server at that IP on a port using a protocol. After successful connection, the server sends a code to the client.

Download `client.jar`. Open the command prompt and navigate to the folder where it resides using `cd` command. Run the client through `java -jar client.jar` and run Wireshark, as you will need it to extract the required information.

The client will ask for the server's IP, which will be provided to you. After successful connection, you will be prompted with a series of questions that you need to answer correctly:

- The protocol being used
- Port being used on server side
- Local port being used on your machine
- The code that server sends to you