Network programming
Week 5

Exercise 1

Needed changes for compiling

In order to compile all the files, in libfree in the file *inet_ntop.c* in the function inet_ntop the size_t needed to be changed to socklen_t.

Exercise 2

a) If the port number is not changed, the program requires root privileges to run the server, as the port 13 is regulated.

b) Server: the server does not start without the listen argument Client: The client sends a packet, but because the server is not active, it can't make a connection TCP layer: TCP layer gets the packet, but because there is no server listening, the packet is discarded and a reset packet is send to the client

c) The server does start now. However, the client still can't make the connection. This is because on the server side, the socket is not connected to any IP address, it is listening to an empty socket. The client and TCP layer behave the same as in section b.

d) The ports are assigned from a range from 32770 to 61000. If the port number goes over 61000, it goes back to the start. Each port is bigger than the last one and the port number is always divisible by 2. The same behavior stays even when there are multiple clients running at the same time.

Exercise 3

a) The program still functions as is should. At the TCP layer, the server can no longer transmit to the client and the client cannot read from the server. However, there is still data going in both ways, for example acknowledgments still go through.

b) The server is waiting for something to come to the socket, but nothing will come there because the reading has been closed. The client tries to send the packet, but because nothing is there to receive the packet, it gets discarded. The client tries to resend the packet, but after a timeout the socket is shutdown. The TCP layer just ignores the packet, because there is no server listening to that connection.

c) The client will die to errors while writing to the server. The retransmission timeout cannot be detected.

Exercise 4

No changes were needed to compile the lib library.