

Quiz 2

Your Name:

9/16/2015

- 3. (1 points) Using the UDP checksum calculation method, what would be the checksum for the following data:

A: 1000 0101 0011 0101

B: 0010 0101 0000 1010

C: 0001 1000 1111 0000

D: 1011 0111 1111 0000

```

      A: 1000 0101 0011 0101
+   B: 0010 0101 0000 1010
-----
      1010 1010 0011 1111
+   C: 0001 1000 1111 0000
-----
      1100 0011 0010 1111
+D: 1011 0111 1111 0000
-----
      1 0111 1011 0001 1111
                                +1
-----
      0111 1011 0010 0000
      1000 0100 1101 1111  1's complement:

```

2. (2 points) We've learned that DNS servers are organized hierarchically. There are root servers, top level domain servers (.com, .edu, .org, etc), organizational servers, etc. A DNS server for mycompany.com with a currently empty DNS cache, receives a recursive query for the name: onl.wustl.edu.

To process this query, to what level would you expect it to send out its first query?

A root DNS server or a .com TLD server.

What kind of query would that be?

An iterative query so it can cache the intermediate results.

3. (3 points) In Labs 2-5 you will be using the Open Network Laboratory (ONL). To use ONL you will run a user interface application called the RLI on your laptop. The RLI needs to connect to an ONL server process, the CRD, which runs on a server machine, onlsrv. You will use an SSH tunnel to allow the RLI to connect to the server process on onlsrv because there is a firewall in between.

In the diagram below label the following components:

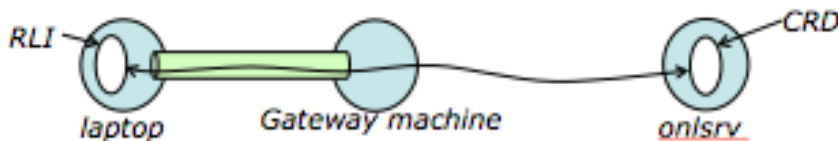
laptop

onlsrv

gateway machine

RLI

CRD



If user *roxanne* is on her laptop and her RLI wants to use port 7070 on its end of the tunnel and the CRD is accepting connections on port 7070, what would be the ssh tunnel command she should enter to allow the RLI to connect to the CRD using onl.wustl.edu as the gateway machine?

```
ssh -L 7070:onlsrv:7070 roxanne@onl.wustl.edu
```

4. (4 points). Suppose a server with IP address 156.12.34.56 executes the following lines of java.

```
ServerSocket sock = new ServerSocket();  
sock.bind(InetSocketAddress("156.12.34.56", 4576));  
Socket connsock = sock.accept();  
InetAddress x = connsock.getInetAddress();
```

Now, suppose a host with IP address 72.35.64.85 executes the following lines.

```
Socket sockA = new Socket();  
sockA.bind(InetSocketAddress("72.35.64.85", 4576));  
sockA.connect(InetSocketAddress("156.12.34.56", 14333));
```

At this point, how many sockets are there at the server?

1 socket, namely, the ServerSocket sock, since the connect request from host 72.35.64.85 is to a port that the server is not listening on.

A short while later, another host with IP address 23.44.55.66 executes the following lines.

```
Socket sockB = new Socket();  
sockB.bind(InetSocketAddress("23.44.55.66", 55621));  
sockB.connect(InetSocketAddress("156.12.34.56", 4576));
```

At this point, how many sockets are there at the server?

2 sockets, the server and client sockets for the connection to host 23.44.55.66.

How many port numbers are being used at the server?

1 port number (both sockets are associated with port 4576).

What is the value of the variable x at the server?

$x = 23.44.55.66$, the address of the client.