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Faculty of Information Technology
Final Exam, 2020/2021(2)
Course (Code) Name: COSC 313 TCP/IP Programming

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Group: ………………….   Date:

Question 1 / 6 marks

Refer to the codes below on the server side:

ServerSocket serverSocket = new ServerSocket(1200);

Socket server = serverSocket.accept();

DataInputStream in = new DataInputStream(server.getInputStream());

System.out.println(in.readUTF());

Question 6/ 6 marks

The codes below print the IPs of all neighbors to the local host
(With the assumption is that the subnet mask is /26.)

InetAddress add1 = InetAddress.getLocalHost();
byte [] add2 = add1.getAddress ();
for (int i=1; i<= 63;i++)
{
add2[3]= (byte)i;
System.out.println (InetAddress.getByAddress (add2));
}

- Re-write the codes with slight changes so that they print the IPs together with hostnames. Give to all neighbors the same hostname: "auca"

InetAddress add1 = InetAddress.getLocalHost();
byte [] add2 = add1.getAddress ();
for (int i=1; i<= 63;i++)
{
add2[3]= (byte)i;
System.out.println (InetAddress.getByAddress ("auca",add2));
}

- Re-write the codes with slight changes so that they only print neighbors which are reachable.

InetAddress add1 = InetAddress.getLocalHost();
byte [] add2 = add1.getAddress ();
for (int i=1; i<= 63;i++)
{
add2[3]= (byte)i;
InetAddress add3 = InetAddress.getByAddress(add2);
if (add3.isReachable(800))
System.out.println (add3);
}

Question 3/ 4 marks

Consider the codes below:

NetworkInterface nif = NetworkInterface.getByName("wlan0");
System.out.println(nif.getName());

What is the output of the above codes? Explain.

The output is "wlan0"

Question 4 / 4 marks

Question 7 / 4 marks

The codes below print the list of all network interfaces of a host machine.

List<NetworkInterface> list1 = Collections.list (NetworkInterface.getNetworkInterfaces());
for (int i=0; i<=list1.size(); i++)
System.out.println (list1.get(i));

Re-write the codes so that they print the same network interfaces as enumeration and not a list.

Enumeration<NetworkInterface> netif1 = NetworkInterface.getNetworkInterfaces();
while(net1.hasMoreElements())
{NetworkInterface net2=net1.nextElement();
System.out.println(net2);}

Question 8 / 8 marks

Consider the codes below:

NetworkInterface nif = NetworkInterface.getByName("wlan0");
List<InterfaceAddress> list = nif.getInterfaceAddresses();
for (InterfaceAddress list1:list){
System.out.println(list1);}

The output of the above codes is:
/10.9.154.106/24 [/10.9.154.255]
/fe80:0:0:0:bd2f:c3bd:8aa9:8cc6%wlan0/64 [null]

- How can you change them to have the following output:

10.9.154.255

NetworkInterface nif = NetworkInterface.getByName("wlan0");
List<InterfaceAddress> list = nif.getInterfaceAddresses();
System.out.println(list.get(0).getBroadcast());

- How can you change them to have the following output:

/10.9.154.106

NetworkInterface nif = NetworkInterface.getByName("wlan0");
List<InterfaceAddress> list = nif.getInterfaceAddresses();
System.out.println(list.get(0).getAddress());

- How can you change them to have the following output:

10.9.154.106

NetworkInterface nif = NetworkInterface.getByName("wlan0");
List<InterfaceAddress> list = nif.getInterfaceAddresses();
System.out.println(list.get(0).getAddress().getHostAddress());

- How can you change them to have the folowing output:

24
64