

## BCSE308P COMPUTER NETWORKS

### ASSIGNMENT

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#### UDP CLIENT AND SERVER – DNS SIMULATION

1. Create Java programs that establish client-server link and server converts the message from client to uppercase and sends it back to client.

Client Program

```
import java.io.*;
import java.net.*;
class UDPClientCapitalize
{
    public static void main(String args[]) throws Exception
    {
        BufferedReader inFromUser = new BufferedReader(new
InputStreamReader(System.in));
        DatagramSocket clientSocket = new DatagramSocket();
        System.out.print("Enter IP Address of server: ");
        String ip = inFromUser.readLine();
        InetAddress IPAddress = InetAddress.getByName(ip);
        byte[] sendData = new byte[1024], receiveData = new
byte[1024];
        System.out.print("Enter message/data: ");
        String sentence = inFromUser.readLine();
        sendData = sentence.getBytes();
        DatagramPacket sendPacket = new DatagramPacket(sendData,
sendData.length, IPAddress, 9876);
        clientSocket.send(sendPacket);
        DatagramPacket receivePacket = new
DatagramPacket(receiveData, receiveData.length);
        clientSocket.receive(receivePacket);
        String modifiedSentence = new
String(receivePacket.getData());
        System.out.println("From Server: " + modifiedSentence);
        clientSocket.close();
    }
}
```

## Server Program

```
import java.io.*;
import java.net.*;
class UDPServerCapitalize
{
    public static void main(String args[]) throws Exception
    {
        DatagramSocket serverSocket = new DatagramSocket(9876);
        byte[] receiveData = new byte[1024], sendData = new
byte[1024];
        while(true)
        {
            DatagramPacket receivePacket = new
DatagramPacket(receiveData, receiveData.length);
            serverSocket.receive(receivePacket);
            String sentence = new String(receivePacket.getData());
            InetAddress IPAddress = receivePacket.getAddress();
            int port = receivePacket.getPort();
            String capitalizedSentence = sentence.toUpperCase();
            sendData = capitalizedSentence.getBytes();
            DatagramPacket sendPacket = new DatagramPacket(sendData,
sendData.length, IPAddress, port);
            serverSocket.send(sendPacket);
        }
    }
}
```

## Output

```
PS C:\Users\RISHAAN\Desktop\VIT\W 2022-23\G - Computer Networks\Client> javac .\UDPCli
entCapitalize.java
PS C:\Users\RISHAAN\Desktop\VIT\W 2022-23\G - Computer Networks\Client> java UDPCli
entCapitalize
Enter IP Address of server: localhost
Enter message/data: Hello, please convert this sentence.
From Server: HELLO, PLEASE CONVERT THIS SENTENCE.
PS C:\Users\RISHAAN\Desktop\VIT\W 2022-23\G - Computer Networks\Client> |
```

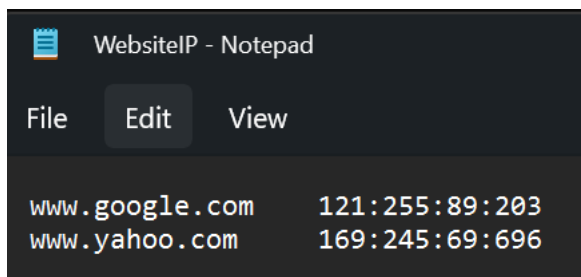
```
PS C:\Users\RISHAAN\Desktop\VIT\W 2022-23\G - Computer Networks\Server> javac .\UDPSer
verCapitalize.java
PS C:\Users\RISHAAN\Desktop\VIT\W 2022-23\G - Computer Networks\Server> java UDPSer
verCapitalize
```

**2. Create Java programs that establish client-server link and server reads the URL from client and finds its appropriate IP address from a text file and sends it back to client.**

Client Program

```
import java.io.*;
import java.net.*;
class UDPClientCapitalize
{
    public static void main(String args[]) throws Exception
    {
        BufferedReader inFromUser = new BufferedReader(new
InputStreamReader(System.in));
        DatagramSocket clientSocket = new DatagramSocket();
        System.out.print("Enter IP Address of server: ");
        String ip = inFromUser.readLine();
        InetAddress IPAddress = InetAddress.getByName(ip);
        byte[] sendData = new byte[1024], receiveData = new
byte[1024];
        System.out.print("Enter message/data: ");
        String sentence = inFromUser.readLine();
        sendData = sentence.getBytes();
        DatagramPacket sendPacket = new DatagramPacket(sendData,
sendData.length, IPAddress, 9876);
        clientSocket.send(sendPacket);
        DatagramPacket receivePacket = new
DatagramPacket(receiveData, receiveData.length);
        clientSocket.receive(receivePacket);
        String modifiedSentence = new
String(receivePacket.getData());
        System.out.println("From Server: " + modifiedSentence);
        clientSocket.close();
    }
}
```

Text File



## Server Program

```
import java.io.*;
import java.net.*;
class UDPServerForWebIPData
{
    public static void main(String args[]) throws Exception
    {
        DatagramSocket serverSocket = new
DatagramSocket(9876);
        byte[] receiveData = new byte[1024], sendData = new
byte[1024];
        while (true)
        {
            DatagramPacket receivePacket = new
DatagramPacket(receiveData, receiveData.length);
            serverSocket.receive(receivePacket);
            String url = new String(receivePacket.getData());
            url = url.trim();
            InetAddress IPAddress = receivePacket.getAddress();
            int port = receivePacket.getPort();
            File f = new File("WebsiteIP.txt");
            FileReader fr = new FileReader(f);
            String str = null, temp = null;
            BufferedReader br = new BufferedReader(fr);
            while ((str = br.readLine()) != null)
            {
                if (str.contains(url))
                    temp = str;
            }
            fr.close();
            sendData = temp.getBytes();
            DatagramPacket sendPacket = new DatagramPacket(sendData,
sendData.length, IPAddress, port);
            serverSocket.send(sendPacket);
        }
    }
}
```

## Output

```
PS C:\Users\RISHAAN\Desktop\VIT\W 2022-23\G - Computer Networks\Client> javac .\UDPCli
entForWebIPData.java
PS C:\Users\RISHAAN\Desktop\VIT\W 2022-23\G - Computer Networks\Client> java UDPCli
entForWebIPData
Enter Server IP Address: localhost
Enter URL: www.google.com
FROM SERVER: www.google.com 121:255:89:203
PS C:\Users\RISHAAN\Desktop\VIT\W 2022-23\G - Computer Networks\Client> |
```

```
PS C:\Users\RISHAAN\Desktop\VIT\W 2022-23\G - Computer Networks\Server> javac .\UDPSer
verForWebIPData.java
PS C:\Users\RISHAAN\Desktop\VIT\W 2022-23\G - Computer Networks\Server> java UDPSer
verForWebIPData
```