COMPUTER NETWORKS AND SECURITY LABORATORY

Assignment No. 5 A

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Ques :- Write a program to simulate Go back N of Sliding Window Protocol in Peer-to-Peer mode.

Solution :-

Program :

1) Server =

```
//Lab Assignment 3: 3.     Write a program to simulate Go back N Modes of Sliding Window Protocol in peer to peer mode.

//**** Server Code ****

import java.io.*;

import java.net.*;

import java.util.*;


class testserver

{

public static void main(String args[])throws IOException

{

System.out.println(".....Server.....");

System.out.println("Waiting for connection....");

InetAddress addr=InetAddress.getByName("Localhost");

ServerSocket ss=new ServerSocket(500);


Socket client=new Socket();

client=ss.accept();
```

```
BufferedInputStream in=new BufferedInputStream(client.getInputStream());
DataOutputStream out=new DataOutputStream(client.getOutputStream());

System.out.println("Received request for sending frames");
int p=in.read();

boolean f[]=new boolean[p];

int pc=in.read(); //Choice ... Error or non-error
System.out.println("Sending....");

if(pc==0)//No error case
{
        for(int i=0;i<p;++i)
        {
        System.out.println("sending frame number "+i);
        out.write(i);
        out.flush();
        System.out.println("Waiting for acknowledgement");
        try
        {
        Thread.sleep(7000);
        }
```

```
        catch(Exception e){}

        int a=in.read();
        System.out.println("received acknowledgement for frame "+i+" as "+a);
        }
        out.flush();
        }
else // Error Case
{
        for(int i=0;i<p;++i)
        {
        if(i==2) //Creating a scenario of error (not sending the frame)
                {
                System.out.println("sending frame no "+i);
                }
        else
                {
                System.out.println("sending frame no "+i);
                out.write(i);
                out.flush();
                System.out.println("Waiting for acknowledgement ");
                try
                        {
                        Thread.sleep(7000);
```

```
                }
            catch(Exception e){}

            int a=in.read();

            if(a!=255)
                {
                System.out.println("received ack for frame no: "+i+" as "+a);
                f[i]=true;
                }
            }// end of inner else
}// end of for

// check which frames have not been ack

for(int a=0;a<p;++a)
{
    if(f[a]==false)
            {
            System.out.println("Resending frame "+a);
            out.write(a);
            out.flush();
            System.out.println("Waiting for ack ");
            try
```

```
                    {
                    Thread.sleep(5000);
                    }
                catch(Exception e){}

                int b=in.read();
                System.out.println("received ack for frame no: "+a+" as "+b);
                f[a]=true;
                }
        }
        out.flush();
}// end of else which is for error

in.close();
out.close();
client.close();
ss.close();
System.out.println("Quiting");

}// end main method
}// end main class
```

2) Client =

//Lab Assignment 3: Write a program to simulate Go back N Modes of Sliding Window Protocol in peer to peer mode.

```
//**** client Code ****

import java.io.*;

import java.net.*;

import java.math.*;

import java.util.*;


class testclient

{


public static void main(String args[])throws IOException

{

InetAddress addr=InetAddress.getByName("Localhost");

System.out.println(addr);


Socket connection=new Socket(addr,500);


BufferedInputStream in=new BufferedInputStream(connection.getInputStream());

DataOutputStream out=new DataOutputStream(connection.getOutputStream());

Scanner scr=new Scanner(System.in);// this will be used to accept i/p from console
```

```
System.out.println(".....Client.....");
System.out.println("Connect");
System.out.println("Enter the number of frames to be requested to the server");
int c=scr.nextInt();

out.write(c);
out.flush();

System.out.println("Enter the type of trans. Error=1 ; No Error=0");
int choice=scr.nextInt();
out.write(choice);

int check=0;
int i=0;
int j=0;

if(choice==0)
{
        for(j=0;j<c;++j)
        {
        i=in.read();
        System.out.println("received frame no: "+i);
        System.out.println("Sending acknowledgement for frame no: "+i);
        out.write(i);
```

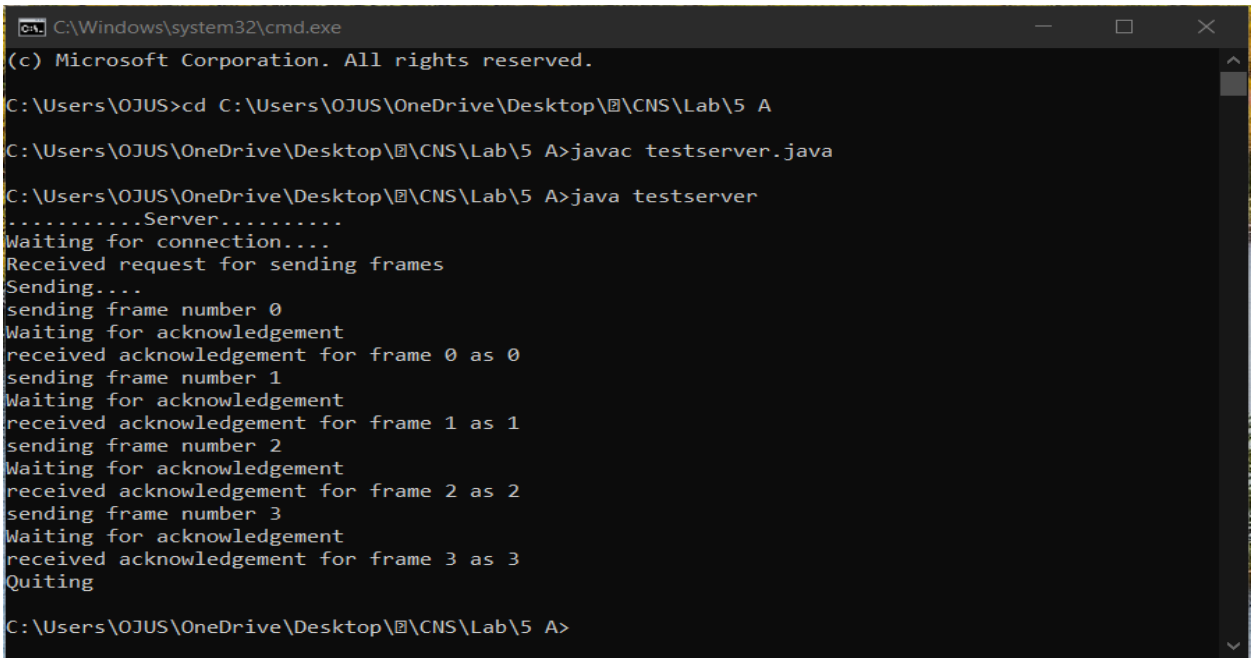
```
        out.flush();
        }
        out.flush();
}
else //Error case
        {
        for(j=0;j<c;++j)
        {
        i=in.read();
        if(i==check)
        {
        System.out.println("received frame no: "+i);
        System.out.println("Sending acknowledgement for frame no: "+i);
        out.write(i);
        ++check;
        }
        else
        {
        --j;
        System.out.println("Discarded frame no: "+i);
        System.out.println("Sending NEGATIVE ack");
        out.write(-1);
        }
        out.flush();
```

```
        }
}//end of else for error


in.close();
out.close();
System.out.println("Quiting");


}// end of main method
}// end of main class
```

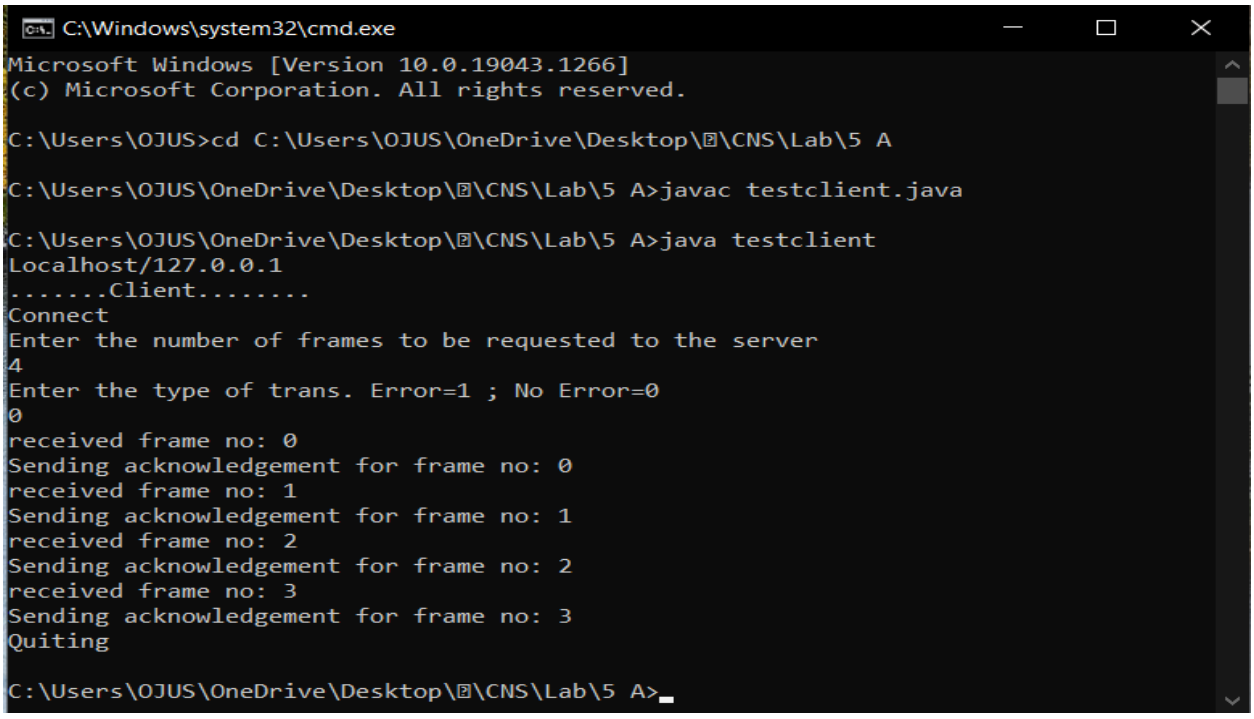
Output :

1) Error = 0

Server

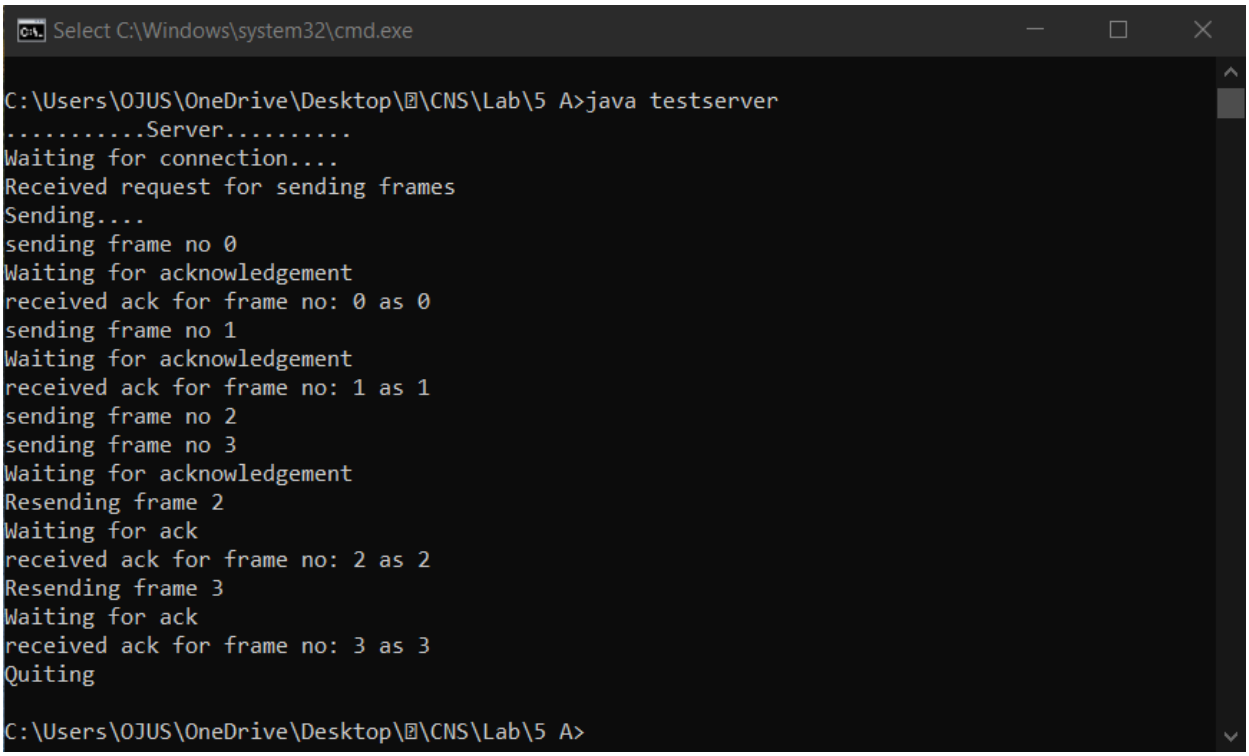


Client



2) Error = 1

Server



Client