GOBACK-N PROTOCOL

SERVER.JAVA

```
import java.io.*;
import java.net.*;
import java.util.*;
class goback_server{
public static void main(String args[])throws IOException{
System.out.println("...Server...");
System.out.println("...Waiting...");
InetAddress address = InetAddress.getByName("Localhost");
ServerSocket ss = new ServerSocket(500);
Socket s1 = new Socket();
s1 = ss.accept();
BufferedInputStream in = new BufferedInputStream(s1.getInputStream());
DataOutputStream out = new DataOutputStream(s1.getOutputStream());
System.out.println("received request for sending frames");
int n = in.read();
boolean[] array = new boolean[n];
int pc = in.read();
System.out.println("...Sending...");
```

```
if(pc==0){
for(int i=0;i<n;i++){
System.out.println("Sending frame => "+i);
out.write(i);
out.flush();
System.out.println("..Waiting for acknowledge..");
try{
Thread.sleep(5000);
}
catch (Exception e){}
int a = in.read();
System.out.println("received acknowledgment for frame => " +i+ " as "+a);
}
out.flush();
}
else{
for(int i=0;i<n;i++){
if(i==3) {
System.out.println("Sending frame number => " +i);
}
else{
System.out.println("sending frame no => " +i);
out.write(i);
out.flush();
System.out.println("Waiting for acknologment ");
```

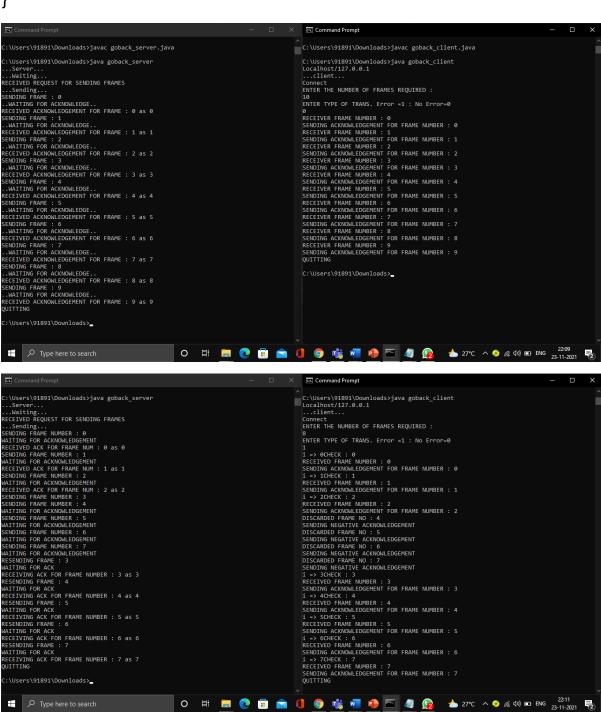
```
try {
Thread.sleep(7000);
}
catch(Exception e){}
int a = in.read();
if(a!=255){
System.out.println("received ack for frame num =>"+i+" as "+a);
array[i]=true;
}
for(int a=0;a<n;a++){
if(array[a]==false){
System.out.println("Resending frame => " +a);
out.write(a);
out.flush();
System.out.println("waiting for ack ");
try {
      Thread.sleep(5000);
      }
catch(Exception e){}
int b = in.read();
System.out.println("receiving ack for frame num => "+a+" as "+b);
```

```
array[a]=true;
}
out.flush();
in.close();
System.out.println("Quiting");
CLIENT.JAVA
import java.io.*;
import java.net.*;
import java.math.*;
import java.util.*;
class goback client{
public static void main(String args[]) throws IOException{
InetAddress address = InetAddress.getByName("Localhost");
System.out.println(address);
Socket s1 = new Socket(address,500);
BufferedInputStream in = new
BufferedInputStream(s1.getInputStream());
DataOutputStream out = new
DataOutputStream(s1.getOutputStream());
```

```
Scanner sc = new Scanner(System.in);
System.out.println("...client...");
System.out.println("Connect");
System.out.println("Enter the num of frames to be request to
server");
int c = sc.nextInt();
out.write(c);
out.flush();
System.out.println("Enter type of trans. Error =1: No Error=0");
int choice = sc.nextInt();
out.write(choice);
int i=0, j=0, check=0;
if(choice==0){
     for(j=0;j<c;j++){
           i = in.read();
           System.out.println("receiver frame number => " +i);
           System.out.println("Sending acknowlwdgement for frame
number=> "+i);
           out.write(i);
           out.flush();
```

```
}
out.flush();
else{
     for(j=0;j<c;j++){
           i = in.read();
           if(i==check){
                 System.out.println("i => " +i+ "check => " +check);
                 System.out.println("received frame number => "+i);
                 System.out.println("sending acknowledgement for
frame num => " +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();
in.close();
```

```
out.close();
System.out.println("Quiting");
}
```



SELECTIVE REPEAT PROTOCOL

SERVER.JAVA

```
import java.io.DataInputStream;
import java.io.DataOutputStream;
import java.io.IOException;
import java.net.ServerSocket;
import java.net.Socket;
import java.net.SocketException;
class selective_server
{
     static ServerSocket Serversocket;
     static DataInputStream dis;
     static DataOutputStream dos;
     public static void main(String[] args) throws SocketException
           try
           {
                int a[] = { 30, 40, 50, 60, 70, 80, 90, 100 };
                Serversocket = new ServerSocket(8011);
                System.out.println("WAITING FOR CONNECTION");
                Socket client = Serversocket.accept();
```

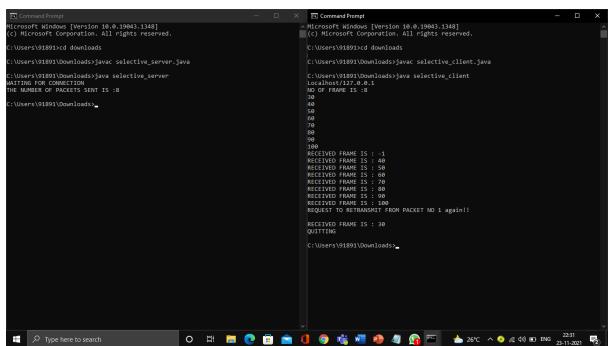
```
dis = new DataInputStream(client.getInputStream());
                 dos = new
DataOutputStream(client.getOutputStream());
                 System.out.println("THE NUMBER OF PACKETS SENT
IS :" + a.length);
                 int y = a.length;
                 dos.write(y);
                 dos.flush();
                 for (int i = 0; i < a.length; i++)
                 {
                      dos.write(a[i]);
                      dos.flush();
                 }
                 int k = dis.read();
                 dos.write(a[k]);
                 dos.flush();
           }
           catch (IOException e)
           {
                 System.out.println(e);
```

```
}
           finally
           {
                 try
                 {
                       dis.close();
                       dos.close();
                 catch (IOException e)
                 {
                       e.printStackTrace();
                 }
           }
     }
}
CLIENT.JAVA
import java.lang.System;
import java.net.*;
import java.io.*;
import java.text.*;
import java.util.Random;
import java.util.*;
```

```
class selective cient {
     static Socket connection;
     public static void main(String a[]) throws SocketException {
           try {
                int v[] = new int[10];
                int n = 0;
                Random rands = new Random();
                int rand = 0;
                InetAddress addr =
InetAddress.getByName("Localhost");
                System.out.println(addr);
                connection = new Socket(addr, 8011);
                DataOutputStream out = new DataOutputStream(
                           connection.getOutputStream());
                DataInputStream in = new DataInputStream(
                           connection.getInputStream());
                int p = in.read();
                System.out.println("NO OF FRAME IS:" + p);
                for (int i = 0; i < p; i++) {
                      v[i] = in.read();
                      System.out.println(v[i]);
```

```
//g[i] = v[i];
                 }
                 rand = rands.nextInt(p);
                 v[rand] = -1;
                 for (int i = 0; i < p; i++)
                  {
                 System.out.println("RECEIVED FRAME IS: " + v[i]);
                 }
                 for (int i = 0; i < p; i++)
                       if (v[i] == -1) {
                             System.out.println("REQUEST TO
RETRANSMIT FROM PACKET NO "+ (i+1) + " again!!");
                             n = i;
                             out.write(n);
                             out.flush();
                       }
                 System.out.println();
                       v[n] = in.read();
                       System.out.println("RECEIVED FRAME IS: " +
v[n]);
```

```
System.out.println("QUITTING");
} catch (Exception e) {
         System.out.println(e);
}
```



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CSE-B