Name – Vaibhav Banka

Reg No. – 21BCE1955

Lab7_Selective Repeat ARQ

Server :

```
import java.io.DataInputStream;
import java.io.DataOutputStream;
import java.io.IOException;
import java.net.ServerSocket;
import java.net.Socket;
import java.net.SocketException;
import java.util.Scanner;
import java.util.*;
import java.io.*;
import java.lang.Math;

public class arqserver
{
    static ServerSocket Serversocket;
    static DataInputStream dis;
    static DataOutputStream dos;

    public static void main(String[] args) throws SocketException
    {

        try
        {
            int m;
            Scanner obj = new Scanner(System.in);
            System.out.println("enter value of m :");
            m = obj.nextInt();
            int size = (int)Math.pow(2,(m-1));
            System.out.println("Window size is = "+size);
            System.out.println("enter elements :");
            int [] a = new int[size];
            for(int i = 0;i<size;i++){
                a[i] = obj.nextInt();
            }
            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 :

```
import java.lang.System;
import java.net.*;
import java.text.*;
import java.util.Random;
import java.util.*;
import java.io.*;

public class arqclient {
    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);//FRAME NO. IS RANDOMLY
GENERATED
            v[rand] = -1;
            int j = 0;
            int x = p;
            p--;
            boolean flag = false;
            for (int i = 0; i < x; i++)
             {
                if(v[i] != -1){
                    System.out.println("Received frame is: " + v[i]);
                    System.out.println("Window Size = "+(++j)+" to "+(++p));
                }
                else{
```

```
                    System.out.println("Received frame is: " + v[i]);
                    System.out.println("Window Size = "+(j)+" - "+(p));
                }

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

        }
}
```

Output: