

## Stop & Wait Sender :

```
import java.io.*;
import java.net.*;
public class StopWait_Sender
{
    Socket sender;
    ObjectOutputStream out;
    ObjectInputStream in;
    String packet,ack,str, msg;
    int n,i=0,sequence=0;
    StopWait_Sender(){}

    public void run()
    {
        try {
            BufferedReader br=new BufferedReader(new InputStreamReader(System.in));
            System.out.println("Waiting for Connection....");
            sender = new Socket("localhost",2004);
            sequence=0;
            out=new ObjectOutputStream(sender.getOutputStream());
            out.flush();
            in=new ObjectInputStream(sender.getInputStream());
            str=(String)in.readObject();
            System.out.println("receiver > "+str);
            System.out.println("Enter the data to send....");
            packet=br.readLine();
            n=packet.length();
            do {
                try {
                    if(i<n) {
                        msg=String.valueOf(sequence);
                        msg=msg.concat(packet.substring(i,i+1));
                    }
                    else if(i==n) {
                        msg="end";out.writeObject(msg);break;
                    }
                    out.writeObject(msg);
                    sequence=(sequence==0)?1:0;
                    out.flush();
                    System.out.println("data sent>"+msg);
```

```

        ack=(String)in.readObject();
        System.out.println("waiting for ack.....\n\n");
        if(ack.equals(String.valueOf(sequence))) {
            i++;
            System.out.println("receiver > "+" packet recieved\n\n");
        }
        else {
            System.out.println("Time out resending data....\n\n");
            sequence=(sequence==0)?1:0;
        }
    }
    catch(Exception e){}
}
while(i<n+1);
    System.out.println("All data sent. exiting.");
}
catch(Exception e){}
finally{
    try{
        in.close();
        out.close();
        sender.close();
    }
    catch(Exception e){}
}
}

public static void main(String args[])
{
    StopWait_Sender s=new StopWait_Sender();
    s.run();
}
}

```

```
Command Prompt
Command Prompt
ctrl+alt+1
e>cd OneDrive\Desktop\NC_Output

C:\Users\poove\OneDrive\Desktop\NC_Output>java StopWait_Sender
Waiting for Connection....
receiver > connected.
Enter the data to send....
OBITO
data sent>00
waiting for ack.....

receiver > packet recieved

data sent>1B
waiting for ack.....

receiver > packet recieved

data sent>0I
waiting for ack.....

receiver > packet recieved

data sent>1T
waiting for ack.....

Time out resending data....

data sent>1T
waiting for ack.....

receiver > packet recieved

data sent>00
waiting for ack.....

receiver > packet recieved

All data sent. exiting.

C:\Users\poove\OneDrive\Desktop\NC_Output>
```

## Stop & Wait Receiver :

```
import java.io.*;
import java.net.*;
public class StopWait_Receiver
{
    ServerSocket receiver;
    Socket connection = null;
    ObjectOutputStream out;
    ObjectInputStream in;
    String packet, ack, data = "";
    int i = 0, sequence = 0;
    public StopWait_Receiver() {}

    public void run()
    {
        try {
            BufferedReader br = new BufferedReader(new InputStreamReader(System.in));
            receiver = new ServerSocket(2004, 10);
            System.out.println("waiting for connection...");
            connection = receiver.accept();
            sequence = 0;
            System.out.println("Connection established:");
            out = new ObjectOutputStream(connection.getOutputStream());
            out.flush();
            in = new ObjectInputStream(connection.getInputStream());
            out.writeObject("connected.");
            do {
                try {
                    packet = (String) in.readObject();
                    if (Integer.valueOf(packet.substring(0, 1)) == sequence) {
                        data += packet.substring(1);
                        sequence = (sequence == 0) ? 1 : 0;
                        System.out.println("\n\nreceiver >" + packet);
                    }
                }
                else {
                    System.out.println("\n\nreceiver>" + packet + " duplicate data");
                }
            }
            if (i < 3) {
                out.writeObject(String.valueOf(sequence));
                i++;
            }
        }
    }
}
```

```

        }
        else {
            out.writeObject(String.valueOf((sequence + 1) % 2));
            i = 0;
        }
    }
    catch (Exception e) { }
}
while (!packet.equals("end"));
    System.out.println("Data received=" + data);
    out.writeObject("connection ended.");
}
catch (Exception e) { }
finally {
    try {
        in.close();
        out.close();
        receiver.close();
    }
    catch (Exception e) { }
}
}

public static void main(String args[])
{
    StopWait_Receiver s = new StopWait_Receiver();
    while (true) {
        s.run();
    }
}
}

```



Command Prompt - java Stop



```
C:\Users\poove>cd OneDrive\Desktop\NC_Output
```

```
C:\Users\poove\OneDrive\Desktop\NC_Output>java StopWait_Receiver  
waiting for connection...  
Connection established:
```

```
receiver >00
```

```
receiver >1B
```

```
receiver >0I
```

```
receiver >1T
```

```
receiver>1T duplicate data
```

```
receiver >00  
Data received=0BIT0  
waiting for connection...
```