PROGRAM:

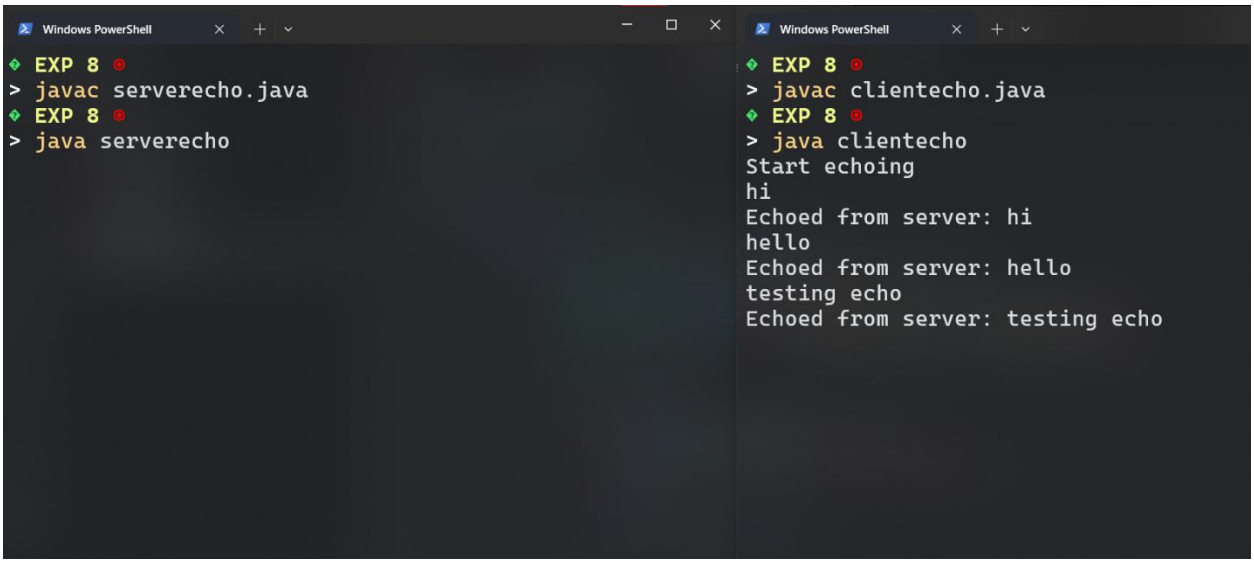
Servercho.java

```
import java.io.*;
import java.net.*;
public class serverecho{
   public static void main(String[] args) {
      try (ServerSocket ssoc = new ServerSocket(3110);
          Socket soc = ssoc.accept();
          DataInputStream dis = new DataInputStream(soc.getInputStream());
          DataOutputStream dos = new DataOutputStream(soc.getOutputStream())
      )
 {
         String rec_msg;
           while ((rec_msg = dis.readUTF()) != null) {
            if (rec_msg.equals("end")) {
                System.out.println("Client disconnected");
                break;
            } else {
                dos.writeUTF(rec_msg);
            }
         }
      } catch (IOException e) {
         System.out.println("Error: " + e.getMessage());
      }
   }
}
```

Clientecho.java

```
import java.io.*;
import java.net.*;
import java.util.Scanner;
public class clientecho{
    public static void main(String[] args) {
        try (
            Socket soc = new Socket("localhost", 3110);
            DataOutputStream dos = new DataOutputStream(soc.getOutputStream());
            DataInputStream dis = new DataInputStream(soc.getInputStream());
            Scanner n = new Scanner(System.in)
        ) {
            System.out.println("Start echoing");
            String sent_msg;

            while (true) {
                sent_msg = n.nextLine();
                dos.writeUTF(sent_msg);

                if (sent_msg.equals("end")) {
                    System.out.println("Disconnected");
                    break;
                } else {
                    System.out.println("Echoed from server: " + dis.readUTF());
               }}}
catch (IOException e) {
            System.out.println("Error: " + e.getMessage());
        }}}
```

OUTPUT:


Windows PowerShell
EXP 8
> javac serverecho.java
EXP 8
> java serverecho
Windows PowerShell
EXP 8
> javac clientecho.java
EXP 8
> java clientecho
Start echoing
hi
Echoed from server: hi
hello
Echoed from server: hello
testing echo
Echoed from server: testing echo

PROGRAM:

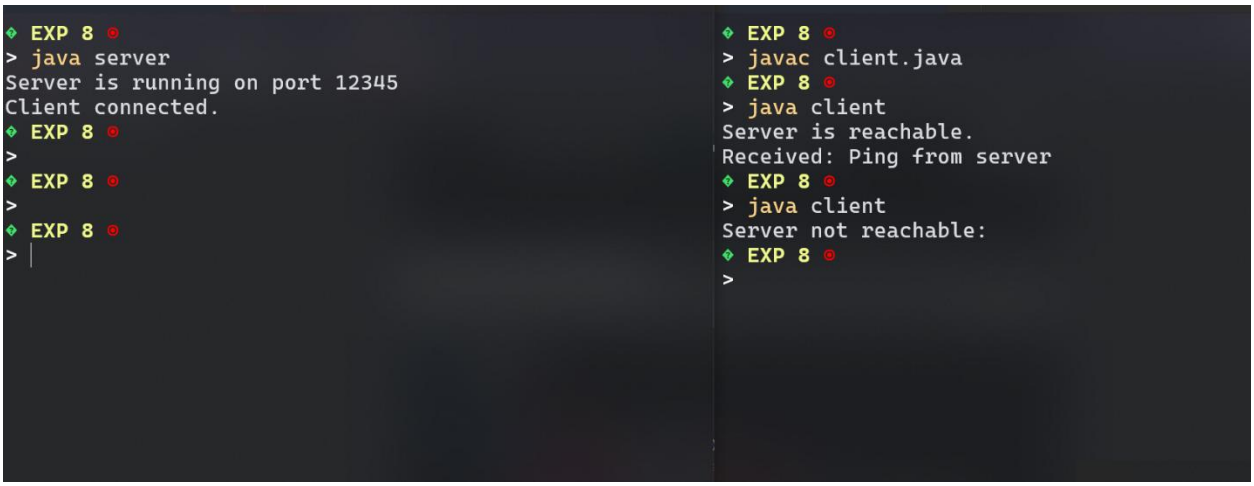
Serverping.java

```
import java.io.*;
import java.net.*;

public class server{
    public static void main(String[] args) {
        int port = 12345;
        try (ServerSocket serverSocket = new ServerSocket(port)) {
            System.out.println("Server is running on port " + port);

            while (true) {
                try (Socket clientSocket = serverSocket.accept();
                     PrintWriter out = new PrintWriter(clientSocket.getOutputStream(), true)) {
                    System.out.println("Client connected.");
                    out.println("Ping from server");
                } catch (IOException e) {
                    System.err.println("Error handling client connection: " + e.getMessage());
                }
            }
        } catch (IOException e) {
            System.err.println("Could not start server: " + e.getMessage());
        }
    }
}
```

Clientping.java

```
import java.io.*;
import java.net.*;
public class client{
    public static void main(String[] args) {
        String host = "127.0.0.1";
        int port = 12345;

        try (Socket socket = new Socket(host, port);
             BufferedReader in = new BufferedReader(new InputStreamReader(socket.getInputStream()))) {
            System.out.println("Server is reachable.");
            String response = in.readLine();
            System.out.println("Received: " + response);
        } catch (Exception e) {
            System.err.println("Server not reachable: " );}}}
```

OUTPUT:



PROGRAM:

Servertcp.java

```
import java.io.*;
import java.net.ServerSocket;
import java.net.Socket;
public class servertcp{
    private static DataOutputStream dataOutputStream = null;
    private static DataInputStream dataInputStream = null;
    private static final String SAVE_DIR = "C:\\Users\\Public\\";
    public static void main(String[] args) {
        try (ServerSocket serverSocket = new ServerSocket(5000)) {
            System.out.println("Listening on port: 5000");
            Socket clientSocket = serverSocket.accept();
            System.out.println(clientSocket + " connected.");
            dataInputStream = new DataInputStream(clientSocket.getInputStream());
            dataOutputStream = new DataOutputStream(clientSocket.getOutputStream());
           while (true) {
                String fileName = dataInputStream.readUTF();
                if (fileName.equalsIgnoreCase("exit")) {
                    System.out.println("Client has disconnected.");
                    break;
                }

                System.out.println("Receiving file: " + fileName);
                receiveFile(fileName);
                System.out.println("File received and saved as: " + SAVE_DIR + fileName);
            }

            dataInputStream.close();
```

```
            dataOutputStream.close();
            clientSocket.close();
        } catch (Exception e) {
            e.printStackTrace();
        }
    } private static void receiveFile(String fileName) throws IOException {
        FileOutputStream fileOutputStream = null;
        try {
            File file = new File(SAVE_DIR + fileName);
            fileOutputStream = new FileOutputStream(file);

            long fileSize = dataInputStream.readLong();
            System.out.println("Receiving file of size: " + fileSize + " bytes");
            byte[] buffer = new byte[4 * 1024];

            int bytesRead;
            long bytesRemaining = fileSize;

            while (bytesRemaining > 0 && (bytesRead = dataInputStream.read(buffer, 0, (int)
Math.min(buffer.length, bytesRemaining))) != -1) {
                fileOutputStream.write(buffer, 0, bytesRead);
                bytesRemaining -= bytesRead;
            }
    if (bytesRemaining > 0) {
                throw new IOException("File incomplete. Expected " + fileSize + " bytes but received " +
(fileSize - bytesRemaining) + " bytes.");
            }

            System.out.println("Completed receiving file: " + fileName);
        } finally {
            if (fileOutputStream != null) {
```

```
            fileOutputStream.close();}}}}}
```

Clienttcp.java

```
import java.io.*;
import java.net.Socket;
import java.util.Scanner;

public class clienttcp{
    private static DataOutputStream dataOutputStream = null;
    private static DataInputStream dataInputStream = null;

    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);

        try (Socket socket = new Socket("localhost", 5000)) {
            dataInputStream = new DataInputStream(socket.getInputStream());
            dataOutputStream = new DataOutputStream(socket.getOutputStream());

            while (true) {
                System.out.print("Enter the path of the file to send (or 'exit' to quit): ");
                String filePath = scanner.nextLine();

                if (filePath.equalsIgnoreCase("exit")) {
                    dataOutputStream.writeUTF("exit");
                    break;
                }

                File file = new File(filePath);
                if (file.exists() && !file.isDirectory()) {
                    String fileName = file.getName();
                    dataOutputStream.writeUTF(fileName);
```

```
                sendFile(filePath);
                System.out.println("File sent: " + fileName);
            } else {
                System.out.println("File not found or is a directory. Please enter a valid file path.");
            }
        }

        dataInputStream.close();
        dataOutputStream.close();
    } catch (Exception e) {
        e.printStackTrace();
    } finally {
        scanner.close();
    }
}

private static void sendFile(String path) throws Exception {
    int bytes = 0;
    File file = new File(path);
    FileInputStream fileInputStream = new FileInputStream(file);

    dataOutputStream.writeLong(file.length());
    byte[] buffer = new byte[4 * 1024];
    while ((bytes = fileInputStream.read(buffer)) != -1) {
        dataOutputStream.write(buffer, 0, bytes);
        dataOutputStream.flush();
    }
    fileInputStream.close();}}
```

OUTPUT:

```
◆ EXP 9 ●
> java servertcp
Listening on port: 5000
Socket[addr=/127.0.0.1,port=51641,localport=5000] connected.
Receiving file: cloud.txt
Receiving file of size: 1158 bytes
Completed receiving file: cloud.txt
File received and saved as: C:\Users\Public\cloud.txt
```

```
◆ EXP 9 ●
> java clienttcp
Enter the path of the file to send (or 'exit' to quit): C:\Users\durge\OneDr
ive\Desktop\clod.txt
File not found or is a directory. Please enter a valid file path.
Enter the path of the file to send (or 'exit' to quit): C:\Users\durge\OneDr
ive\Desktop\cloud.txt
File sent: cloud.txt
Enter the path of the file to send (or 'exit' to quit):
```