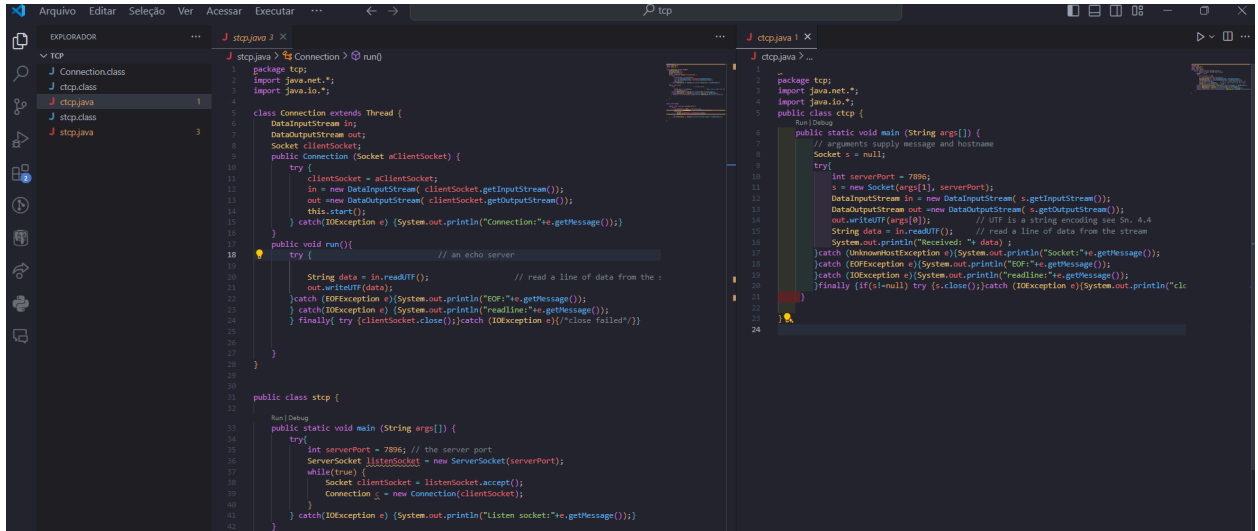


Tarefa 2

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- **Códigos TCP cliente e servidor**



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

class Connection extends Thread {
    DataInputStream in;
    DataOutputStream out;
    Socket clientSocket;

    public Connection(Socket clientSocket) {
        try {
            clientSocket = clientSocket;
            in = new DataInputStream(clientSocket.getInputStream());
            out = new DataOutputStream(clientSocket.getOutputStream());
            this.start();
        } catch (IOException e) {
            System.out.println("Connection failed: " + e.getMessage());
        }
    }

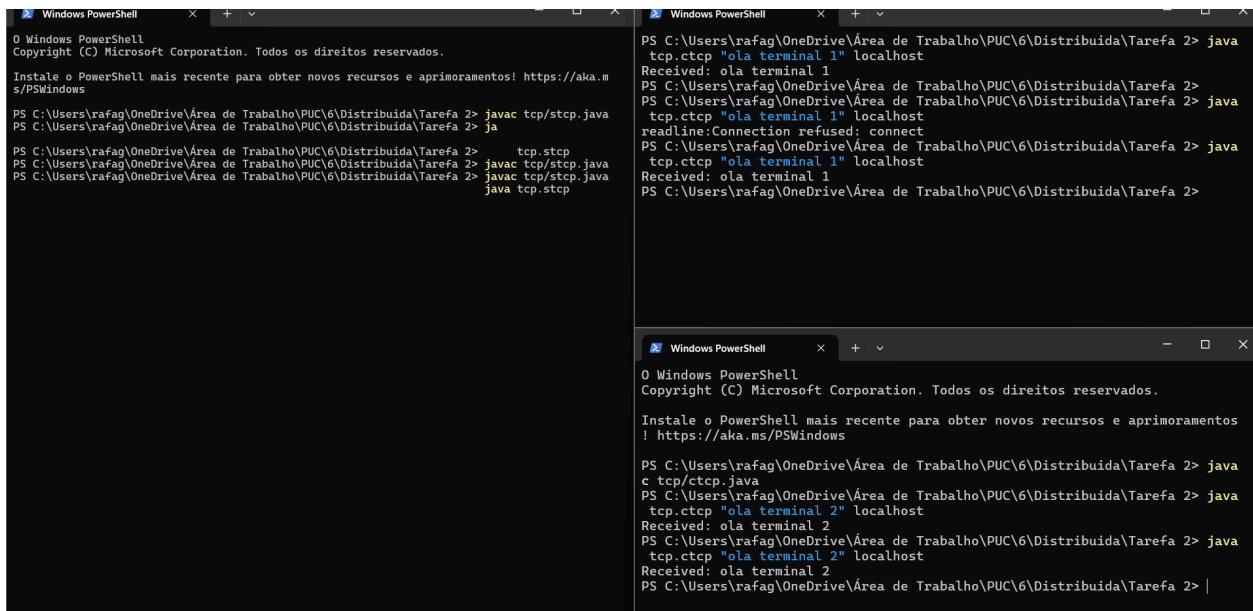
    public void run() {
        try {
            // an echo server
            String data = in.readLine();
            out.writeUTF(data);
        } catch (IOException e) {
            System.out.println("Error: " + e.getMessage());
        } catch (IOException e) {
            System.out.println("readline failed: " + e.getMessage());
        } finally {
            try {
                clientSocket.close();
            } catch (IOException e) {
                System.out.println("close failed: " + e.getMessage());
            }
        }
    }
}

public class tcp {
    public static void main(String args[]) {
        try {
            int serverPort = 7886; // the server port
            ServerSocket listenSocket = new ServerSocket(serverPort);
            while(true) {
                Socket clientSocket = listenSocket.accept();
                Connection c = new Connection(clientSocket);
            } catch (IOException e) {
                System.out.println("Listen socket: " + e.getMessage());
            }
        }
    }
}
```

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

public class ctcp {
    public static void main(String args[]) {
        // arguments supply message and hostname
        Socket s = null;
        try {
            int serverPort = 7886;
            s = new Socket(args[1], serverPort);
            DataInputStream in = new DataInputStream(s.getInputStream());
            DataOutputStream out = new DataOutputStream(s.getOutputStream());
            out.writeUTF(args[0]); // VWF is a string encoding see Sn. 4.4
            String data = in.readLine(); // read a line of data from the stream
            System.out.println("Received: " + data);
        } catch (UnknownHostException e) {
            System.out.println("Socket: " + e.getMessage());
        } catch (IOException e) {
            System.out.println("tcp: " + e.getMessage());
        } catch (IOException e) {
            System.out.println("readline: " + e.getMessage());
        } finally {
            if(s != null) try {
                s.close();
            } catch (IOException e) {
                System.out.println("close failed: " + e.getMessage());
            }
        }
    }
}
```

- **Conexão estabelecida com o servidor por parte de dois clientes na mesma máquina:**



```
0 Windows PowerShell
Copyright (C) Microsoft Corporation. Todos os direitos reservados.

Instale o PowerShell mais recente para obter novos recursos e aprimoramentos! https://aka.ms/PSWindows

PS C:\Users\rafag\OneDrive\Área de Trabalho\PUC\6\Distribuida\Tarefa 2> javac tcp/stcp.java
PS C:\Users\rafag\OneDrive\Área de Trabalho\PUC\6\Distribuida\Tarefa 2> ja

PS C:\Users\rafag\OneDrive\Área de Trabalho\PUC\6\Distribuida\Tarefa 2> tcp.stcp
PS C:\Users\rafag\OneDrive\Área de Trabalho\PUC\6\Distribuida\Tarefa 2> java tcp/stcp.java
PS C:\Users\rafag\OneDrive\Área de Trabalho\PUC\6\Distribuida\Tarefa 2> java tcp.stcp

PS C:\Users\rafag\OneDrive\Área de Trabalho\PUC\6\Distribuida\Tarefa 2> java
tcp.ctcp "ola terminal 1" localhost
Received: ola terminal 1
PS C:\Users\rafag\OneDrive\Área de Trabalho\PUC\6\Distribuida\Tarefa 2> java
tcp.ctcp "ola terminal 1" localhost
readline:Connection refused: connect
PS C:\Users\rafag\OneDrive\Área de Trabalho\PUC\6\Distribuida\Tarefa 2> java
tcp.ctcp "ola terminal 1" localhost
Received: ola terminal 1
PS C:\Users\rafag\OneDrive\Área de Trabalho\PUC\6\Distribuida\Tarefa 2>

PS C:\Users\rafag\OneDrive\Área de Trabalho\PUC\6\Distribuida\Tarefa 2> java
c tcp.ctcp.java
PS C:\Users\rafag\OneDrive\Área de Trabalho\PUC\6\Distribuida\Tarefa 2> java
tcp.ctcp "ola terminal 2" localhost
Received: ola terminal 2
PS C:\Users\rafag\OneDrive\Área de Trabalho\PUC\6\Distribuida\Tarefa 2> java
tcp.ctcp "ola terminal 2" localhost
Received: ola terminal 2
PS C:\Users\rafag\OneDrive\Área de Trabalho\PUC\6\Distribuida\Tarefa 2> |
```

- Alteração no código do servidor TCP para obter mais informações

```

PS C:\Users\rafag\OneDrive\Área de Trabalho\PUC\6\Distribuida\Tarefa 2> javac tcp/stcp.java
PS C:\Users\rafag\OneDrive\Área de Trabalho\PUC\6\Distribuida\Tarefa 2> java tcp.stcp

Servidor TCP iniciado. Aguardando conexões...
Nova conexão estabelecida com o cliente: /127.0.0.1: ola terminal 1
Mensagem recebida do cliente (/127.0.0.1): ola terminal 1
EOF:null
Conexão com o cliente (/127.0.0.1) fechada.
Nova conexão estabelecida com o cliente: /127.0.0.1
Mensagem recebida do cliente (/127.0.0.1): ola terminal 2
EOF:null
Conexão com o cliente (/127.0.0.1) fechada.

PS C:\Users\rafag\OneDrive\Área de Trabalho\PUC\6\Distribuida\Tarefa 2> java
tcp.ctcp "ola terminal 1" localhost
Received: ola terminal 1
PS C:\Users\rafag\OneDrive\Área de Trabalho\PUC\6\Distribuida\Tarefa 2>

PS C:\Users\rafag\OneDrive\Área de Trabalho\PUC\6\Distribuida\Tarefa 2> java
tcp.ctcp "ola terminal 2" localhost
Received: ola terminal 2
PS C:\Users\rafag\OneDrive\Área de Trabalho\PUC\6\Distribuida\Tarefa 2> |

```

- Código cliente e servidor UDP

```

// UDP
package udp;
import java.net.*;
import java.io.*;

public class UDPCClient {
    public static void main(String args[]){
        // args give message contents and destination hostname
        DatagramSocket aSocket = null;
        try {
            aSocket = new DatagramSocket();
            byte[] b = args[0].getBytes();
            InetAddress aHost = InetAddress.getByName(args[1]);
            int serverPort = 6789;
            DatagramPacket request =
                new DatagramPacket(b, args[0].length(), aHost, serverPort);
            aSocket.send(request);
            byte[] buffer = new byte[1024];
            DatagramPacket reply = new DatagramPacket(buffer, buffer.length);
            aSocket.receive(reply);
            System.out.println("Reply: " + new String(reply.getData()));
        } catch (SocketException e) {System.out.println("Socket: " + e.getMessage());}
        catch (IOException e) {System.out.println("IO: " + e.getMessage());}
        finally {if(aSocket != null) aSocket.close();}
    }
}

package udp;
import java.net.*;
import java.io.*;

public class UDPServer {
    public static void main(String args[]){
        DatagramSocket aSocket = null;
        try {
            aSocket = new DatagramSocket(port:6789);
            // create socket at agreed port
            byte[] buffer = new byte[1024];
            while(true){
                DatagramPacket request = new DatagramPacket(buffer, buffer.length);
                aSocket.receive(request);
                DatagramPacket reply = new DatagramPacket(request.getData(), request.getLength(), request.getAddress(), request.getPort());
                aSocket.send(reply);
            }
        } catch (SocketException e) {System.out.println("Socket: " + e.getMessage());}
        catch (IOException e) {System.out.println("IO: " + e.getMessage());}
        finally {if(aSocket != null) aSocket.close();}
    }
}

```

- Execução do código original

```

PS C:\Users\rafag\OneDrive\Área de Trabalho\PUC\6\Distribuida\Tarefa 2> javac udp/sudp.java
PS C:\Users\rafag\OneDrive\Área de Trabalho\PUC\6\Distribuida\Tarefa 2> java udp.sudp

PS C:\Users\rafag\OneDrive\Área de Trabalho\PUC\6\Distribuida\Tarefa 2> java
c udp/cudp.java
PS C:\Users\rafag\OneDrive\Área de Trabalho\PUC\6\Distribuida\Tarefa 2> java
udp.cudp "terminal 1" localhost
Reply: terminal 1
PS C:\Users\rafag\OneDrive\Área de Trabalho\PUC\6\Distribuida\Tarefa 2>

PS C:\Users\rafag\OneDrive\Área de Trabalho\PUC\6\Distribuida\Tarefa 2> java
c udp/cudp.java
PS C:\Users\rafag\OneDrive\Área de Trabalho\PUC\6\Distribuida\Tarefa 2> java
udp.cudp "terminal 2" localhost
Reply: terminal 2
PS C:\Users\rafag\OneDrive\Área de Trabalho\PUC\6\Distribuida\Tarefa 2>

```

