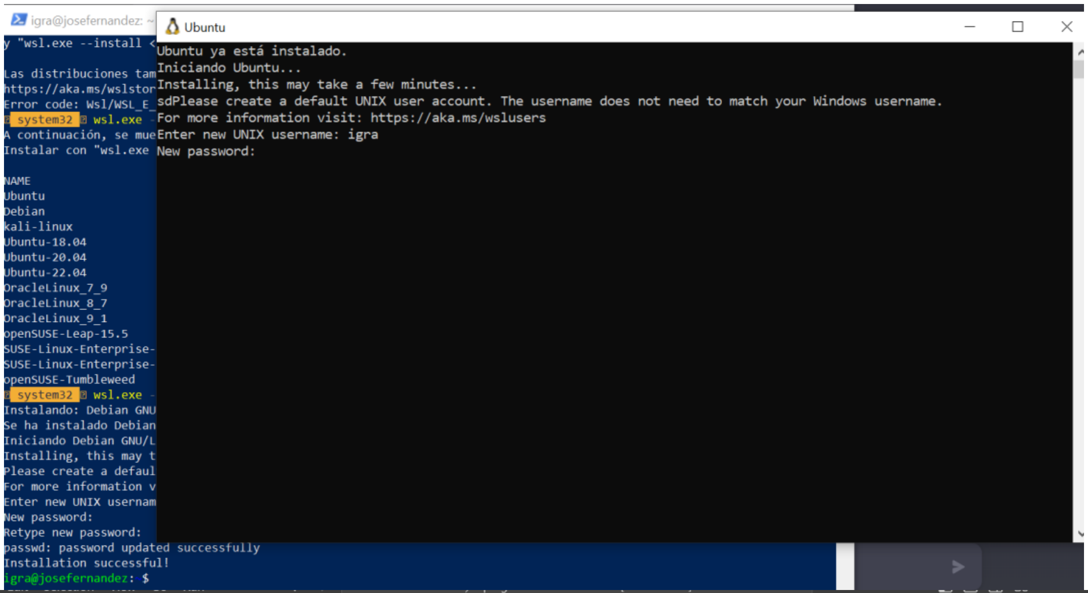
Isaac Reyes

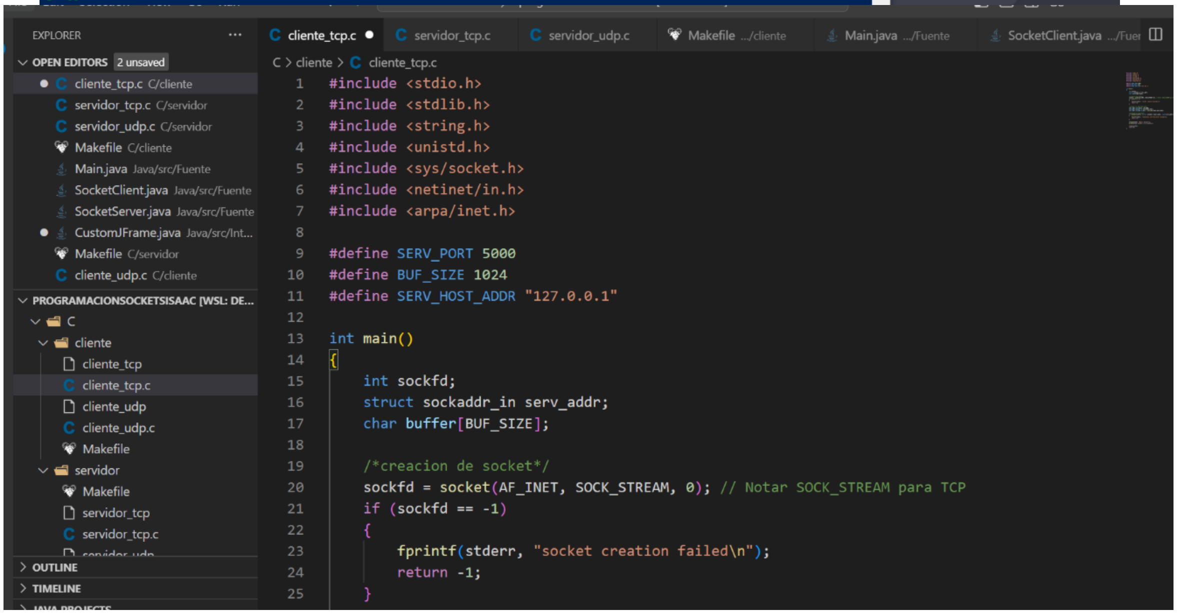


```
Ubuntu ya está instalado.
Iniciando Ubuntu...
Installing, this may take a few minutes...
sdPlease create a default UNIX user account. The username does not need to match your Windows username.
For more information visit: https://aka.ms/wslusers
Enter new UNIX username: igra
New password:
```

```
y "wsl.exe --install <

Las distribuciones tam
https://aka.ms/wslstor
Error code: Wsl/WSL_E_
 system32  wsl.exe -
A continuación, se mue
Instalar con "wsl.exe

NAME
Ubuntu
Debian
kali-linux
Ubuntu-18.04
Ubuntu-20.04
Ubuntu-22.04
OracleLinux_7_9
OracleLinux_8_7
OracleLinux_9_1
openSUSE-Leap-15.5
SUSE-Linux-Enterprise-
SUSE-Linux-Enterprise-
openSUSE-Tumbleweed
 system32  wsl.exe -
Instalando: Debian GNU
Se ha instalado Debian
Iniciando Debian GNU/L
Installing, this may t
Please create a defaul
For more information v
Enter new UNIX usernam
New password:
Retype new password:
passwd: password updated successfully
Installation successful!
igra@josefernandez:~$
```

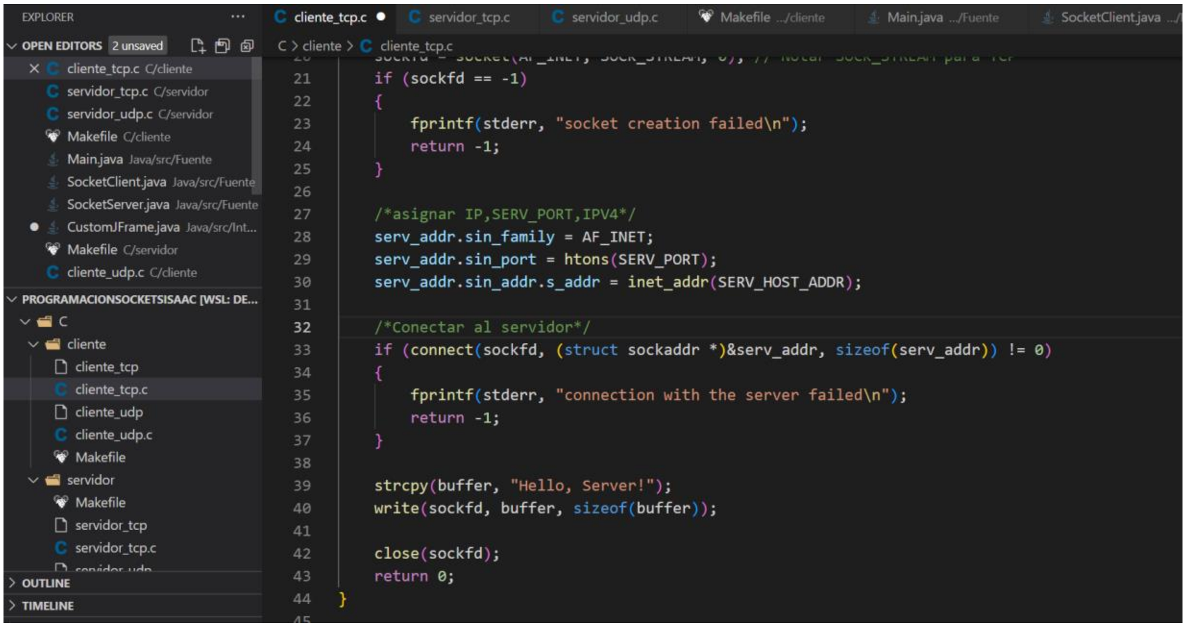


```c
#include <stdio.h>
#include <stdlib.h>
#include <string.h>
#include <unistd.h>
#include <sys/socket.h>
#include <netinet/in.h>
#include <arpa/inet.h>

#define SERV_PORT 5000
#define BUF_SIZE 1024
#define SERV_HOST_ADDR "127.0.0.1"

int main()
{
    int sockfd;
    struct sockaddr_in serv_addr;
    char buffer[BUF_SIZE];

    /*creacion de socket*/
    sockfd = socket(AF_INET, SOCK_STREAM, 0); // Notar SOCK_STREAM para TCP
    if (sockfd == -1)
    {
        fprintf(stderr, "socket creation failed\n");
        return -1;
    }
```



```c
    if (sockfd == -1)
    {
        fprintf(stderr, "socket creation failed\n");
        return -1;
    }

    /*asignar IP,SERV_PORT,IPV4*/
    serv_addr.sin_family = AF_INET;
    serv_addr.sin_port = htons(SERV_PORT);
    serv_addr.sin_addr.s_addr = inet_addr(SERV_HOST_ADDR);

    /*Conectar al servidor*/
    if (connect(sockfd, (struct sockaddr *)&serv_addr, sizeof(serv_addr)) != 0)
    {
        fprintf(stderr, "connection with the server failed\n");
        return -1;
    }

    strcpy(buffer, "Hello, Server!");
    write(sockfd, buffer, sizeof(buffer));

    close(sockfd);
    return 0;
}
```

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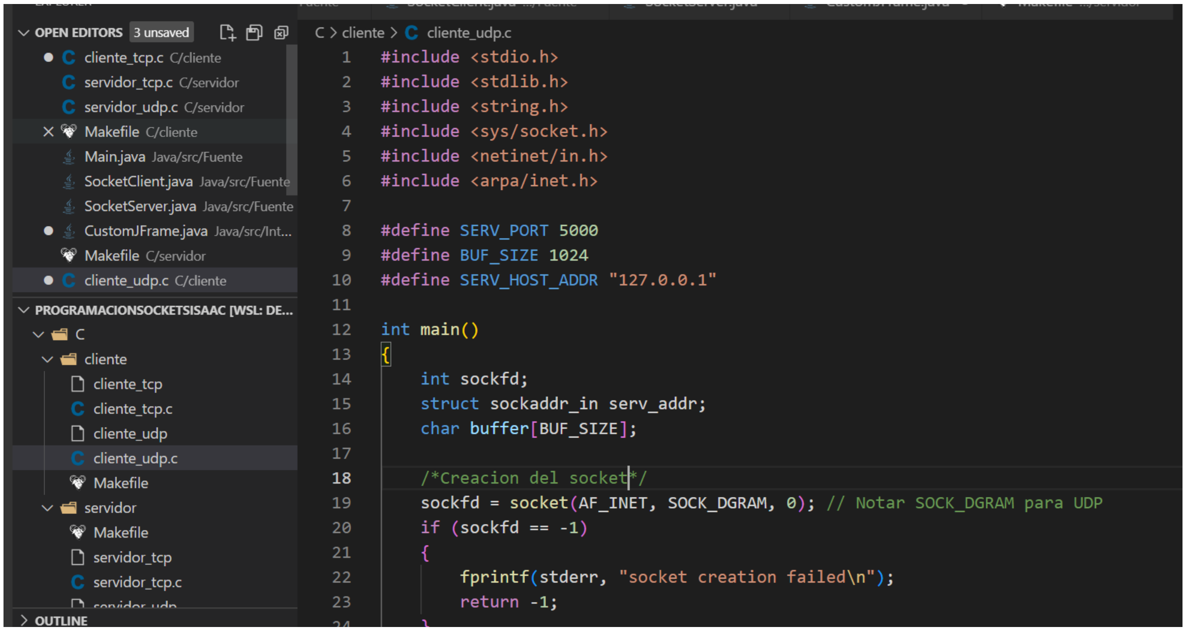
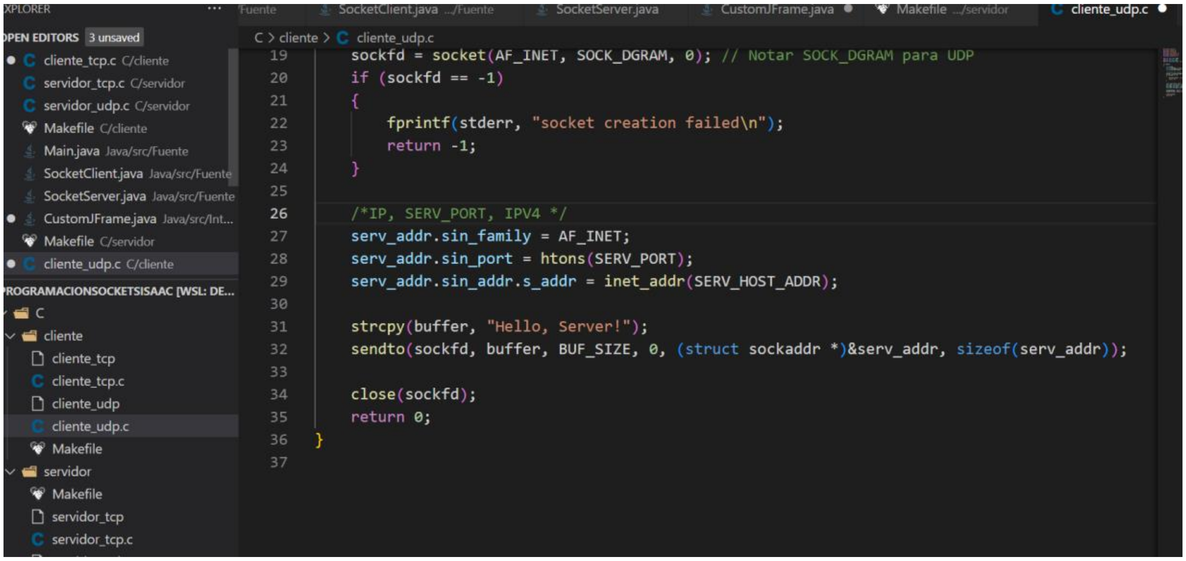

OPEN EDITORS 3 unsaved
cliente_tcp.c C/cliente
servidor_tcp.c C/servidor
servidor_udp.c C/servidor
Makefile C/cliente
Main.java Java/src/Fuente
SocketClient.java Java/src/Fuente
SocketServer.java Java/src/Fuente
CustomJFrame.java Java/src/Int...
Makefile C/servidor
cliente_udp.c C/cliente
PROGRAMACIONSOCKETSISAAC [WSL: DE...
C
cliente
cliente_tcp
cliente_tcp.c
cliente_udp
cliente_udp.c
Makefile
servidor
Makefile
servidor_tcp
servidor_tcp.c
OUTLINE
C > cliente > cliente_udp.c

```c
#include <stdio.h>
#include <stdlib.h>
#include <string.h>
#include <sys/socket.h>
#include <netinet/in.h>
#include <arpa/inet.h>

#define SERV_PORT 5000
#define BUF_SIZE 1024
#define SERV_HOST_ADDR "127.0.0.1"

int main()
{
    int sockfd;
    struct sockaddr_in serv_addr;
    char buffer[BUF_SIZE];

    /*Creacion del socket*/
    sockfd = socket(AF_INET, SOCK_DGRAM, 0); // Notar SOCK_DGRAM para UDP
    if (sockfd == -1)
    {
        fprintf(stderr, "socket creation failed\n");
        return -1;
```



```c
    sockfd = socket(AF_INET, SOCK_DGRAM, 0); // Notar SOCK_DGRAM para UDP
    if (sockfd == -1)
    {
        fprintf(stderr, "socket creation failed\n");
        return -1;
    }

    /*IP, SERV_PORT, IPV4 */
    serv_addr.sin_family = AF_INET;
    serv_addr.sin_port = htons(SERV_PORT);
    serv_addr.sin_addr.s_addr = inet_addr(SERV_HOST_ADDR);

    strcpy(buffer, "Hello, Server!");
    sendto(sockfd, buffer, BUF_SIZE, 0, (struct sockaddr *)&serv_addr, sizeof(serv_addr));

    close(sockfd);
    return 0;
}
```

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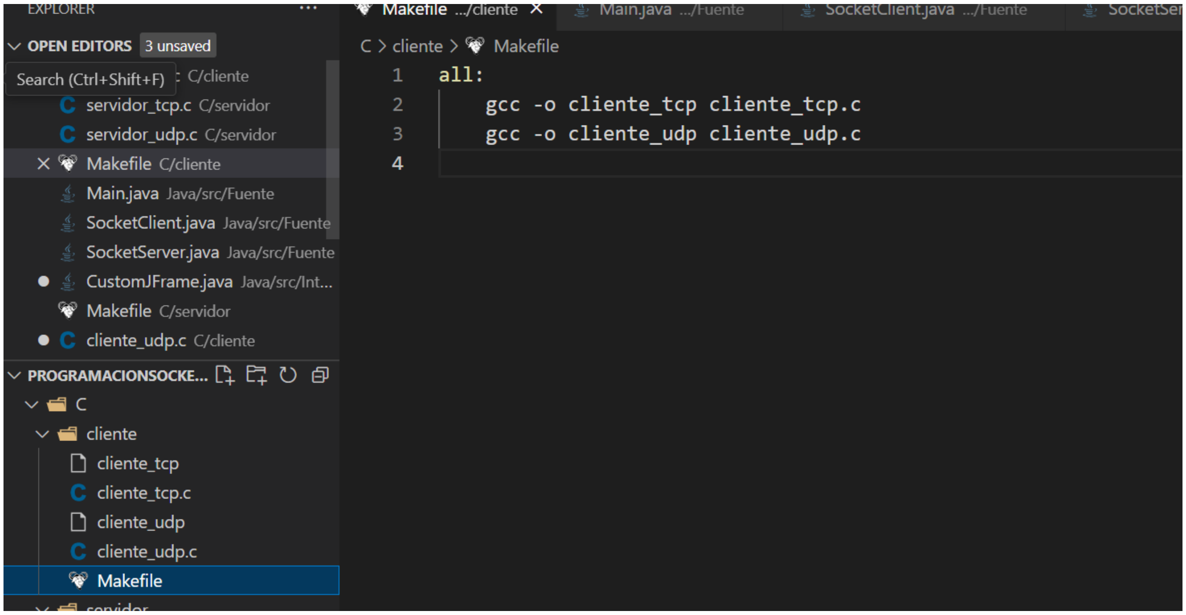
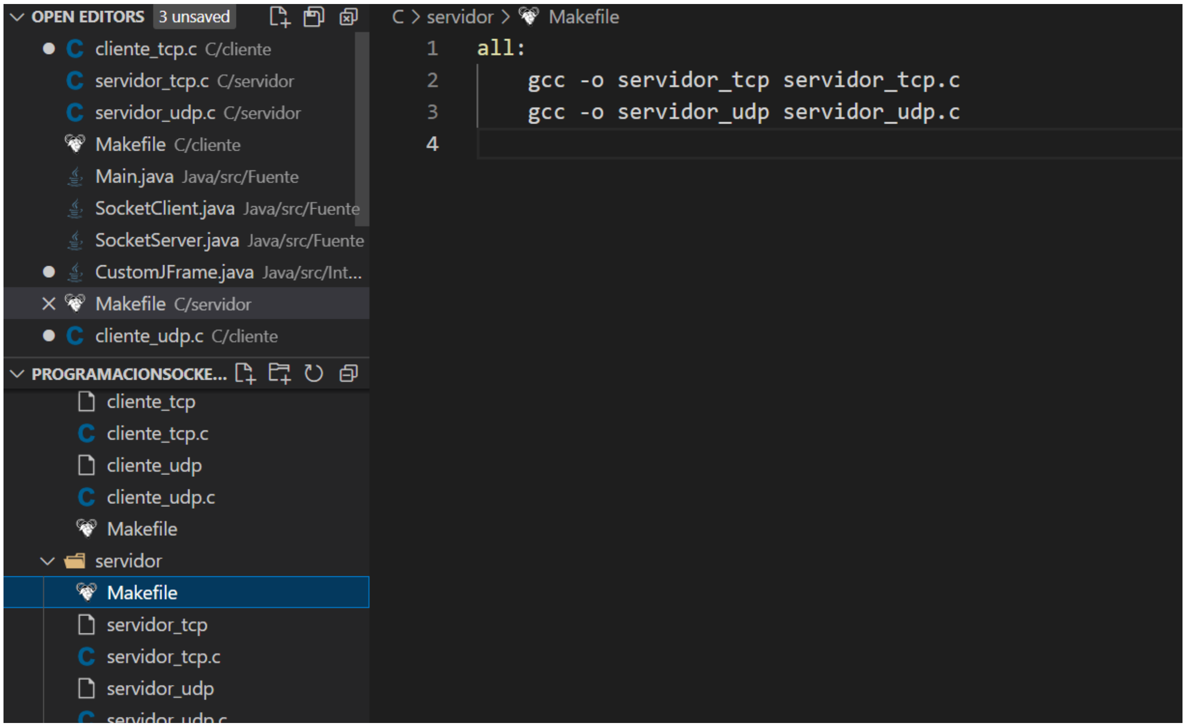


```
all:
	gcc -o cliente_tcp cliente_tcp.c
	gcc -o cliente_udp cliente_udp.c

```



```
all:
	gcc -o servidor_tcp servidor_tcp.c
	gcc -o servidor_udp servidor_udp.c

```

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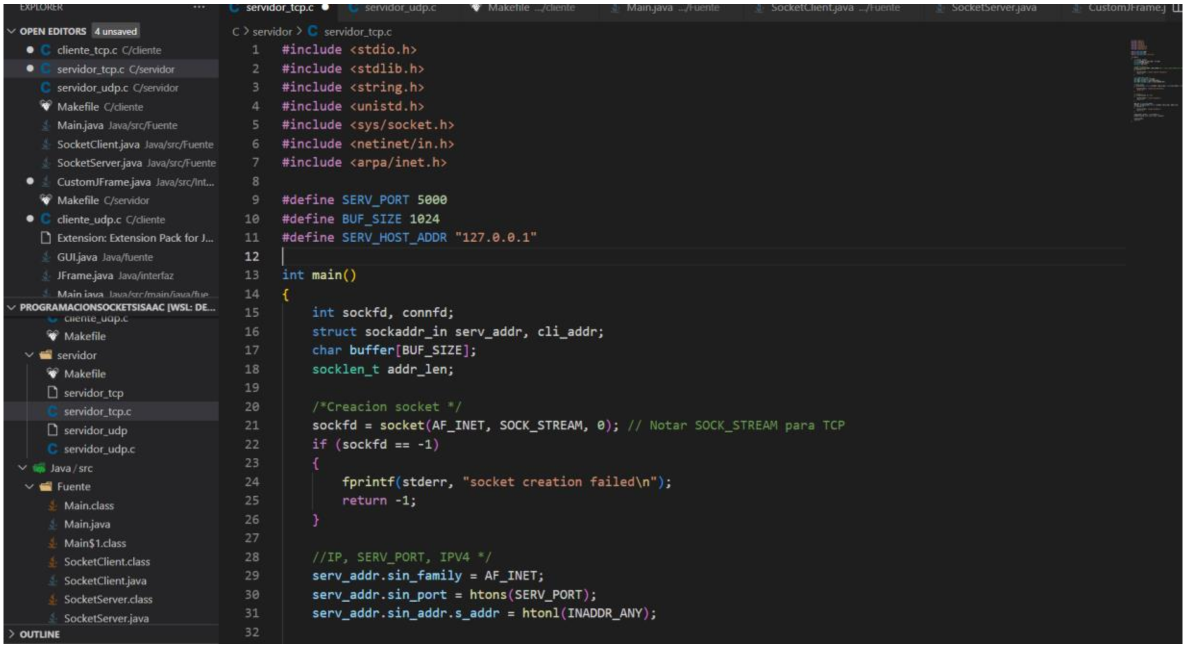
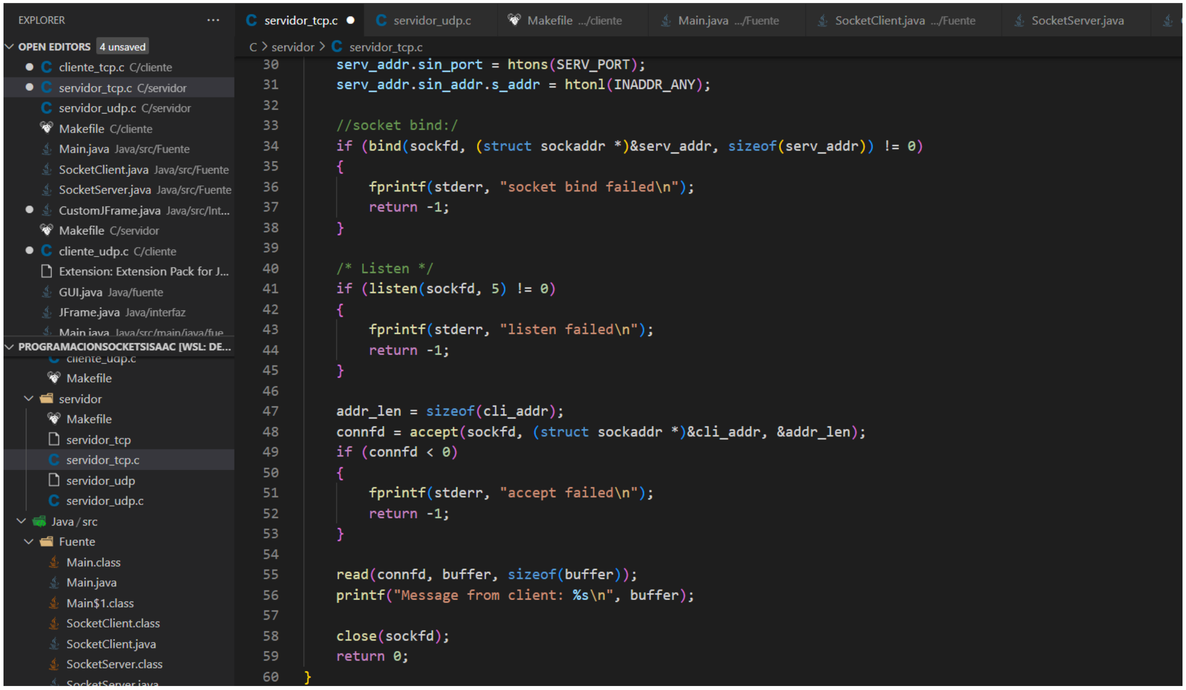


```c
#include <stdio.h>
#include <stdlib.h>
#include <string.h>
#include <unistd.h>
#include <sys/socket.h>
#include <netinet/in.h>
#include <arpa/inet.h>

#define SERV_PORT 5000
#define BUF_SIZE 1024
#define SERV_HOST_ADDR "127.0.0.1"

int main()
{
    int sockfd, connfd;
    struct sockaddr_in serv_addr, cli_addr;
    char buffer[BUF_SIZE];
    socklen_t addr_len;

    /*Creacion socket */
    sockfd = socket(AF_INET, SOCK_STREAM, 0); // Notar SOCK_STREAM para TCP
    if (sockfd == -1)
    {
        fprintf(stderr, "socket creation failed\n");
        return -1;
    }

    //IP, SERV_PORT, IPV4 */
    serv_addr.sin_family = AF_INET;
    serv_addr.sin_port = htons(SERV_PORT);
    serv_addr.sin_addr.s_addr = htonl(INADDR_ANY);

```



```c
    serv_addr.sin_port = htons(SERV_PORT);
    serv_addr.sin_addr.s_addr = htonl(INADDR_ANY);

    //socket bind:/
    if (bind(sockfd, (struct sockaddr *)&serv_addr, sizeof(serv_addr)) != 0)
    {
        fprintf(stderr, "socket bind failed\n");
        return -1;
    }

    /* Listen */
    if (listen(sockfd, 5) != 0)
    {
        fprintf(stderr, "listen failed\n");
        return -1;
    }

    addr_len = sizeof(cli_addr);
    connfd = accept(sockfd, (struct sockaddr *)&cli_addr, &addr_len);
    if (connfd < 0)
    {
        fprintf(stderr, "accept failed\n");
        return -1;
    }

    read(connfd, buffer, sizeof(buffer));
    printf("Message from client: %s\n", buffer);

    close(sockfd);
    return 0;
}
```

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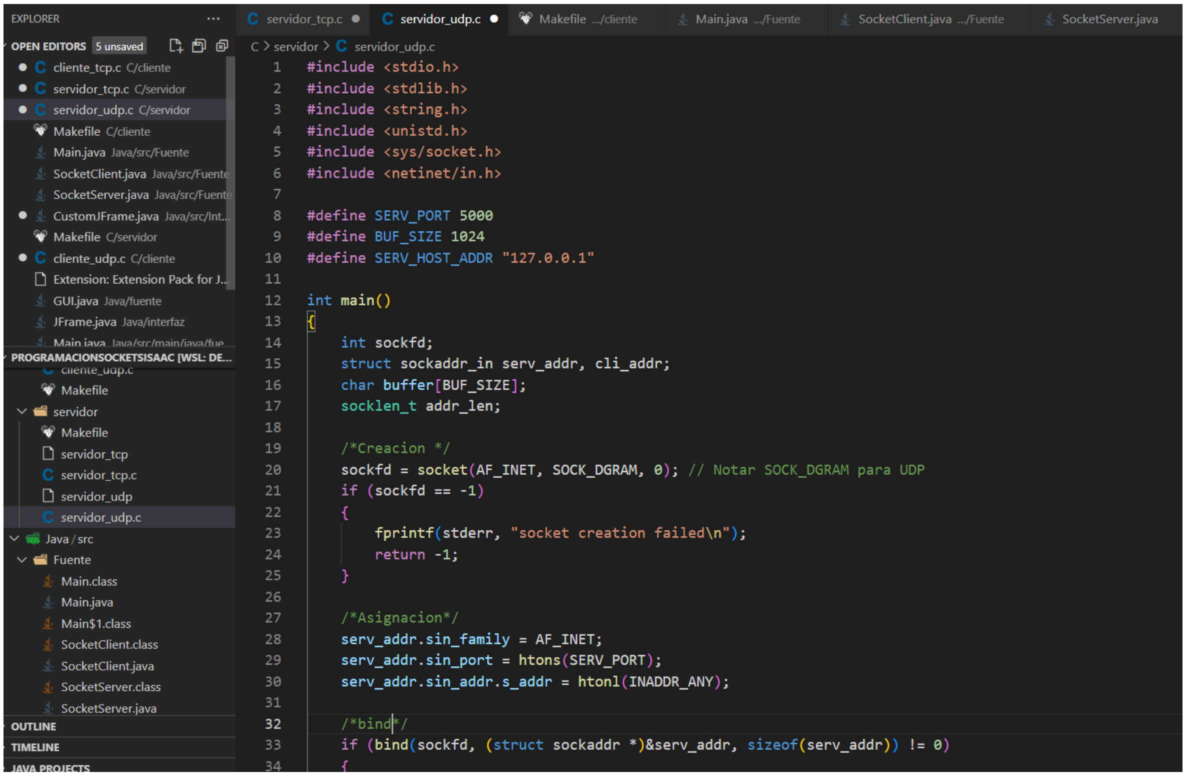
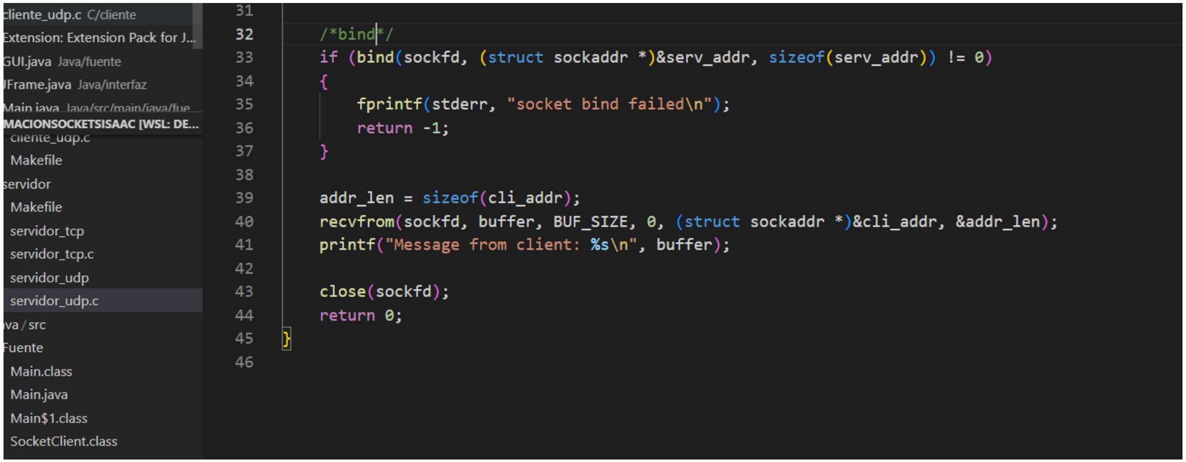
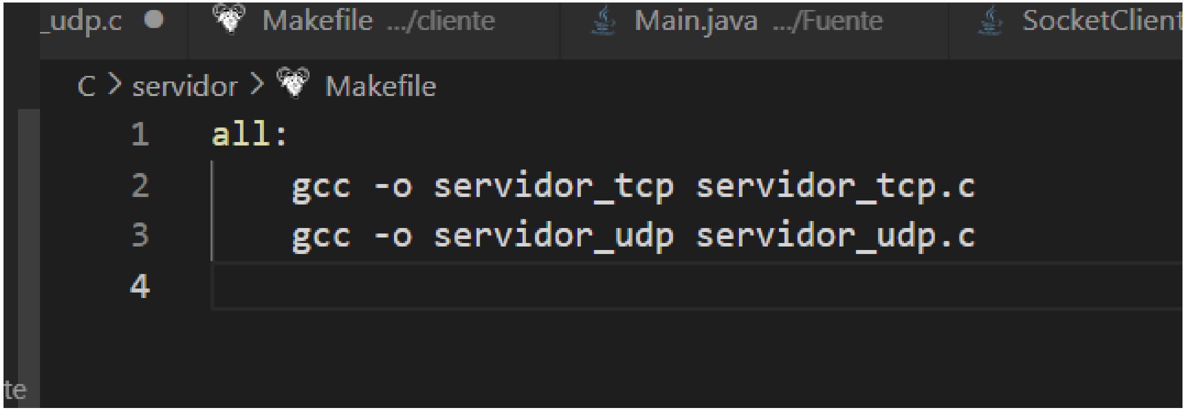


```c
#include <stdio.h>
#include <stdlib.h>
#include <string.h>
#include <unistd.h>
#include <sys/socket.h>
#include <netinet/in.h>

#define SERV_PORT 5000
#define BUF_SIZE 1024
#define SERV_HOST_ADDR "127.0.0.1"

int main()
{
    int sockfd;
    struct sockaddr_in serv_addr, cli_addr;
    char buffer[BUF_SIZE];
    socklen_t addr_len;

    /*Creacion */
    sockfd = socket(AF_INET, SOCK_DGRAM, 0); // Notar SOCK_DGRAM para UDP
    if (sockfd == -1)
    {
        fprintf(stderr, "socket creation failed\n");
        return -1;
    }

    /*Asignacion*/
    serv_addr.sin_family = AF_INET;
    serv_addr.sin_port = htons(SERV_PORT);
    serv_addr.sin_addr.s_addr = htonl(INADDR_ANY);

    /*bind*/
    if (bind(sockfd, (struct sockaddr *)&serv_addr, sizeof(serv_addr)) != 0)
    {
```



```c

    /*bind*/
    if (bind(sockfd, (struct sockaddr *)&serv_addr, sizeof(serv_addr)) != 0)
    {
```

```c
        fprintf(stderr, "socket bind failed\n");
        return -1;
    }

    addr_len = sizeof(cli_addr);
    recvfrom(sockfd, buffer, BUF_SIZE, 0, (struct sockaddr *)&cli_addr, &addr_len);
    printf("Message from client: %s\n", buffer);

    close(sockfd);
    return 0;
}
```



```makefile
all:
	gcc -o servidor_tcp servidor_tcp.c
	gcc -o servidor_udp servidor_udp.c
```

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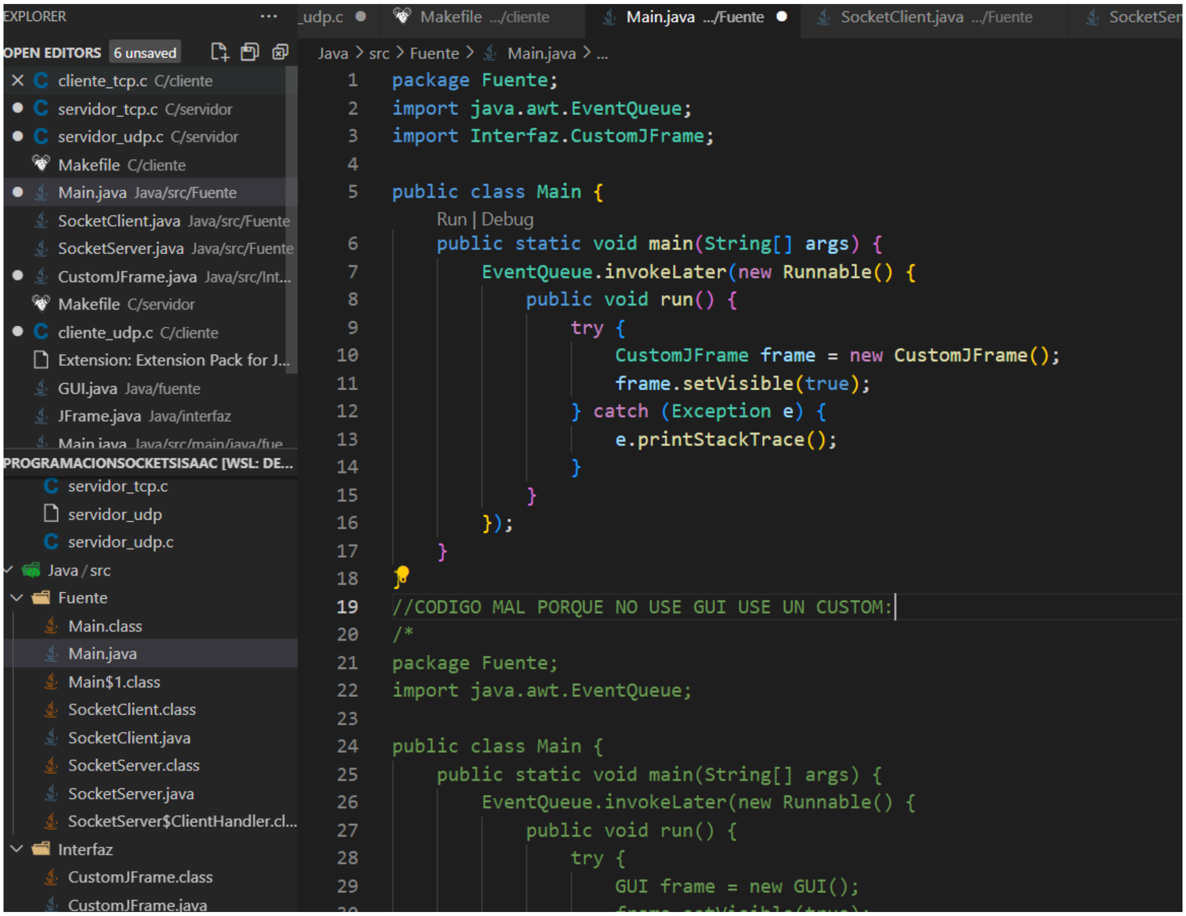

```java
package Fuente;
import java.awt.EventQueue;
import Interfaz.CustomJFrame;

public class Main {
    public static void main(String[] args) {
        EventQueue.invokeLater(new Runnable() {
            public void run() {
                try {
                    CustomJFrame frame = new CustomJFrame();
                    frame.setVisible(true);
                } catch (Exception e) {
                    e.printStackTrace();
                }
            }
        });
    }
}
//CODIGO MAL PORQUE NO USE GUI USE UN CUSTOM:
/*
package Fuente;
import java.awt.EventQueue;

public class Main {
    public static void main(String[] args) {
        EventQueue.invokeLater(new Runnable() {
            public void run() {
                try {
                    GUI frame = new GUI();
```

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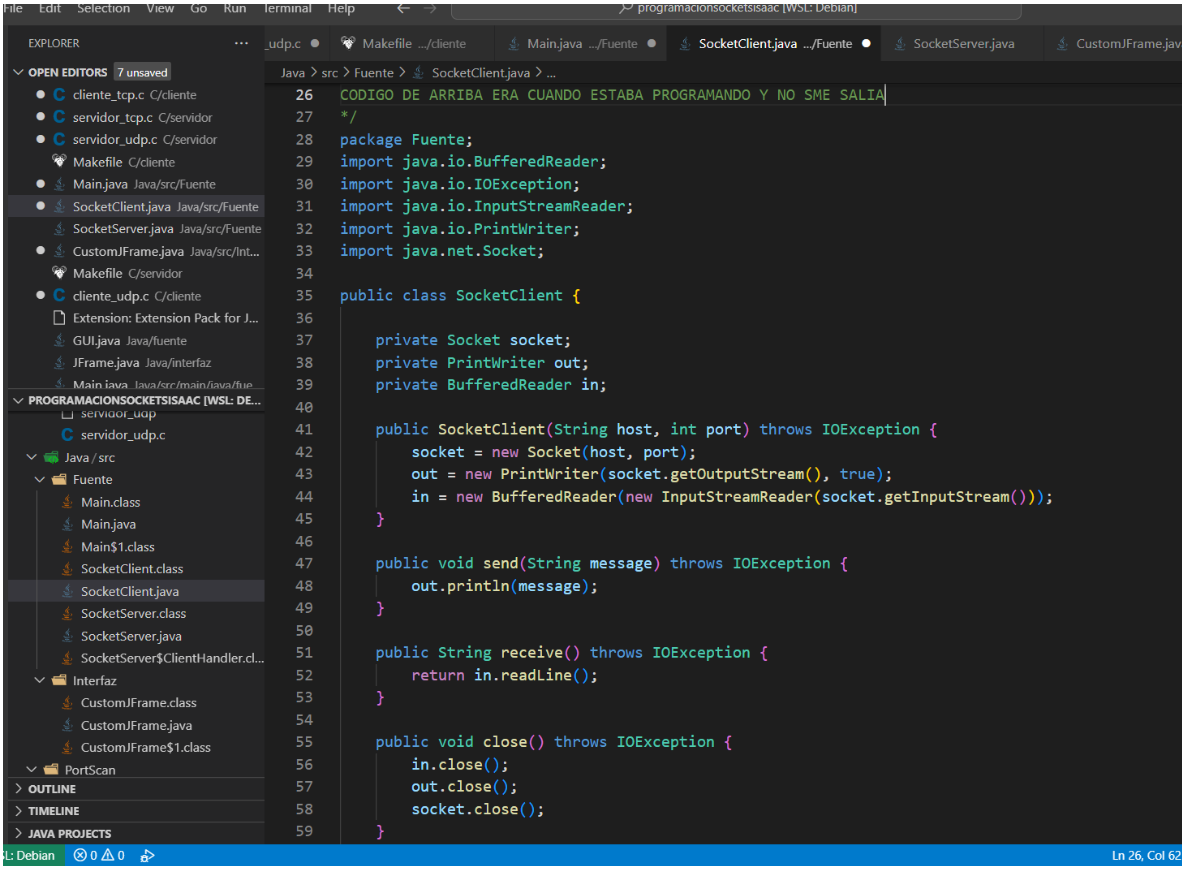
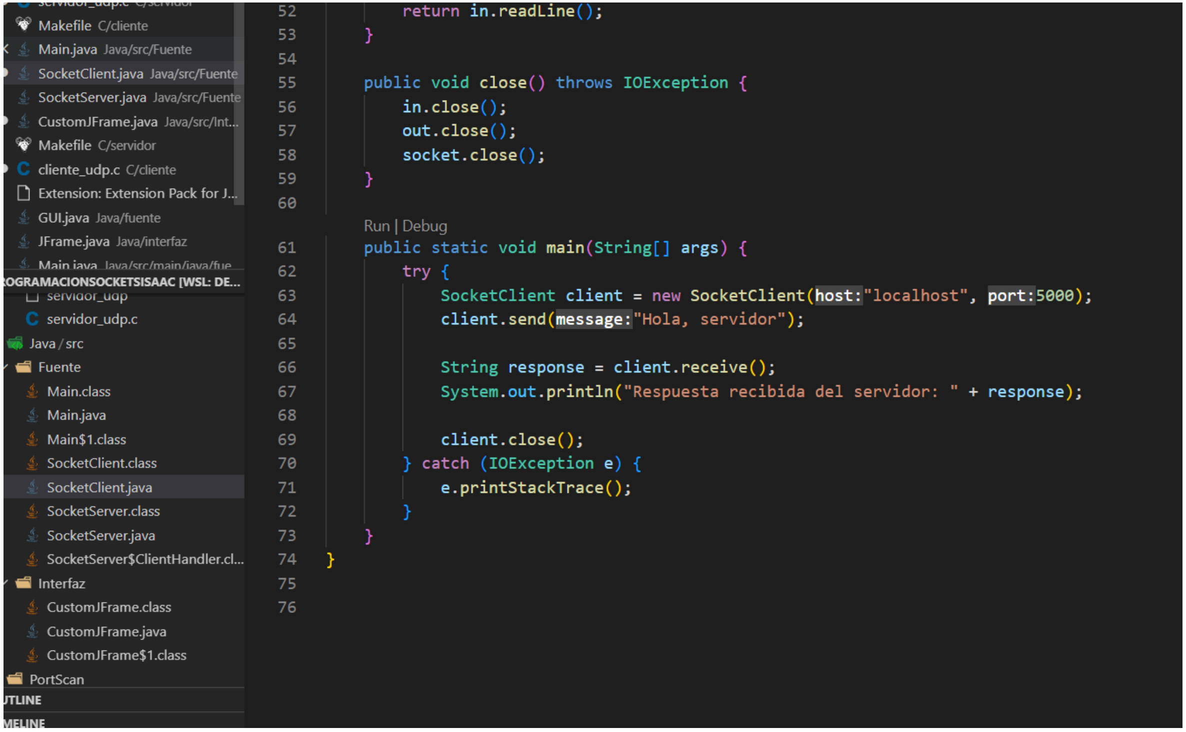


File Edit Selection View Go Run Terminal Help
programacionsocketsisaac [WSL: Debian]
EXPLORER
OPEN EDITORS 7 unsaved
cliente_tcp.c C/cliente
servidor_tcp.c C/servidor
servidor_udp.c C/servidor
Makefile C/cliente
Main.java Java/src/Fuente
SocketClient.java Java/src/Fuente
SocketServer.java Java/src/Fuente
CustomJFrame.java Java/src/Int...
Makefile C/servidor
cliente_udp.c C/cliente
Extension: Extension Pack for J...
GUI.java Java/fuente
JFrame.java Java/interfaz
Main.java Java/src/main/java/fue
PROGRAMACIONSOCKETSISAAC [WSL: DE...
servidor_udp
servidor_udp.c
Java / src
Fuente
Main.class
Main.java
Main$1.class
SocketClient.class
SocketClient.java
SocketServer.class
SocketServer.java
SocketServer$ClientHandler.cl...
Interfaz
CustomJFrame.class
CustomJFrame.java
CustomJFrame$1.class
PortScan
OUTLINE
TIMELINE
JAVA PROJECTS
_udp.c
Makefile .../cliente
Main.java .../Fuente
SocketClient.java .../Fuente
SocketServer.java
CustomJFrame.jav
Java > src > Fuente > SocketClient.java > ...
L: Debian
⊗ 0 ⚠ 0
Ln 26, Col 62

```
CODIGO DE ARRIBA ERA CUANDO ESTABA PROGRAMANDO Y NO SME SALIA
*/
package Fuente;
import java.io.BufferedReader;
import java.io.IOException;
import java.io.InputStreamReader;
import java.io.PrintWriter;
import java.net.Socket;

public class SocketClient {

    private Socket socket;
    private PrintWriter out;
    private BufferedReader in;

    public SocketClient(String host, int port) throws IOException {
        socket = new Socket(host, port);
        out = new PrintWriter(socket.getOutputStream(), true);
        in = new BufferedReader(new InputStreamReader(socket.getInputStream()));
    }

    public void send(String message) throws IOException {
        out.println(message);
    }

    public String receive() throws IOException {
        return in.readLine();
    }

    public void close() throws IOException {
        in.close();
        out.close();
        socket.close();
    }
```



```
        return in.readLine();
    }

    public void close() throws IOException {
        in.close();
        out.close();
        socket.close();
    }

    Run | Debug
    public static void main(String[] args) {
        try {
            SocketClient client = new SocketClient(host:"localhost", port:5000);
            client.send(message:"Hola, servidor");

            String response = client.receive();
            System.out.println("Respuesta recibida del servidor: " + response);

            client.close();
        } catch (IOException e) {
            e.printStackTrace();
        }
    }
}
```

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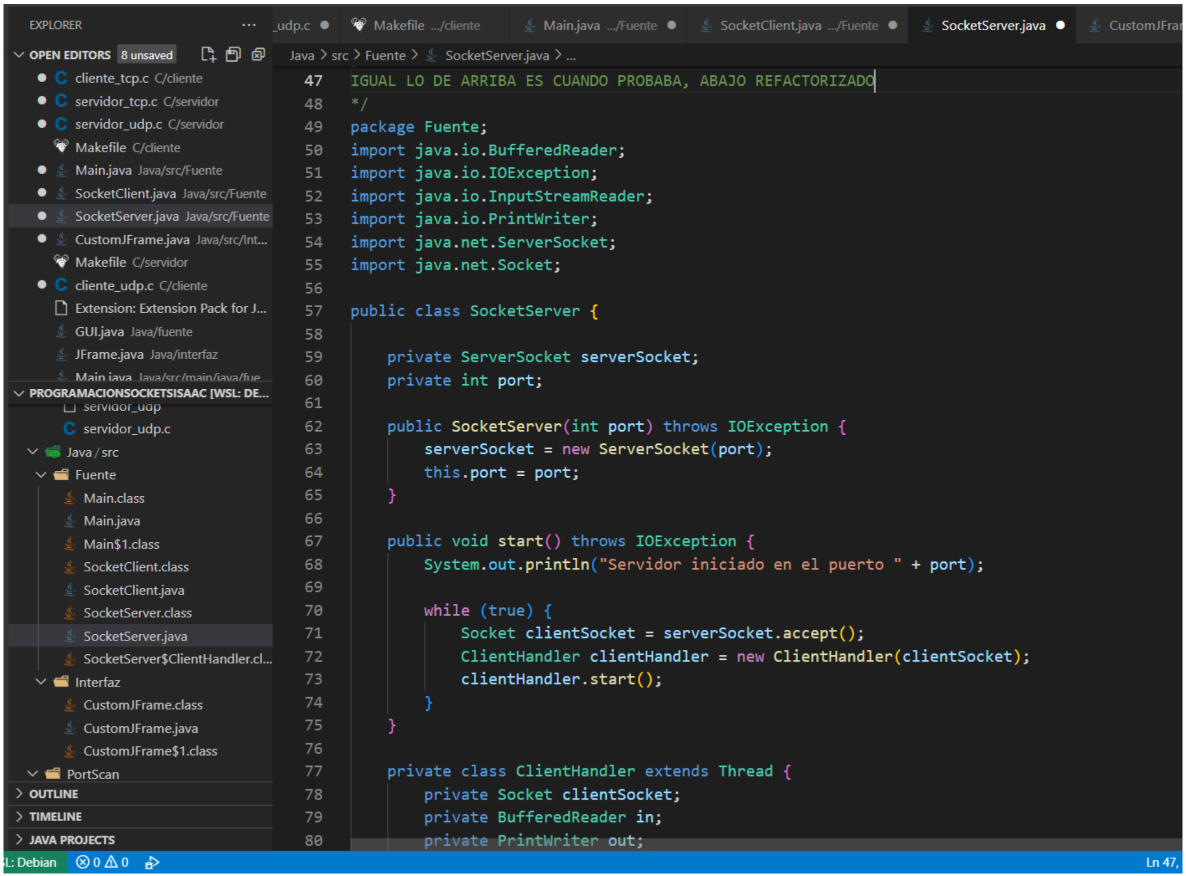
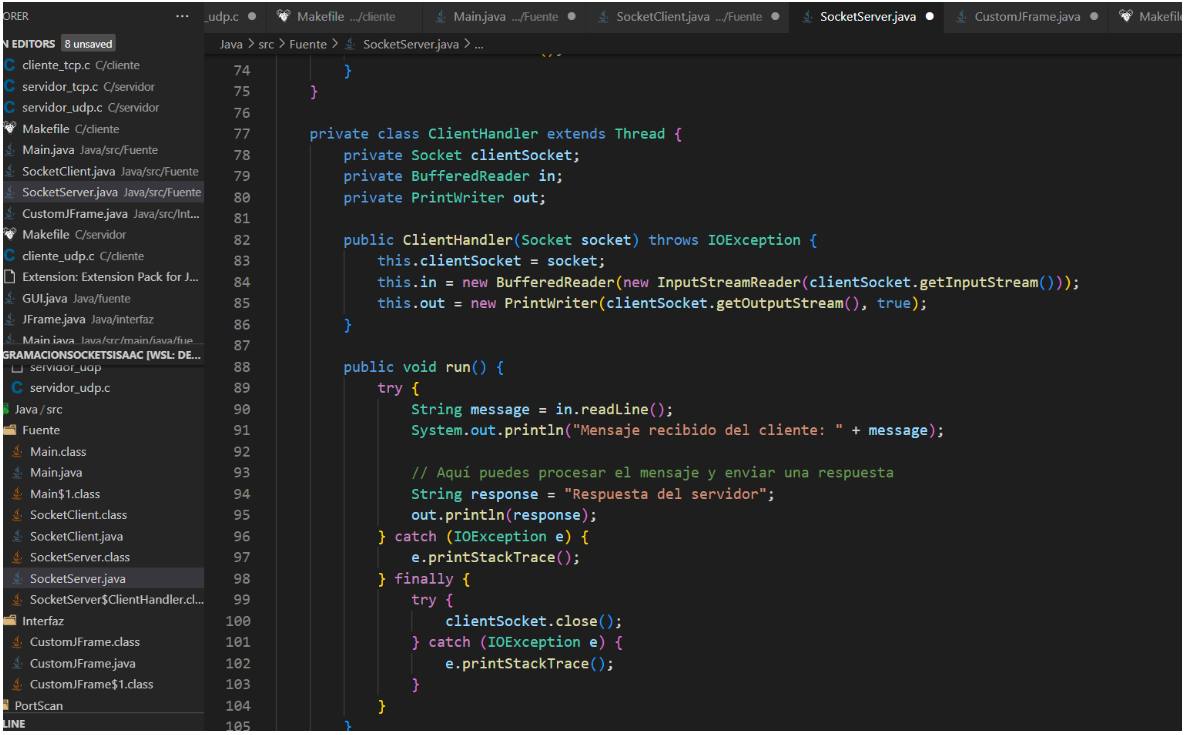


```java
IGUAL LO DE ARRIBA ES CUANDO PROBABA, ABAJO REFACTORIZADO
*/
package Fuente;
import java.io.BufferedReader;
import java.io.IOException;
import java.io.InputStreamReader;
import java.io.PrintWriter;
import java.net.ServerSocket;
import java.net.Socket;

public class SocketServer {

    private ServerSocket serverSocket;
    private int port;

    public SocketServer(int port) throws IOException {
        serverSocket = new ServerSocket(port);
        this.port = port;
    }

    public void start() throws IOException {
        System.out.println("Servidor iniciado en el puerto " + port);

        while (true) {
            Socket clientSocket = serverSocket.accept();
            ClientHandler clientHandler = new ClientHandler(clientSocket);
            clientHandler.start();
        }
    }

    private class ClientHandler extends Thread {
        private Socket clientSocket;
        private BufferedReader in;
        private PrintWriter out;
```



```java
        }
    }

    private class ClientHandler extends Thread {
        private Socket clientSocket;
        private BufferedReader in;
        private PrintWriter out;

        public ClientHandler(Socket socket) throws IOException {
            this.clientSocket = socket;
            this.in = new BufferedReader(new InputStreamReader(clientSocket.getInputStream()));
            this.out = new PrintWriter(clientSocket.getOutputStream(), true);
        }

        public void run() {
            try {
                String message = in.readLine();
                System.out.println("Mensaje recibido del cliente: " + message);

                // Aquí puedes procesar el mensaje y enviar una respuesta
                String response = "Respuesta del servidor";
                out.println(response);
            } catch (IOException e) {
                e.printStackTrace();
            } finally {
                try {
                    clientSocket.close();
                } catch (IOException e) {
                    e.printStackTrace();
                }
            }
        }
```

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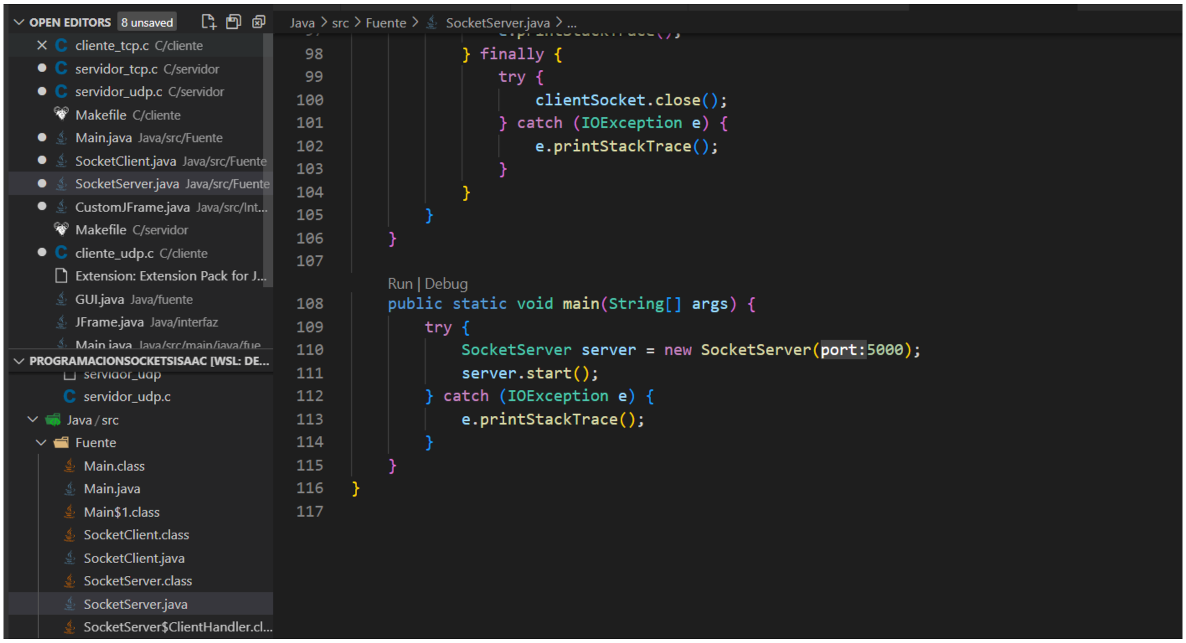
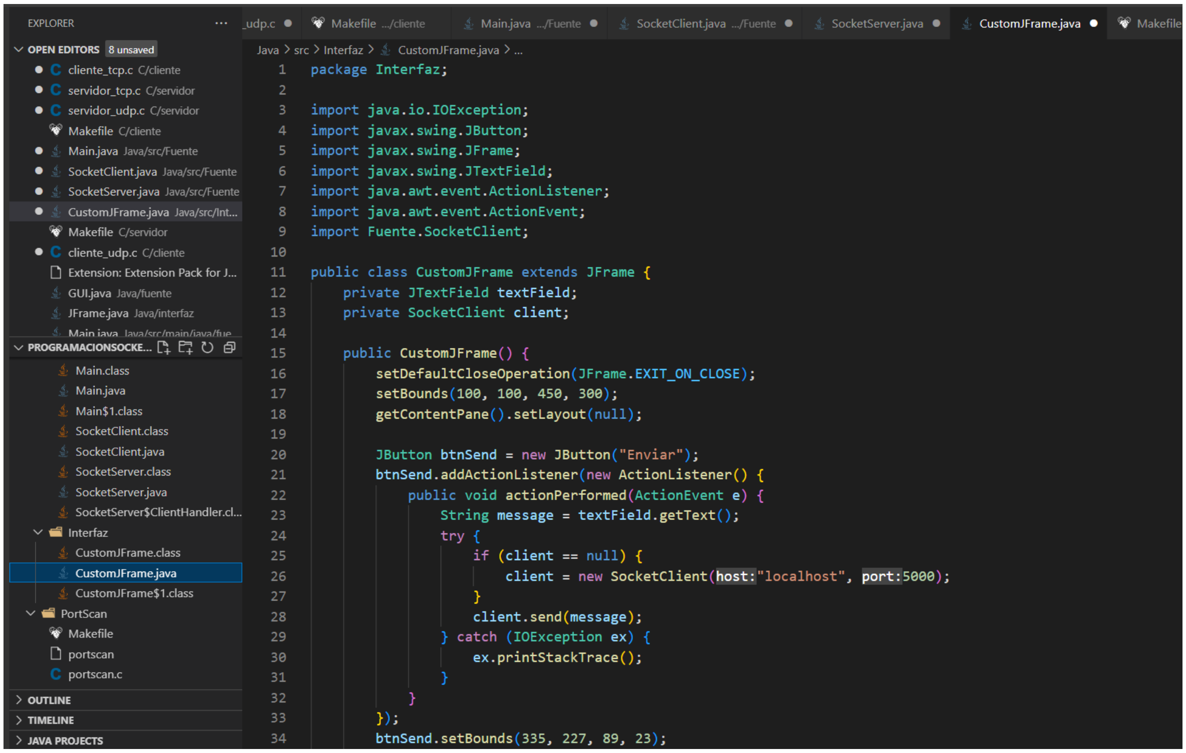

OPEN EDITORS 8 unsaved
cliente_tcp.c C/cliente
servidor_tcp.c C/servidor
servidor_udp.c C/servidor
Makefile C/cliente
Main.java Java/src/Fuente
SocketClient.java Java/src/Fuente
SocketServer.java Java/src/Fuente
CustomJFrame.java Java/src/Int...
Makefile C/servidor
cliente_udp.c C/cliente
Extension: Extension Pack for J...
GUI.java Java/fuente
JFrame.java Java/interfaz
Main.java Java/src/main/java/fue...
PROGRAMACIONSOCKETSISAAC [WSL: DE...
servidor_udp
servidor_udp.c
Java / src
Fuente
Main.class
Main.java
Main$1.class
SocketClient.class
SocketClient.java
SocketServer.class
SocketServer.java
SocketServer$ClientHandler.cl...
Java > src > Fuente > SocketServer.java > ...
Run | Debug

```
            } finally {
                try {
                    clientSocket.close();
                } catch (IOException e) {
                    e.printStackTrace();
                }
            }
        }
    }

    public static void main(String[] args) {
        try {
            SocketServer server = new SocketServer(port:5000);
            server.start();
        } catch (IOException e) {
            e.printStackTrace();
        }
    }
}
```



```
package Interfaz;

import java.io.IOException;
import javax.swing.JButton;
import javax.swing.JFrame;
import javax.swing.JTextField;
import java.awt.event.ActionListener;
import java.awt.event.ActionEvent;
import Fuente.SocketClient;

public class CustomJFrame extends JFrame {
    private JTextField textField;
    private SocketClient client;

    public CustomJFrame() {
        setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
        setBounds(100, 100, 450, 300);
        getContentPane().setLayout(null);

        JButton btnSend = new JButton("Enviar");
        btnSend.addActionListener(new ActionListener() {
            public void actionPerformed(ActionEvent e) {
                String message = textField.getText();
                try {
                    if (client == null) {
                        client = new SocketClient(host:"localhost", port:5000);
                    }
                    client.send(message);
                } catch (IOException ex) {
                    ex.printStackTrace();
                }
            }
        });
        btnSend.setBounds(335, 227, 89, 23);
```

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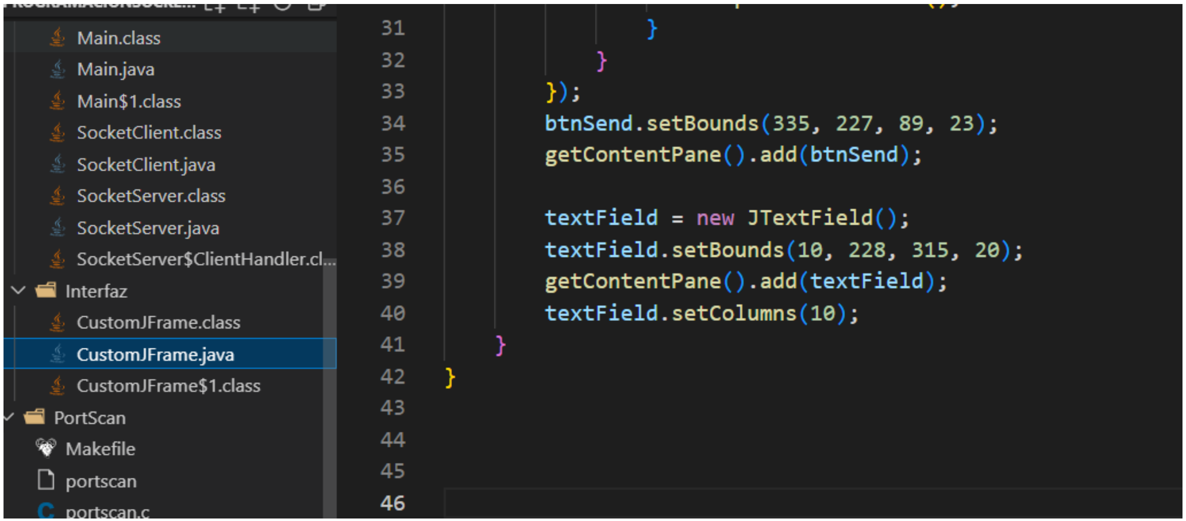
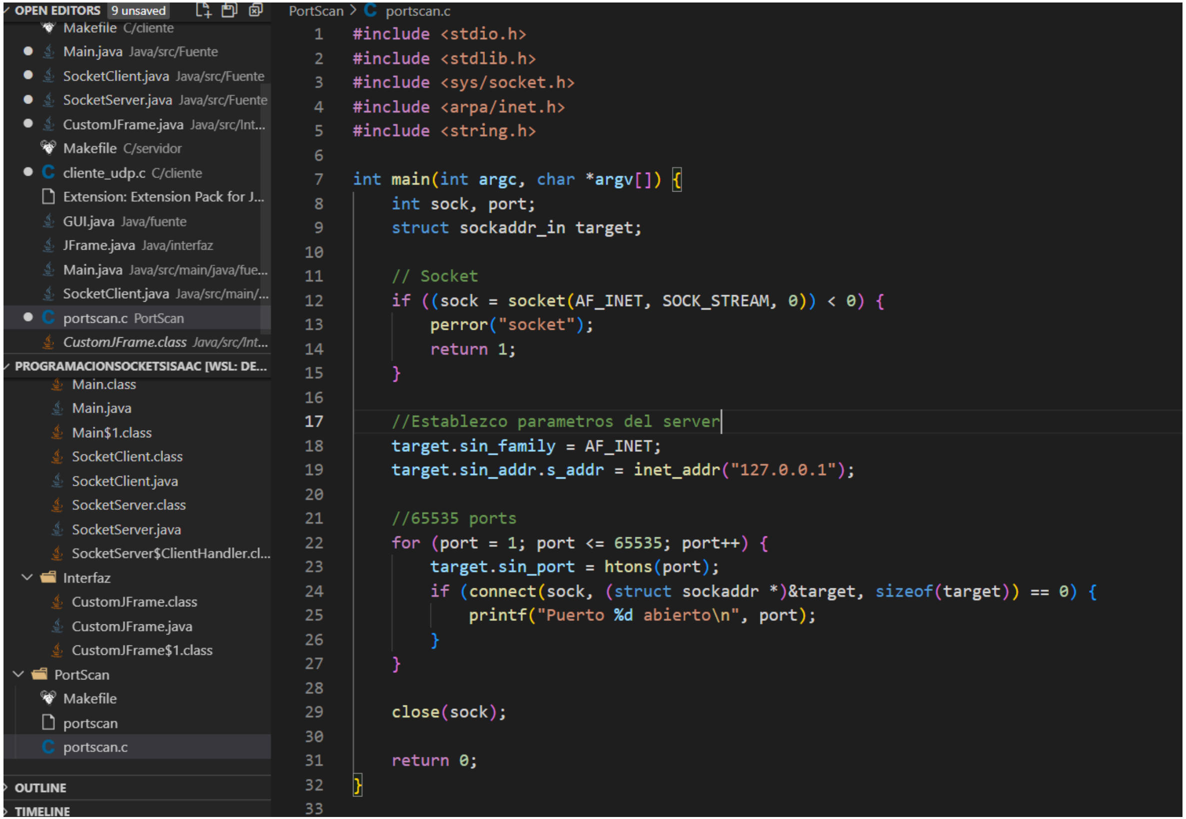
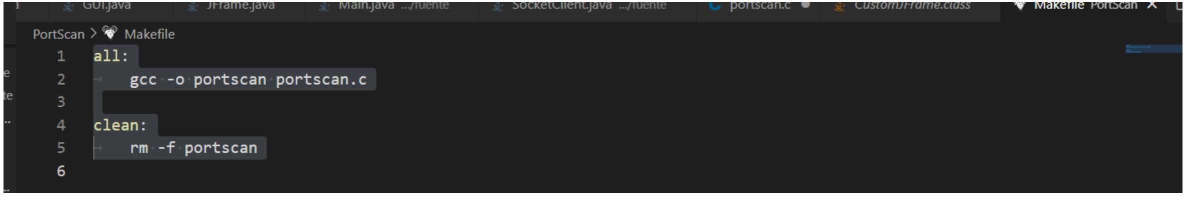


```java
                }
            }
        });
        btnSend.setBounds(335, 227, 89, 23);
        getContentPane().add(btnSend);

        textField = new JTextField();
        textField.setBounds(10, 228, 315, 20);
        getContentPane().add(textField);
        textField.setColumns(10);
    }
}
```

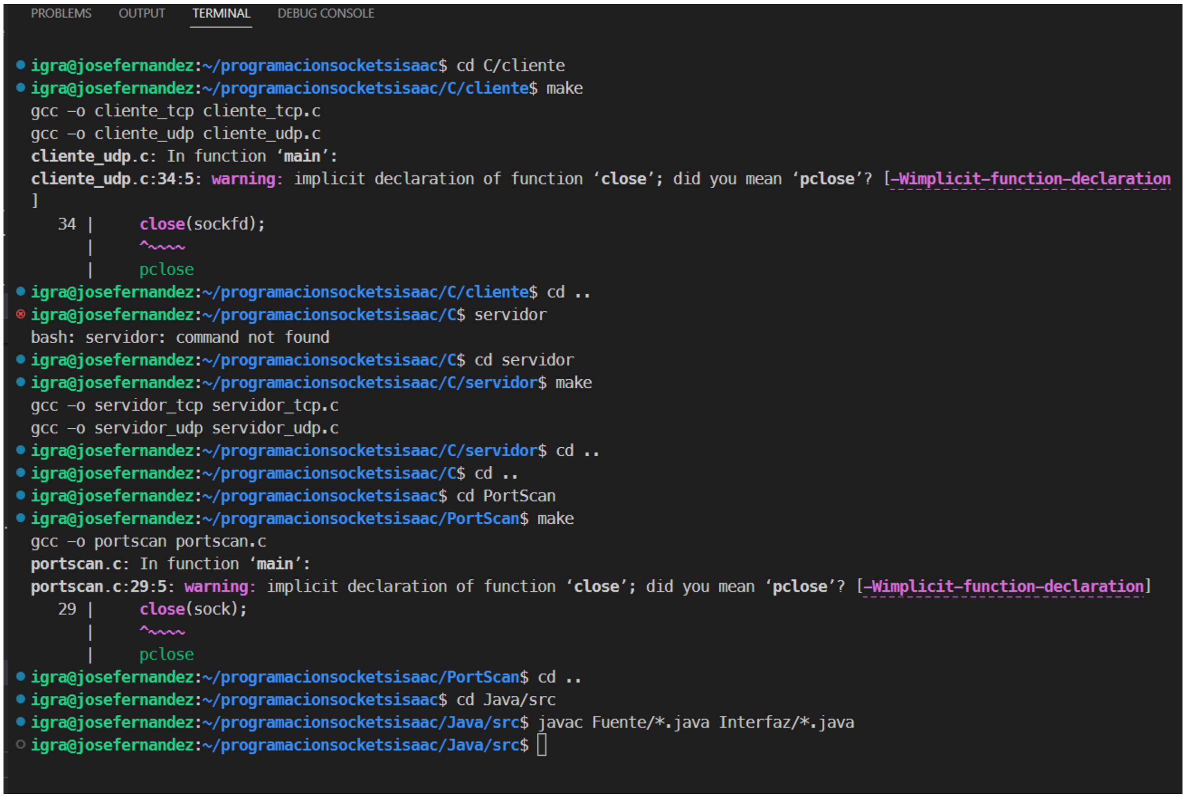

OPEN EDITORS 9 unsaved
Makefile C/cliente
Main.java Java/src/Fuente
SocketClient.java Java/src/Fuente
SocketServer.java Java/src/Fuente
CustomJFrame.java Java/src/Int...
Makefile C/servidor
cliente_udp.c C/cliente
Extension: Extension Pack for J...
GUI.java Java/fuente
JFrame.java Java/interfaz
Main.java Java/src/main/java/fue...
SocketClient.java Java/src/main/...
portscan.c PortScan
CustomJFrame.class Java/src/Int...
PROGRAMACIONSOCKETSISAAC [WSL: DE...
Main.class
Main.java
Main$1.class
SocketClient.class
SocketClient.java
SocketServer.class
SocketServer.java
SocketServer$ClientHandler.cl...
Interfaz
CustomJFrame.class
CustomJFrame.java
CustomJFrame$1.class
PortScan
Makefile
portscan
portscan.c
OUTLINE
TIMELINE
PortScan > portscan.c

```c
#include <stdio.h>
#include <stdlib.h>
#include <sys/socket.h>
#include <arpa/inet.h>
#include <string.h>

int main(int argc, char *argv[]) {
    int sock, port;
    struct sockaddr_in target;

    // Socket
    if ((sock = socket(AF_INET, SOCK_STREAM, 0)) < 0) {
        perror("socket");
        return 1;
    }

    //Establezco parametros del server
    target.sin_family = AF_INET;
    target.sin_addr.s_addr = inet_addr("127.0.0.1");

    //65535 ports
    for (port = 1; port <= 65535; port++) {
        target.sin_port = htons(port);
        if (connect(sock, (struct sockaddr *)&target, sizeof(target)) == 0) {
            printf("Puerto %d abierto\n", port);
        }
    }

    close(sock);

    return 0;
}
```

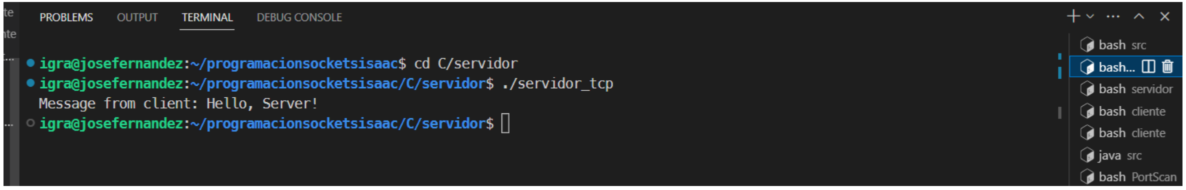


```makefile
all:
	gcc -o portscan portscan.c

clean:
	rm -f portscan
```

Isaac Reyes

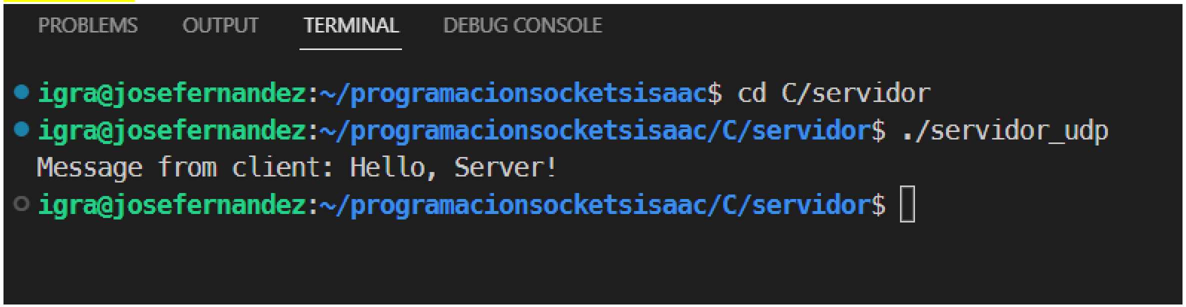


```
igra@josefernandez:~/programacionsocketsisaac$ cd C/cliente
igra@josefernandez:~/programacionsocketsisaac/C/cliente$ make
gcc -o cliente_tcp cliente_tcp.c
gcc -o cliente_udp cliente_udp.c
cliente_udp.c: In function ‘main’:
cliente_udp.c:34:5: warning: implicit declaration of function ‘close’; did you mean ‘pclose’? [-Wimplicit-function-declaration
]
   34 |     close(sockfd);
      |     ^~~~~
      |     pclose
igra@josefernandez:~/programacionsocketsisaac/C/cliente$ cd ..
igra@josefernandez:~/programacionsocketsisaac/C$ servidor
bash: servidor: command not found
igra@josefernandez:~/programacionsocketsisaac/C$ cd servidor
igra@josefernandez:~/programacionsocketsisaac/C/servidor$ make
gcc -o servidor_tcp servidor_tcp.c
gcc -o servidor_udp servidor_udp.c
igra@josefernandez:~/programacionsocketsisaac/C/servidor$ cd ..
igra@josefernandez:~/programacionsocketsisaac/C$ cd ..
igra@josefernandez:~/programacionsocketsisaac$ cd PortScan
igra@josefernandez:~/programacionsocketsisaac/PortScan$ make
gcc -o portscan portscan.c
portscan.c: In function ‘main’:
portscan.c:29:5: warning: implicit declaration of function ‘close’; did you mean ‘pclose’? [-Wimplicit-function-declaration]
   29 |     close(sock);
      |     ^~~~~
      |     pclose
igra@josefernandez:~/programacionsocketsisaac/PortScan$ cd ..
igra@josefernandez:~/programacionsocketsisaac$ cd Java/src
igra@josefernandez:~/programacionsocketsisaac/Java/src$ javac Fuente/*.java Interfaz/*.java
igra@josefernandez:~/programacionsocketsisaac/Java/src$ 
```

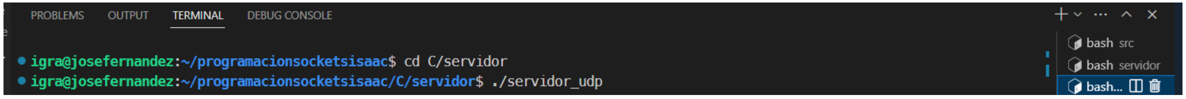


```
igra@josefernandez:~/programacionsocketsisaac$ cd C/servidor
igra@josefernandez:~/programacionsocketsisaac/C/servidor$ ./servidor_tcp
Message from client: Hello, Server!
igra@josefernandez:~/programacionsocketsisaac/C/servidor$ 
```

CONEXIÓN

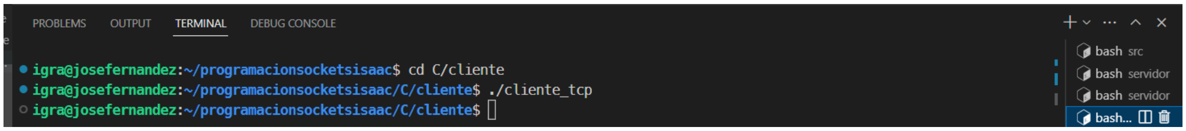


```
igra@josefernandez:~/programacionsocketsisaac$ cd C/servidor
igra@josefernandez:~/programacionsocketsisaac/C/servidor$ ./servidor_udp
Message from client: Hello, Server!
igra@josefernandez:~/programacionsocketsisaac/C/servidor$ 
```

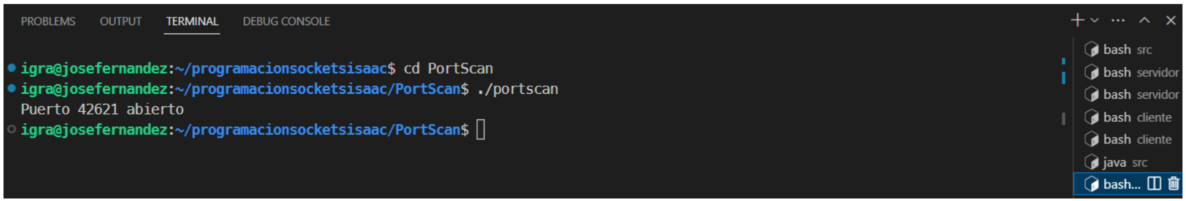


```
igra@josefernandez:~/programacionsocketsisaac$ cd C/servidor
igra@josefernandez:~/programacionsocketsisaac/C/servidor$ ./servidor_udp
```

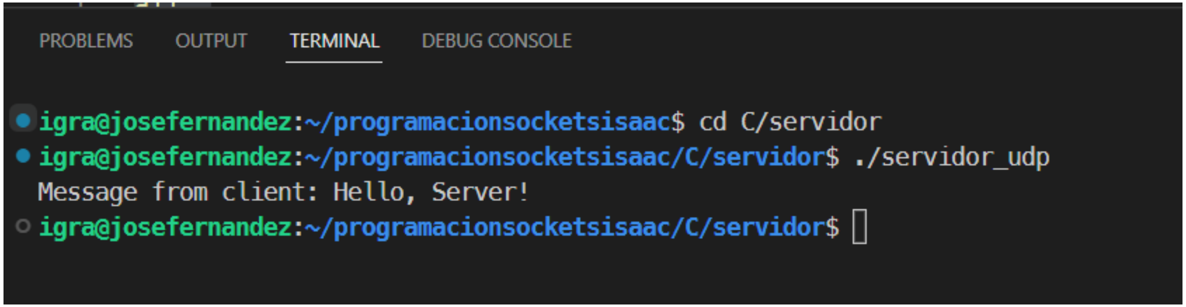
Isaac Reyes



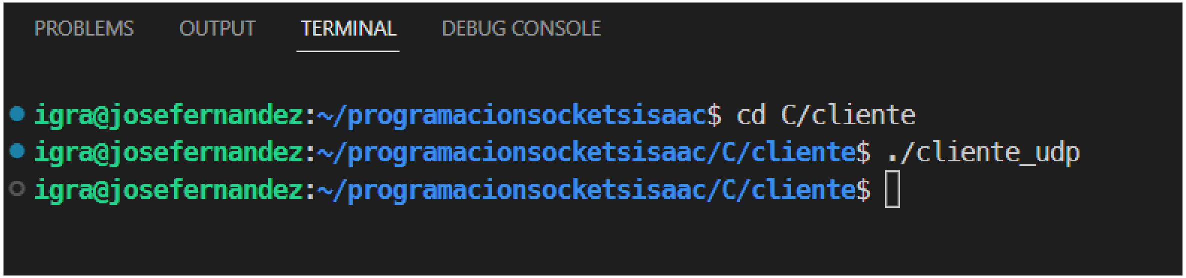
```
● igra@josefernandez:~/programacionsocketsisaac$ cd C/cliente
● igra@josefernandez:~/programacionsocketsisaac/C/cliente$ ./cliente_tcp
○ igra@josefernandez:~/programacionsocketsisaac/C/cliente$ 
```



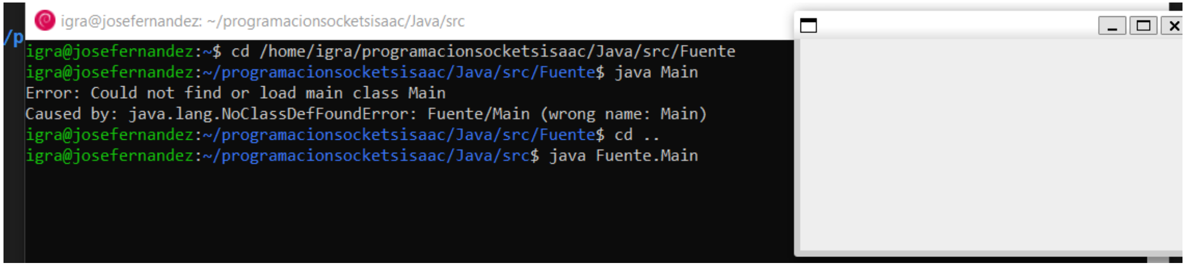
```
● igra@josefernandez:~/programacionsocketsisaac$ cd PortScan
● igra@josefernandez:~/programacionsocketsisaac/PortScan$ ./portscan
  Puerto 42621 abierto
○ igra@josefernandez:~/programacionsocketsisaac/PortScan$ 
```



```
● igra@josefernandez:~/programacionsocketsisaac$ cd C/servidor
● igra@josefernandez:~/programacionsocketsisaac/C/servidor$ ./servidor_udp
  Message from client: Hello, Server!
○ igra@josefernandez:~/programacionsocketsisaac/C/servidor$ 
```



```
● igra@josefernandez:~/programacionsocketsisaac$ cd C/cliente
● igra@josefernandez:~/programacionsocketsisaac/C/cliente$ ./cliente_udp
○ igra@josefernandez:~/programacionsocketsisaac/C/cliente$ 
```



```
igra@josefernandez:~$ cd /home/igra/programacionsocketsisaac/Java/src/Fuente
igra@josefernandez:~/programacionsocketsisaac/Java/src/Fuente$ java Main
Error: Could not find or load main class Main
Caused by: java.lang.NoClassDefFoundError: Fuente/Main (wrong name: Main)
igra@josefernandez:~/programacionsocketsisaac/Java/src/Fuente$ cd ..
igra@josefernandez:~/programacionsocketsisaac/Java/src$ java Fuente.Main
```

No se ve porque WSL no aguanta la gráfica.