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ICS4104 Distributed Systems

Assignment: Inter-process Communication in Distributed Environment

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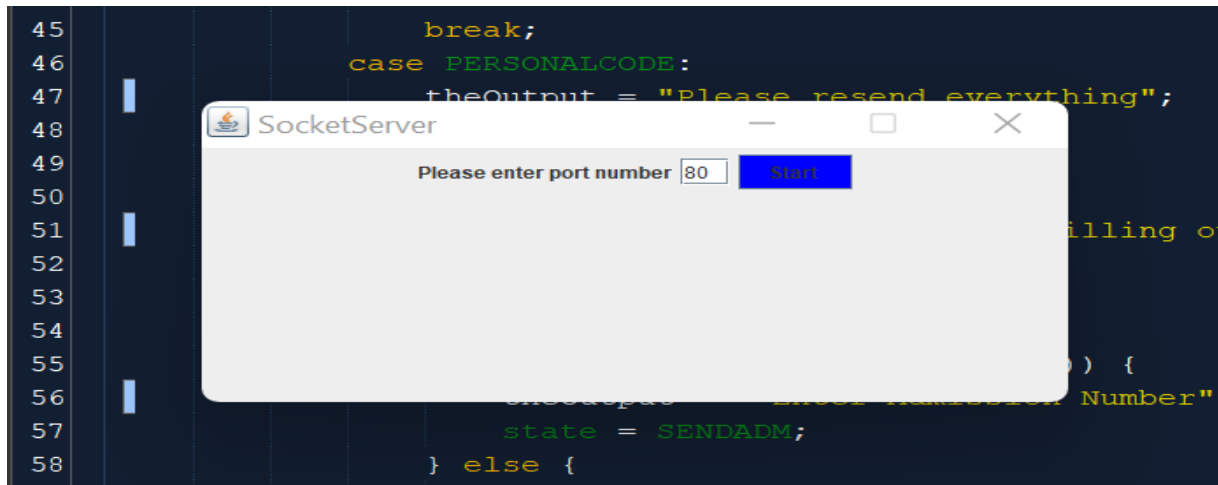
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Assignment #1: ICS4104 - Distributed Systems

How the Project Works

1. Run the ServerGUI.java class to load the initial server GUI to enter the port number to create a server connection (default port number is 80).



Upon clicking the “Start server” button, the server awaits connection from a client.

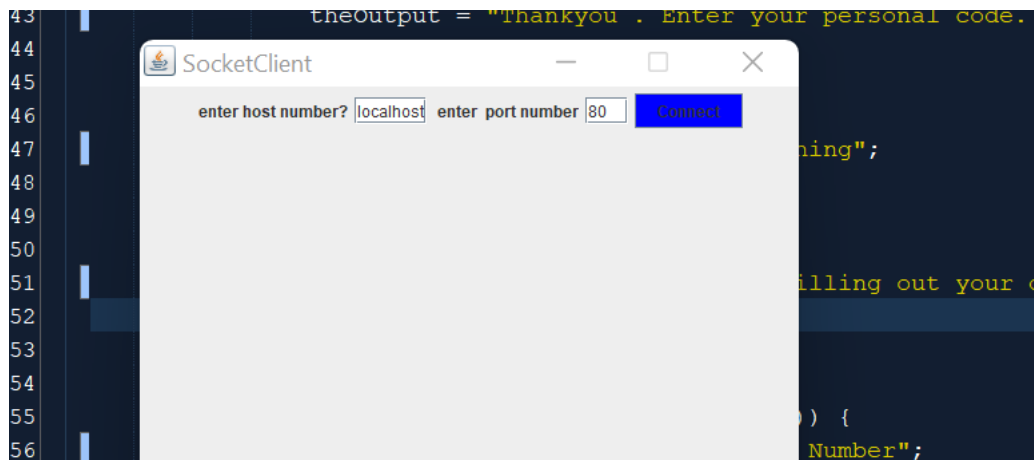
```
run:
Waiting for client connection on port 80 for 10 seconds...
Just connected to /127.0.0.1:63258
Current state is :0 with output null
```

2. Run the ClientGUI.java file and enter the hostname and port number to connect to the established server connection as shown below.

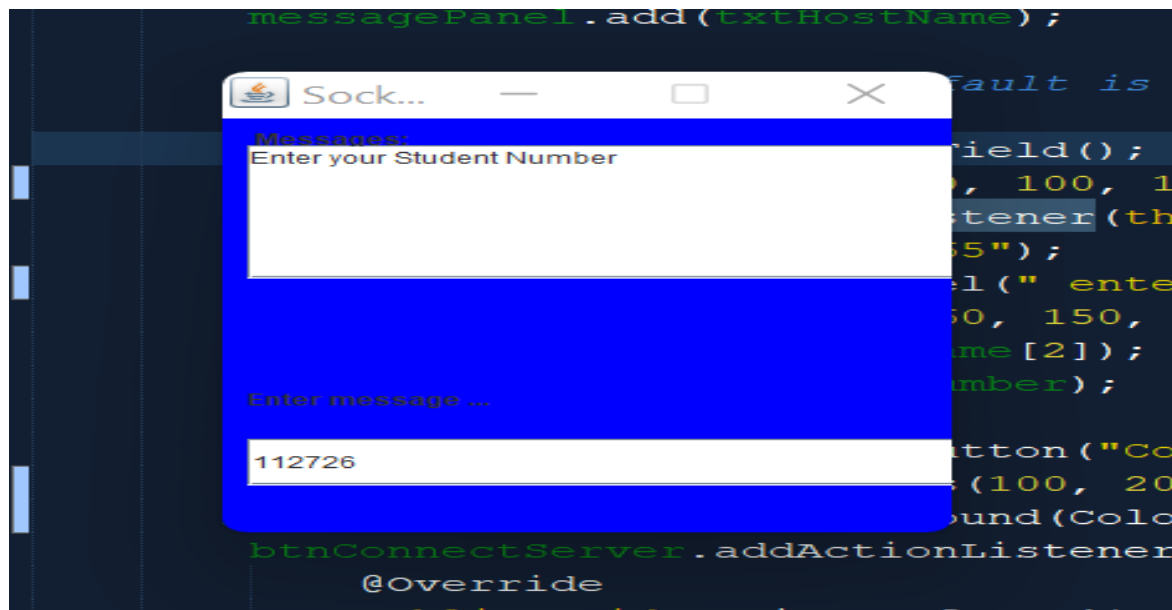
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3. After connecting to the server, the server requests the student number from the client. The client receives the message and replies with “112726” as shown below.

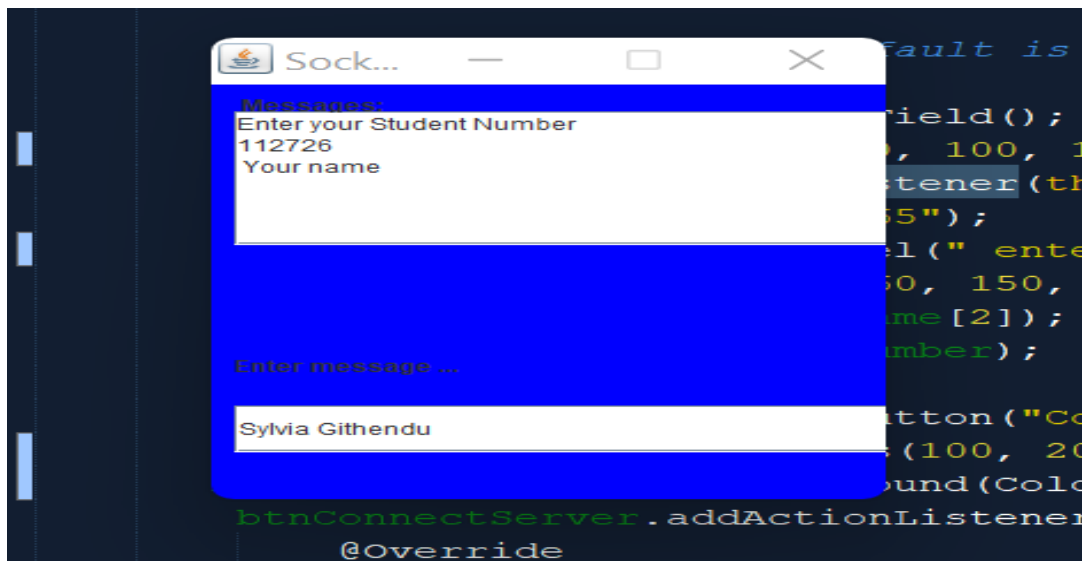


4. The server then asks the client for the name and it replies as “Sylvia Githendu” as shown below.

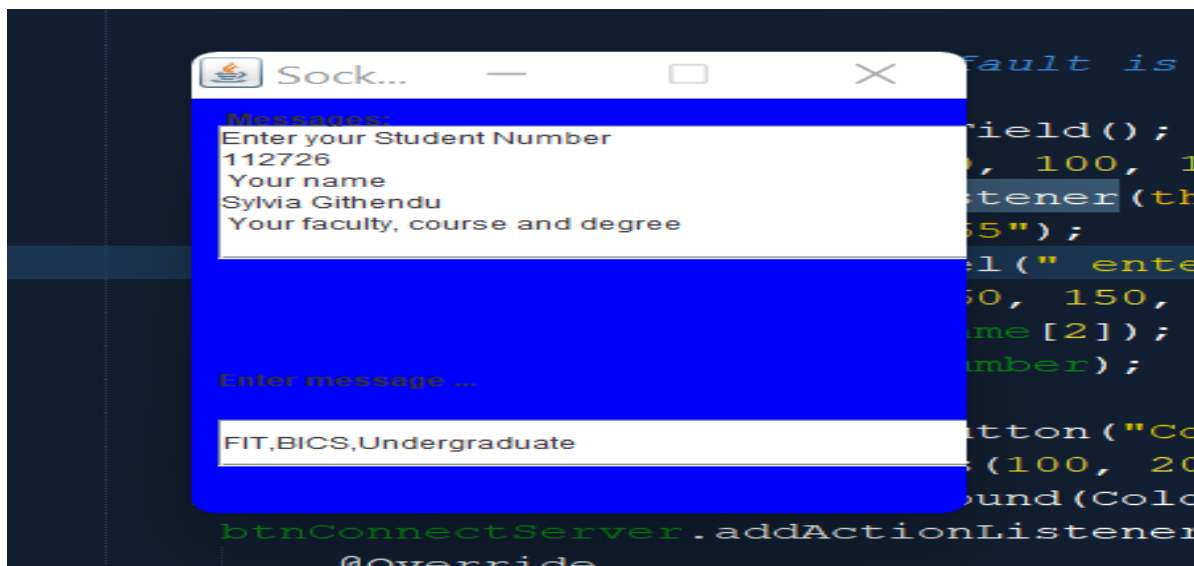
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5. The server then asks for the Faculty, course and degree. The client then replies with “FIT,BICS,Undergraduate” as shown below.

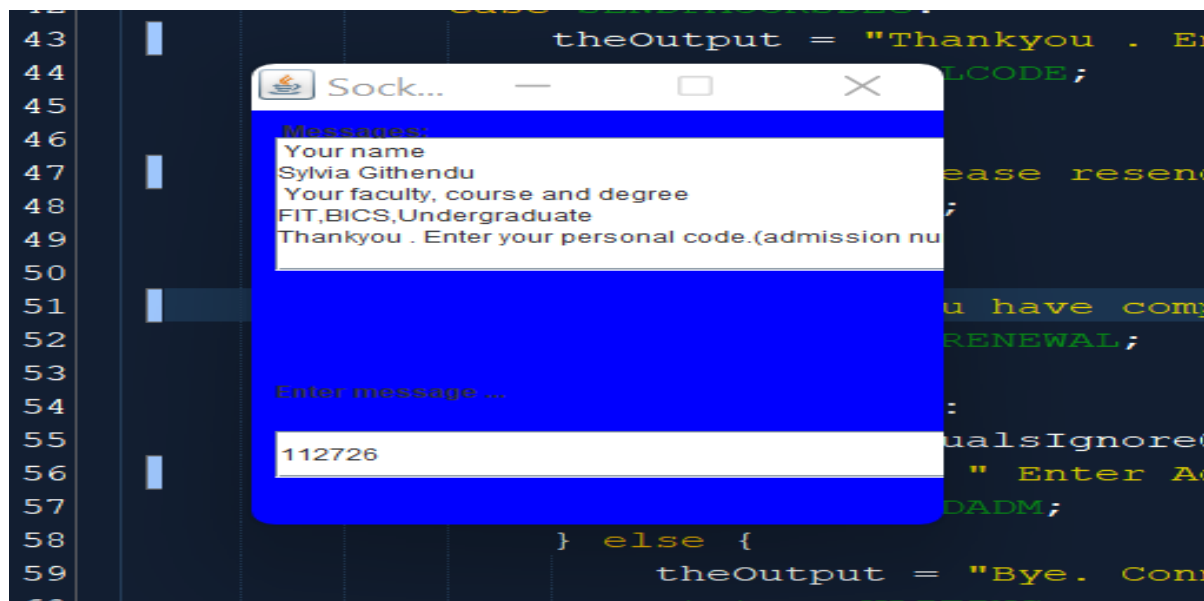


6. The server then replies with “Thank you. Enter your personal code (admission number) which the client replies with “112726” as shown below.

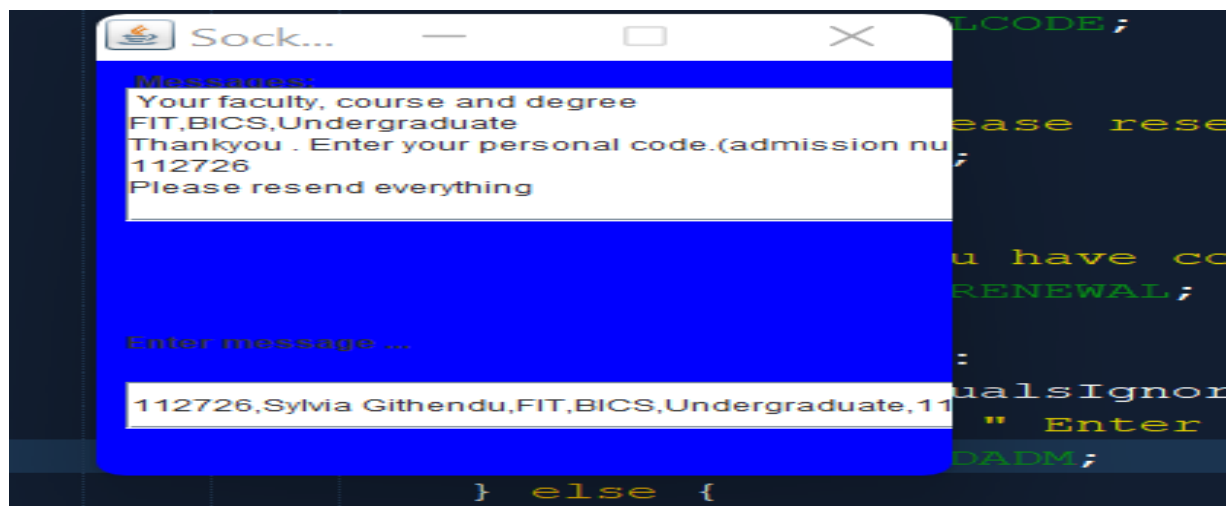
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7. The server requests the client to resend everything which the client replies with “112726, Sylvia Githendu, FIT,BICS,Undergraduate,112726” as shown below.

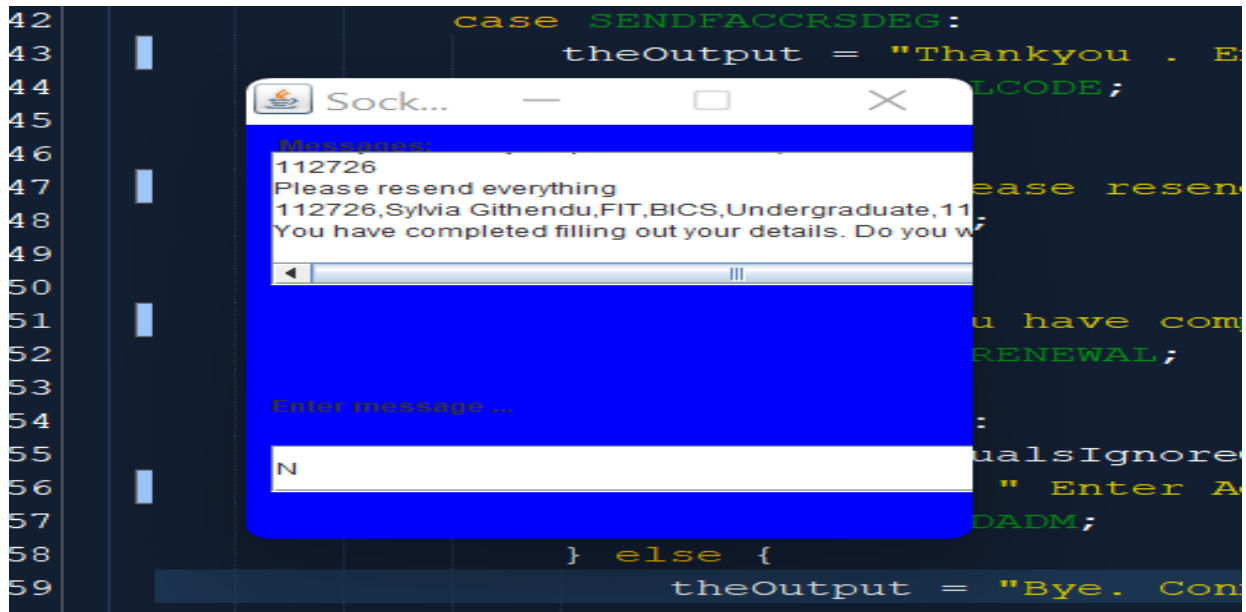


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8. The server replies and asks whether the client wants to restart the process which the client replies “N”. The connection is terminated otherwise “Y” the process would restart as shown below.



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The figure below illustrates the server-client communication from the terminal.

```
run:
Waiting for client connection on port 80 for 10 seconds...
Just connected to /127.0.0.1:63258
Current state is :0 with output null
Current state is :1 with output Enter your Student Number
Message received from client :Client connected from localhost/127.0.0.1:80
Current state is :2 with output Your name
Message received from client :112726
Current state is :3 with output Your faculty, course and degree
Message received from client :Sylvia Githendu
Current state is :4 with output Thankyou . Enter your personal code.(admission number)
Message received from client :FIT,BICS,Undergraduate
Current state is :5 with output Please resend everything
Message received from client :112726
Current state is :7 with output You have completed filling out your details. Do you want to restart? (Y/N)
Message received from client :112726,Sylvia Githendu,FIT,BICS,Undergraduate,112726
Current state is :0 with output Bye. Connection Terminating
```

Classes Used Server:

1. Server class
2. ServerProtocol Class
3. Main Class
4. SocketServer Class
5. ServerGUI class

Client:

1. Main class
2. ClientGUI class
3. SocketClient class
4. SocketConnector Interface

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Project Logs

1. 21/08/2021- Implementation of the knock knock protocol as a base for the project.
2. 22/08/2021 - Implementation of the server and client GUIs to be used for the project.
3. 23/08/2021 - Implementation of the server connection.
4. 24/08/2021 - Connection of the server sockets with the GUI.
5. 25/08/2021 - Connection of the client sockets with the GUI.
6. 26/08/2021 - Implementation of the client communication to the server.
7. 27/08/2021 - Connection of the server protocol with the server.
8. 28/08/2021 - Connection of the server protocol messages with the GUI.
9. 29/08/2021 - Final testing of the project and documentation.