

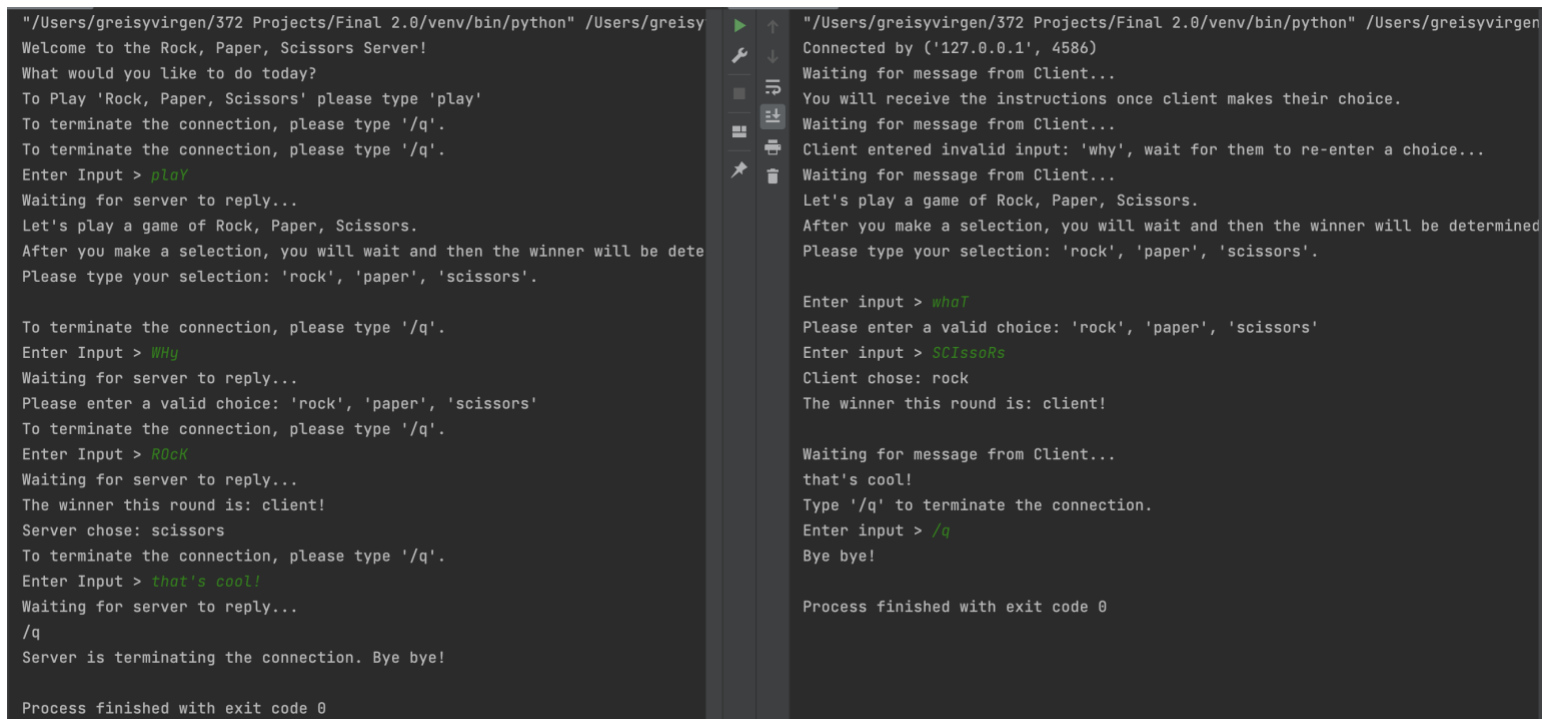
Greisy Virgen Larios

Client-Server Chat

1. Instructions:

- a. The programs use python3. To run the programs, do the following:
 - i. First start by running the server on a terminal: `python3 server.py`
 - ii. Once the server is running, on a new terminal, do: `python3 client.py`
 - iii. The client side is prompted for input first, then you can begin communicating.

Screenshots of code:



```
"/Users/greisyvirgen/372 Projects/Final 2.0/venv/bin/python" /Users/greisyvirgen
Welcome to the Rock, Paper, Scissors Server!
What would you like to do today?
To Play 'Rock, Paper, Scissors' please type 'play'
To terminate the connection, please type '/q'.
To terminate the connection, please type '/q'.
Enter Input > play
Waiting for server to reply...
Let's play a game of Rock, Paper, Scissors.
After you make a selection, you will wait and then the winner will be determined
Please type your selection: 'rock', 'paper', 'scissors'.

To terminate the connection, please type '/q'.
Enter Input > why
Waiting for server to reply...
Please enter a valid choice: 'rock', 'paper', 'scissors'
To terminate the connection, please type '/q'.
Enter Input > rock
Waiting for server to reply...
The winner this round is: client!
Server chose: scissors
To terminate the connection, please type '/q'.
Enter Input > that's cool!
Waiting for server to reply...
/q
Server is terminating the connection. Bye bye!

Process finished with exit code 0
```

```
"/Users/greisyvirgen/372 Projects/Final 2.0/venv/bin/python" /Users/greisyvirgen
Connected by ('127.0.0.1', 4586)
Waiting for message from Client...
You will receive the instructions once client makes their choice.
Waiting for message from Client...
Client entered invalid input: 'why', wait for them to re-enter a choice...
Waiting for message from Client...
Let's play a game of Rock, Paper, Scissors.
After you make a selection, you will wait and then the winner will be determined
Please type your selection: 'rock', 'paper', 'scissors'.

Enter input > what
Please enter a valid choice: 'rock', 'paper', 'scissors'
Enter input > SCISSORs
Client chose: rock
The winner this round is: client!

Waiting for message from Client...
that's cool!
Type '/q' to terminate the connection.
Enter input > /q
Bye bye!

Process finished with exit code 0
```

Figure 1. Triggering play but client typing the wrong thing, same thing on client. Then Server terminating connection.

```
"/Users/greisyvirgen/372 Projects/Final 2.0/venv/bin/python" /Users/greisy
Welcome to the Rock, Paper, Scissors Server!
What would you like to do today?
To Play 'Rock, Paper, Scissors' please type 'play'
To terminate the connection, please type '/q'.
To terminate the connection, please type '/q'.
Enter Input > HEy, hoW ARE yoU?
Waiting for server to reply...
Good, Y0u!?!
To terminate the connection, please type '/q'.
Enter Input > LoL, we TYpe weiRD!
Waiting for server to reply...
Yeah! Ok, GtG!
To terminate the connection, please type '/q'.
Enter Input > /q
Bye bye!

Process finished with exit code 0

"/Users/greisyvirgen/372 Projects/Final 2.0/venv/bin/
Connected by ('127.0.0.1', 4587)
Waiting for message from Client...
HEy, hoW ARE yoU?
Type '/q' to terminate the connection.
Enter input > Good, Y0u!?!
Waiting for message from Client...
LoL, we TYpe weiRD!
Type '/q' to terminate the connection.
Enter input > Yeah! Ok, GtG!
Waiting for message from Client...
The client is terminating the connection. Bye bye!

Process finished with exit code 0
```

Figure 2. Regular chat functionality with the client terminating the connection.

```
To Play 'Rock, Paper, Scissors' please type 'play'
To terminate the connection, please type '/q'.
Enter Input > hey
Waiting for server to reply...
hey !
To terminate the connection, please type '/q'.
Enter Input > tired?
Waiting for server to reply...
yeah
To terminate the connection, please type '/q'.
Enter Input > same
Waiting for server to reply...
leTS's play
To terminate the connection, please type '/q'.
Enter Input > PLaY
Waiting for server to reply...
Let's play a game of Rock, Paper, Scissors.
After you make a selection, you will wait and then the winner will be determined
Please type your selection: 'rock', 'paper', 'scissors'.

To terminate the connection, please type '/q'.
Enter Input > SCIssoRs
Waiting for server to reply...
The winner this round is: client!
Server chose: paper
To terminate the connection, please type '/q'.
Enter Input > good game!
Waiting for server to reply...
/q
Server is terminating the connection. Bye bye!

Process finished with exit code 0

"/Users/greisyvirgen/372 Projects/Final 2.0/venv/bin/python" /Users/greisyvirgen
Connected by ('127.0.0.1', 4587)
Waiting for message from Client...
hey
Type '/q' to terminate the connection.
Enter input > hey !
Waiting for message from Client...
tired?
Type '/q' to terminate the connection.
Enter input > yeah
Waiting for message from Client...
same
Type '/q' to terminate the connection.
Enter input > leTS's play
Waiting for message from Client...
You will receive the instructions once client makes their choice.
Waiting for message from Client...
Let's play a game of Rock, Paper, Scissors.
After you make a selection, you will wait and then the winner will be determined
Please type your selection: 'rock', 'paper', 'scissors'.

Enter input > PapER
Client chose: scissors
The winner this round is: client!

Waiting for message from Client...
good game!
Type '/q' to terminate the connection.
Enter input > /q
Bye bye!


Process finished with exit code 0
```

Figure 3. Chat and game functionality all at once, server quitting the connection. When playing, the choice from client and server is hidden to prevent cheating. Only once both choose, they show the result and what each other chose.

Comments:

For the extra credit:

- I manipulated when to display the received data when the game of rock, paper, scissors is being played. I did this so that no cheating occurred in the sense that the server won't choose the option that makes them win each time. This allowed for fair play in the game.
- I also included better data validation by always removing any leading or trailing whitespace by using `.split()` for the messages received, or even sent so that I knew what they held. I also made them always be lowercase with `.lower()`. Although I did this validation, when I displayed the data sent and received, I kept what was originally sent.
- In order for my game to be played correctly and avoid any double asking of input (issues I had faced at one point), I initiated a flag initially set to false, and then only set it to true if the client sent the server that they wanted to play.
- I also added a check for if the message I was set to send or received was empty, if so, the program ended as this meant the connection was broken. I did this to follow the EOT explanation provided on the instructions PDF.
- Used James F. Kurose & Keith W. Ross "Computer Networking" as a resource, as well as my project 1.



```
"/Users/greisyvirgen/372 Projects/Final 2.0/venv/bin/python" /Users/greisy
Welcome to the Rock, Paper, Scissors Server!
What would you like to do today?
To Play 'Rock, Paper, Scissors' please type 'play'
To terminate the connection, please type '/q'.
Enter Input > hi
Waiting for server to reply...

Connection has broken.

Process finished with exit code 0

"/Users/greisyvirgen/372 Projects/Final
Connected by ('127.0.0.1', 4587)
Waiting for message from Client...
hi
Type '/q' to terminate the connection.
Enter input >
Connection has broken.

Process finished with exit code 0
```

Figure 4. Server side sending empty data/message, connection breaks.

```
"/Users/greisyvirgen/372 Projects/Final 2.0/venv/bin/python" /Users/greisy
Welcome to the Rock, Paper, Scissors Server!
What would you like to do today?
To Play 'Rock, Paper, Scissors' please type 'play'
To terminate the connection, please type '/q'.
Enter Input > HEEY hoW arE Youuu
Waiting for server to reply...
    good ANd YouU??
To terminate the connection, please type '/q'.
Enter Input > /Q
Bye bye!

Process finished with exit code 0
```

```
"/Users/greisyvirgen/372 Projects/Final 2.0/venv/bin/python" /Users/greisy
Connected by ('127.0.0.1', 4587)
Waiting for message from Client...
HEEY hoW arE Youuu
Type '/q' to terminate the connection.
Enter input >    good ANd YouU??
Waiting for message from Client...
The client is terminating the connection. Bye bye!

Process finished with exit code 0
```

Figure 5. Sending and receiving messages with upper and lower case, as well as with leading and trailing white space. Displays as sent but analyzed appropriately.

```
"/Users/greisyvirgen/372 Projects/Final 2.0/venv/bin/python" /Users/greisy
Welcome to the Rock, Paper, Scissors Server!
What would you like to do today?
To Play 'Rock, Paper, Scissors' please type 'play'
To terminate the connection, please type '/q'.
Enter Input > PLaY
Waiting for server to reply...
Let's play a game of Rock, Paper, Scissors.
After you make a selection, you will wait and then the winner will be dete
Please type your selection: 'rock', 'paper', 'scissors'.

To terminate the connection, please type '/q'.
Enter Input > PaPeR
Waiting for server to reply...
The winner this round is: server!
Server chose: scissors
To terminate the connection, please type '/q'.
Enter Input >    /Q
Bye bye!

Process finished with exit code 0
```

```
"/Users/greisyvirgen/372 Projects/Final 2.0/venv/bin/python" /Users/greisyvirgen
Connected by ('127.0.0.1', 4587)
Waiting for message from Client...
You will receive the instructions once client makes their choice.
Waiting for message from Client...
Let's play a game of Rock, Paper, Scissors.
After you make a selection, you will wait and then the winner will be determined
Please type your selection: 'rock', 'paper', 'scissors'.

Enter input > ScisSorS
Client chose: paper
The winner this round is: server!

Waiting for message from Client...
The client is terminating the connection. Bye bye!

Process finished with exit code 0
```

Figure 6. Hiding their choice for the game of rock, paper, scissors. Also leading white space and capital Q for terminating connection.