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## Programming Portfolio Project: Client-Server Chat Game

1. a) My program is python3. To run the program, in the terminal go into the directory where the 'client.py' and 'server.py' files are located. Once there, type 'python3 server.py'. This will have the server waiting for connection from the client. Then open a new terminal tab in the same directory and type python3 'client.py'. Now you will be able to use the program.

### b) Screenshots of running program:

The server.py running:

```
python3 server.py
Server listening on: localhost on port: 4800
Connected by ('127.0.0.1', 55376)
Waiting for message...
Hello
Type /q to quit.
Enter a message to send. Please wait for the input prompt before entering a message.
Enter 'play rps' to play rock paper scissors.
Enter Input>Hi how are you?
I am doing good. How are you?
Enter Input>I am fine. Wanna play rock paper scissors?
Sure!
Enter Input>play rps
Welcome to rock paper scissors!
Choose your selection ('rock', 'paper', or 'scissors'): paper
Your opponent chose: paper
It's a tie!
Let's play again!
Enter Input>play rps
Welcome to rock paper scissors!
Choose your selection ('rock', 'paper', or 'scissors'): rock
Your opponent chose: rock
It's a tie!
One more time!
Enter Input>Okay!
play rps
Welcome to rock paper scissors!
Choose your selection ('rock', 'paper', or 'scissors'): rock
Your opponent chose: scissors
You won!
Enter Input>I won!!!!
I am leaving. Goodbye.
Enter Input>Bye
/q
Client has requested shutdown. Shutting down!
```

Same run of the program but from the client side:

```

└─ python3 client.py
Connected to: localhost on port: 4800
Type /q to quit.
Enter a message to send. Please wait for the input prompt before entering a message.
Enter 'play rps' to play rock paper scissors.
Enter Input>Hello
Hi how are you?
Enter Input>I am doing good. How are you?
I am fine. Wanna play rock paper scissors?
Enter Input>Sure!
play rps
Welcome to rock paper scissors!
Choose your selection ('rock', 'paper', or 'scissors'): paper
Your opponent chose: paper
It's a tie!
Enter Input>Let's play again!
play rps
Welcome to rock paper scissors!
Choose your selection ('rock', 'paper', or 'scissors'): rock
Your opponent chose: rock
It's a tie!
Enter Input>One more time!
Okay!
Enter Input>play rps
Welcome to rock paper scissors!
Choose your selection ('rock', 'paper', or 'scissors'): scissors
Your opponent chose: rock
You lost!
I won!!!!
Enter Input>I am leaving. Goodbye.
Bye
Enter Input>/q
Shutting down!

```

c) I also added some validation in the rock paper scissors game to make sure the user inputs a valid selection. Here are screenshots of that happening:

Server end:

```

└─ python3 server.py
Server listening on: localhost on port: 4800
Connected by ('127.0.0.1', 55404)
Waiting for message...
Let's play!
Type /q to quit.
Enter a message to send. Please wait for the input prompt before entering a message.
Enter 'play rps' to play rock paper scissors.
Enter Input>play rps
Welcome to rock paper scissors!
Choose your selection ('rock', 'paper', or 'scissors'): rck
Invalid selection. Try again!
Choose your selection ('rock', 'paper', or 'scissors'): rk
Invalid selection. Try again!
Choose your selection ('rock', 'paper', or 'scissors'): rock
Your opponent chose: scissors
You won!
/q
Client has requested shutdown. Shutting down!

```

Client end:

```
└─ python3 client.py
Connected to: localhost on port: 4800
Type /q to quit.
Enter a message to send. Please wait for the input prompt before entering a message.
Enter 'play rps' to play rock paper scissors.
Enter Input>Let's play!
play rps
Welcome to rock paper scissors!
Choose your selection ('rock', 'paper', or 'scissors'): scisssr
Invalid selection. Try again!
Choose your selection ('rock', 'paper', or 'scissors'): scrs
Invalid selection. Try again!
Choose your selection ('rock', 'paper', or 'scissors'): scissors
Your opponent chose: rock
You lost!
Enter Input>/q
Shutting down!
```

Also wanted to add that the rock paper scissors game can be started from both the client and the server. One more thing, the connection can be closed from both client and server as well.