- Login
 - Welcome
 - Error: User not found message (to stderr)

```
→ submission git:(master) × python3 client.py localhost 6502 2>&1
Enter command: login
Enter username: tutor
```

Enter password: tuor

Error: User tutor not found

Enter command:

Error: Wrong password for user (to stderr)

```
[→ submission git:(master) × python3 client.py localhost 6502 2>&1
Enter command: login
Enter username: kurt
Enter password: tutor
Error: Wrong password for user kurt
Enter command:
```

- Register
 - Error: User already exists (to stderr)

```
● ■ submission — python3 client.py localhost 6502 2>&1 — py

| ** submission git:(master) ** python3 client.py localhost 6502 2>&1

| Enter command: Register |
| Enter username: tutor |
| Enter password: tutor |
| Error: User tutor already exists |
| Enter command: |
```

Error: User already exists (to stderr)Successfully created user account

```
■ submission — python3 client.py localhost 6502 2>&1 — python3 — Python clienter command: Register
Enter username: tutor
Enter password: tutor
Error: User tutor already exists
Enter command: register
Enter username: teacher
Enter password: teacher
Enter command: recount teacher
Enter command:
```

• Error: You must be logged in to perform this action

```
📄 submission — python3 client.py localhost 6502 2>&1 — python3 — Python client.py
          submission git:(master) x python3 client.py localhost 6502 2>&1
       Enter command: Register
       Enter username: tutor
        Enter password: tutor
        Error: User tutor already exists
        Enter command: register
        Enter username: teacher
        Enter password: teacher
        Successfully created user account teacher
        Enter command: register
        Enter username: player
        Enter password: 89j&^%$%
        Successfully created user account player
        Enter command: create
        Enter room name you want to create: room1
       Error: You must be logged in to perform this action.

    ROOMLIST

    Do you want to have a room list as player or viewer? (Player/Viewer)

      Enter command, rogin
      Enter username: gary
      Enter password: gary
      Welcome gary
      Enter command: roomlist
      Do you want to have a room list as player or viewer? (Player/Viewer): jkjk
      Error: Please input a valid mode.
      Enter command:
    • Room available to join as: Room 1,epic room 2,another epic room
      Enter username: gary
      Enter password: gary
      Welcome gary
       Enter command: roomlist
      Do you want to have a room list as player or viewer? (Player/Viewer): jkjk
      Error: Please input a valid mode.
      Enter command: roomlist
       Do you want to have a room list as player or viewer? (Player/Viewer): player
      Room available to join as PLAYER: room1
      Enter command:

    Error: Please input a valid mode.

       Enter password: gary
       Welcome gary
       Enter command: roomlist
```

Do you want to have a room list as player or viewer? (Player/Viewer): jkjk

Error: Please input a valid mode.

Enter command:

• Enter room name you want to create: Enter username: kurt Enter password: kurt Welcome kurt Enter command: create Enter room name you want to create: room Successfully created room room1 Waiting for other player... Waiting for other player... Enter room name you want to create: room1 Successfully created room room1 Waiting for other player... • Error: Room is invalid (to stderr) Enter command: create Enter room name you want to create:)))) Error: Room)))) is invalid Enter command: Error: Room already exists (to stderr) Enter room name you want to create:)))) Error: Room)))) is invalid Enter command: create Enter room name you want to create: room1 Error: Room room1 already exists Enter command:

You wish to join the room as: (Player/Viewer)

Welcome tutor

Enter command: join

Enter room name you want to join: room

You wish to join the room as: (Player/Viewer):

Error: No room named room

Enter command: join

- Successfully joined room as a
- Error: No room named (to stderr)

Enter password: tutor

Welcome tutor

Enter command: join

Enter room name you want to join: room

You wish to join the room as: (Player/Viewer):

Error: No room named room

Enter command: join

o Error: The room already has 2 players to stderr

Nelcome tutor

Enter command: join

Enter room name you want to join: room

You wish to join the room as: (Player/Viewer):

Error: No room named room

Enter command: join

Enter room name you want to join: room1

You wish to join the room as: (Player/Viewer): playe

Error: The room room1 already has 2 players

Enter command:

BEGIN

o match between <player 1> and <player 2> will commence, it is currently <player 1>'s turn.

Enter command: create

Enter room name you want to create: room1

Successfully created room room1

Waiting for other player...

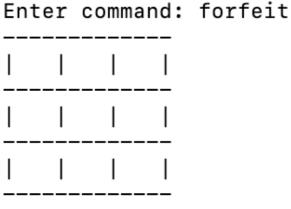
match between kurt and gary will commence, it is currently kurt's turn.

Enter command: □

BOARDStatus

GAMEEND

• won due to the opposing player forfeiting



It is kurt's turn kurt won due to the opposing player forfeiting.

- Server launching
 - Error: Expecting 1 argument: .

```
submission — zhuoyang@192-168-1-111 — ..u

|→ submission git:(master) python3 server.py serverconfig.json
| Error: <server config path> doesn't exist.
|→ submission git:(master) python3 server.py serverconfig.json
| Error: serverconfig.json doesn't exist.
|→ submission git:(master) × python3 server.py
| Error: Expecting 1 argument: <server config path>.
|→ submission git:(master) × |
```

Error: doesn't exist.

```
submission — zhuoyang@192-168-1-111 — ..uk
submission git:(master) python3 server.py serverconfig.json
Error: <server config path> doesn't exist.
submission git:(master) python3 server.py serverconfig.json
Error: serverconfig.json doesn't exist.
submission git:(master) ×
```

• Error: config path> is not in a valid JSON format.

```
submission — zhuoyang@192-168-1-111 — ..ub/submission — -zsh — 11

|→ submission git:(master) python3 server.py serverconfig.json
| Error: <server config path> doesn't exist.
|→ submission git:(master) python3 server.py serverconfig.json
| Error: serverconfig.json doesn't exist.
|→ submission git:(master) × python3 server.py
| Error: Expecting 1 argument: <server config path>.
|→ submission git:(master) × python3 server.py serverconfig.json
| Error: serverconfig.json is not in a valid JSON format.
|→ submission git:(master) × |
```

• Error: missing key(s):

- Client Launching
 - Error: Expecting 2 arguments:

```
submission — zhuoyang@192-168-1-11

Last login: Wed Oct 16 17:51:17 on ttys010

→ cd GitHub/submission

⇒ submission git:(master) python3 client.py

Error: Expecting 2 arguments: <server address> <port>
→ submission git:(master) × |
```

```
    Error: cannot connect to server at and.

                               📘 submission — zhuoyang@192-168-1-111 — ..
     Last login: Wed Oct 16 17:51:17 on ttys010
        ~ cd GitHub/submission
        submission git:(master) python3 client.py
     Error: Expecting 2 arguments: <server address> <port>
        submission git:(master) * python3 client.py localhost 8090
     Error: cannot connect to server at localhost and 8090.
        submission git:(master) x |
place
   o (Column/Row) values must be an integer between 0 and 2
     Enter command: place
     Enter column (0-2): 3
     Enter row (0-2): 3
     (Column/Row) values must be an integer between 0 and 2
     Entar column (a 2).

    Unknown command

   Unknown command:
     ETIUL. CAUDOL COURSECT TO SELVEL AT TOCATIONS AND OBJE.
        submission git:(master) * python3 client.py localhost 6502
     Enter command: hi tutor
     Unknown command: HI TUTOR
     Enter command:
 Client dropped out
   PVETITOWETTOI. DIMA(). POIL MASE DE O 00000.
  [→ submission git:(master) × python3 server.py serverconfig.json
  Client has disconnected
```

I have compiled a list of I/O features tested, with screenshots of the results provided for each point. However, there are a few exceptions that I didn't include, as my game loop for handling the GAMEEND state didn't function correctly. For instance, I wasn't able to test the output for messages like "Congratulations, you won" and "Sorry, you lost. Good luck next time." Aside from these, I believe I've covered most of the I/O scenarios.