

Testing Procedures

Unit Testing:

```
(.venv) dayle07@LAPTOP-07L0PUKG:~/term1/{DayleClarke}_T1A3/src$ pytest
===== test session starts =====
platform linux -- Python 3.8.10, pytest-7.1.3, pluggy-1.0.0
rootdir: /home/dayle07/term1/{DayleClarke}_T1A3/src
collected 13 items

test_main.py ..... [ 46%]
test_players.py ..... [100%]

===== 13 passed in 0.47s =====
(.venv) dayle07@LAPTOP-07L0PUKG:~/term1/{DayleClarke}_T1A3/src$
```

The Unit Testing procedures are outlined in the following files:

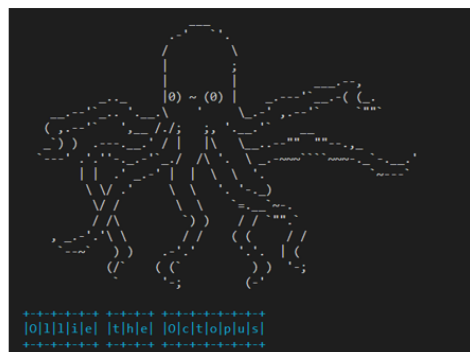
src/test_main.py
src/test_players.py

RandomComputerPlayer vs ExpertComputerPlayer

The Unbeatable AI

A test was conducted to check the accuracy of the ExpertComputerPlayer AI. This set up games where an instance of the ExpertComputerPlayer (Ollie the Octopus) played against an instance of the RandomComputerPlayer (Katie the Koala).

Out of 1000 games Ollie won 902, tied 98 and lost none.



VS



```
(.venv) dayle07@LAPTOP-07L0PUKG:~/term1/{DayleClarke}_T1A3/src$ python3 check_ai.py
  player_name  win  tie  loss  total_games  percentage_loss_ratio
0  Katie the Koala    0   98   902      1000          90.20%
1  Ollie the Octopus 902   98    0      1000           0.00%
```

Manual Testing Register User Feature

A manual test was conducted of the process to register as a new user. Multiple incorrect user input data was added to manually test that each error was handled gracefully.

Registering as a New User

When the username is already taken:

```
How would you like to begin today?
Menu entries can be selected with the arrow or j/k keys.

Register as a new user
Username: Dayle
That username is already taken. Please choose a unique username.
Username: Dayle07
You entered Dayle07 for your username.
```

When an invalid password is entered:

```
Enter a password to associate with your account.

Passwords must:
1) be between 5 and 10 characters in length.
2) contain at least one number
3) contain one uppercase and one lowercase letter.

Password: pass
That is not a valid password length. Please enter a password that contains between 5 and 10 characters (inclusive).
Password: password123435687
That is not a valid password length. Please enter a password that contains between 5 and 10 characters (inclusive).
Password: password
That is not a valid password. Please ensure your password contains at least one upper and one lower case character.
Password: PASSWORD
That is not a valid password. Please ensure your password contains at least one upper and one lower case character.
Password: Password
That is not a valid password. Please ensure your password contains at least one number.
Password: Password1
Confirm password: password1
The passwords entered do not match. Please try again.
Password: Password1
Confirm password: Password1
Registration successful! Welcome to Animal TicTacToe Dayle07!
```

Logging In as an Existing user

When the username doesn't exist in the dataframe:

```
How would you like to begin today?
Menu entries can be selected with the arrow or j/k keys.

Login as an existing user
Welcome back. Please enter your log_in credentials.
Username: Bree
Bree is not an existing username. Please try again.
Username: Dayle
You entered Dayle for your username

Password: █
```

Forgotten Username

When they can't remember their username, the user has 3 chances to get it correct before returning to the main menu:

```
How would you like to begin today?
Menu entries can be selected with the arrow or j/k keys.

Login as an existing user
Welcome back. Please enter your log_in credentials.
Username: Test
Test is not an existing username. Please try again.
Username: Test
Test is not an existing username. Please try again.
Username: Test
Test is not an existing username. Please try again.
You seem to be having difficulty remembering your username.

> Register as a new user
  Login as an existing user
  Play as a guest (no log-in required)
```

Forgotten Password

When they can't enter their password correctly (if it doesn't match what is stored as their password in user_credentials.csv , the user has 3 chances to get it correct before returning to the main menu:

```
Password: test
Incorrect password. Please try again.
Password: test
Incorrect password. Please try again.
Password: test
Incorrect password. Please try again.
You seem to be having difficulty remembering your password.

> Register as a new user
  Login as an existing user
  Play as a guest (no log-in required)
```

Lots of players are around today who would love to play Tic-Tac-Toe with you.
They each have different skill levels and experience.
Here is a table outlining info about each player including their win, tie, and loss history:

```
+-----+-----+-----+-----+
|O|p|p|o|n|e|n|t| |P|l|a|y|e|r| |I|n|f|o|r|m|a|t|i|o|n|
+-----+-----+-----+-----+
```

player_name	level	personality	wins	ties	losses	total_games	percentage_loss_ratio
Pete the Panda	beginner	kind-hearted and lovable	7	13	63	83	75.90%
Katie the Koala	beginner	beautiful and creative	8	10	41	59	69.49%
Ollie the Octopus	genius	intelligent and quick-witted	66	79	0	145	0.00%
Danni the Dolphin	genius	innovative and elegant	48	63	0	111	0.00%

To help select the correct player for you, what difficulty level would you like to play on?
Menu entries can be selected with the arrow or j/k keys.

Game difficulty level:

```
> Easy Mode
  Expert Mode
```

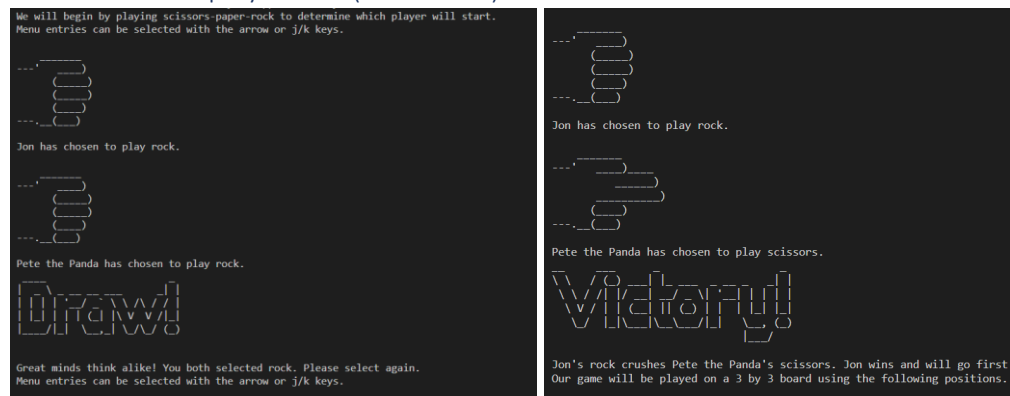
```
+-----+-----+-----+-----+
```

How would you like to begin today?
Menu entries can be selected with the arrow or j/k keys.

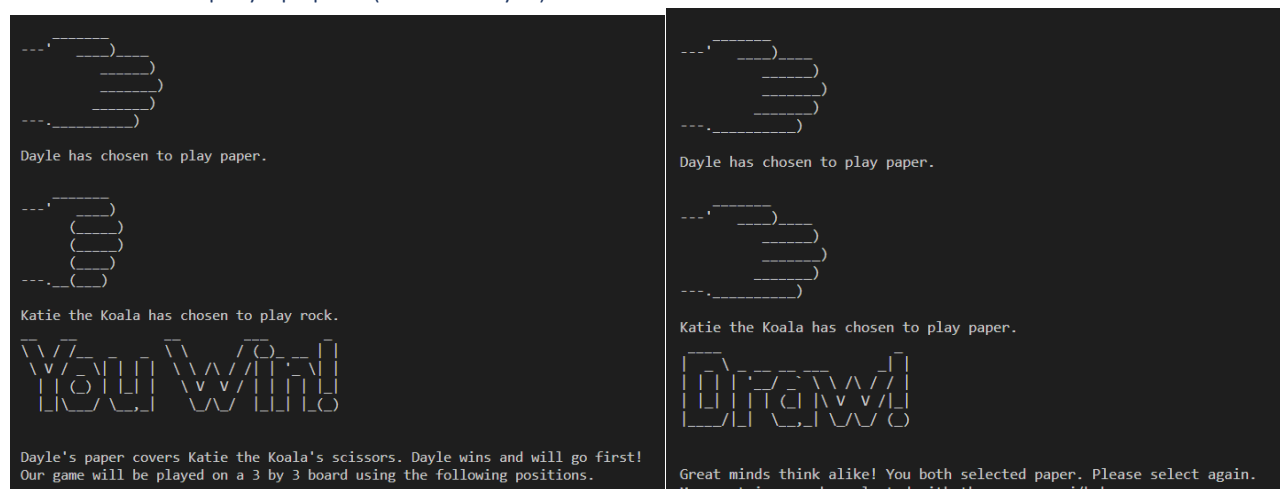
```
Login as an existing user
Welcome back. Please enter your log_in credentials.
Username: Dayle
Password: testPass1
Registration successfull! Welcome back to Animal TicTacToe Dayle!
```

Scissor- Paper- Rock Testing All Possibilities

When the user plays rock: (user = Jon)



When the user plays paper: (user = Dayle)



When the user plays scissors: (user = Dayle)

```
--'-----)
      -----)
        -----)
          (----)
            ----)
              ---( )
```

Dayle has chosen to play scissors.

```
--'-----)
      -----)
        -----)
          (----)
            ----)
              ---( )
```

Pete the Panda has chosen to play rock.

```
[X][O]X[ ] [X]
[X][O]X[ ] [X]
[X][O]X[ ] [X]
```

Pete the Panda's rock crushes Dayle's scissors.
Pete the Panda wins and will go first!
Our game will be played on a 3 by 3 board using the following positions.

[illegible]

```
Menu entries can be selected with the arrow or j/k keys.
```

```
---'-----)
      |-----)
      |-----)
      |(-----)
---'-----(--)
```

Dayle has chosen to play scissors.

```
---'-----)
      |-----)
      |-----)
      |-----)
---'-----)
```

Pete the Panda has chosen to play paper.

```
\V//_/_/_\|_|
 \|//_/_/_\|_|
 \|//_/_/_\|_|
 \|//_/_/_\|_|
```

Dayle's scissors cuts Pete the Panda's paper. Dayle wins and will go first!
Our game will be played on a 3 by 3 board using the following positions.