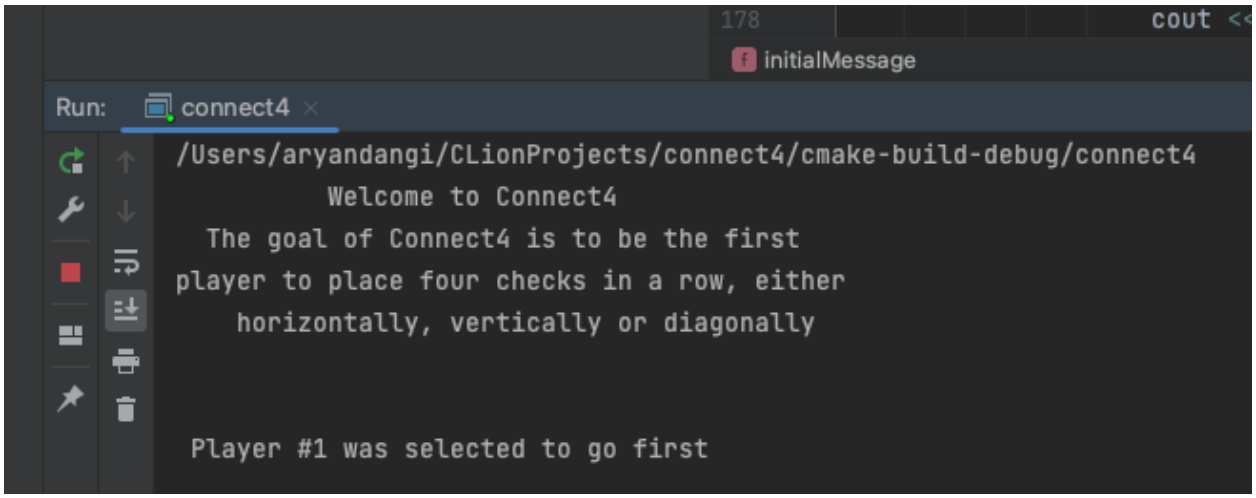
CPET 121 - Computational Problem Solving

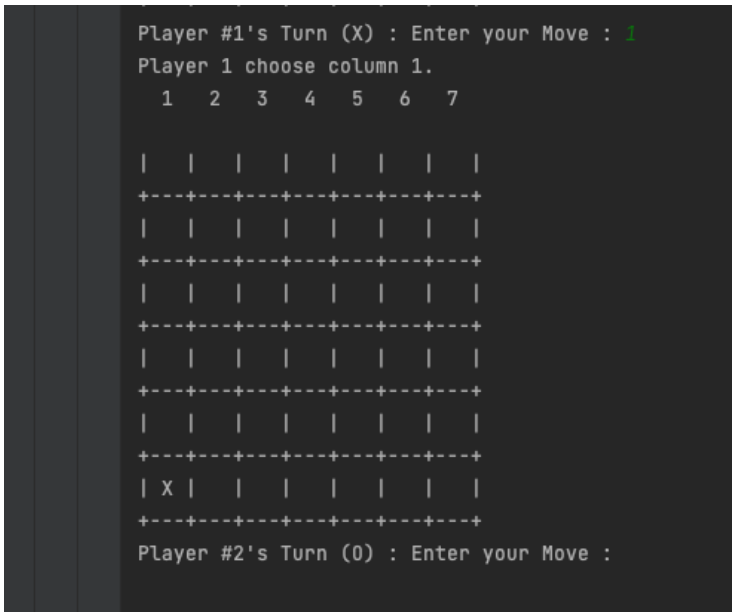
Program Operation Document - Connect4 - C++

1. Introduction and player to go first screen



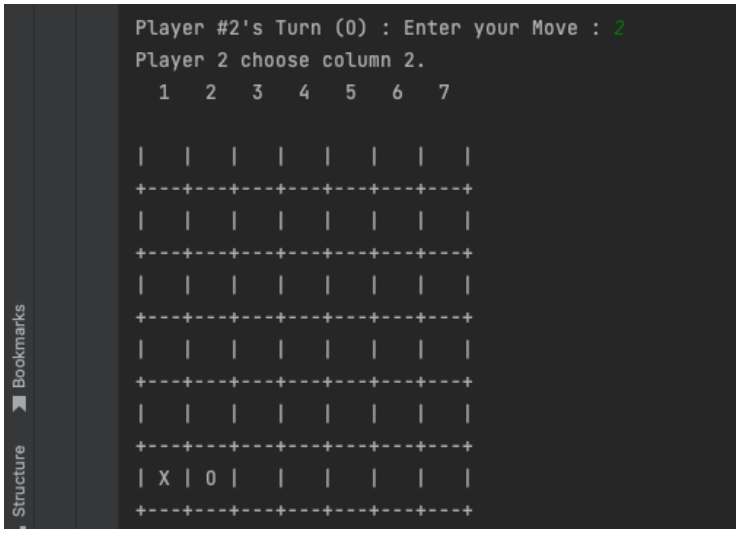
This basically outputs the welcome message of Connect4 and randomly selects which player goes first.

2. Player X input screen



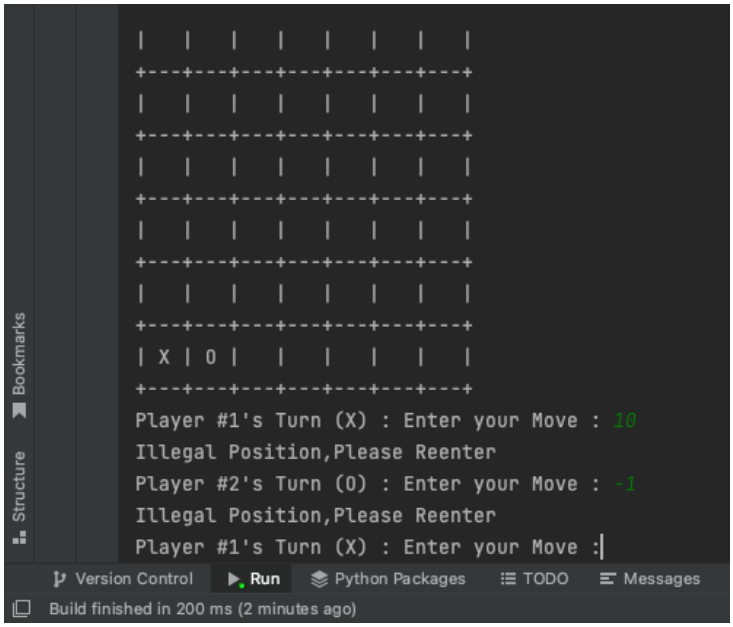
This screen outputs the game board and what column player wanted to put the X in. It also outputs the final grid when the player has added his X in a particular position for the next player to see the board and play his next move.

3. Player O input screen



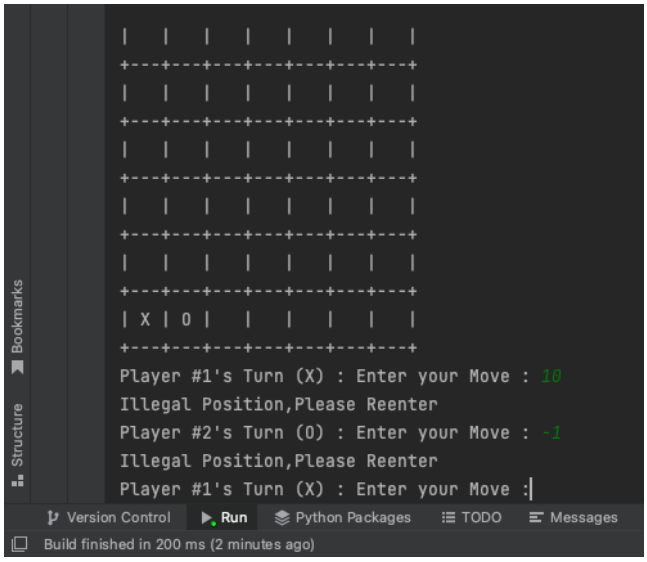
This screen outputs the game board after the second player has played his moves. It shows where player 2 places the O and the final board from which player 1 can again see and play his move.

4. Illegal move screen



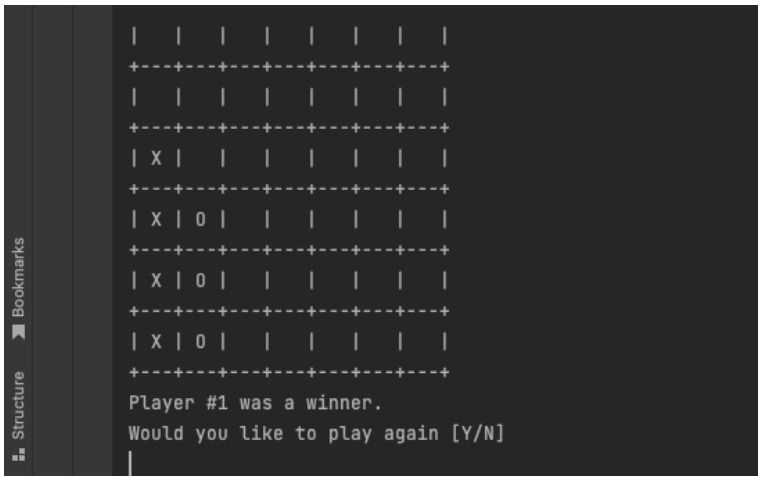
This screen shows what happens when a player enters an illegal column number in which the code displays an error message and asks the user to input values again.

5. Loose turn screen



This screen also shows when a player enters an illegal column number, the player loses their turn from which the other player gets a chance again to play.

6. Vertical Win Screen



This screen shows the winner output when a player inputs four characters vertically.

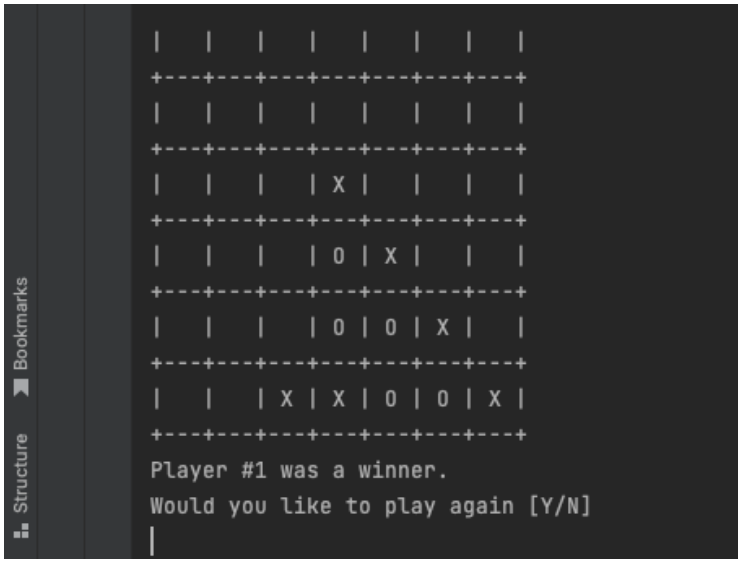
7. Horizontal win screen

This screen shows the winner output when a player manages to output four characters horizontally.

8. Right Diagonal win screen

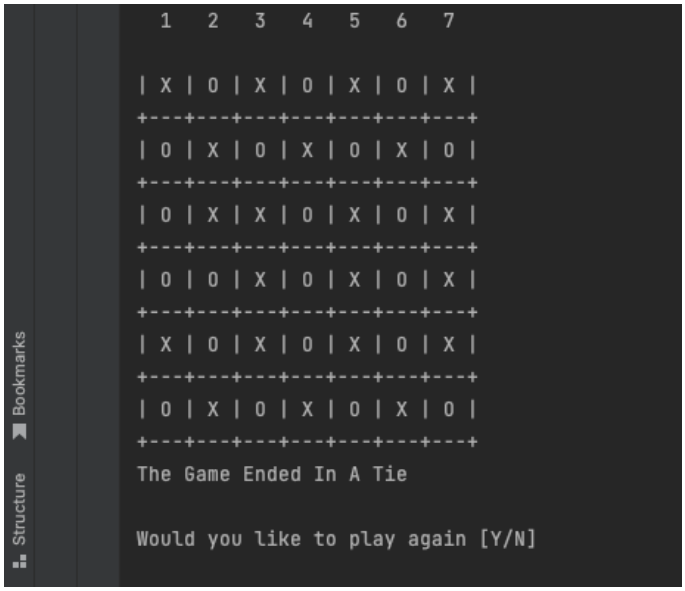
This screen shows the winner output when a player manages to output four consecutive characters in a right diagonal.

9. Left Diagonal win screen



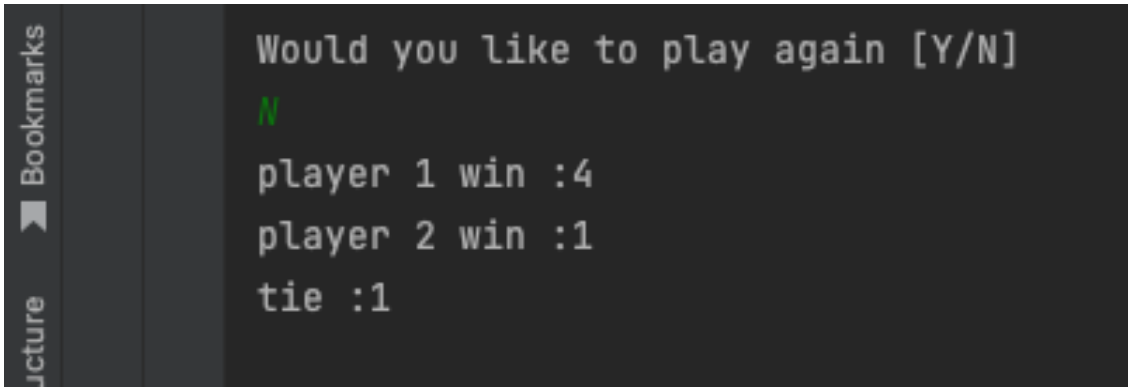
This screen shows the winner output when a player manages to put four consecutive characters in a left diagonal or something called an anti diagonal.

10. Tie game screen



This screen shows the output when the board is tied. It means that when no player has managed to get four characters consecutively in any pattern and the spaces of the board have run out, the game is said to be tied and the “play again” statement is outputted if the players want to try again.

11. Game tally screen



This screen shows what happens when the players no longer want to play the game. If the character “N” is selected, the game exits and shows a tally of which player won and how many games were tied.

Testing Philosophy

- The code was tested in blocks because there were many elements to consider, test and see if they were working well.
- Each function was tested to see if they were working well by calling them in the main and printing each output before the final output.
- The game board was tested with different values which included values not present in the acceptance frame to see whether the code has the ability to read the values and give the error.
- All tests of horizontal, vertically, diagonal and anti-diagonal were taken and seen if the code is output the winner when four consecutive characters are the patterns given.