Connect four

Wednesday, April 29, 2020 11:03 AM

Four in a Row

Known commercially as *Connect Four*.

Two players take turns dropping game pieces into a seven by six vertical game board. Pieces fall to the first empty space in a column. The first player to place four of their pieces in a row horizontally, vertically, or diagonally wins.

Example Game Play and UI

1. An empty board

```
1 2 3 4 5 6 7
_ _ _ _ _ _ _
_ _ _ _ _ _ _
_ _ _ _ _ _ _
_ _ _ _ _ _ _
_ _ _ _ _ _ _
_ _ _ _ _ _ _
```

2. Player one chooses column 3.

```
1 2 3 4 5 6 7
_ _ _ _ _ _ _
_ _ _ _ _ _ _
_ _ _ _ _ _ _
_ _ _ _ _ _ _
_ _ _ _ _ _ _
_ _ X _ _ _ _
```

3. Player two chooses column 4.

```
1 2 3 4 5 6 7
_ _ _ _ _ _ _
_ _ _ _ _ _ _
_ _ _ _ _ _ _
_ _ _ _ _ _ _
_ _ _ _ _ _ _
_ _ X 0 _ _ _
```

4. Player one chooses column 4.

```
1 2 3 4 5 6 7
_ _ _ _ _ _ _
_ _ _ _ _ _ _
_ _ _ _ _ _ _
_ _ _ _ _ _ _
_ _ _ X _ _ _
_ _ X 0 _ _ _
```

5. Player two chooses column 5.

```
1 2 3 4 5 6 7
_ _ _ _ _ _ _
_ _ _ _ _ _ _
_ _ _ _ _ _ _
_ _ _ _ _ _ _
_ _ _ X _ _ _
_ _ X 0 0 _ _
```

6. Player one chooses column 5.

```
1 2 3 4 5 6 7
_ _ _ _ _ _ _
_ _ _ _ _ _ _
_ _ _ _ _ _ _
_ _ _ _ _ _ _
_ _ _ X X _ _
_ _ X 0 0 _ _
```

7. Player two chooses column 6.

```
1 2 3 4 5 6 7
_ _ _ _ _ _ _
_ _ _ _ _ _ _
_ _ _ _ _ _ _
_ _ _ _ _ _ _
_ _ _ X X _ _
_ _ X 0 0 0 _
```

8. Player one chooses column 5.

```
1 2 3 4 5 6 7
_ _ _ _ _ _ _
_ _ _ _ _ _ _
_ _ _ _ _ _ _
_ _ _ _ X _ _
```

```
_ _ _ X X _ _
_ _ X 0 0 0 _
```

9. Player two chooses column 7 and wins with four in a row!.

```
1 2 3 4 5 6 7
_ _ _ _ _ _ _
_ _ _ _ _ _ _
_ _ _ _ _ _ _
_ _ _ _ X _ _
_ _ _ X X _ _
_ _ X 0 0 0 0
```

Requirements

The game is divided into three distinct phases: set up, game play, and summary/play again. The set up phase should ask users for their names. Those names should be used in prompts during the game play and summary phases.

```
Player #1, enter your name: Nemo
Hello, Nemo.
Player #2, enter your name: Dori
Hello, Dori.

(Randomizing...)
It's Dori's turn.

1 2 3 4 5 6 7
_ _ _ _ _ _ _
_ _ _ _ _ _ _
_ _ _ _ _ _ _
_ _ _ _ _ _ _
_ _ _ _ _ _ _
_ _ _ _ _ _ _
Dori, choose a column: 3

1 2 3 4 5 6 7
_ _ _ _ _ _ _
_ _ _ _ _ _ _
_ _ _ _ _ _ _
_ _ _ _ _ _ _
_ _ _ _ _ _ _
_ _ X _ _ _ _
```

```
Nemo, choose a column: five
That's not a valid column.

Nemo, choose a column:_
```

Game play must track who's turn it is. Since it's a two player game, a boolean is enough. Alternate making moves until someone wins or all moves have been exhausted. (A draw *is* possible.)

A user need only provide one number, the column, to make a move.

Validate moves. The only valid columns are 1 - 7. If a column has six pieces, it is full. It is invalid to place an additional piece.

On win or draw, display the result and ask if the players would like to play again.

```
1 2 3 4 5 6 7
_ _ _ _ _ _ _
_ _ _ _ _ _ _
_ _ _ _ _ X _
_ _ _ 0 X X _
_ _ 0 X 0 X 0
_ 0 X X 0 X 0
Dori Wins!

Play again? [y/n]: _
```

Technical considerations

- Game board should be a two dimensional array.
- Create a method that can be called repeatedly to display the board.
- Invalid input should not crash your program and should not allow the user to proceed.

Stretch Goals

- Add an option for a computer player who plays randomly.
- Add an option for a computer player who plays intelligently.