Foundations of Computer Science Lab 6

We want to build a connect 4 game that runs in our command line interface (terminal). We have just recently learned about 2D Lists and how to manipulate them. Additionally, we learned how to score a tic tac toe game for a 3x3 grid. The natural extension of this is connect 4.

In this lab you are given four function headers:

- drawBoard(): prints out the connect 4 board in a nice, clean way.
- switchPlayer(): Switches the current player from X to O or O to X
- dropPiece(): Drops the piece in the specified column
- checkWinner(): Checks if the current player won with either a horizontal victory, vertical victory, or left/right diagonal victories.

You are to implement these four functions in the lab template provided at this link.

Some hints:

- You need to be very careful with bounds on your Board. A player should not be able to drop a piece into a column that is already filled
- Python will throw a runtime error if you are not careful with your indices on your game board.
- **For loops are your friend**

Lab Writeup is required. Main explanatory points include:

- How you determined what indices to check for in checkWinner()
- How you got drawBoard() to look clean.
- How you got dropPiece() to check if a column is full.

Examples of core functions on next page:

Draw Board

```
PS C:\Users\eSports> & C:/Users/eSports/AppData/Local/Programs/Python/Python312/python.exe
|0 | 0 | 0 | 0 | 0 | 0 | 0 |
|0 | 0 | 0 | 0 | 0 | 0 | 0 |
|0 | 0 | 0 | 0 | 0 | 0 | 0 |
|0 | 0 | 0 | 0 | 0 | 0 | 0 |
|0 | 0 | 0 | 0 | 0 | 0 | 0 |
|0 | 0 | 0 | 0 | 0 | 0 | 0 |
Player X, select which column (0-6) you would like to drop your piece in:
```

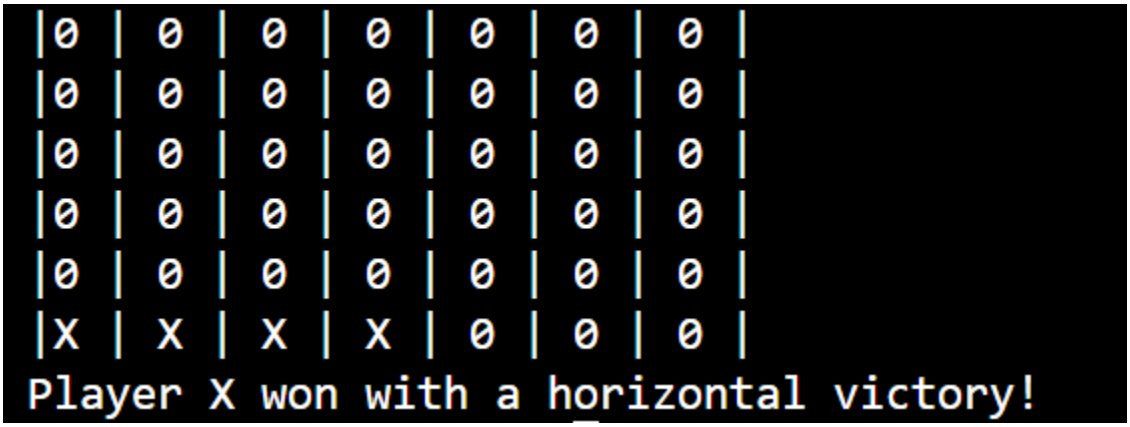
Drop Piece

```
Player X, select which column (0-6) you would like to drop your piece in: 0
|0 | 0 | 0 | 0 | 0 | 0 | 0 |
|0 | 0 | 0 | 0 | 0 | 0 | 0 |
|0 | 0 | 0 | 0 | 0 | 0 | 0 |
|0 | 0 | 0 | 0 | 0 | 0 | 0 |
|0 | 0 | 0 | 0 | 0 | 0 | 0 |
|X | 0 | 0 | 0 | 0 | 0 | 0 |
Player O, select which column (0-6) you would like to drop your piece in:
```

Check Win (Vertical)

```
|0 | 0 | 0 | 0 | 0 | 0 | 0 |
|0 | 0 | 0 | 0 | 0 | 0 | 0 |
|X | 0 | 0 | 0 | 0 | 0 | 0 |
|X | 0 | 0 | 0 | 0 | 0 | 0 |
|X | 0 | 0 | 0 | 0 | 0 | 0 |
|X | 0 | 0 | 0 | 0 | 0 | 0 |
Player X won with a vertical victory!
```

Check Win (Horizontal)



Check Win (Diagonal)