CPSC 1301, Computer Science I Lab Assignment

Lab 06b

Your task is to write a Bngo simulator. Implement each part as described below. The final program should be a program that simulates a game of bingo.

Problem 1

Create a five by five "board" with all elements initialized to zero. Use a regular Python list. Here is hte output.

```
>>> a44\_bingo.board
[[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]]
```

Problem 2

Write a method named `print_board()` that takes the board as a argument and prints a nicely formatted board. Here is the output.

```
    >>> a44\_bingo.print\_board(a44\_bingo.board)
[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]
```

Problem 3

Write a method named `print_rows()` that takes the board as a argument and prints nicely formatted rows. Here is the output.

```
    >>> a44\_bingo.print\_rows(a44\_bingo.board)
rows of board is  5
0 [0, 0, 0, 0, 0]
1 [0, 0, 0, 0, 0]
2 [0, 0, 0, 0, 0]
3 [0, 0, 0, 0, 0]
4 [0, 0, 0, 0, 0]
```

Problem 4

Write a method named `print_cols()` that takes the board as a argument and prints nicely formatted columns. Here is the output.

```
    >>> a44\_bingo.print\_cols(a44\_bingo.board)
cols of board is  5
[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]
```

Problem 5

Write a method named `print_cols()` that takes the board as a argument and prints two nicely formatted diagonals, right and left. Here is the output.

```
    >>> a44\_bingo.print\_diags(a44\_bingo.board)
right diagonal: [0, 0, 0, 0, 0]
left diagonal: [0, 0, 0, 0, 0]
```

Problem 6

Implement a randon function that allows the program to randomly set a cell. The value that is set should be `'X'`. Sample without replacement, i.e., the same cell can be selected multiple times.

Problem 7

Edit the program to add logic to print a message if any row, an column, or any diagonal is filled with X's. This is the winning condition.

Problem 8

Place the logic in a loop so you can repeatedly make guesses until you win. Here is a sample run, partial because of length.

```
C:\Users\ccc31\cols-st\cpsc1301\tests>a44\_bingo.py
[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]
Do you wish to play? [1][0]  1
in guess, r is 2 and c is 2
[0, 0, 0, 0, 0]
[0, 0, 0, 0, 0]
[0, 0, 'X', 0, 0]
[0, 0, 0, 0, 0]
[0, 0, 0, 0, 0]
Do you wish to play? [1][0]  1
in guess, r is 0 and c is 3
[0, 0, 0, 'X', 0]
[0, 0, 0, 0, 0]
[0, 0, 'X', 0, 0]
```

```
[0, 0, 0, 0, 0]
[0, 0, 0, 0, 0]
Do you wish to play? [1][0]  1
in guess, r is 0 and c is 3
[0, 0, 0, 'X', 0]
[0, 0, 0, 0, 0]
[0, 0, 'X', 0, 0]
[0, 0, 0, 0, 0]
[0, 0, 0, 0, 0]
Do you wish to play? [1][0]  1
in guess, r is 0 and c is 1
[0, 'X', 0, 'X', 0]
[0, 0, 0, 0, 0]
[0, 0, 'X', 0, 0]
[0, 0, 0, 0, 0]
[0, 0, 0, 0, 0]
Do you wish to play? [1][0]  1
in guess, r is 4 and c is 1
[0, 'X', 0, 'X', 0]
[0, 0, 0, 0, 0]
[0, 0, 'X', 0, 0]
[0, 0, 0, 0, 0]
[0, 'X', 0, 0, 0]
Do you wish to play? [1][0]  1
in guess, r is 0 and c is 1
[0, 'X', 0, 'X', 0]
[0, 0, 0, 0, 0]
[0, 0, 'X', 0, 0]
[0, 0, 0, 0, 0]
[0, 'X', 0, 0, 0]
Do you wish to play? [1][0]  1
in guess, r is 1 and c is 1
[0, 'X', 0, 'X', 0]
[0, 'X', 0, 0, 0]
[0, 0, 'X', 0, 0]
[0, 0, 0, 0, 0]
[0, 'X', 0, 0, 0]
Do you wish to play? [1][0]  1
in guess, r is 4 and c is 2
[0, 'X', 0, 'X', 0]
[0, 'X', 0, 0, 0]
[0, 0, 'X', 0, 0]
[0, 0, 0, 0, 0]
[0, 'X', 'X', 0, 0]
Do you wish to play? [1][0]  1
in guess, r is 0 and c is 3
[0, 'X', 0, 'X', 0]
[0, 'X', 0, 0, 0]
[0, 0, 'X', 0, 0]
[0, 0, 0, 0, 0]
[0, 'X', 'X', 0, 0]
Do you wish to play? [1][0]  1
in guess, r is 2 and c is 3
[0, 'X', 0, 'X', 0]
```

```
[0, 'X', 0, 0, 0]
[0, 0, 'X', 'X', 0]
[0, 0, 0, 0, 0]
[0, 'X', 'X', 0, 0]
Do you wish to play? [1][0]  1
in guess, r is 2 and c is 1
[0, 'X', 0, 'X', 0]
[0, 'X', 0, 0, 0]
[0, 'X', 'X', 'X', 0]
[0, 0, 0, 0, 0]
[0, 'X', 'X', 0, 0]
Do you wish to play? [1][0]  1
in guess, r is 4 and c is 0
[0, 'X', 0, 'X', 0]
[0, 'X', 0, 0, 0]
[0, 'X', 'X', 'X', 0]
[0, 0, 0, 0, 0]
['X', 'X', 'X', 0, 0]
Do you wish to play? [1][0]  1
in guess, r is 2 and c is 2
[0, 'X', 0, 'X', 0]
[0, 'X', 0, 0, 0]
[0, 'X', 'X', 'X', 0]
[0, 0, 0, 0, 0]
['X', 'X', 'X', 0, 0]
Do you wish to play? [1][0]  1
in guess, r is 3 and c is 2
[0, 'X', 0, 'X', 0]
[0, 'X', 0, 0, 0]
[0, 'X', 'X', 'X', 0]
[0, 0, 'X', 0, 0]
['X', 'X', 'X', 0, 0]
Do you wish to play? [1][0]  1
in guess, r is 4 and c is 2
[0, 'X', 0, 'X', 0]
[0, 'X', 0, 0, 0]
[0, 'X', 'X', 'X', 0]
[0, 0, 'X', 0, 0]
['X', 'X', 'X', 0, 0]
Do you wish to play? [1][0]  1
in guess, r is 0 and c is 1
[0, 'X', 0, 'X', 0]
[0, 'X', 0, 0, 0]
[0, 'X', 'X', 'X', 0]
[0, 0, 'X', 0, 0]
['X', 'X', 'X', 0, 0]
Do you wish to play? [1][0]  1
in guess, r is 3 and c is 1
YOU Win!!!!! Your row is filled.
```