Lab 15

In this lab, we write a program that plays the tic-tac-toe game. The game board of a tic tac toe game is a 3 by 3, two dimensional array of character type. An example game of tic-tac-toe is shown in the "Example Output" section. A partial program has been provided for you to start the project.

Special Requirements

You are required to complete the following five functions:

- InitializeBoard: This function initialize all the elements of the game board to blanks ' '
- Display: This function displays the game board as a 3 by 3 board
- BoardIsFull: This function checks to see if all the elements of the game board have been filled
- Assign: This function assigns character p to location (x, y) on the game board p is either 'X' or 'O'
- CheckWon: This function checks to see if the game is over by checking if any row, column or diagonal has the same character. If 'X' is on all elements of a row, column, or diagonal, 'X' is returned. If 'O' is on all elements of a row, column, or diagonal, 'O' is returned. Otherwise, 'n' is returned.

Here is an example output of the program:

```
Game Starts!
Current game board:
  |    |
-----------
  |    |
-----------
  |    |
Player X makes the next move.
Enter the x, y location, 0<=x<3, 0<=y<3: 1 1
Current game board:
  |    |
-----------
  |  X |
-----------
  |    |
Player O makes the next move.
Enter the x, y location, 0<=x<3, 0<=y<3: 0 2
Current game board:
  |    |  O
-----------
  |  X |
-----------
  |    |
Player X makes the next move.
Enter the x, y location, 0<=x<3, 0<=y<3: 0 0
Current game board:
```

```
X |    |  O
-----------
  |  X |
-----------
  |    |
Player O makes the next move.
Enter the x, y location, 0<=x<3, 0<=y<3: 1 2
Current game board:
X |    |  O
-----------
  |  X |  O
-----------
  |    |
Player X makes the next move.
Enter the x, y location, 0<=x<3, 0<=y<3: 2 0
Current game board:
X |    |  O
-----------
  |  X |  O
-----------
X |    |
Player O makes the next move.
Enter the x, y location, 0<=x<3, 0<=y<3: 2 2
Current game board:
X |    |  O
-----------
  |  X |  O
-----------
X |    |  O
Player O wins!
```