**Lab - Tic Tac Toe**

For this lab you will complete some methods to make a fully functional Tic Tac Toe game. I have provided some of the functionality for you.

**STEP 1: Let’s take a look at a few parts of the code provided:**

private static boolean isX = false;

public static void main(String[] args)

{

char[][] board = {{'1','2','3'},{'4','5','6'},{'7','8','9'}};

do

{

//TODO: switch the player's turn

// (if isX is true, make it false, and vice versa)

print(board);

board = playerTurn(board);

} while( !checkWin(board) );

}

isX is a boolean variable that is going to track who’s turn it is (X or O).

board is a 2D char array that is initialized to the numbers 1-9 so that each space in the TicTacToe game can be identified by a number instead of a row/col combo.

|  |  |  |
| --- | --- | --- |
| 1 | 2 | 3 |
| 4 | 5 | 6 |
| 7 | 8 | 9 |

There is a do-while loop that controls the looping of the game. While checkWin(board) is false, the game is not over and the loop continues to execute. Inside the loop, the player’s turn switches, the board is printed, and the current player’s turn is taken.

**STEP 2: Add code to switch between the players X and O.** This can be done as an if statement, but it can also be completed with a single line of code. Do it either way.

**For added fun**, figure out the single line way, using the ! symbol.

**STEP 3: Write the print method.** You can print the board in whatever format you want, but it should look like a Tic Tac Toe board. Note that the board variable has already been initialized to contain 1-9 for the different spots, so you are just writing code to print the contents of the array in a Tic Tac Toe format. You can do this with a bunch of SOPs, or you can do it with a loop. Either way is fine!

**STEP 4: Write code to complete the playerTurn method.** This method currently assigns the player variable the letter for the current player (using isX). It also prompts the user for a spot and reads in that value. You need to assign player to the corresponding place in the 2D array for that spot.

**For added fun**, make sure that a spot that has already been chosen is not overwritten and that only values 1-9 can be input.

**STEP 5: Write the checkWin(board) method.** This method should check for all possible wins -- there are 9. This can be accomplished with many if statements. It can also be accomplished using a combo of loops and if statements. Or it can be accomplished using another method and one big (multi-condition) if statement. There are probably other ways too :P Whatever works, works.

**For added fun**, check for a Cat’s game and report when that occurs.