

Name1: \_\_\_\_\_

Class Day / Time: \_\_\_\_\_

Due Date: \_\_\_\_\_

## Lab Exercise: Assign. #2 – Supplement Tic Tac Toe

This code will supplement the Tic-Tac-Toe assignment. For the supplement the code does not need to be documented. For the final version of the assignment it should be fully documented.

### REQUIREMENTS

1. **Write a function** to read in input for a tic tac toe game (GetAndCheckInput) – as we done in class.
2. **Write a function** to initialize the array to all spaces (InitializeBoard).
3. The program should allow the player to make their move by specifying a row and a col.  
For example if Joe wanted to play in row 3 column 3 the I/O would look something like this:  
**What's your play?: 3 3**
4. The function should obtain the input and verify that the row & column # are within range AND that the spot is not taken.
5. It should provide specific feedback (i.e. Row is incorrect, Column is incorrect, Row & Column are both incorrect or spot is taken).
6. Write a main function to test your functions. (you can use DisplayBoard for testing – it is provided in the full assignment).
7. Include the following declarations (the constants can be global but the boardAr should be declared in main).

```
const int NUM_ROWS = 3;  
const int NUM_COLS = 3;  
char boardAr[NUM_ROWS][NUM_COLS];
```

8. Now, **modify** the previous code segment to obtain two players names and prompt the user by name (GetPlayers).
9. **Write** a function to prompt the players for entering their names and either assign a token to each player (X or O) or allow them to choose which token they would like to use.
10. The program should allow the player to make their move by specifying a row and a col.  
For example if Joe wanted to play in row 3 column 3 the I/O would look something like this:  
**"Joe's turn! What's your play?: 3 3"**

### Turn in on-line (IN THIS ORDER)

1. Your header file
2. The listing of main.cpp
3. A listing of your functions in the order provided within the header file (separate from the main.cpp file).
4. The listing of your print heading function – should display above the game instructions.

**Header File for the supplement – for the complete header file see the full assignment**

```

#ifndef TICTACHEADER_H_
#define TICTACHEADER_H_

#include <iostream>
#include <iomanip>
#include <string>
using namespace std;

// ADD constants for the number of rows and columns – and use them in the parameters

/*****
 * InitBoard
 *   This function initializes each spot in the board to a space ' '.
 *
 * RETURNS: Board initialized with all spaces
 *****/
void InitBoard(char boardAr[][3]); // OUT - tic tac toe board

/*****
 * DisplayBoard
 *   This function outputs the tic tac toe board including the tokens
 *   played in the proper format (as described below).
 *
 *           1       2       3
 *           [1][1] | [1][2] | [1][3]
 *           |       |       |
 *  1         |       |       |
 *           |       |       |
 * -----
 *           [2][1] | [2][2] | [2][3]
 *           |       |       |
 *  2         |       |       |
 *           |       |       |
 * -----
 *           [3][1] | [3][2] | [3][3]
 *           |       |       |
 *  3         |       |       |
 *           |       |       |
 *
 * RETURNS: nothing
 * → outputs the current state of the board
 *****/
void DisplayBoard(const char boardAr[][3]); // IN - tic tac toe board

/*****
 * GetPlayers
 *   This function prompts the user and gets the input for the players' names.
 *   playerX will always contain the name of the player that is using the X token.
 *   playerO will always contain the name of the player that is using the O token.
 *
 * RETURNS: the players names through the variables playerX and playerO.
 *****/
void GetPlayers(string& playerX, // OUT - player X's name
               string& playerO); // OUT - player O's name

// Get the input and error check this (this documentation is incomplete)

void GetAndCheckInp(char boardAr[][3], char token, string playerX, string playerO);

#endif /* TICTACHEADER_H_ */

```