SADDLEBACK COLLEGE

Introduction to Programming
CS 1B #15325
Spring 2013
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Assignment #5 For Newbies

In this assignment you will create a real, working, two-player tic-tac-toe game playing program. Cool! Follow the guidelines in this worksheet to prepare for, complete and submit Assignment #5. This is a paperless assignment. I will review all of your code, including proper documentation. I will perform a code check to verify that your program is working properly. Good luck!

Before You Start

Read the detailed instructions you were given for Assignment #5 – Multi-Dimensional Array – Tic Tac Toe. Then, read it again!

Review Charts, Shrinkwrap and Flip Lectures for topics which are new, or especially important, for this assignment:

User defined header files.	Topic 5, Slide #6
How to create a separate **.cpp** file for each of your functions.	Topic 3, Slide #15
Using **getline** to input a string.	Topic 3, Slide #4
Define a constant for array size.	Topic 4, Slide #14
Searching an array.	Topic 4, Slides #21-22
Using arrays in functions.	Topic 4, Slides #25-28
Initializing multi-dimensional arrays.	Topic 4, Pt. 2, Slides #7-10
Passing two-dimensional arrays as parameters.	Topic 4, Pt. 2, Slide #11

Step-By-Step

(1) Create an *Eclipse* project for Assignment #5.

(2) For this project you should begin by creating your header file: **tictacheader.h.**

Do this by copying the header file given in your assignment instructions. Follow the instructions in that file for modifying that header file. You'll have to add some documentation, add parameters to some of the functions as noted in the instructions and possibly add global constants.

Do not change the function prototypes which were given to you except for adding additional parameters as needed. These function prototypes provide a starting point for you to design the corresponding functions. Note that the code for one of the functions is given to you (*DisplayBoard*).

(3) Create a skeleton version of **main.cpp** similar to your prior assignments. It will have the following sections:

+ Student name block
+ **#include "tictacheader.h"**
+ Program description
+ **int main()**
+ Constants block
+ Declarations block
+ Output class heading (you may use a *PrintClassHeading* function for this)
+ Program code
+ **return 0;**

(4) Start to write your program code and build your functions iteratively. That is, write a piece of code (in **main.cpp**), code the appropriate function, test to see if it's working properly, then go on to the next piece of code in **main.cpp**.

(5) The function *OutputInstruct* would be the first function you write. This function should be easy to code.

(6) Next, poll the user to determine whether or not the game continues. Since the user will be asked the same question after each game, you may want to code this last after your program is working.

(7) The remainder of your program will probably be two nested loops. The outer loop will be "round based," the inner loop will be "turn based." At this point a flowchart will help a lot! (Remember flowcharts???)

You should code these loops in small chunks. If you choose to use a **while** loop, you'll have a priming read before the loop and a re-read at the end of the loop. Coding those pieces first makes trouble shooting easier.

(8) You can then begin to incorporate the "guts" of your program by coding the functions: *InitBoard*, *GetPlayers*, *DisplayBoard*, *GetAndCheckInp*, *SwitchToken*, *CheckWin*, and *OutputWinner*.

You may prefer to start coding "inside out," or "outside in," however you should work on only one function at a time. After you have determined that that function is working properly, you can move on to the next function.

The *DisplayBoard* function will use the **system("cls");** statement to clear the screen.

(9) To test the program properly you'll need to navigate to your *Eclipse* project folder and look for a folder labeled *Debug*. You should find an executable file within the *Debug* folder (extension: **.exe**); execute this file to run your program. You can execute your Tic Tac Toe program file outside of *Eclipse* and even on other computers which do not have *Eclipse* installed.

When you're sure that your program is working properly call me for your code check.

Good luck!

Thanks to Dustin Shaffer for his comments and suggestions!