Assignment 3: Minesweeper!

CS 3020

# Due Date: 4/4/18

# Assignment:

You will be making a version of the classic Windows game Minesweeper! In case you’ve never played it (is that even possible?) Minesweeper is a game where you clear out a board of buttons trying to avoid “Mines” that are peppered around the board. The background is a grid and in each grid cell, there is a number that corresponds with the number of mines that are boarding that particular cell. If you click on a button that has no mines bordering it, it clears all adjacent buttons until it reaches cells that have mines on their borders. For our purposes, there are no time limits, but we will be keeping track of time.

# Details:

**This assignment will be your first one using Windows forms! (Yay!)**

You will create a form that implements the following:

* A **Menu Strip** with the following functionality
  + Game
    - Show lifetime statistics
      * Win/loss ratio
      * Average time to complete game (win or lose)
    - Restart Game
      * Rather obvious
    - Exit
      * Also rather obvious
  + Help
    - Instructions
      * Have a window pop up with the basic instructions of how to play.
    - About
      * Who coded this, when, and for which class
* A **game board** (10x10) made up of **custom user controls**:
  + A button that sits on top of a panel
  + The panel will display the number of mines in the adjacent cells (or if it has a mine, the mine itself)
  + The button disappears when clicked.
* A **Status Strip** on the bottom of the form that displays a *timer* which shows how long (in seconds) the user has been playing a particular round.
  + The time starts on the first button press!

Outside of these requirements and the fact that the game must be functional, I am giving you free reign on the actual design of the software. That said I do have a few hints for you:

* As always, plan ahead before you code. The plan may change, but it still helps to organize the project before you start blindly hacking away at it.
* Remember to use OOP principles; the project is much, **MUCH** easier when you break it down into objects and work that way than if you try and do it all in one go.
* **Don’t get to ambitious!** Make sure the game works and meets the requirements *before* you start adding features. Feature creep can not only hurt the project; it can close businesses and ruin careers.

***A postmortem is also a part of the assignment***

In the postmortem, tell me about the trials and tribulations involved in completing the assignment. If you can, include an estimate of the total time it took to complete as well as how much time you spent in preproduction vs. production. Be honest with yourself, a little self-reflection is a great way to help you be a better programmer!

# Submission:

Your project should be called *<uccsusername>Minesweeper.* Turn in the entire project folder zipped into a file called <uccsUsername>Assignment3.zip. The assignment is due by 11:59 PM on April 4. ***The project must be able to compile and run or it will be given a zero.*** Coding style will also be a portion of the grade, so remember to comment, use proper capitalization, good variable names, etc.