

ECS 40A: Programming Assignment 3

(Due: February 12th, 2014 at 11:59 PM)

This is the second of the two programming assignments that ask you to port and refactor MSCP, a small open source C program to C++. As for the previous assignment, you are required to work in teams of two. You may discuss the assignment with other students, but each team must write your own code.

This assignment has **three main tasks**: 1) replace the `#define`'s with `const` declarations or `inline` functions as they make `#define`'s obsolete; 2) replace all the `scanf` and `printf` with the appropriate C++ input and output stream operations (*i.e.*, `cin` and `cout`); and 3) factor out the code that manipulates the board (see "`static byte board[64+3];`") into a `Board` class (more details below).

More Details

- Define the `Board` class with two files: `board.h` and `board.cpp`. The class should have the appropriate constructor, destructor, and member functions to manipulate the board: a default constructor to initialize the board, a destructor to perform clean-ups if necessary, a `print` function to output the board, overloaded `[]` operator to access the board elements, and any other member functions and data members that you feel necessary. Use `const`, and the `public` and `private` access specifiers appropriately.
- Change the `#include` directives to include C++ style headers (*e.g.*, "`#include <ctime>`" instead of "`#include <time.h>`") if you have not already for the previous assignment.
- Similar to the previous assignment, make sure your modified code behaves in exactly the same way as the original MSCP code in C.
- The **first line** of the main file, `mscp.cpp`, must contain full names of the team members, for example:

```
// Jane Doe, John Doe
```

- Modify your `Makefile` from the previous assignment to include the two new files: `board.h` and `board.cpp`.
- Write a `README` file to document your main changes and design decisions. Format the content of this file using a bulleted list.
- Again, you are encouraged to use `git` (and create a private repository on Bitbucket for your team) for this and the rest of the assignments.
- **This assignment will count 8% toward your course grade.**

Handin Instructions

1. Create a new subdirectory in your home directory, say `hw3`.
2. Copy all your work (including `mscp.cpp`, `board.h`, `board.cpp`, `Makefile`, and `README`) to that new directory.
3. Change into the `hw3` directory (`cd hw3`).
4. Submit by running the following commands:

```
zip -r hw3 *  
handin cs40a hw3 hw3.zip
```

This will zip all files and subdirectories in your current directory and submit the file `hw3.zip`.

The name `hw3` is a name the `cs40a` account uses for this assignment; be sure to use the exact name.

5. You can also double-check whether your homework has been submitted to the right place:

```
handin cs40a hw3
```

6. If you want to resubmit your homework before the deadline, feel free to do so.
7. The homework is due at **11:59pm on Wednesday, February 12th, 2014**. Remember to submit before the **firm** deadline; we will not accept late submissions.