CS 342 **Homework #4** **Spring 2022**

Choose a Design Pattern

Due Date: Friday March 18th @11:59pm

Description:

You have seen the Singleton design pattern and implemented the Iterator design pattern in your project. Now you are going to choose your own design pattern, research it and write a program to illustrate it's functionality.
You should use the "Maven JavaFX Project", found in BB under Sample Code, to implement this HW. You should change the artifactId to Homework4Sp22 in the pom file before you import into your IDE.

Implementation Details:

You will chose one of the following design patterns: ***Template Method***, ***Proxy, Adapter*** *or* ***Abstract Factory***. Using the Maven JavaFX Project template in the sample code section of our BB course page, you will write a JavaFX program that highlights the functionality of the design pattern you chose. This does not need to be a lot of code and the GUI does not need to be extensive. You can not simply copy and paste an example from the web. You must also include a single page describing how the design pattern works in your program and what the benefits and/or drawbacks of using it are. Format this page as a PDF.

Test Cases:

You must include a minimum of 10 unit tests to test the classes you write for the design pattern you choose. These must run with the maven command "test".

Electronic Submission:

Put the Maven template folder with your files and one page description PDF in a .zip and name it with your netid + Homework4: for example, I would have a submission called mhalle5Homework4.zip, and submit it to the link on Blackboard course website.
Do not put the pdf in the Maven project directory.

CS 342 Homework #4 Spring 2022

Assignment Details:

Late work on a homework is **NOT ACCEPTED.** Anything past the deadline will result in a zero.

We will test all homework on the command line using Maven 3.6.3. You may develop in any IDE you chose but make sure your homework can be run on the command line using Maven commands. Any homework that does not run will result in a zero. If you are unsure about using Maven, come see your TA or Professor.

Unless stated otherwise, all work submitted for grading *must* be done individually. While we encourage you to talk to your peers and learn from them, this interaction must be superficial with regards to all work submitted for grading. This means you *cannot* work in teams, you cannot work side-by-side, you cannot submit someone else's work (partial or complete) as your own. The University's policy is available here:

https://dos.uic.edu/conductforstudents.shtml.

In particular, note that you are guilty of academic dishonesty if you extend or receive any kind of unauthorized assistance. Absolutely no transfer of program code between students is permitted (paper or electronic), and you may not solicit code from family, friends, or online forums. Other examples of academic dishonesty include emailing

your program to another student, copying-pasting code from the internet, working in a group on a homework assignment, and allowing a tutor, TA, or another individual to write an answer for you. It is also considered academic dishonesty if you click someone else's iClicker with the intent of answering for that student, whether for a quiz, exam, or class participation. Academic dishonesty is unacceptable, and penalties range from a letter grade drop to expulsion from the university; cases are handled via the official student conduct process described at https://dos.uic.edu/conductforstudents.shtml.