University of Utah
School of Computing

CS 3500/5010 **Handout 4** **September 17, 2010**

Problem Set Three (Revision 2)

In this problem set, you will be creating a Visual Studio solution that solves the problem described below. Your solution must be called `ps3`, and must consist of two projects: a Class Library project called `Spreadsheet` and a Unit Test project called `SpreadsheetTests`. Use C# as your implementation language.

We will retrieve your solution for grading by running the Linux command

```
svn --username cs3500 --password ######### checkout
       svn://lenny.eng.utah.edu/home/XXXXXXXX/cs3500/ps3/trunk ps3
```

(put it all on one line) where `#########` is your grading password and `XXXXXXXX` is your CADE login name. We will run the command (which will give us the most recently committed version of your solution) sometime on the morning of September 23. (If you're still working on the morning of September 23, be sure that you don't commit a broken solution.)

You would be wise to verify that the command above works with your repository. If it doesn't work for you, it won't work for us!

Problem

Begin by opening the solution `ps3-skeleton` from the course repository, which is

```
svn://lenny.eng.utah.edu/home/cs3500/examples/
```

This will be your starting point.

The solution contains one thing of interest: the file AbstractSpreadsheet.cs. You should use VisualStudio to create a Class Library project called Spreadsheet, into which you should incorporate AbstractSpreadsheet.cs. *You are not to modify this file at all.* If I discover that any changes need to be made, I will commit a new version to the repository.

In another file in the project, you are to implement a public class called `Spreadsheet` in the namespace `SS`. This class should extend `AbstractSpreadsheet` and implement its abstract methods so that they

satisfy their specifications. It should provide a zero-argument constructor that creates an empty spreadsheet. In addition, you will need to implement classes that extend the other abstract classes that I have provided.

When you are done, I should be able to create an AbstractSpreadsheet object with

```
AbstractSpreadsheet sheet = new Spreadsheet();
```

whose methods behave as specified in the comments.

You should use the Unit Test Wizard to add a test project called SpreadsheetTests to your solution. As the name suggests, this project should contain unit tests for the classes in the Spreadsheet project. Be sure that your unit tests achieve 100% code coverage. *Your tests must not access any protected or private parts of any class.* We want to be able to run your test cases against our implementation, and this will not be possible if you violate this rule.

Grading

Your grade will be based on the quality and the correctness of your spreadsheet implementation, and on the quality, correctness, and completeness of your unit tests.