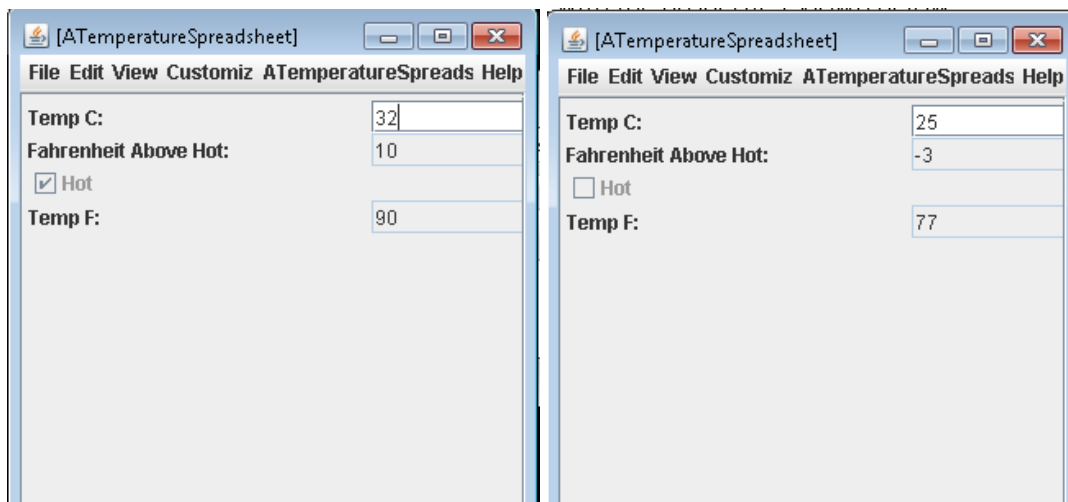# Comp 110-002 - Assignment 5:

Style & Expressions

Date Assigned: Fri Sep 30, 2011

Completion Date: Fri Oct 7, 2011

In this assignment, you will learn how to avoid code duplication, use named constants and casts, and write boolean and mixed expressions. You will also gain more experience with using interfaces. You will start with the version of the temperature spreadsheet that creates a single instance variable, and extend it with the properties shown below.

Part 1: Mandatory

Start with the interface you defined in the previous assignment and the class that defines a single instance variable. Extend them to support the following features:
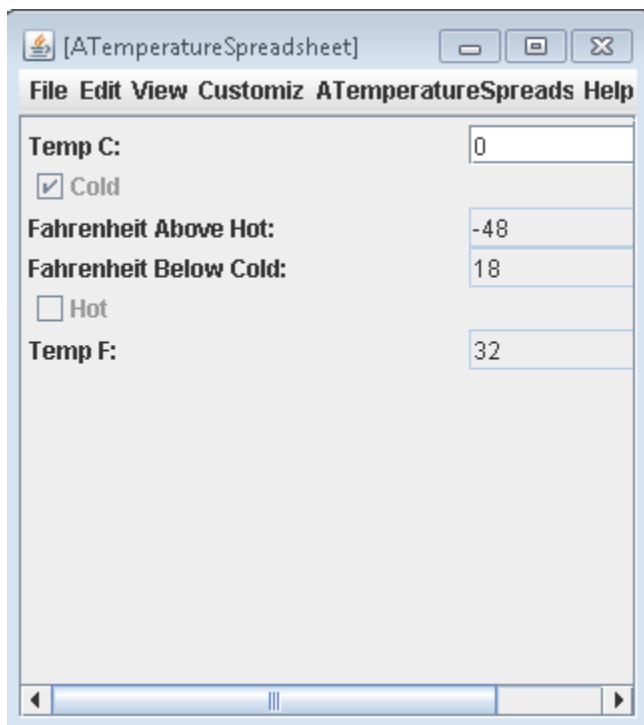
1. The Fahrenheit property in this version should be its exact value rounded off to the nearest `int`. Thus, first compute the value as a double and then round it off to the nearest int.

2. Choose the highest Fahrenheit temperature (rounded to the nearest `int`) that you find comfortable. Add two properties that show the relationship between the current temperature and this temperature. One of these properties is of type `int` and gives the difference between the current temperature (in Fahrenheit) and this temperature. The other is of type `boolean`, and is `true` if the current temperature is above the comfortable temperature, and `false` otherwise. In the example above, the comfortable temperature is assumed to be 80 degrees Fahrenheit. Therefore the two properties in the left window have the values `10` and `true`, respectively and in the right window have the values, `-3` and `false` respectively. You are free to pick (reasonable) names for these properties.

3. Print all properties at the beginning and end of the execution of the setter method, that is, before and after the assignment statement that sets the centigrade variable.

The new version of the class should not add any instance variables to support the new properties. In this and all other assignments, the interface implemented by a class should declare all the public methods of the class. Moreover, you should follow all other style principles you have seen so far in class. In particular, you should avoid code duplication. In this and future assignments, you are encouraged to provide useful comments, but do not comment for the sake of commenting, as you did in the previous assignment. You cannot use if statements in the assignment.
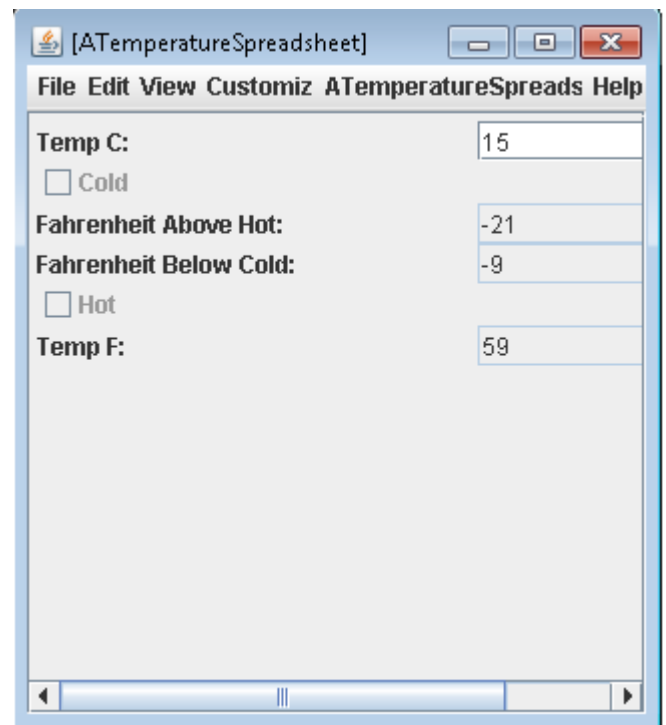
Extra Credit
You can get extra credit also by adding the properties, shown below:

Choose the lowest centigrade temperature (rounded to the nearest `int`) that you find comfortable. Add two properties that show the relationship between the current temperature and this temperature. One of these properties is of type `int` and gives the difference between the current temperature (in Fahrenheit) and this temperature converted by your spreadsheet to Fahrenheit. The other is of type `boolean`, and is `true` if the current temperature is below the comfortable temperature, and `false` otherwise. In the example above, the lowest comfortable temperature is assumed to be 10 degrees centigrade. Therefore the two properties in the left window have the values `18` and `true`, respectively and in the right window have the values, `-9` and `false` respectively.

This part is not difficult to do if you do you do not worry about code duplication. To remove code duplication introduced by these features, consider including in your code for this assignment the function you wrote for the first assignment. Adding the new int property is the main challenge here, and you can do so based on the material covered so far in class.

You will get extra credit for these features if you submit the assignment on the due date.