

CSA 174 - Fall 2007
Lab #09 - 10 points

Due Date: Wednesday, October 26th by 5:00p.m.
(No late assignments will be accepted.)

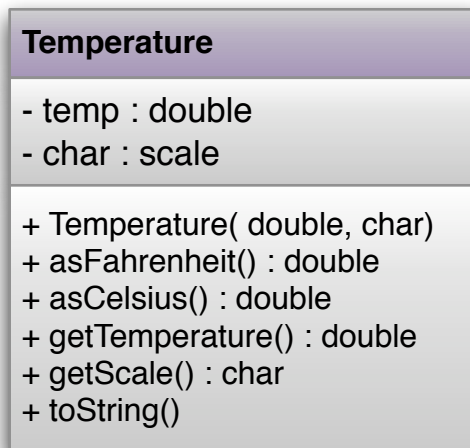
Objectives:

- Write a new class

Problem:

Download the Lab09Main.java file from the course Web site and add it to a new project in Eclipse. This class contains a *main* method that will exercise the class you create.

- 1) Create a class called Temperature that represents a single temperature. The class has a constructor that takes in a temperature and a scale (either 'F' for fahrenheit or 'C' for celsius). The class will contain additional methods for working with temperature objects as described by this UML diagram.



Notes:

- If an invalid scale is given in the constructor, assume celsius 'C'
- There are some static methods on the Character class that might be useful to you.
- To convert from fahrenheit to celsius: $(5/9) * (f - 32)$
- To convert from celsius to fahrenheit: $(9/5) * c + 32$
- The `getTemperature()` and `getScale()` methods should return in the appropriate scale as constructed
- The `toString` method should **return a string** that looks like this (scale UPPERCASE)
"Temperature = 32.0 F"

Always using 1 decimal place. You can use the static method "format" on the String class in a manner identical to how you use printf.

[http://java.sun.com/j2se/1.5.0/docs/api/java/lang/String.html#format\(java.lang.String,%20java.lang.Object...\)](http://java.sun.com/j2se/1.5.0/docs/api/java/lang/String.html#format(java.lang.String,%20java.lang.Object...))

Sample Output

```
How many temps?
5
Temperature and scale?
32 f
-----#1-----
As Fahrenheit: 32.00000
As Celsius: 0.00000
Getters: 32.00000 F
toString: Temperature = 32.0 F
Temperature and scale?
0 c
-----#2-----
As Fahrenheit: 32.00000
As Celsius: 0.00000
Getters: 0.00000 C
toString: Temperature = 0.0 C
Temperature and scale?
100 f
-----#3-----
As Fahrenheit: 100.00000
As Celsius: 37.77778
Getters: 100.00000 F
toString: Temperature = 100.0 F
Temperature and scale?
100 c
-----#4-----
As Fahrenheit: 212.00000
As Celsius: 100.00000
Getters: 100.00000 C
toString: Temperature = 100.0 C
Temperature and scale?
0 f
-----#5-----
As Fahrenheit: 0.00000
As Celsius: -17.77778
Getters: 0.00000 F
toString: Temperature = 0.0 F
```

When finished, turn in your files on <https://my.csi.muohio.edu>

Remember to turn in all .java files for the project.