Comp 110-002 - Assignment 2:
Averaging Temperatures

Date Assigned: Wed Sep 7, 2011
Completion Date: Wed Sep 14, 2011 (midnight)

In this assignment, you will develop a Java program that calculates the average temperatures for two cities, New York and Paris. You have been provided with the following data about temperatures in these two cities. The temperatures are given in Centigrade.

<table>
<thead>
<tr>
<th></th>
<th>New York</th>
<th>Paris</th>
</tr>
</thead>
<tbody>
<tr>
<td>January</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>August</td>
<td>24</td>
<td>19</td>
</tr>
</tbody>
</table>

Your program accepts Centigrade temperatures and outputs two kinds of averages in Fahrenheit. Use Eclipse to complete the assignment.

Software issues:
If you feel there are mistakes in this assignment, check the web page and Blackboard for corrections, and report them to us if they have not been made.

Assignment Specification
Write a class called ATemperatureAverager (Figure 1) which contains the three methods described in the remaining sections.

![Image]( attachment: ATemperatureAverager.png)

Figure 1. The ObjectEditor edit window for an instance of a ATemperatureConverter
Part 1: Average function
Write and test a function, `average`, which takes two double parameters (Figure 2 left), each of which is a temperature in Centigrade, and returns the average of the two temperatures in Centigrade (Figure 2 right).

![Figure 2](image-url) (left) Calling the `average` function and (right) result returned by the `average` function

Use the following method header:

```java
public double average(double temperature1, double temperature2)
```

Part 2: TimeAverageToFahrenheit function
Write and test a function, `timeAverageToFahrenheit`, which takes two double parameters (Figure 3 left), each of which is a temperature in Centigrade, and returns the average of the two temperatures in Fahrenheit (Figure 3 right).

![Figure 3](image-url) (left) Calling the `timeAverageToFahrenheit` (left) and viewing the result (right)

Use the following method header:

```java
public double timeAverageToFahrenheit(
    double temperature1, double temperature2)
```

This function is not allowed to do any real math; in particular, you **cannot** do anything like

```java
(temperature1 + temperature2) / 2;
```

Thus, you must reuse the `average` function from Part 1 and your work from Assignment 1. You will have to modify `fahrenheit` function from Assignment 1 to work with real numbers instead of integers.
Part 3: CityAverageToFahrenheit function

Write and test a function, cityAverageToFahrenheit, which takes four double parameters (Figure 4 left), each of which is a temperature in Centigrade, and returns the average of the four temperatures in Fahrenheit (Figure 4 right).

![Figure 4. Calling the CityAverageToFahrenheit (left) and viewing the result (right)](image)

Use the following method header:

```java
public double cityAverageToFahrenheit(
    double temperature1, double temperature2,
    double temperature3, double temperature4)
```

This function is not allowed to do any real math; in particular, you **cannot** do anything like

```java
(temperature1 + temperature2) / 2
```

or

```java
(temperature1 + temperature2 + temperature3 + temperature4) / 4
```

This means you write an average function similar to the average function in Part 1, `public double average(double temperature1, double temperature2)` which takes four parameters and returns the average of the four temperatures in Centigrade.

Getting Help

If you have trouble with using a computer, contact me with any problems.

Before you seek help, look carefully at the solved examples in chapter 3, which are similar to this assignment.

*Good luck!*