HW2 – Fall 2014

Due: Wed. Sept. 17th 2014 by the beginning of class.

Honor Code: Like all work for this class, the Emory Honor Code applies. You should do your own work on all problems, unless you are explicitly instructed otherwise. If you get stuck or have questions, ask your instructor or a TA for help. For EACH of the files you submit, be sure to put the appropriate honor code statement (as specified on the course syllabus) at the top of the file in comments.

Preparation: This is your first programming assignment and you must learn to protect your computer files from illegal access by other students.

To disallow other students from reading your homework programs, you must save your file(s) in a directory inside your cs170 directory. If you follow the below commands, your work will be protected.

1. Create a directory called hw2 directory inside your cs170 project directory to save your hw2 files.
   
   `mkdir ~/cs170/hw2`

2. You must use ~/cs170/hw2 directory as your current directory when editing any program files for hw2. Change your current directory to your newly created hw2 directory:

   `cd ~/cs170/hw2`

3. You can now run gedit to edit your programs:

   `gedit yourProgramName.java &`

   The name yourProgramName is the name of the Java program (and also the name of the class!).

Problem 1. (50 pts)

Write a program called TemperatureConverter. This program should

1. Prompt the user to input a Celsius temperature.
2. Convert it into Fahrenheit temperature and print to terminal.
3. Prompt the user to input a Fahrenheit temperature.
4. Convert it into Celsius temperature and print to terminal.

The formulas of converting between Celsius and Fahrenheit temperatures are as follows:

- **Celsius to Fahrenheit:** $(°C \times \frac{9}{5}) + 32 = °F$
- **Fahrenheit to Celsius:** $(°F - 32) \times \frac{5}{9} = °C$

Example of output:

```java
>>> java TemperatureConverter
```
Please input a Celsius temperature: 34.7
34.7 Celsius degrees equals to 94.46 Fahrenheit degrees.
Please input a Fahrenheit temperature: 94.46
94.46 Fahrenheit degrees equals to 34.7 Celsius degrees.

Problem 2. (50 pts)
Write a program called **DigitSum**. This program should
1. Prompt the user to input a 3-digit integer (100 ~ 999).
2. Print the sum of the 3 digits to terminal.
3. Prompt the user to input a floating-point number with 1-digit integer part and 3-digit fractional part (0.001 ~ 9.999).
4. Print the sum of the 4 digits to terminal.

Example of output:
```
>>>java DigitSum
Please input a 3-digit integer: 123
The sum of the 3 digits is 6.
Please input a floating-point number with 1-digit integer part and 3-digit fractional part: 1.123
The sum of the 4 digits is 7.
```

**Grading:** Your grade will be determined based on the correctness of your programs as well as program style. Program style includes such things as comments, variable/method names, and readability. Late penalties apply as per the class syllabus.

**Submission:**
- When you finish, you should have 2 files in your ~/cs170/hw2 directory: TemperatureConverter.java and DigitSum.java.
- Be sure to include the Honor Code statement at the top of EACH file you submit.
- Only your last submission will be graded. Scores will be assigned based on the last submission only and late penalties will apply per the syllabus.
- Submit your work using the following commands. You need to be in your ~/cs170/hw2 directory when you issue them.
  - /home/cs170001/turnin TemperatureConverter.java hw2a
  - /home/cs170001/turnin DigitSum.java hw2b
- Your homework is not turned unless the above commands are successful (you will get a "success" message when turn in was successful).