Lab 3

Instructions: Complete the steps below. Be sure to show your code to one of the lab TAs before you leave, so that you can receive credit for this lab. You must also upload a copy of all your source code (.java) files to the link on Blackboard by **11:59 PM on Wednesday September 09, 2020 for L01, L02, L03, L05 and by 11:59 PM on Tuesday September 08, 2020 for L06, L07, L08 and L09**.

1. Write a program that reads a Celsius degree in a double value from the console, then converts it to Fahrenheit, and displays the result. The formula for the conversion is as follows:

$$fahrenheit = (9 / 5) * Celsius + 32$$

   Hint: in Java, 9 / 5 is 1, but 9.0 / 5 is 1.8

   Here is a sample run:

   Enter a degree in Celsius: 43.5
   43.5 Celsius is 110.3 Fahrenheit.

2. Write a program that calculates the energy needed to heat water from an initial temperature to a final temperature. Your program should prompt the user to enter the amount of water in kilograms and the initial and final temperature of the water. The formula to compute the energy is

$$Q = M * (finalTemperature - initialTemperature) * 4184$$

   Where M is the weight of water in kilograms, initial and final temperatures are in degree Celsius, and energy Q is in joules. Here is a sample run:

   Enter the amount of water in kilograms: 55.5
   Enter the initial temperature: 3.5
   Enter the final temperature: 10.5
   The energy needed is 1625484.0

Grading Guidelines: This lab is graded on a scale of 0-6 points, assigned as follows:

- **0 points:** Student is absent or does not appear to have completed any work for the lab
- **2 point (2*1):** Student has written the program, but it has errors.
- **4 points (2*2):** Student has written the program it compiles without error, but it does not produce the correct output.
- **6 points (2*3):** Student has written the program and it compiles and runs correctly, without any errors.