CMPE416   Lab2

Due 10.08.22

<u>No late lab will be accepted!</u>

Write a `Temperature` class that has two fields: a temperature value (a floating-point number) and a character for the scale, either 'C' for Celsius or 'F' for Fahrenheit. Make sure that these two fields can ONLY be accessed through the accessor methods outside of the class.

Constructors:
The class should have constructor for initializing objects.

Methods:
The class should have three types of methods

(1) Two methods to return the temperature: one to return the degrees in Celsius, the other to return the degrees in Fahrenheit. Use the two following formulas to write the two methods

$$degreesC = 5(degreesF - 32) / 9$$
$$degreesF = (9(degreesC/5) + 32$$

(2) Three methods to set the fields: one to set the value, one to set the scale ('F' or 'C'), and one to set both.

(3) A comparison method with two parameters. Both of the two parameters are objects of the `Temperature` class (may be in different scales!). This method should return an integer:
   0: means the two temperatures are equal.
      E.g., 0.0 degreesC = 32.0 degreesF; 0.0 degreesC = 0.0 degreesC
   1: means the first temperature is higher than the second one
   -1: means the first temperature is lower than the second one

Driver program:
You also need to write a driver program that tests all the methods: write a `Driver` class, which contains a main method.

(a). Make sure to use of the constructor(s) and methods except the comparison method. After each object construction or field setting, immediately print out to the screen the values of the two fields of the objects.

(b). Design the driver program in the way that, when you run the program, it will read necessary informations from the console and create appropriate objects and displays them as asked in (a). Also you should use comparison method to display 0,1, or -1 for the given informations.