

COMP 170 Week 7 Homework

These are Chapter 6, Programming Projects 2, 5, and 7

2. (create and use a *TruncatedDollarFormat* class) Write a new class *TruncatedDollarFormat* that is the same as the class *DollarFormat* found in the Sakai Week 7 **Source Code** folder, except that it truncates rather than rounds to obtain two digits after the decimal point. When truncating, all digits after the first two are discarded, so 1.229 becomes 1.22, not 1.23. Repeat Programming Project 3 in Chapter 4 using this new class, the Project that asks for the new balance in 10 years if interest is compounded annually, monthly, and daily.

5. (create a *LetterGrade* enumeration with class-like properties) Write a Java enumeration *LetterGrade* that represents letter grades A through F, including plus and minus grades. You can use the *Suit* enumeration found in the Sakai Week 7 **Source Code** folder as an example. Define a private instance variable to hold a *boolean* value that is *true* if the grade is passing. Also, define a constructor that initializes this instance variable, an accessor method called *isPassing()* that returns its value, and a method *toString()* that returns the grade as a *String*. Finally, write a program to demonstrate / test the enumeration. Enumerations as classes are covered on pages 449 through 451 of the text.

7. (create a *Temperature* class) Write a *Temperature* class that represents temperatures in degrees in both Celsius and Fahrenheit. Use a floating-point number (e.g. a *double*) for the temperature and a character for the scale: either 'C' for Celsius or 'F' for Fahrenheit. The class should have:
- Four constructors: one for the number of *degrees*, one for the *scale*, one for *both* the degrees and the scale, and a *default* constructor. For each of these constructors, assume zero degrees if no value is specified and Celsius if no scale is given.
 - Two accessor methods: one to return the *temperature* in degrees Celsius, the other to return it in degrees Fahrenheit. Use the formulas from Practice Program 5 of Chapter 3 and round to the nearest tenth of a degree.
 - Three set methods: one to set the number of *degrees*, one to set the *scale*, and one to set *both*.
 - Three comparison methods: one to test whether two temperatures are equal, one to test whether one temperature is greater than another, and one to test whether one temperature is less than another.

Write a driver program that tests all the methods. Be sure to invoke each of the constructors, to include at least one true and one false case for each comparison method, and to test at least the following three temperature pairs for equality: 0.0 degrees C and 32.0 degrees F, -40.0 degrees C and -40.0 degrees F, and 100.0 degrees C and 212.0 degrees F.