Homework Assignment #9

CS5004 – Object-Oriented Design
Northeastern University – Silicon Valley
Summer 2020

Due Sunday 07/26 at 11:00pm PT

Grading: Each programming problem is graded as follows

- A submission which does not compile gets 0.
- A submission which compiles but does something completely irrelevant gets 0.
- A submission which works (partially) correctly, gets (up to) %80 of the total credit.
- %20 is reserved for the coding style. Follow the coding style described in the book.

Problem 1 [60pts]. Write a program that can serve as a simple calculator. This calculator keeps track of a single number (of type `double`) that is called result and that starts out as 0.0. Each cycle allows the user to repeatedly add, subtract, multiply, or divide by a second number. The result of one of these operations becomes the new value of result. The calculation ends when the user enters the letter R for "result" (either in upper- or lowercase). The user is allowed to do another calculation from the beginning as often as desired.
The input format is shown in the following sample dialogue. If the user enters any operator symbol other than +, −, *, or /, then an `UnknownOperatorException` is thrown and the user is asked to reenter that line of input. You must, of course, define `UnknownOperatorException` is part of this project.
Note: This is a good time to understand the semantics of division by zero for `float`s and `double`s. Make sure that you understand `NaN` and `infinity`.
Submission format: A file named `Calculator.java` which contains the exception class and whose `main()` method performs the required operations. We will test your code interactively.

```
Calculator is on.
result = 0.0
+5
result + 5.0 = 5.0
new result = 5.0
```

```
* 2.2
result * 2.2 = 11.0
updated result = 11.0
% 10
% is an unknown operation.
Reenter, your last line:
* 0.1
result * 0.1 = 1.1
updated result = 1.1
r
Final result = 1.1
Again? (y/n)
yes
result = 0.0
+10
result + 10.0 = 10.0
new result = 10.0
/2
result / 2.0 = 5.0
updated result = 5.0
r
Final result = 5.0
Again? (y/n)
N
End of Program
```