CCPS506 Lab 1 – Intro to Pharo, Smalltalk Basics

Preamble

This lab will introduce you to the Pharo environment and get you started in Smalltalk. Pharo is intimidating at first, particularly for those who are accustomed to compiling and executing simple source files. Luckily Pharo has a handy tutorial built in! Once you've worked through that, you'll be you'll write some code in the Playground.

Lab Description

First thing's first, you can download Pharo for yourself at: **https://pharo.org/**

When you install and run the Pharo Launcher, you'll have to download a Pharo image. At the time of this writing the latest stable version is 9.0, but this version has given me issues. I currently use version 8.0 (64-bit) and I recommend you do the same as all the code in class was tested on this version. I do *not* recommend downloading the development version.

Launch the image once it's downloaded and take a few minutes to play around in the environment. Click around a bit, explore the context menus, and open the *Playground*, *Transcript*, and *System Browser* windows. Each of these three can be found under *Tools* when left clicking.

Playground is an interactive window where you can write and execute Smalltalk code, Transcript is where output can be printed (using Transcript show:), and System Browser is where you can browse the class hierarchy and create your own classes. We saw examples of all this in class, so check out the lecture slides if you need a reference.

0) Time for fun! In the Playground window, type **`ProfStef go.`** This statement sends the **`go`** message to the class object **`ProfStef`**. Highlight it, right-click, and select *do-it*. Alternatively, CTRL-D is the keyboard shortcut for *do-it*. Please don't just skip this tutorial. It's very good and will teach you a lot.

1) When you've gone as far as you care to in the tutorial, write code in the Playground that solves both of the problems below. You don't need to create a class with methods, all your code can be placed in the Playground.

a. Write code that computes the average of all the **even integers** in an array. Solve this in two ways: using a **`whileTrue:`** loop and a **`do:`** loop. Test your program with the following inputs, and print the result for each:

```
arr1 := #(84 45 54 456 456 33 34)
arr2 := #(706 348 435 430 278 736 803 683 248 873)
arr3 := #(323 274 711 918 772 727 13 724 593 215)
```

b. Write a code snippet that creates an array of length n = 10 and fills it with random integers between 0 and 1000. Use whatever control structures you want. **Hint:** Smalltalk has a class called **`Random`** which implements the method **`next`**. It returns a number in the range [0 1]. Print the random array to the Transcript.

Each of these problems should be solved in the same Playground window and should all run properly when the contents of the Playground are executed all at once (ctrl-a + ctrl-d). You should also clear the Transcript at the top of your code.

Submission

Labs are to be completed and submitted *individually*. Submit the following items on D2L, under the submission for Lab 1:

1) Copy the contents of your Playground window containing your solutions to each of the problems into a single plain text file (.txt). Include a few blank lines in between each problem so that it is easy to see where one ends and the next begins.

2) Submit a screenshot of your Pharo environment showing the Playground window containing your code, and the Transcript window containing the output of your code after running it.