Lab 0 P2J: From Python to Java

CS 205

Lab objectives:

- To help you begin to make the transition from writing programs in Python to writing object-oriented programs in Java. Making this transition includes such things as recognizing:

    - All code must reside within a class.
    - Java is a typed language; a variable and its type must be declared before use. These declarations are somewhat different for primitive types versus objects.
    - White space has no syntactical meaning. Classes, methods, and blocks of code are delineated with braces. Statements are delineated with semicolons. (White space *is* important in helping to make your programs readable by others.)

- To help you begin to take advantage of the extremely rich set of built-in classes that Java comes with.

Before starting this assignment, you should have read *java4python*, skipping Sections 2.3 and 3.3, all of Chapter 4, and Sections 4, 5, and 8 of Chapter 5.

1. Write the Java variable type declarations to store:

    (a) your name
    (b) your age
    (c) your favorite color (Look up the documentation for, and then use, Java'a `Color` class.)

2. What are `i`'s and `j`'s values after the following Java code fragment is run?

    ```
    int i = 4;
    int j = 2;

    if (i < j)
        i = i - j;
        i = 2 * i;
        j = j + i;
    ```

3. Find and correct the syntax errors in the following Java program, which consists of the two classes `AverageTester` and `Average`.

File `AverageTester.java`:

```java
import java.util.ArrayList

public class AverageTester {

    public static void main(String[] args) {
        ArrayList<Double> heights = new ArrayList<Double>()
        heights.add(67.25)
        heights.add(60.75)
        Average a = Average(heights)
        System.out.println(a.getAverage())
        a.add(72.5)
        System.out.println(a.getAverage())
    }
```

File `Average.java`:

```java
public class Average {

    public Average(ArrayList<Double> values) {
        this.values = values;
    }

    public double getAverage() {
        int count = 0;
        double sum = 0;

        for (double d: values)
            count = count + 1;
            sum = sum + d;

        return sum / count;
    }

    public void add(double value) {
        values.add(value);
    }
}
```