

Introduction to Java for Python Programmers

THOUGHT FOR THE DAY:

PROGRAMMING LANGUAGES ARE VERY MUCH THE SAME. ONCE YOU'VE HAD ONE, YOU'VE HAD THEM ALL!

Having said that, let's discuss some of the basic differences between Java and Python...

Running a Program

Python is interpreted, meaning you compile and run program in one step:

```
python prog.py
```

Java has two phases. First, you compile the source code into *java byte code*. Then you 'run' the java byte code.

```
javac Prog.java  
java Prog
```

Purely Object-Oriented

With Java, all code is written within a class. Each file has one class defined in it, and the file name must be the same as the class name (with .java appended)

All methods are defined subordinate to a class.

All variables are defined subordinate to a class or method (no evil globals!)

Types

With Java, you must declare the type of everything: parameters, locals, and return values.

In-Class worksheet

Take a look at the provided Coordinate programs in Java and Python:

<http://www.cs.usfca.edu/~wolber/courses/110.f07/javaSamples/Coordinate.java>

<http://www.cs.usfca.edu/~wolber/courses/110.f07/python/coordinate.py>

How are the two languages different? In particular, answer the questions on the next page:

1. How are *constructors* defined differently in the two languages? How are they named?
2. How are *functions* defined differently in Java compared to Python? What do you see in the function definitions of Java that you don't see in Python? What does 'self' in Python and 'this' in Java refer to?
3. Are *function calls* the same in Java and Python?
4. How is the 'main' function defined differently in Java than it is in Python?

In Class Assignment: With Java, write a class Person with data members 'name' and 'age' (name is of type String), two constructors (one with no parameters and one with two), and a method 'older' which returns true if the object itself is older than the person sent in as a parameter. In the main program for the class, create two persons with data, call older, and print out a result statement.