

CSC207H Lecture 1

Sadia Sharmin

Sep 6, 2016

Welcome to 207: Software Design!

Course Information

- ▶ Course website: <http://axiom.utm.utoronto.ca/~207/16f/>
- ▶ TUT sections are for labs (held every Monday, unless otherwise announced)
- ▶ PRA section is only for test week (Oct 28)
- ▶ Office hours for Sadia: Tuesday, 1:30-3:30 (This week, moved to Thursday, 10-12)
- ▶ Office hours for Arnold: Friday, 11-1

Getting started with Java

Running a Java Program

- ▶ To run a program, it must be translated from high-level programming language to low-level machine language for the computer to execute (two flavors of translation: interpretation, compilation)
 - ▶ **Interpretation:** translate and execute one statement at a time (e.g. Python)
 - ▶ **Compilation:** translate entire program (once), then execute any number of times (e.g. C)
- ▶ Java is a hybrid between the two
 - ▶ In Java, all source code is first written in plain text file ending with .java
 - ▶ This source files gets **compiled** into .class file (containing bytecodes - the machine language of the Java Virtual Machine)
 - ▶ java launcher then runs your application with JVM

More info:

<http://docs.oracle.com/javase/tutorial/getStarted/intro/definition.html>

Java Data Types

- ▶ Every variable has a type.
 - ▶ There are two categories of types: primitive vs. class
- ▶ Primitive types are not objects. There are 8 primitive types.
 - ▶ double, float, long, int, short, byte (can be converted into each other)
 - ▶ char (can be converted into an int, long, float, double)
 - ▶ boolean (can not be converted into any of the above)
- ▶ Class types are objects, with methods.
 - ▶ Integer, Double, String

More info:

<http://www.programmerinterview.com/index.php/java-questions/difference-between-a-primitive-type-and-a-class-type/>

Java Data Types

- ▶ Java arrays are similar to Python lists (stores a collection of values).
- ▶ Key differences:
 - ▶ Java arrays have a fixed length which is set when constructing the array
 - ▶ All elements in the array have the same type

Java Methods

- ▶ e.g. `public int multiplyBy2(int n)`
- ▶ `[accessability] [return type] [method name]`
- ▶ Accessability (for now):
 - ▶ `public` - callable from anywhere, or
 - ▶ `private` - callable only from this class
- ▶ Return type: the data type of what this method will return (use `void` if nothing is returned)
- ▶ Note: Variables that are defined inside of a method are local to that method

OO Java - Balloon Example