

Java programming prerequisites for CS2

In CS2, there is no lectured programming component until the second half-course, CS2Bh. However, many of the practicals in the first half-course, CS2Ah, will involve Java programming. These practicals will serve both to extend your general experience in programming with Java, and also to thoroughly prepare you for the Advanced Programming in Java thread of CS2Ah.

This sheet sets out the Java programming knowledge from CS1 that is assumed as a prerequisite for practical work in CS2. You are expected to understand, at least, the following.

1. The basic concepts of class, object, method and field.
2. How to compile and execute a Java application.
3. How to declare and use variables of different types; how to invoke a method; how to write a class declaration.
4. Basic control structures: `if`, `if/else`, `while`, `for`, `switch`, etc.
5. Primitive types (`boolean`, `byte`, `short`, `char`, `int`, etc.), and their associated operations. How to cast values between primitive types.
6. Wrapper classes for primitive types (`Boolean`, `Integer`, `Char`, etc.) and their associated methods.
7. Arrays, both 1-dimensional (single subscripts) and multi-dimensional (multiple subscripts).
8. The general concept of a class hierarchy: subclasses, inheritance and polymorphism.
9. How to use the standard Java libraries: importing packages; accessing classes and methods; navigating and understanding the online API documentation. Many of the standard classes will be used, for example `String`, `LinkedList`, `BigInteger` and `Stack`.

If you are unsure about any of the above, then you should consult one of the recommended Java textbooks listed in the CS2 Course Guide, as soon as possible. In any case, the practical structure of CS2Ah is designed to reintroduce you to the above concepts gradually, rather than all at once.