B07 Sept 20 Lec 1 Notes

What is Java?

- Object-oriented programming.
- Write once, run anywhere
- Widely used in industry

3 Main steps

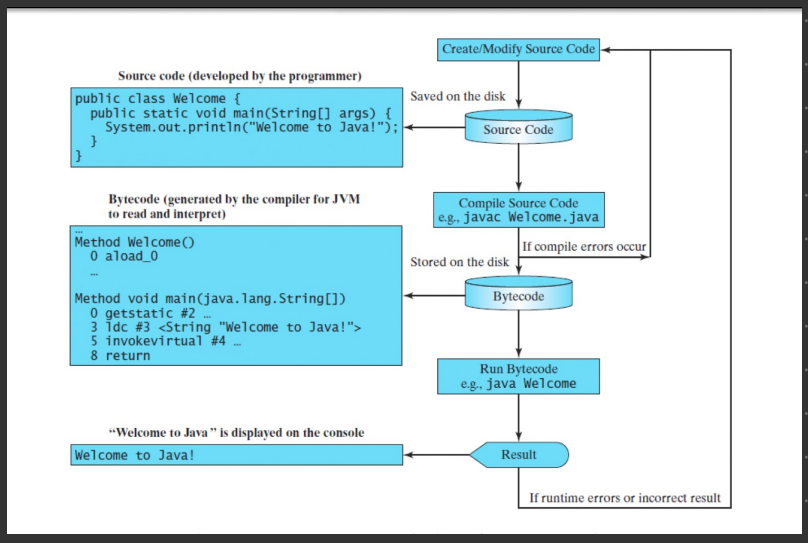
(i) Writing the source code using a text editor

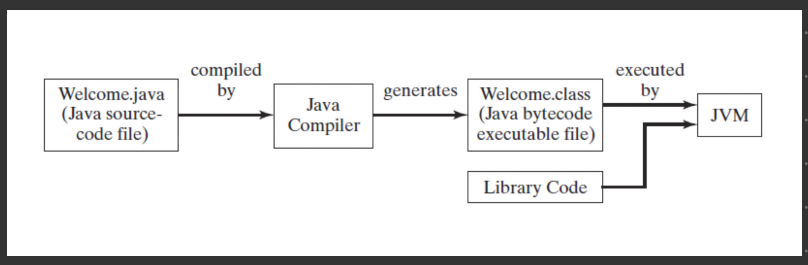
(ii) Translating the source code into Java bytecode using a compiler

- Byte code is similar to machine instructions but is architecture neutral and can run on any platform.

(iii) Execute the bytecode

- JVM is an interpreter: it translates byte code into the target machine language code one at a time.





Data Types

- Eight primitive types:
  - byte, char, short, int, long, float, double, boolean
- Objects
  - Defined using classes.
  - Java provides wrapper classes to use primitive types as objects (e.g. Integer, Double, etc.)

Classes

- A typical Java class includes:
  - Data fields to represent the state of an object.
  - Methods to represent the behaviour of an object.
  - Special type of methods, known as constructors.

The this reference

- The this keyword is the name of a reference that an object can use to refer to itself.
- It can be used to reference the object's instance members.

The static Modifier

- Static fields/methods can be accessed from a reference variable or from their class name.
- Non-static (or instance) fields/methods can only be accessed from a reference variable.