CCS0023/L

Object Oriented Programming (Java)

Introduction to Java Technology

01

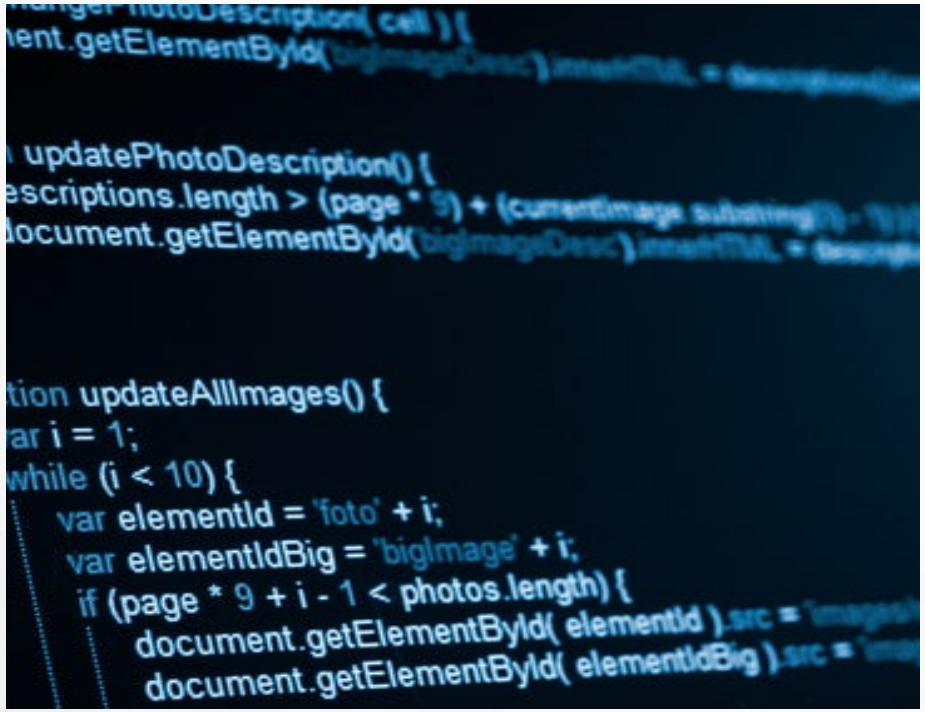
LESSON #1

Introduction to Java Technology

What you should know

Java language, originally called the ‘Oak’, was developed by James Gosling at Sun Microsystems, which is now a subsidiary of Oracle Corporation, and released in 1995 as a core component of Sun Microsystems' Java platform.

It has derived much of its syntax from C and C++ but has a simpler object model and fewer low-level facilities.



Java is a general-purpose, concurrent, class-based, object-oriented language that is specifically designed to have as few implementation dependencies as possible.

The Java source code files (files with .java extension) are compiled into a format called bytecode (files with .class extension), which can be executed by a Java interpreter.

It was intended for use in Sun's project research to work on a programming software to control electronic devices.

It was modified to take advantage of the World Wide Web. The WebRunner, later named as HotJava, was the very first web browser created in Java.

In 1995, the Netscape Navigator internet browser was also developed to support Java.

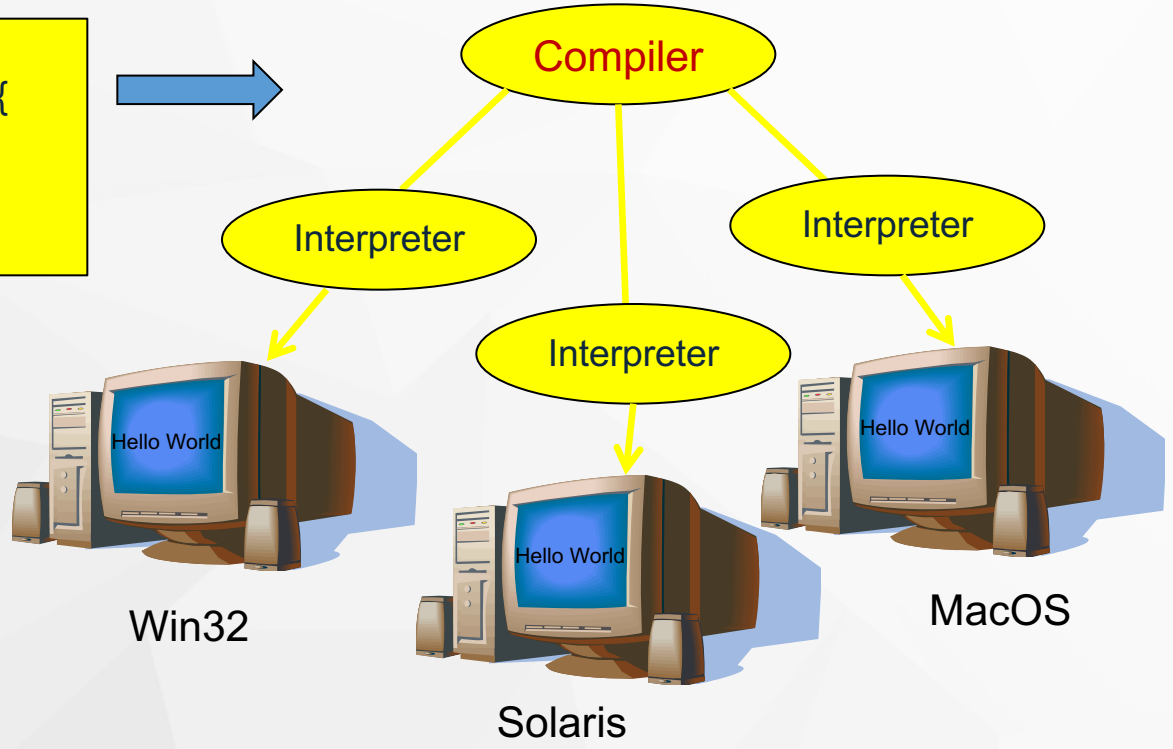
Features of Java:

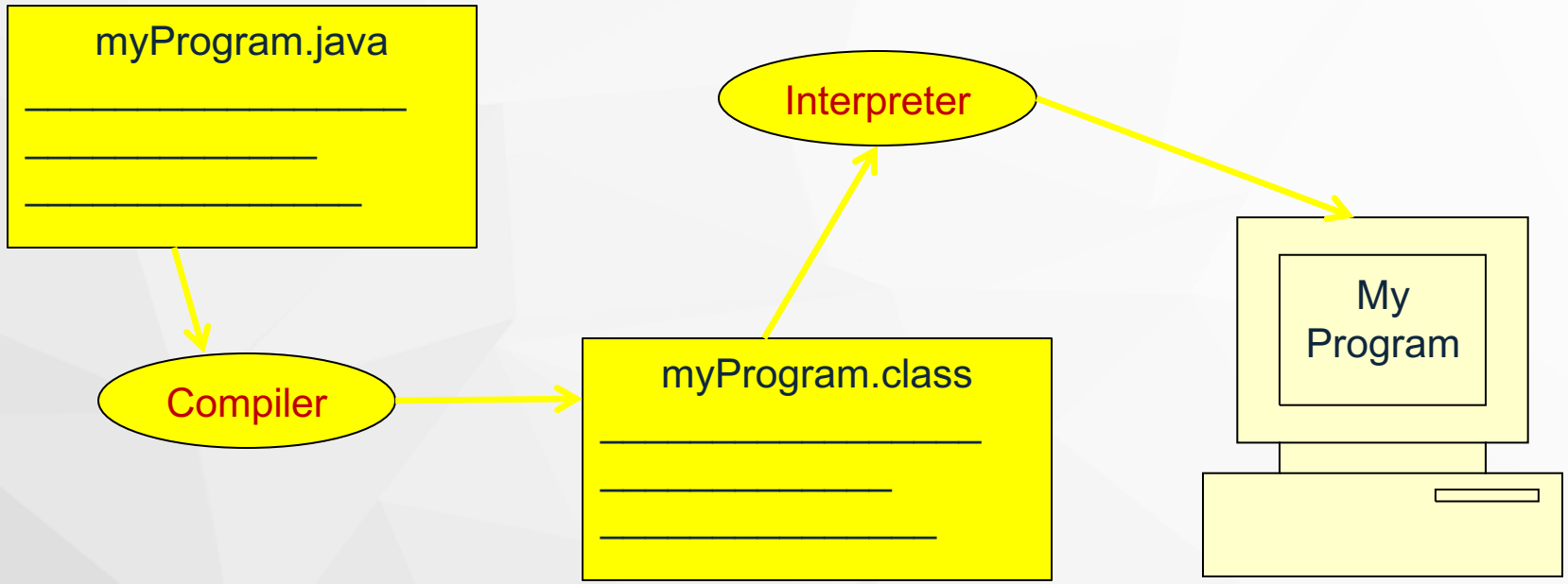
1. Simple, object-oriented, and familiar
2. Robust and secure
3. Architecture neutral and portable
4. High performance
5. Interpreted, threaded, and dynamic

Java Program

```
class HelloWorld{
    public static void main(String args[ ]){
        System.out.println("Hello World");
    }
}
```

HelloWorld.java





The Java source code (.java file) is normally compiled to produce the bytecode file (.class file) which is normally interpreted by the Java virtual machine (JVM).

Java Editions:

J2SE: Java 2 Standard Edition

J2EE: Java 2 Enterprise Edition

J2ME: Java 2 Micro Edition

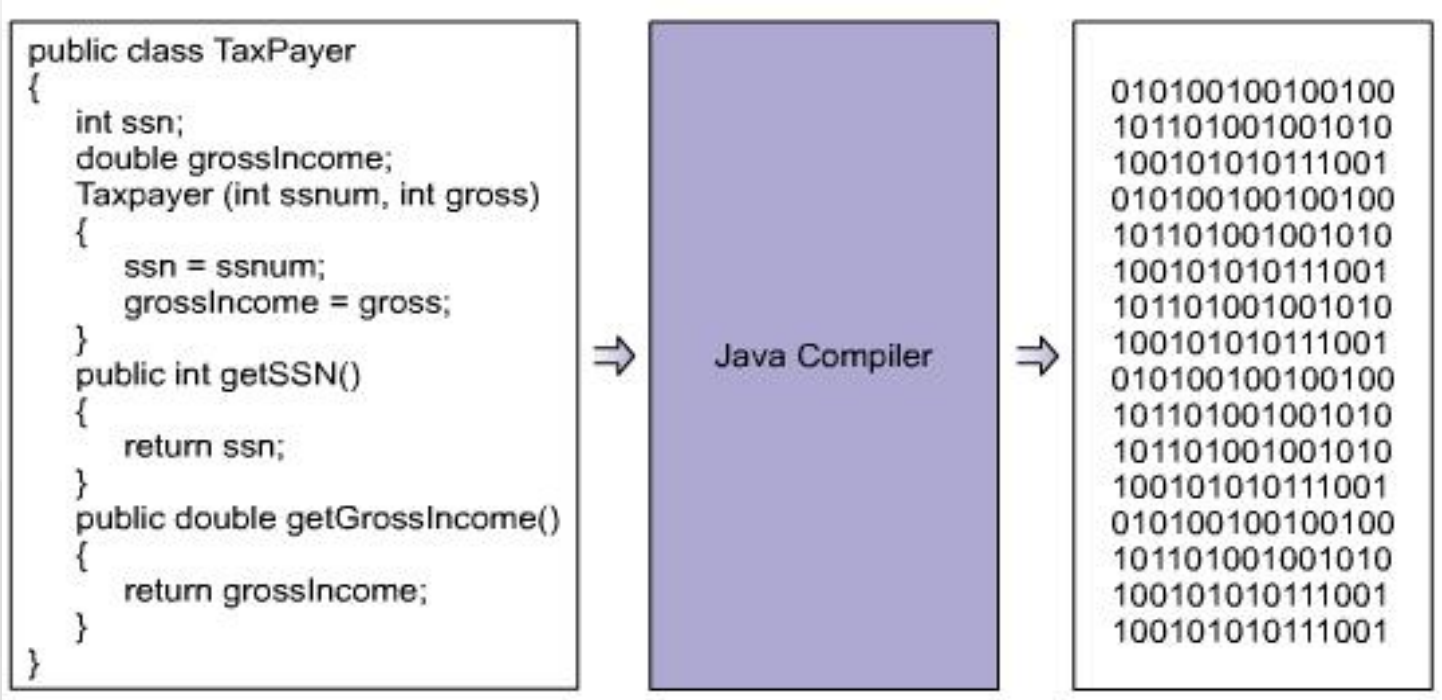
The Java Virtual Machine (JVM)

Java is a portable language that could run on any platform. The language was able to do this by generating intermediate code for a hypothetical computer called a virtual machine.

The Java Virtual Machine (JVM)

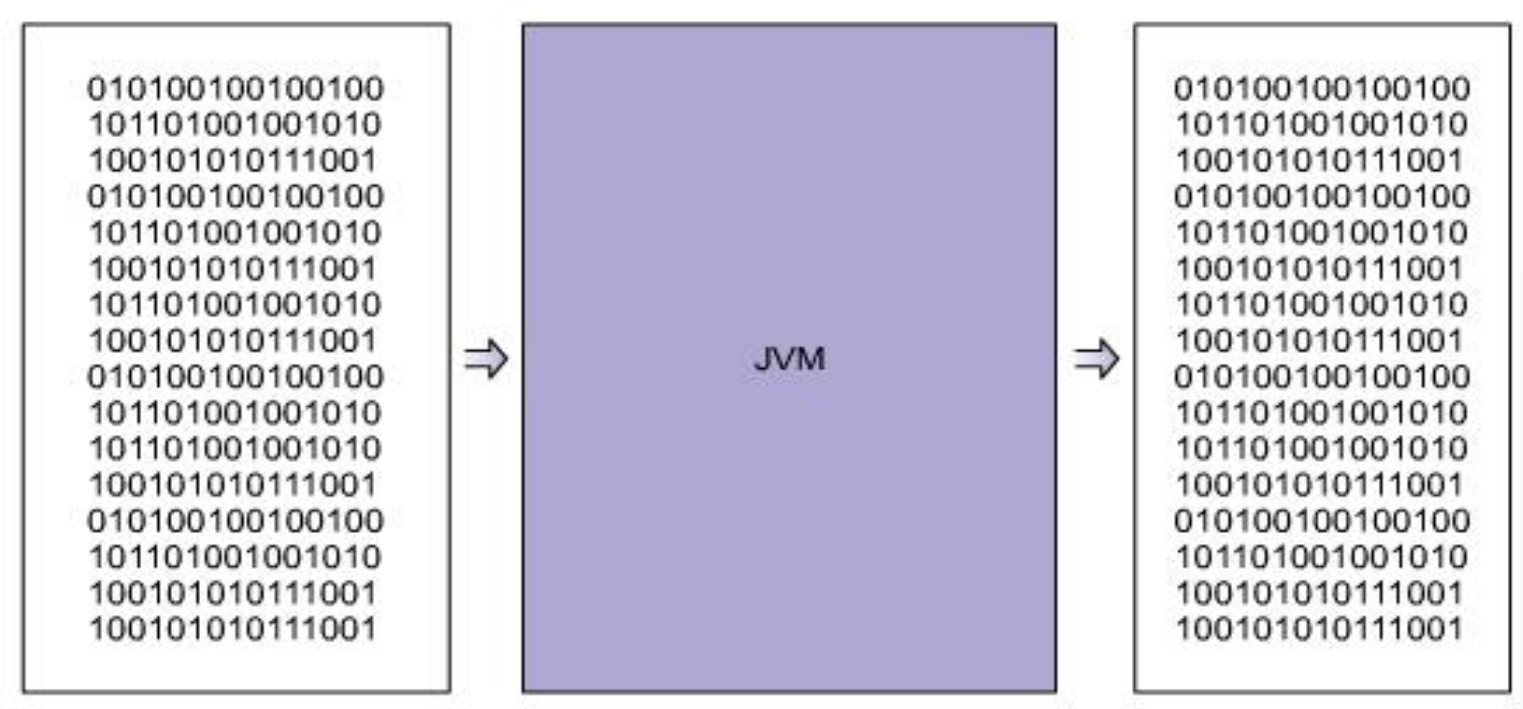
The Java Virtual Machine (JVM) is a program that runs on all computers. The JVM creates a software simulation of a CPU and memory and handles all communication between the Java program and the underlying operating system and hardware.

The JVM and Application Architecture

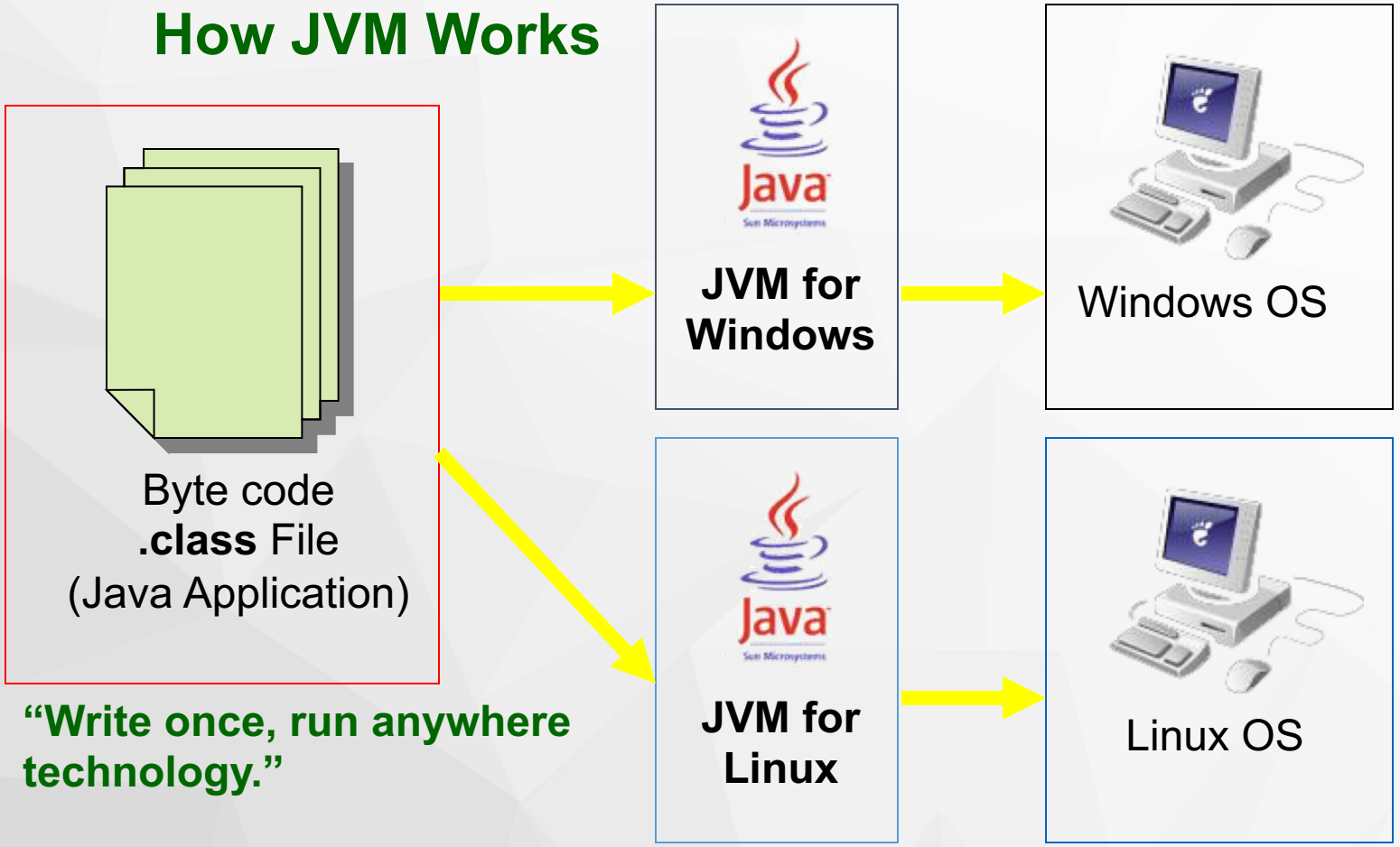


source code "javac" byte code

The JVM and Application Architecture



How JVM Works



"Write once, run anywhere technology."

The J2SDK (JDK)

Java 2 Software Development Kit contains

- java – the loader for Java applications
- javac – the compiler
- javadoc – the documentation generator
- other tools

Steps in Creating a Java Application

1. Create the source code.
2. Compile the source code.
3. Run the program.

Steps 1 : Creating the source code

Create the source code using any text editor.

Save the file with a ".java" extension.

Example: HelloJava.java

Steps 2 : Compiling the source code

Compile the source code to create the byte code using **javac** tool from the J2SDK.

Open an MS-DOS console, browse for the directory where you saved the source code.

Steps 2 : Compiling the source code

Type the command **javac `HelloJava.java`** and press ENTER.

Verify that the **`HelloJava.class`** has been created.

Steps 3 : Running the Program

To execute the program, type the command: **`java HelloJava`** and press ENTER.

THANK YOU