

SchoolNova



IT101

Introduction to Java

The History of Java

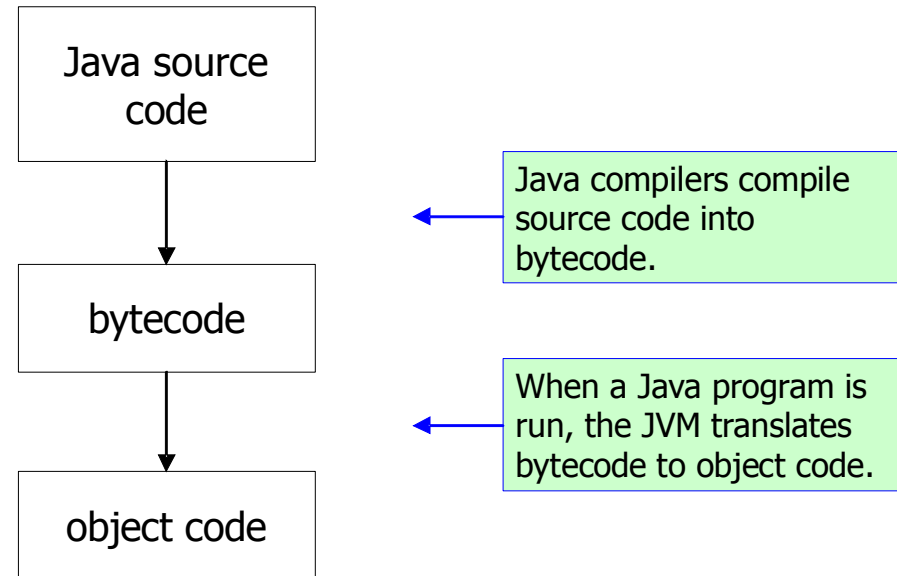
- **Sun Microsystems** engineers **James Gosling**, Mike Sheridan, and Patrick Naughton initiated the Java language project in June **1991**. Java was originally designed for interactive television, but it was too advanced for the digital cable television industry at the time. The language was initially called Oak after an oak tree that stood outside Gosling's office; it went by the name Green later, and was later renamed Java, from Java coffee, said to be consumed in large quantities by the language's creators. Gosling aimed to implement a virtual machine and a language that had a familiar C/C++ style of notation.
- Sun Microsystems released the first public implementation as Java 1.0 in 1995. It promised "**Write Once, Run Anywhere**", providing no-cost run-times on popular platforms. Fairly secure and featuring configurable security, it allowed network- and file-access restrictions. Major web browsers soon incorporated the ability to run Java applets within web pages, and Java quickly became popular. With the advent of Java 2, new versions had multiple configurations built for different types of platforms. For example, **J2EE** targeted enterprise applications and the greatly stripped-down version **J2ME** for mobile applications (Mobile Java). **J2SE** designated the Standard Edition.
- On November 13, 2006, Sun released much of Java as **free and open source software**, under the terms of the GNU General Public License (GPL).
- Following **Oracle** Corporation's acquisition of Sun Microsystems in 2009–2010, Oracle has described itself as the "steward of Java technology with a relentless commitment to fostering a community of participation and transparency". This did not hold Oracle, however, from filing a lawsuit against Google shortly after that for using Java inside the Android SDK.
- Today, Java software runs on everything from laptops to data centers, game consoles to scientific supercomputers. There are 930 million Java Runtime Environment downloads each year and 3 billion mobile phones run Java. On April 2, 2010, James Gosling resigned from Oracle.



The Oracle logo, consisting of the word "ORACLE" in a white, bold, sans-serif font with a registered trademark symbol, set against a red rectangular background.

Write Once, Run Anywhere

- A piece of software is portable if it can be used on many different types of computers.
- Object code (ex. C++ code for Unix) is not very portable. Object code is comprised of binary-format instructions. Those binary-format instructions are intimately tied to a particular type of computer. If you've got object code that was created on a Unix computer, then the object code can run only on a Unix computer.
- The Java solution to improve portability:
 - ◆ Java compilers don't compile all the way down to object code. Instead, they compile down to bytecode, which possesses the best features of both object code and source code:
 - ◆ Like object code, bytecode uses a format that works closely with computer hardware, so it runs fast.
 - ◆ Like source code, bytecode is generic, so it can be run on any type of computer.



Java vs JavaScript

- **Java**

- ◆ Created by Sun Microsystems;
- ◆ Programming language;
- ◆ **Compiled** into computer bytecode;
- ◆ Runs in a **Java Virtual Machine**;
- ◆ Permeates the Internet, but also runs behind many of the applications and devices that power our day-to-day lives. From mobile phones to handheld devices, games and navigation systems to e-business solutions.
- ◆ Strict, complex language.

- **JavaScript**

- ◆ Created by Netscape Communications Corp.
- ◆ Scripting language;
- ◆ **Interpreted** by a browser (server-side JavaScript is not part of this program curriculum);
- ◆ Requires a **browser** to run the code;
- ◆ Used primarily for web development;
- ◆ Smaller and simpler language.

Major Editions

- Java Standard Edition (Java SE)
 - ◆ Java SE can be used to develop client-side standalone applications.
- Java Enterprise Edition (Java EE)
 - ◆ Java EE can be used to develop server-side applications such as Java servlets and Java Server Pages.
- Java Micro Edition (Java ME).
 - ◆ Java ME can be used to develop applications for mobile devices such as cell phones.

Hello World

```
class HelloWorld {  
    public static void main(String args[]) {  
        System.out.println("Welcome to Java!");  
    }  
}
```

- What is a class?
- What is a method?
- What are method arguments?
- What is method return type?

Exercise

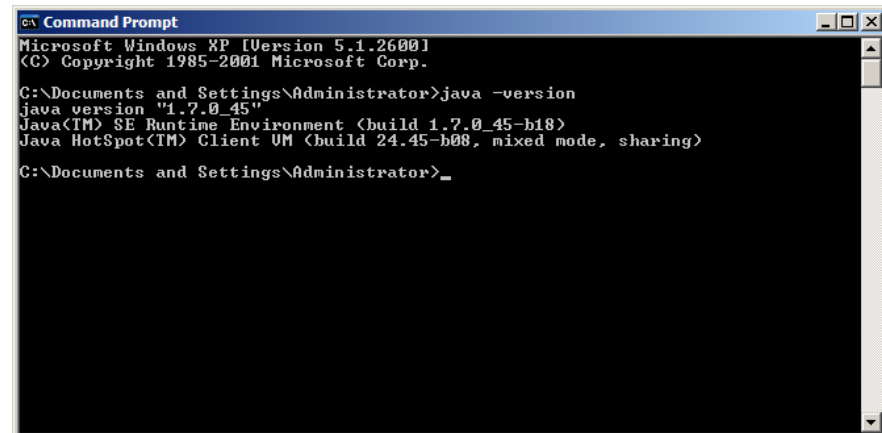
- Download and the Java SE JDK (Java Standard Edition Java Development Kit and NetBeans) from the following URL:
- <http://www.oracle.com/technetwork/java/javase/downloads/index.html>



- Install the JDK on your workstation and verify the installation by typing the following command in the computer's command (Windows) or terminal (Macintosh) window:

```
java -version
```

- The output should be similar to the screenshot below.
- Bookmark and familiarize yourself with the JavaDoc (documentation):
<http://docs.oracle.com/javase/8/docs/api/>



```
Microsoft Windows XP [Version 5.1.2600]
(C) Copyright 1985-2001 Microsoft Corp.

C:\Documents and Settings\Administrator>java -version
java version "1.7.0_45"
Java(TM) SE Runtime Environment (build 1.7.0_45-b18)
Java HotSpot(TM) Client VM (build 24.45-b08, mixed mode, sharing)

C:\Documents and Settings\Administrator>_
```

Homework

- Implement the NetBeans “Hello World” program using the tutorial at <https://docs.oracle.com/javase/tutorial/getStarted/cupojava/netbeans.html>