Introduction to Java Programming

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1

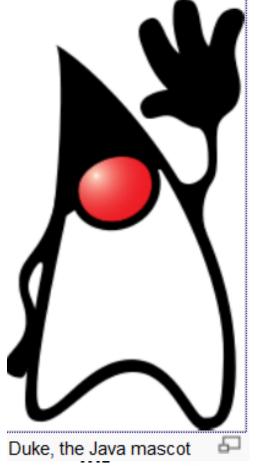| Position Oct 2011	Position Oct 2010	Delta in Position	Programming Language	Ratings Oct 2011	Delta Oct 2010
1	1	=	Java	17.913%	-0.25%
2	2	=	C	17.707%	+0.53%
3	3	=	C++	9.072%	-0.73%
4	4	=	PHP	6.818%	-1.51%
5	6	↑	C#	6.723%	+1.76%

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History

- James Gosling at Sun Microsystems initiated the Java language project in June 1991.
- The language was called Oak, then went by the name Green later, and was renamed Java in 1993.
- Java, as a core component of Sun Microsystems' Java platform was released in 1995

Duke, the Java mascot

Introduction

- Java derives syntax from C/C++, has a simpler object model and fewer low-level facilities.
- Java is a general-purpose, concurrent, class-based, object-oriented language.
- It is intended to let application developers

  "write once, run anywhere".
- Java is widely used from application software to web applications.

5

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1）J2SE —Java 2 (Software Development Kit) Standard Edition.

the most popular version, used for the workstation, the PC Java standard platform.

2) J2ME—Java2 Micro Edition.

Used for embedded Java consumer electronic platform. Wireless, mobile phone, PDA, small electronic device can use it as a development tools and application platform.

3）J2EE —Java2 Enterprise Edition

Enterprise application Java 2 platform, it provides enterprise e-Business structure and Web Service.

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Feature

- Object-oriented

- **Inheritance**

  new classes can use the method provided by existing class to realized the code reuse.

- **Encapsulation**

  It is the mechanism of combining the information and providing the abstraction.

- **Polymorphism**

  The same message can lead to different kinds of functionality after being received by different object.

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7

Feature

—simple

- Programs are easy to write and debug.

- It abandoned many disadvantages in C/C++, such as overloaded operators, pointer operations, multiple inheritance, etc.
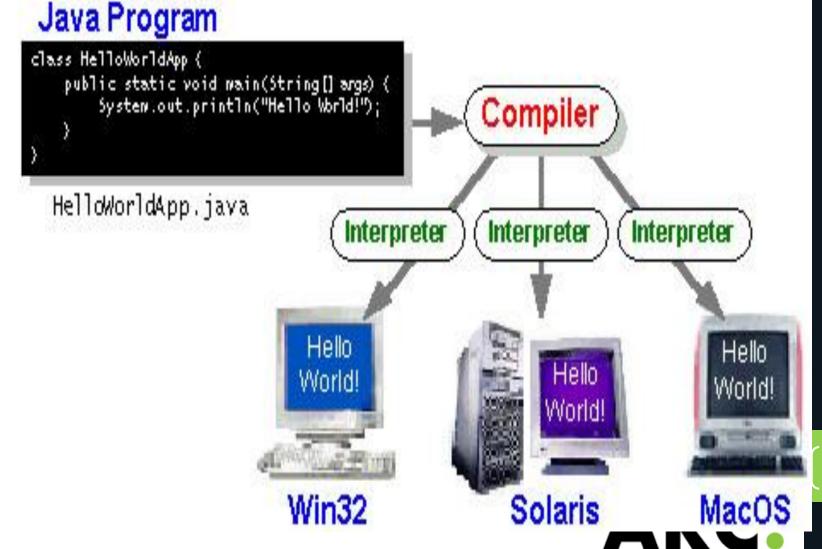
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Feature

—Portable

Programs will generate Java Virtual Machine JVM (Java Virtual Machine) coding, called byte code, which can run in any has the Java Virtual Machine, such as: Windows, Linux, mobile phone, PDA, etc.

The feature is also called " Write-once-run-anywhere ."

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Write-once-run-anywhere

Feature

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Distributed

The widely used protocols like HTTP and FTP are developed in java. Internet programmers can call functions on these protocols and can get access the files from any remote machine on the internet rather than writing codes on their local system.

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11

Feature

—**Secure**

Java does not use memory pointers. All the programs in java are run under an area known as the sand box.

The accessibility options of a class must be allowed by the public key encryption, which can prevent unauthorized ones access private members.

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Feature

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Multithreaded

- Java is a multithreaded programming language, which means a single program having different threads executing independently at the same time.

- Multithreading works the similar way as multiple processes run on one computer.

13

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Comparison with C++

- There is no longer a global variable. Define the public and static data members to realize the same function.
- **There is no longer overloaded operators, pointer operations, multiple inheritance.**
- There is no longer **#include** and **#define** or other pretreatment functions. Use import language to contain the classes and package.

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