JAVA: Object Oriented Programming

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Outline

Next

Next

Next

History

- 1991, Sun, Naughton and Gosling, ``Green'' project.
  - They designed a programming language for consumer devices like cable TV switchboxes.
  - They designed a virtual machine to make the language not be tied to any single architecture.
  - The new programming language and virtual machine are implemented in C++.
- 1995, SunWorld, HotJava browser.
  - HotJava browser can execute code inside web pages!
- 1996, Java 1.0 and Java 1.1
- 1998, JavaOne, Java 1.2
- 2000, Java 1.3
- 2002, Java 1.4, regular expression

History 2

- 2004, Java 5.0, generic types, ``for each'' loop and ...
- 2006, Java 6, JDBC, Scripting Language support, new GC
- 2011, Java 7, JVM support for dynamic languages
- 2014, Java 8, lambda expression, Win XP is not officially supported

Current

- Large-scale systems: ERP, EMR, EHR and ...
- Cross-platform applications: Web, PC, Mobile ...
- Big data systems: Hadoop, Spark, Storm
- JVM languages: Cloure, Scala
  http://en.wikipedia.org/wiki/List_of_JVM_languages

Next

Websites

Websites

- java.com for user
- http://www.oracle.com/technetwork/java/index.html
- jcp.org
- TheServerSide.com
- ITEye.com (in Chinese)
- importnew.com (in Chinese)

Books

Books

- Core Java, 8th Edition
  Java核心技术
- Thinking in Java, 4th Edition
  Java编程思想
- Effective Java

Next

Next

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```
public class HelloJava{

    public static void main(String[] args) {
        System.out.println("Hello Java!");
    }

}
```

```
$javac HelloJava.java
$java HelloJava

Hello Java!
```

Next

How to Run Java programs?

You need Java Runtime Environment!
java.com

How to Develop Java programs?

You need Java Development Kit!

Installation of JDK

Installation

- JDK 8 or JDK 7?
- http://www.oracle.com/us/downloads/index.html
- Java SE 8u25 or Java SE 7u71

Next

Eclipse

www.eclipse.org

Hello Java in Eclipse

- Start Eclipse
- File - New - Java Project
- File - New - Class
- Input codes
- Run

NetBeans

https://netbeans.org/

Hello Java in NetBeans

- Start Netbeans
- File - New - Project
- Input codes
- Run Project

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Ant

Apache Ant is a Java library and command-line tool whose mission is to drive processes described in build files as targets and extension points dependent upon each other.
Ant is a kind of make for Java.

HelloJava with Ant

see HelloJava directory.
https://ant.apache.org/manual/
tutorial-HelloWorldWithAnt.html

Maven

Apache Maven is a software project management and comprehension tool. Based on the concept of a project object model (POM), Maven can manage a project's build, reporting and documentation from a central piece of information.

Next

Numbers

- Variables
- Operators
- Mathmatic functions

Next Lecture

- Object Oriented Prorgamming
- GATK
- Cytoscape