

Introduction to Java

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Once upon a time, when I was a freshman in NTU CSIE

- 計程有兩學期，上學期教C，下學期教C++
- 計概有兩學期，下學期計概教Lisp 和 Java
- 物件導向剛開始流行，有一門研究所的選修課

Then, in my senior year

- 計程計概都變成一學期
- 每個人都在寫Java 程式：學校、打工、比賽
- 物件導向程式設計變成大一下必修課

Then, after I graduated from NTU CSIE

- 七年來我沒有再使用過Java, 直到去年



Is Java/OOP Necessary?

When I was interviewing for industrial jobs in the US

- 面試四家公司，四家都問了多型(會教到)
- 其中兩家問了virtual function(會教到)
- 待遇最好的那家還問了Java 和C 有何不同(會陸續提到)

Java/OOP 和C 一樣，已成基本技

一個印尼地名和生產的咖啡

- (wikipedia) Java (Indonesian: Jawa) is an island of Indonesia and the site of its capital city, Jakarta.
- (wikipedia) Java coffee is a coffee produced on the island of Java. In the United States, the term "Java" by itself is slang for coffee generally.

From Java (coffee) to Java (language):
(folklore) programmers drink coffee when brainstorming

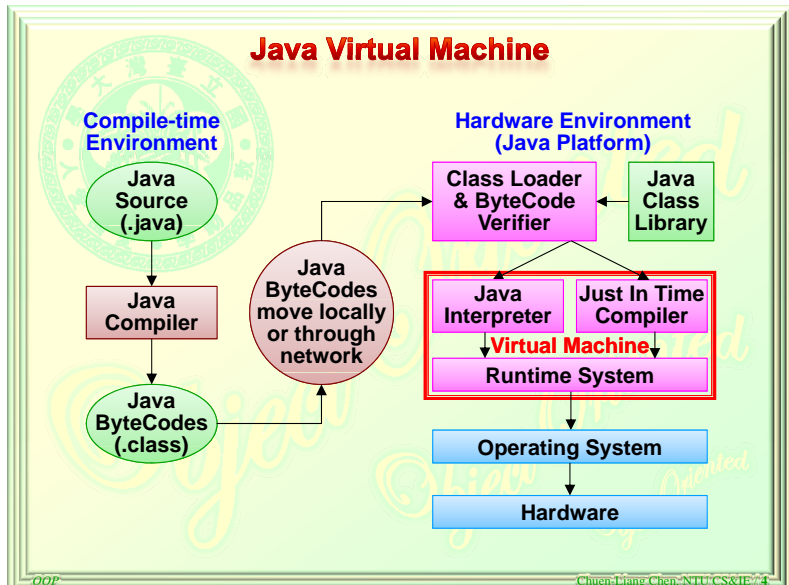
What is Java (1/4)?

a cross-platform language

- (1991) a Sun project called Green for consumer electronics (J. Gosling)
- target:
 - device with limited power/resources
 - devices of different types
- Java (Oak) solution (to the second task):

text code →(compiler)→ byte code
⇒ virtual machine on your TV
⇒ virtual machine on your cellphone
⇒ virtual machine on your washing machine
⇒ virtual machine on your Sony DVD player
⇒ virtual machine on your Panasonic DVD player

Compile once, run everywhere!



What is Java (2/4)?

a Internet-targeted language

- (1995) Java and HotJava browser announced
- along with the Internet development

text code →(compiler)→ byte code
⇒ virtual machine in the HotJava browser
⇒ virtual machine on your Windows system with
either Netscape or Firefox or IE or chrome
⇒ virtual machine on your Linux system
⇒ virtual machine on your MacOS

- **applet**: a special miniature application in Java suitable for browsers

arguably, most important factor for early success

What is Java (3/4)?

a popular platform on mobile phones

- (wikipedia) Java ME (Micro Edition): Specifies several different sets of libraries for devices which are sufficiently limited that supplying the full set of Java libraries would take up unacceptably large amounts of storage.

text code →(compiler)→ byte code
⇒ virtual machine on your Nokia phone
⇒ virtual machine on your SE phone
⇒ virtual machine on your Motorola phone
⇒ virtual machine on your BENQ phone

regaining popularity nowadays

an object-oriented language

- 更結構化的思維
- 更模組化的設計
- ...

will discuss more later

Your Java Environment

- JRE (Java Runtime Environment): for users, JVM + basic libraries
- JDK (Java Development Kit): JRE + compilers + ...
— `jdk-6u18-windows-i586-p.exe` or other platform
- Document — `jdk-6-doc.zip`
- some editions:
 - **SE: Standard Edition**
 - EE: Enterprise Edition
 - ME: Micro Edition

課程網頁上有參考資料

From HelloWorld.c to HelloWorld.java

```
1  /* HelloWorld.c */
2  #include <stdio.h>
3  int main(){
4      printf("Hello_World\n");
5      return 0;
6  }
```

```
1  /* HelloWorld.java */
2  import java.lang.*;
3  public class HelloWorld{
4      /** The comment that
5       *   will show up in the doc
6       */
7      public static void main(String [] argv){
8          System.out.println("Hello_World"); // another cmt
9      }
10 }
```

Your Work Cycle

- 1 edit your Java source file(s)
- 2 compile
 - `javac HelloWorld.java`
 - output: `HelloWorld.class`
- 3 execute
 - `java HelloWorld`
- 4 generate document
 - `javadoc -d doc/ HelloWorld.java`

