Introduction to Java

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1 Preface

This book includes:

- Objective-oriented programming
- Reflection and proxies
- Interface and inner classes
- Exception handling
- Generic programming
- The collection framework
- The event listener model
- Graphical User Interface design with the Swing UI toolkit
- Concurrency

The other knowledges are includes in "Volume II" e.g. Stream API, Databases, XML, Network programming etc.

Synopsis (10th-edition)

- chapter 1-3: Basic Introduction of Java (not focusing on)
- chapter 4: OOP idea and basic terminology (As a review, very fast reading)
- chapter 5: Inheritance
- chapter 6: Interface and lambda expression
- chapter 7: Exception handling
- chapter 8 Generic programming (new things for the second reading)
- chapter 9: collection (new things for the second reading)
- chapter 10-12: Java Swing (Chapter 10-11 in 11th-edition)
- chapter 13: deploy program (Interesting, not in 11th-edition)
- chapter 14: Concurrency (new things for the second reading, Chapter 12 in 11th-edition)

2 Chapter 1: An Introdcution to Java

Abstract

This chapter notes will only focus on **Buzzwords** in Java and some related definition. Details will be required to refer to the actual book.

These 11 buzzword is:

- Simple
- Object-oriented
- Distributed
- Robust
- Secure
- Architecture-Neutral

- Portable
- Interpreted
- High-Performance
- Multithreaded
- Dynamic

2.1 Buzzword

The detail definitions of these buzzword are as follows:

Simple in C++ syntax, but be **simpler** to use and **smaller** to install

Object-oriented Focusing on the **data** and on the **interfaces** to that Object

Distributed It has an extensive library of routines for coping with TCP/IP protocols like HTTP and FTP

Robust It has **early checking** for possible problems, **Dynamic checking** and **eliminating situations** that are error-prone.

Secure Three kinds of attacks impossible:

- Overrunning the running time stack
- corrupting memory outside its process space
- Reading and writting without permission

Architecture-Neutral Running on any Operating systems and Computer Architectures by using Java's virtual machine

Portable No "implementation-dependent" i.e. The *size* of data type are specified

Interpreted The Java Interoreter can execute Java bytecodes on any machine to which the interpreter has been ported.

High-Performance Java bytecodes are more than *adequate*

Multithreaded support "Concurrent" and has lots of benefits.

Dynamic more Dynamic than C++. i.e. running time is strictly divided from compiling time

2.2 Java applets and the internet

Java program that works on web pages are called *applets*. Running it needs a web browser which can **exectue Java bytecode** for you.

This allow a web page:

- reacts user commands
- changes its appearance
- exchange data between clinet and server