Brief Introduction to Java Technology

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Topics

- Historical background
- What is Java technology?
- Types of Java platforms
  - Java SE (Focus of this course)
  - Java EE
  - Java ME
- Where does Java fit in?
- Java program development

Historical Background

Java Background: History

- Java
  - Was created in 1991 by James Gosling of Sun Microsystems.
  - Initially called *Oak*, named after the tree outside Gosling's window, its name was changed to *Java* because the name Oak was already taken by someone else as a trademarked name.

Java Background: History

- The original motivation for Java
  - The need for platform independent language that could be embedded in various consumer electronic products like toasters and refrigerators.
- At about the same time, the World Wide Web and the Internet were gaining popularity. Gosling realized that Java could be used for Internet programming
  - The “platform independent language” and “platform independent programs” perfectly fit the need of the internet at the time where programs can be downloaded to different type of browsers – they are called “applet”, which is still a very popular way of using Java

What is Java Technology?

Java Background: What is Java Technology?

- The Java technology is all of the following
  - A programming language
  - A development environment
  - A runtime environment

Java Technology: Programming Language

- As a programming language, Java can create all kinds of applications
  - Desktop applications such as word processing application (via Java SE)
  - Enterprise applications such as inventory management systems (via Java EE)
  - Mobile applications that run on mobile devices such as phones and tablets (vis Java ME)
  - Internet applications that can run inside browsers (Applet)
  - Even tiny applications that run on credit-card like devices (via Java Card)

Java Technology: A Development Environment

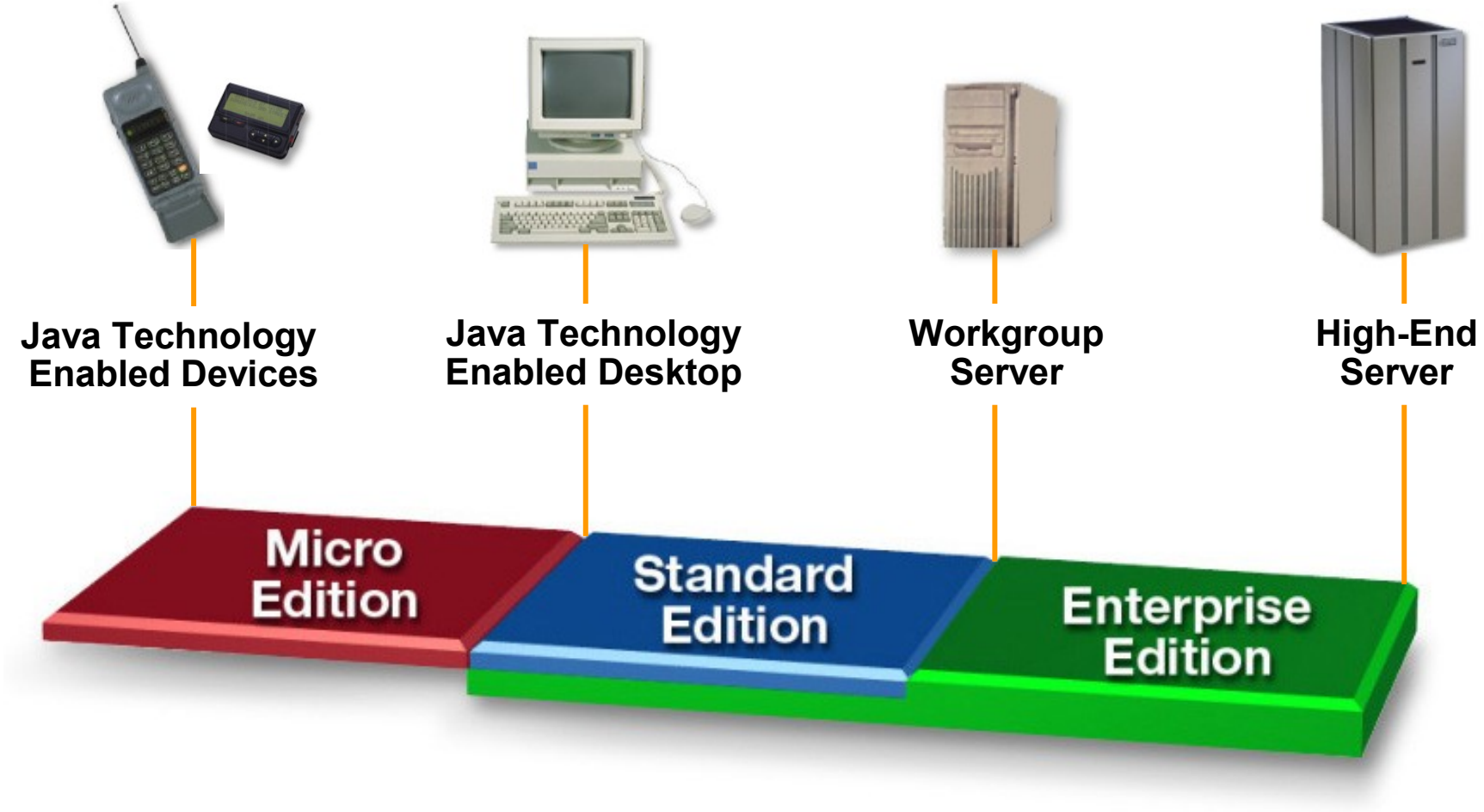
- As a development environment, Java technology provides you with a large suite of tools:
  - A compiler (javac)
  - An interpreter (java) – this is Java runtime
  - A documentation generator (javadoc)
  - A set of libraries (*.jar files)
- JDK (Java Development Kit) provides all of the above
- There are many Java IDE's that provide integrated development environments (JDK plus more)
  - Eclips, NetBeans, IntelliJ IDEA, etc

Java Technology:
A Runtime Environment

- Java applications runs over Java Runtime Environment (JRE)
- JRE is also called Java Virtual Machine (JVM)
- JRE examples:
  1. JRE over which a desktop application runs (java.exe)
  2. JRE built in a browser
  3. JRE that comes with server (Tomcat, GlassFish)
  4. JRE on mobile device platforms (built in a device)
- It is these JRE's of all these diverse set of platforms that provides the common runtime environment for Java programs
  - "Write once Run everywhere"

Types of Java Platforms

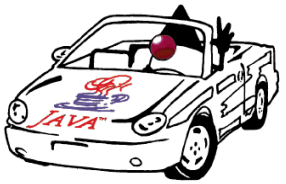
The Java™ Platform



The Java™ Platform

Java Micro Edition
(Java ME™)

Focus of this course



Optional Packages

Optional Packages

Java Enterprise Edition (Java EE)

Java Standard Edition (Java SE)

Personal Basis Profile

Personal Profile

Foundation Profile

MIDP

CDC

CLDC

Java Card APIs

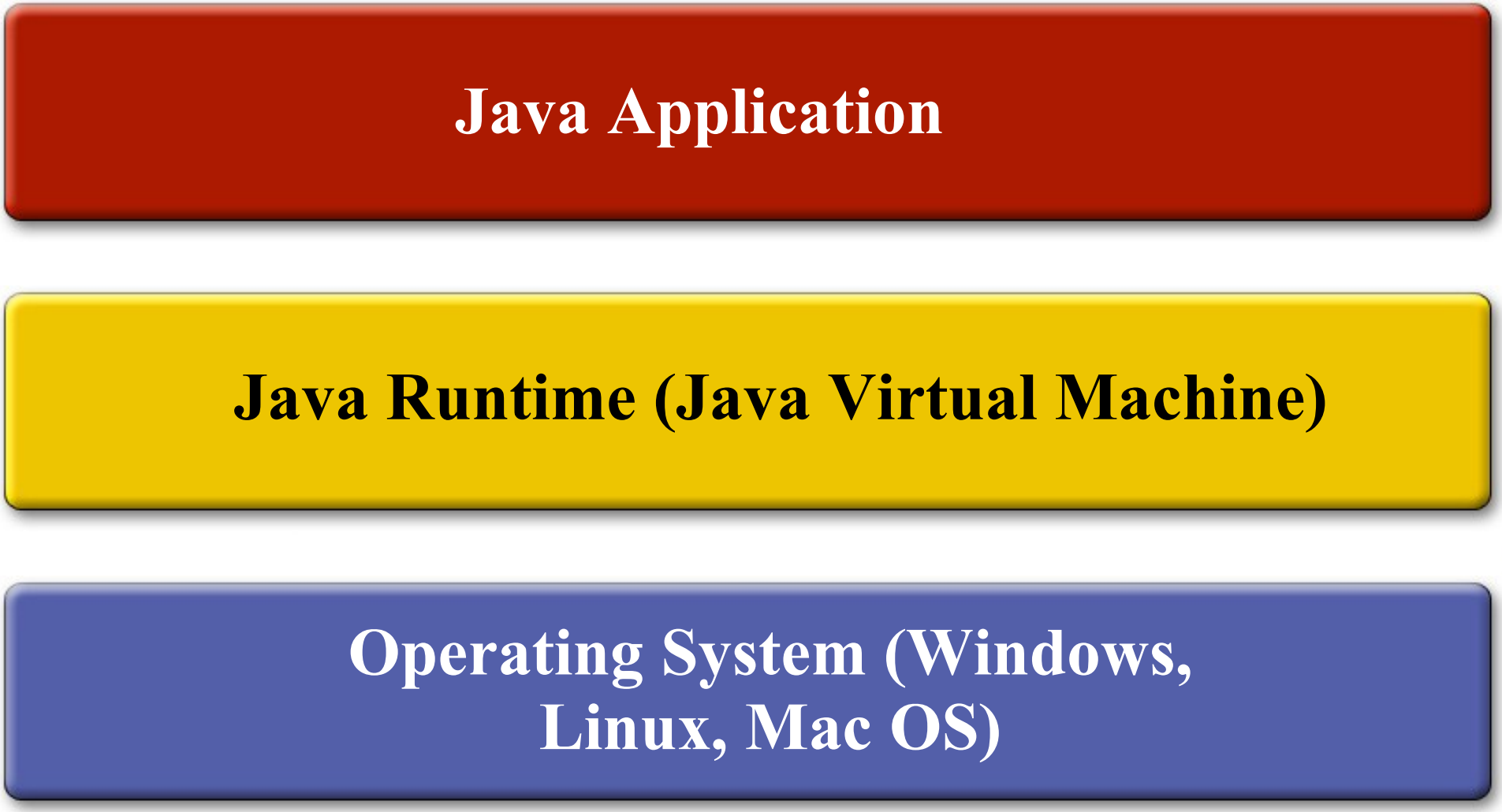
JVM (Java Runtime)

KVM

CardVM

Where Does Java Fit it?

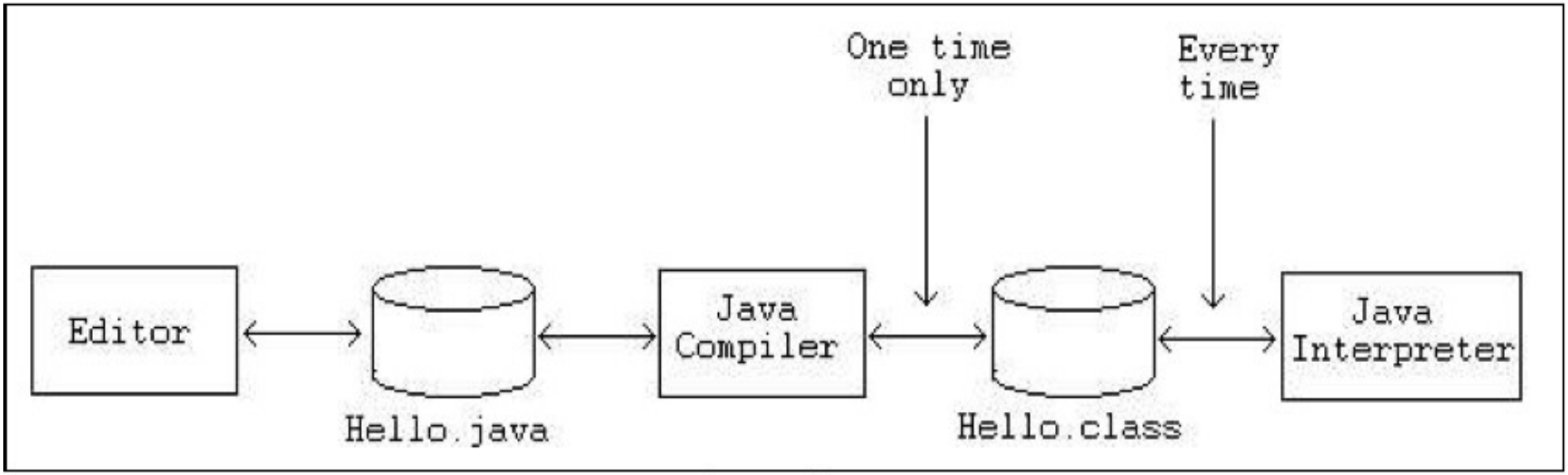
Java Stack


Java Application
Java Runtime (Java Virtual Machine)
Operating System (Windows,
Linux, Mac OS)

Java Program Development

Phases of a Java Program Development

- The following figure describes the process of compiling and executing a Java program



Phases of a Java Program

Task	*Tool to use*	*Output*
Write the program	Any text editor	File with .java extension
Compile the program	Java Compiler	File with .class extension (Java bytecodes)
Run the program	Java Interpreter	Program Output

Thank you!

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