

## End Users & Programmers

### ❖ End User's

- ◆ Utilize computer resources
- ◆ Utilize software applications

### ❖ Programmers

- ◆ **Analyze** a problem and create a solution algorithm
- ◆ **Code** the solution algorithm into a specific programming language
- ◆ **Verify** program works using known test data



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## Common Object Oriented Languages

### ❖ C++: 1985, Compiled language

- ◆ Added keywords to C so that could be used as **Object Oriented Programming** language
- ◆ **OOP** focus is objects (nouns) instead of tasks (verbs)

### ❖ Java: 1994, Pseudo-Compiled language

- ◆ Simplified **Object Oriented Programming** language
- ◆ Supports **Networking** and **Security**
- ◆ Supports **Multithreaded** for multitasking.
- ◆ Compiler generates **Bytecode** which runs on **JVM**
- ◆ Achieves **OS and CPU Independence**

### ❖ Microsoft C# : 1998, Uses .Net Framework

- ◆ Much closer to Java than C++
- ◆ For Windows only products

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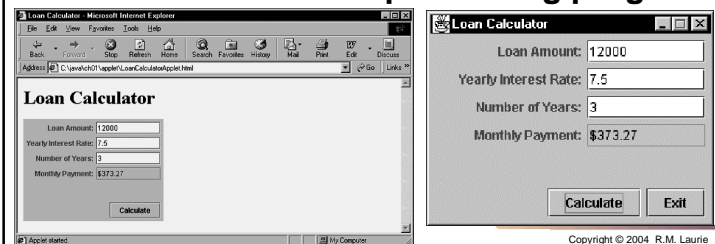
## Java Features

- ❖ **Simple** – Concise and cohesive features
- ❖ **Secure** – Creating Internet applications
- ❖ **Portable** – Any computer with JVM
- ❖ **Object Oriented** – Supports Philosophy
- ❖ **Robust** – Strictly typed and run-time checking
- ❖ **Multi-threaded** – Concurrent processing support
- ❖ **High performance** – Java bytecode is optimized for high speed execution
- ❖ **Distributed** – Designed with network and Internet support in mind
- ❖ **Dynamic** – Verifies and resolves access to objects at run time

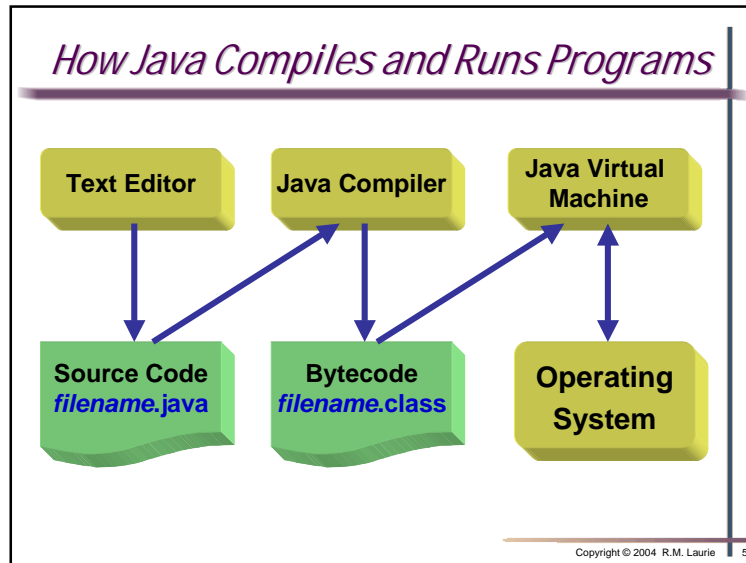
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## Applications, applets, and servlets

- ❖ **Application** = Program that runs under OS utilizing Java Virtual Machine
- ❖ **Applet** = Program that runs within a web browser after retrieved from the Internet
- ❖ **Servlet** = Server-side processing program



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### Java Programming Tools

- ❖ **TextPad** – Feature filled text editor
  - ◆ [www.textpad.com](http://www.textpad.com)
- ❖ **Software Development Kit**
  - ◆ **J2SE** – Java 2 Platform, Standard Edition
    - ◆ Textbook CD [j2sdk-1\\_4\\_0-win.exe](#) (36 MBytes)
    - ◆ Latest version available at [java.sun.com](http://java.sun.com)
    - ◆ In CS Lab at //superswap and burn to CD [j2sdk-1\\_4\\_2\\_04-windows-i586-p.exe](#) (50 MBytes)
- ❖ **Java Documentation**
  - ◆ **Java API (Application Programmers Interface)**
    - ◆ Textbook CD [j2sdk-1\\_4\\_0-doc.zip](#) (31 MBytes)
    - ◆ Latest version available at [java.sun.com](http://java.sun.com)
    - ◆ In CS Lab at //superswap and burn to CD [j2sdk-1\\_4\\_2\\_04-doc.zip](#) (34 MBytes)
    - ◆ Unzip to C:\j2sdk1.4.2\_04 folder and **doc** sub-folder created

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### The Subfolders of the SDK

Directory	Description
<b>bin</b>	The Java development tools and commands
<b>demo</b>	Sample applications and applets with source code
<b>include</b>	C header files for combining C code with Java code
<b>jre</b>	Root directory of Java Runtime Environment (JRE)
<b>lib</b>	Libraries of code required by the development tools
<b>docs</b>	The on-line documentation that you can download

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### First Java Program

1. `public class Example{`
2. `// Java program begins with a call to main().`
3. `public static void main(String args[]){`
4. `System.out.println("Hello, Java Drives the Web.\nGoodbye\n");`
5. `}`
6. `}`

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