Java Fundamentals, Part 1

John Sonmez

http://simpleprogrammer.com

John.Sonmez@gmail.com

Course Overview

- **Basic introduction to Java**
  - Beginning programmer
    - OR
  - Just new to Java
- **2 part course**
- **Covers mostly the language some class libraries**
- **Java is HUGE!**

Course Overview

- **Topics covered**
  - Introduction to Java
  - Variables and Operators
  - Classes
  - Control Statements
  - Inheritance and Composition
  - Generic

- **2nd Part will cover slightly more advanced topics**

Introduction to Java

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Outline

- Java
- The JVM
- Hello World
- Eclipse
- IntelliJ
- Packages
- Java Class Libraries

All About Java

- **What is Java?**
    - Programming language based off of C and C++
    - Designed to be written once and run anywhere
    - Runs on a virtual machine
    - Very similar to C#
    - Object Oriented
    - Statically Typed
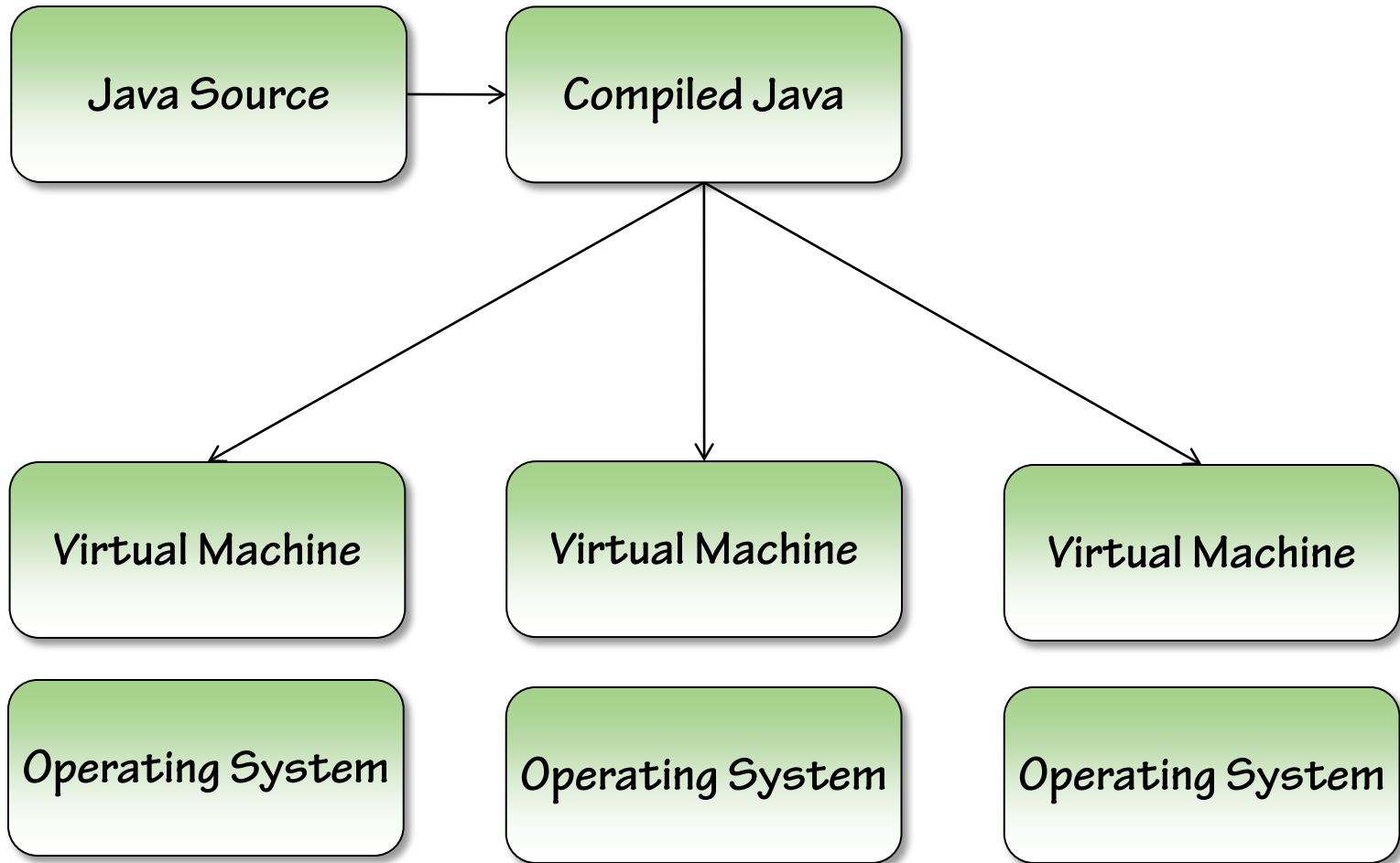- **It is a platform**

History

- **Developed by James Gosling at Sun Microsystems**
- **Released in 1995**
- **Many releases since then**
  - JDK 1.0 (January 23, 1996)
  - JDK 1.1 (February 19, 1997)
  - J2SE 1.2 (December 8, 1998)
  - J2SE 1.3 (May 8, 2000)
  - J2SE 1.4 (February 6, 2002)
  - J2SE 5.0 (September 30, 2004) - *Big language changes*
  - Java SE 6 (December 11, 2006)
  - Java SE 7 (July 28, 2011)
- **Oracle acquired Sun in 2010**

What is a Virtual Machine?

Java Source → Compiled Java

Compiled Java →
- Virtual Machine
  - Operating System
- Virtual Machine
  - Operating System
- Virtual Machine
  - Operating System

About the JVM

- **Abstraction layer between operating system and programming language / environment**
- **Runs Java Bytecode**
  - Assembly language for JVM
  - More than just Java
- **Garbage collection**
- **Safety**

Java Class Libraries

- I/O
- Networking
- Math
- Collections
- Regular Expressions
- Logging
- Graphics and UI

- Text Formatting
- XML
- Remote Method Invocation
- Security
- Databases
- Reflection
- More…

Summary

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- Java Class Libraries

- **Java JDK**
  - http://www.oracle.com/technetwork/java/javase/downloads/index-jsp-138363.html#javasejdk
- **Eclipse**
  - http://www.eclipse.org/downloads/
- **IntelliJ**
  - http://www.jetbrains.com/idea/