

COP-2210

Computer Programming I

Instructor: Dr. Antonio Hernandez

Text: Big Java: Early Objects, Interactive Edition, 6th Edition

Getting Started

1. Introduction

Introduction

- **Program:** a step-by-step collection of instructions for a computer
- **Programming:** process to create a program
- **Programmers/software developers/software engineers:** creators
- **Integrated Development Environment (IDE):** tool to create programs
- **Programming language:** computer language whose syntax and semantics is to be used to write a program
- **Java:** programming language

Getting Started

2. Characteristics of Java

What is Java?


- High-level language
- Object-oriented
- Data and operations are packaged into a single unit called an object
- Basic syntax derived from C, C++, and Smalltalk
- Designed by a team from Sun Microsystems led by James Gosling in the early 1990's

What is Java?

... and one of the main languages in use today!!

Types of Java Programs

Java Language is used to create programs of different nature:

- Applications 
- Applets
- Servlets
- Enterprise Applications

Getting Started

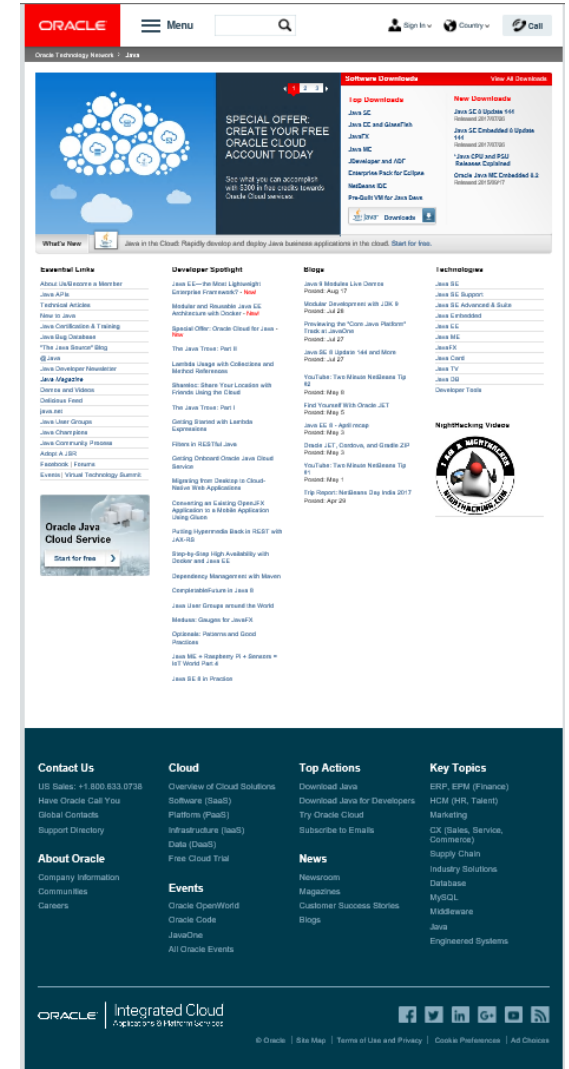
3. Resources

Main Java Site: Accessing It

Oracle site:

<http://www.oracle.com/technetwork/java/index.html>

(java.sun.com is still functional)



Java Technologies

There are many tools associated to Java program development:



Technologies

Java SE

Java SE Support

Java SE Advanced & Suite

Java Embedded

Java EE

Java ME

JavaFX

Java Card

Java TV

Java DB

Developer Tools

Main Java Site: SE Resources

For Java SE resources:

The screenshot shows the Oracle Java website. At the top, there's a navigation bar with the Oracle logo, a menu icon, a search bar, and links for Sign In, Country, and Call. Below the navigation bar, there's a banner for a special offer: "CREATE YOUR FREE ORACLE CLOUD ACCOUNT TODAY". To the right of the banner, there's a "Software Downloads" section with "Top Downloads" and "New Downloads" lists. Below the banner, there's a "What's New" section with a link to "Java in the Cloud". At the bottom, there's a "Technologies" section with a list of links. A red arrow points to the "Technologies" link in the bottom right corner.

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Software Downloads

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Top Downloads

- Java SE
- Java EE and GlassFish
- JavaFX
- Java ME
- JDeveloper and ADF
- Enterprise Pack for Eclipse
- NetBeans IDE
- Pre-Built VM for Java Devs

New Downloads

- Java SE 8 Update 144
Released 2017/07/26
- Java SE Embedded 8 Update 144
Released 2017/07/26
- *Java CPU and PSU Releases Explained
- Oracle Java ME Embedded 8.2
Released 2015/09/17

What's New

Java in the Cloud: Rapidly develop and deploy Java business applications in the cloud. Start for free.

Essential Links

- About Us/Become a Member
- Java APIs
- Technical Articles
- New to Java
- Java Certification & Training
- Java Bug Database
- "The Java Source" Blog
- @Java
- Java Developer Newsletter
- Java Magazine
- Demos and Videos
- Delicious Feed
- java.net
- Java User Groups
- Java Champions
- Java Community Process
- Adopt A JSR

Developer Spotlight

- Java EE—the Most Lightweight Enterprise Framework? - **New!**
- Modular and Reusable Java EE Architecture with Docker - **New!**
- Special Offer: Oracle Cloud for Java - **New**
- The Java Trove: Part II
- Lambda Usage with Collections and Method References
- Shareloc: Share Your Location with Friends Using the Cloud
- The Java Trove: Part I
- Getting Started with Lambda Expressions
- Filters in RESTful Java

Blogs

- Java 9 Modules Live Demos
Posted: Aug 17
- Modular Development with JDK 9
Posted: Jul 28
- Previewing the "Core Java Platform" Track at JavaOne
Posted: Jul 27
- Java SE 8 Update 144 and More
Posted: Jul 27
- YouTube: Two Minute NetBeans Tip #2
Posted: May 8
- Find Yourself With Oracle JET
Posted: May 5
- Java EE 8 - April recap
Posted: May 3
- Oracle JET, Cordova, and Gradle ZIP
Posted: May 3

Technologies

- Java SE
- Java SE Support
- Java SE Advanced & Suite
- Java Embedded
- Java EE
- Java ME
- JavaFX
- Java Card
- Java TV
- Java DB
- Developer Tools

NightHacking Videos

Java SE

Main Java Site: To Download Java and NetBeans bundle

1) <https://www.oracle.com/technetwork/java/javase/downloads/jdk-netbeans-jsp-3413139-esa.html>

2) Accept

3) Download install file
that matches your system

4) Run install file

Oracle Technology Network / Java / Java SE / Downloads

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- [NetBeans Release Notes](#)

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- [Java SE 发行说明](#)
- [NetBeans 发行说明](#)

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Java SDKs and Tools

- [Java SE](#)
- [Java EE and Glassfish](#)
- [Java ME](#)
- [Java Card](#)
- [NetBeans IDE](#)
- [Java Mission Control](#)

Java Resources

- [Java APIs](#)
- [Technical Articles](#)
- [Demos and Videos](#)
- [Forums](#)
- [Java Magazine](#)
- [Developer Training](#)
- [Tutorials](#)
- [Java.com](#)

Getting Started

4. Java SE

Types of Java Programs

Java Standard Edition (Java SE): tools needed to create Java programs

- The Java Software Development Kit (**SDK**): tools to develop Java programs
 - Java Compiler
 - Java Debugger
 - Other tools
- The Java Runtime Environment (**JRE**): tools to run Java programs
 - Java Virtual Machine
 - Java APIs and class libraries
 - Java Applet Viewer
 - Other tools

Java Versions

Table 1 Java Versions (since Version 1.0 in 1996)

Version	Year	Important New Features	Version	Year	Important New Features
1.1	1997	Inner classes	5	2004	Generic classes, enhanced for loop, auto-boxing, enumerations, annotations
1.2	1998	Swing, Collections framework	6	2006	Library improvements
1.3	2000	Performance enhancements	7	2011	Small language changes and library improvements
1.4	2002	Assertions, XML support	8	2014	Function expressions, streams, new date/time library

Creating Programs

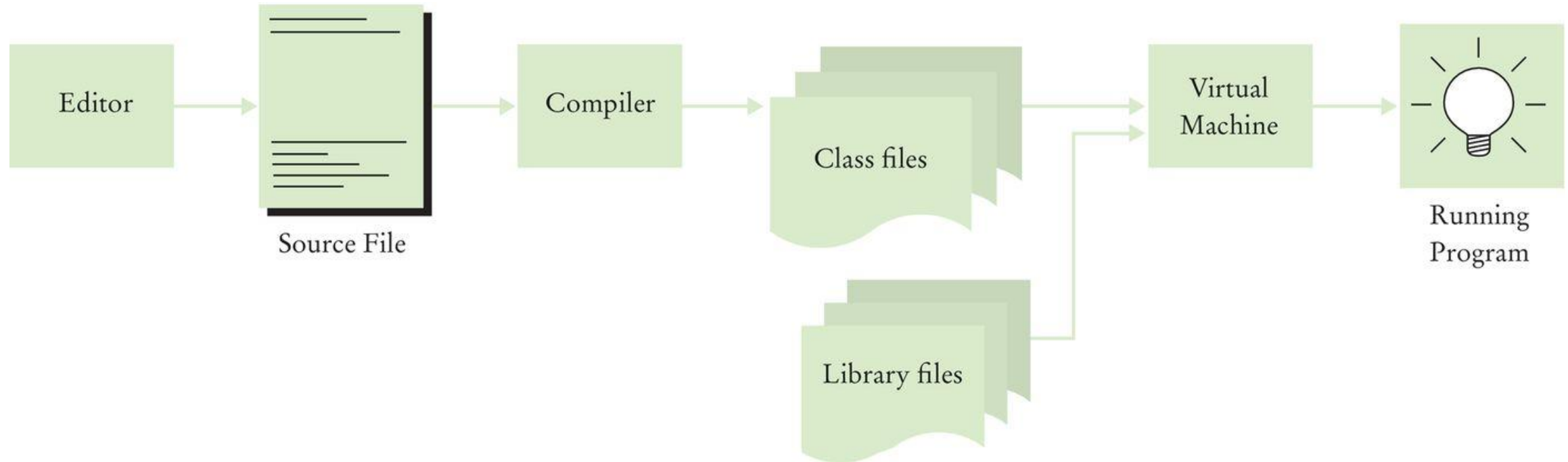
5. A First Program

A First Program

```
// My first program
```

```
public class MyFirstProgram  
{  
    public static void main ( String args[] )  
    {  
        System.out.println("I Love Java!!!");  
    }  
}
```

A First Program: From Edition to Execution



Fig_1-6 from the textbook