

**MASTER EN MODELIZACIÓN  
MATEMÁTICA, ESTADÍSTICA Y  
COMPUTACIÓN  
2011-2012**

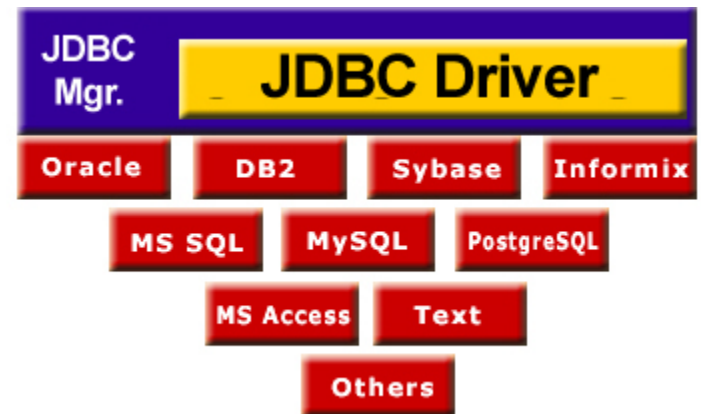
Curso: Bases de datos y programación  
orientada a objetos  
Parte POO



## \* Java y bases de datos

1. Java necesita un modelo de persistencia para tener éxito real.
2. Larga historia de Sun con bases de datos poco exitosas.
3. Dos bases de datos dominan: Oracle (comercial) y MySQL (libre).
4. Sun compra MySQL (enero 2008).
5. Oracle compra SUN (abril 2009)  
(ver dimensiones SUN /ORACLE).

## \* La importancia de las bases de datos en la economía mundial



# Top companies: Biggest **FORTUNE**

**NASDAQ**

BY MARKET VALUE		BY EQUITY		BY EMPLOYEES	
Rank	Company	500 Rank	3/27/2009 (\$ millions)		
1	Exxon Mobil	1	345,815.3		
2	Wal-Mart Stores	2	205,817.8		
3	Microsoft	35	161,185.9		
4	AT&T	8	153,226.0		
5	Johnson & Johnson	29	146,117.4		
6	Procter & Gamble	20	142,350.3		
7	Berkshire Hathaway	13	138,790.4		
8	Chevron	3	138,114.1		
9	International Business Machines	14	126,319.0		
10	General Electric	5	113,841.4		
11	Google	117	109,627.7		
12	Coca-Cola	73	104,391.1		
13	J.P. Morgan Chase & Co.	16	102,967.1		
14	Cisco Systems	57	98,937.4		
15	Apple	71	95,155.7		
16	Pfizer	46	94,703.6		
17	Oracle	113	89,751.3		
18	Verizon Communications	17	86,978.3		
19	Intel	61	85,766.0		
20	PepsiCo	52	81,534.1		
21	Hewlett-Packard	9	79,879.1		

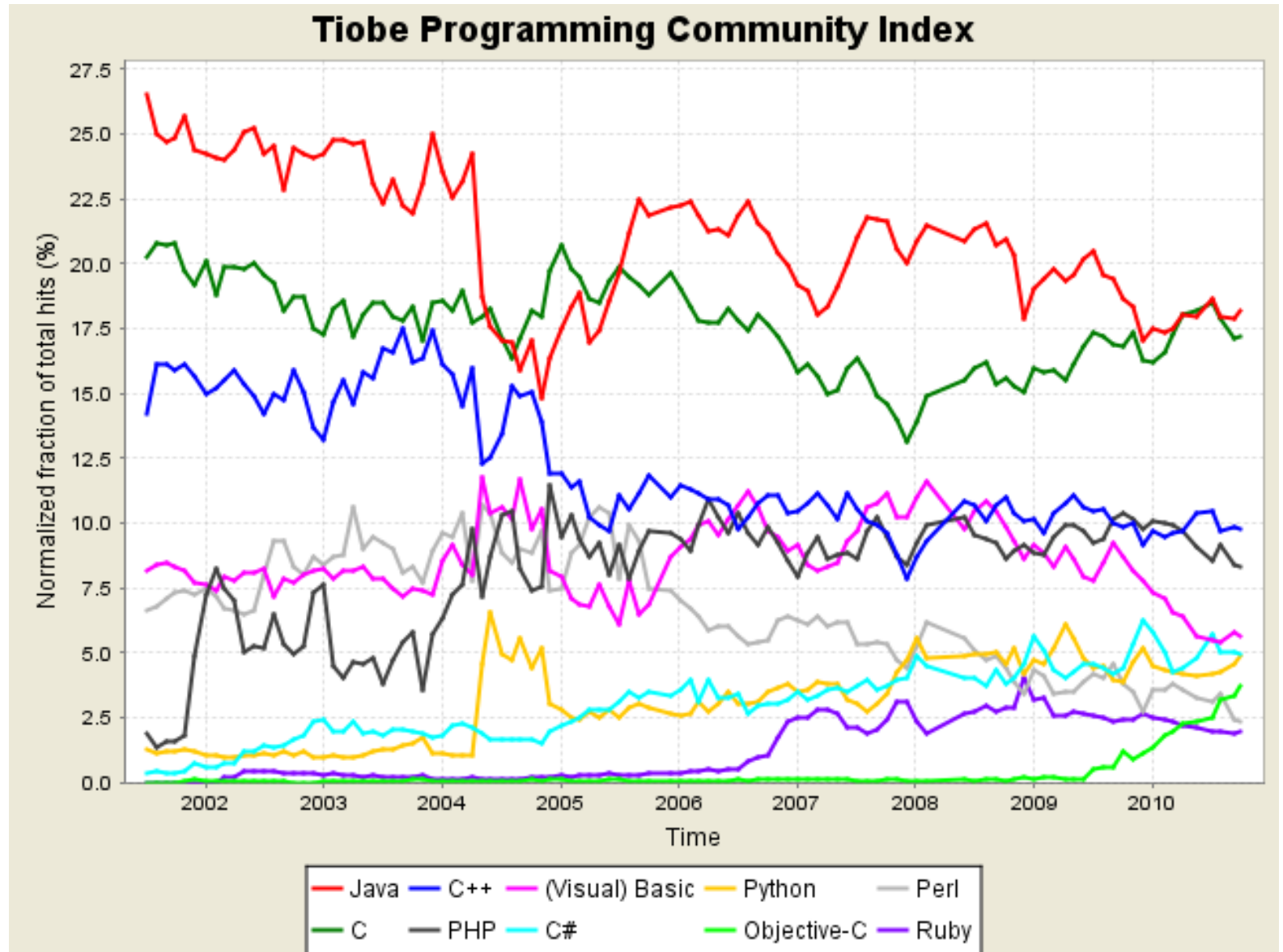


**ORACLE**

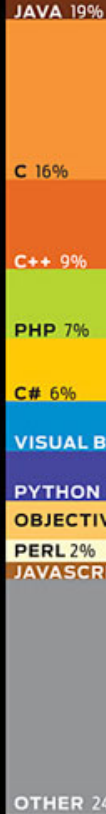
<b>Last Sale</b>	<b>\$ 8.10</b>	<b>\$ 21.42</b>
Change Net / %	0.13 ▼ 1.58%	0.10 ▲ 0.47%
Best Bid / Ask	N/A / N/A	N/A / N/A
1y Target Est:	\$ 9.50	\$ 25.50
Today's High / Low	\$ 8.27 / \$ 8.04	\$ 21.58 / \$ 21.11
Share Volume	9,430,093	22,995,164
50 Day Avg. Daily Volume	17,066,912	35,356,817
Previous Close	\$ 8.23	\$ 21.32
52 Wk High / Low	\$ 9.37 / \$ 2.595	\$ 22.95 / \$ 13.80
Shares Outstanding	748,075,000	5,015,099,000
<b>Market Value</b>	<b>\$ 6,059,407,500</b>	<b>\$ 107,423,420,580</b>
P/E Ratio	NE	14.77
Forward P/E (1yr)	NE	14.02
Earnings Per Share	\$ -0.59	\$ 1.45
Annualized Dividend	N/A	\$ 0.20
Ex Dividend Date	N/A	Oct. 9, 2009
Dividend Payment Date	N/A	Nov. 4, 2009
Current Yield	N/A	0.94 %
Beta	0.2	0.62
NASDAQ Official Open Price:	\$ 8.25	\$ 21.18
Date of NASDAQ Official Open Price:	Nov. 6, 2009	Nov. 6, 2009
NASDAQ Official Close Price:	\$ 8.10	\$ 21.42
Date of NASDAQ Official Close Price:	Nov. 6, 2009	Nov. 6, 2009

18:1

→ SUN ocupa el puesto 186



Custom applications for businesses



TIOBE Index

Unix operating system, device drivers



Most book titles  
*Powell's Books*

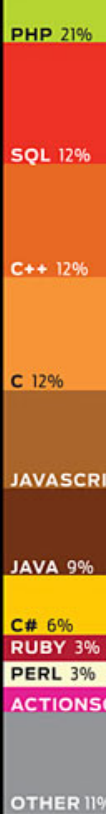
Systems software such as Microsoft Windows, and large video games



Most discussed  
*Internet Relay Chat*

Web development, database queries, academic computing

Web forms and other interactive Web pages

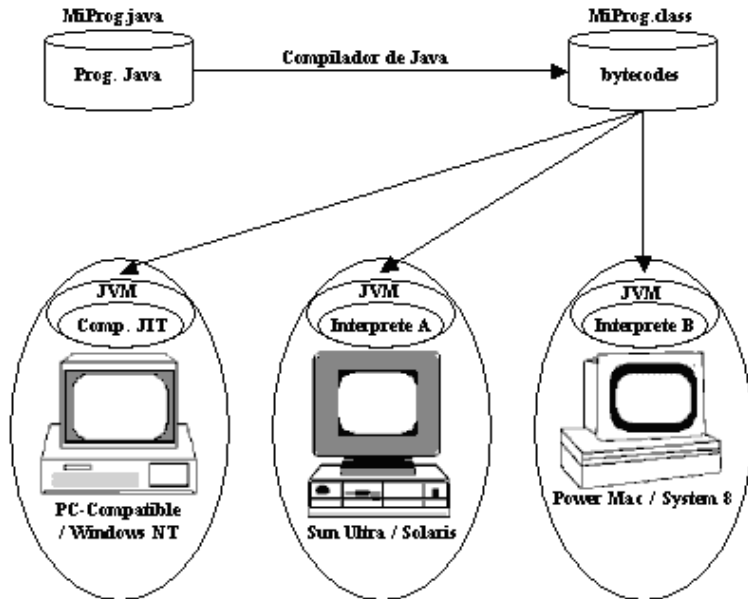


Most job posts  
*Craigslist*

Web apps: Gmail, Google Docs

# Antes de nada... la máquina virtual

## "Write Once, Run Anywhere"



### Proprietary/closed source implementations

- \* Hewlett-Packard's Java for HP-UX, OpenVMS, Tru64 and Reliant (Tandem) UNIX platforms
- \* J9 VM from IBM, for AIX, Linux, MVS, OS/400, Pocket PC, z/OS
- \* Mac OS Runtime for Java (MRJ) from Apple Inc.
- \* JRockit from BEA Systems acquired by Oracle Corporation
- \* Oracle JVM (also known as "JServer" and as "OJVM") from Oracle Corporation
- \* Microsoft Java Virtual Machine (MS JVM) from Microsoft
- \* PERC from Aonix is a real time Java for embedded
- \* JBed from Esmertec is an embedded Java with multimedia capabilities
- \* JBlend from Aplix is a Java ME implementation
- \* Excelsior JET (with AOT compiler)

### Lesser-known proprietary JVMs

- \* Blackdown Java (port of Sun JVM)
- \* CVM
- \* Gemstone Gemfire JVM - modified for J2EE features
- \* Golden Code Development (EComStation and OS/2 port of Java RTE and SDK for J2SE v1.4.1\_07)
- \* Tao Group's intent
- \* Novell, Inc.
- \* NSIcom CrE-ME
- \* HP ChaiVM and MicrochaiVM
- \* MicroJVM from Industrial Software Technology (running of wide range of microcontrollers 8/16/32-bit)

### Free/open source implementations

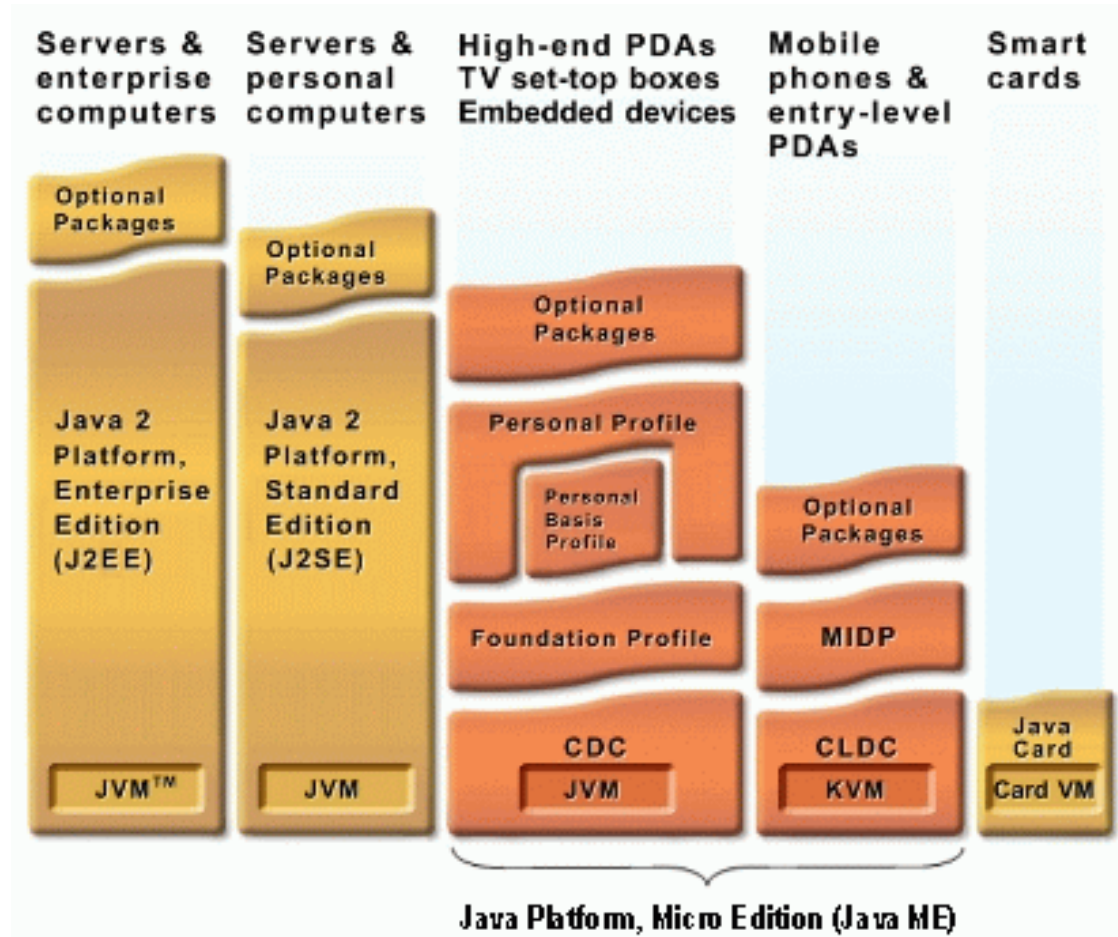
- |                  |             |                         |               |
|------------------|-------------|-------------------------|---------------|
| * AegisVM        | * JamVM     | * Juice                 | * Mika VM     |
| * Apache Harmony | * Jaos * JC | * Jupiter JVM           | * Mysaifu JVM |
| * CACAO          | * Jikes RVM | * JX (operating system) | * NanoVM      |
| * IcedTea        | * JNode     | * Kaffe                 | * SableVM     |
| * IKVM.NET       | * JOP       | * leJOS                 | * SuperWaba   |
| * Jamiga         |             |                         | * TinyVM      |
- 
- \* JESSICA (Java-Enabled Single-System-Image Computing Architecture)
  - \* Squawk virtual machine (Sun JVM for embedded system and small devices)
  - \* Sun Microsystems' HotSpot
  - \* VMkit of Low Level Virtual Machine
  - \* Wonka VM
  - \* Xam



- Una idea novedosa, pero no del todo: cierta similitud con los lenguajes con código intermedio.
- Sí es novedoso el enfoque de emulador de máquina.
- Ventajas:
  - se pueden incluir con facilidad técnicas que en un diseño hardware pueden resultar prohibitivas por su complejidad técnica,
  - la posibilidad de evolución es mucho más sencilla al no requerir cambios de hardware
  - permite utilizar las "plataformas" existentes sin implicar una ruptura con los sistemas actuales (existe la máquina real pero...).
- el diseño es público y la "implementación" es privada ([especificaciones técnicas que debe cumplir toda JVM.](#)).
- Distintos comportamientos en términos de velocidad y uso de memoria

Antes de nada...  
**JAVA ó JAVAS?**

...y no confundir con JavaScript





Antes de nada...

Objetos

Una MÍNIMA idea de lo que es un “objeto” hasta que nos detengamos en ello...

**Clase es a tipo como objeto es a variable**

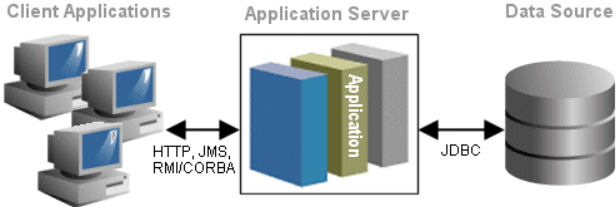
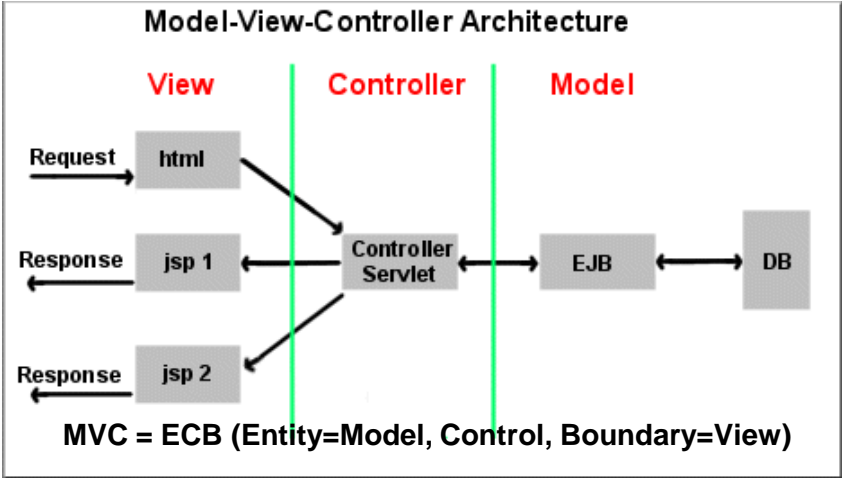
```
int var1;  
Persona pepe;
```

**var1** es una **variable** de **tipo entero**  
**pepe** es un **objeto** de **clase persona**

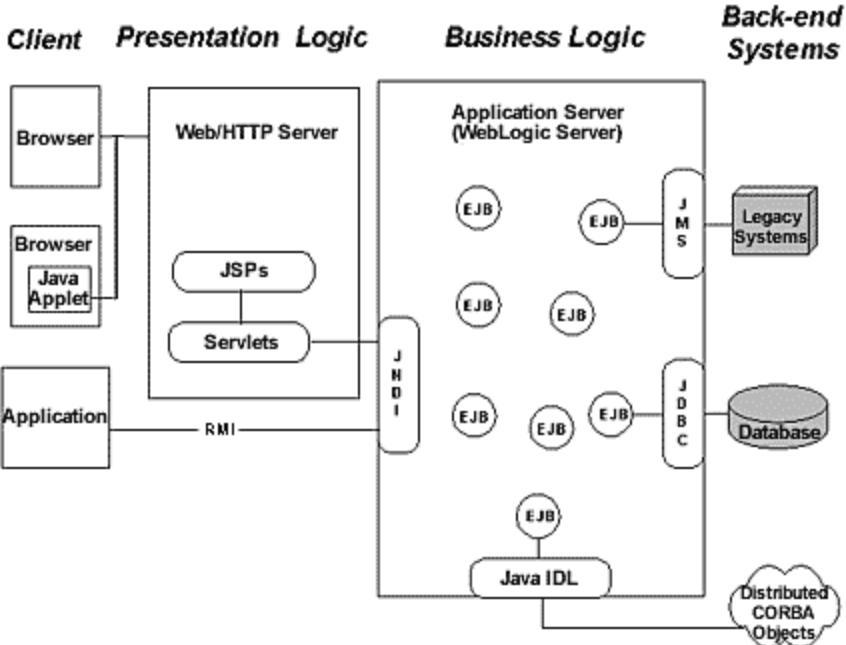
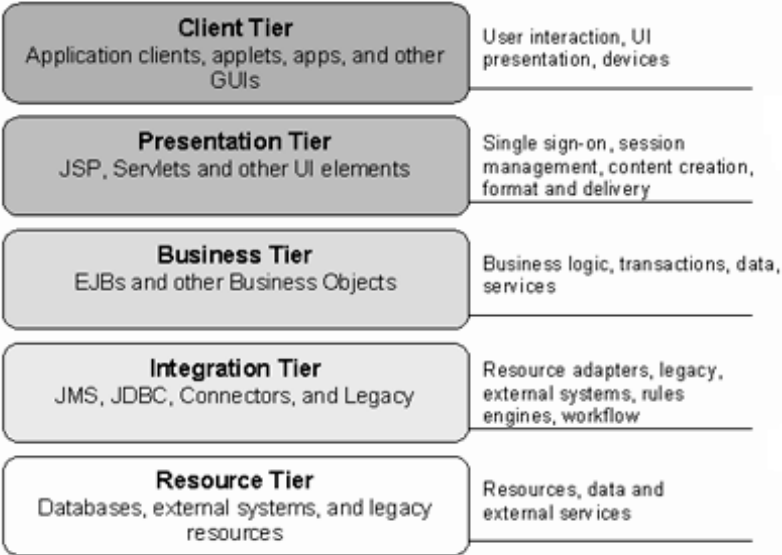
Una clase es un “tipo complejo”; una agrupación de variables (constantes), objetos, e incluso código que puede actuar sobre sus propios elementos u otros.

Un objeto es una cápsula (de memoria de ordenador) que tiene un “estado” (determinado por los valores de sus variables y el estado de sus objetos) así como un comportamiento (definido por el código que encierra).

# Estructura de una aplicación: capas (tiers)



## Five Tier Model for logical separation of concerns



# ¡ MUY IMPORTANTE !

<http://download.oracle.com/javase/tutorial/>

## Trails Covering the Basics

These trails are available in book form as *The Java Tutorial, Fourth Edition*. To buy this book, refer to the box to the right.

- [Getting Started](#) — An introduction to Java technology and lessons on installing Java development software and using it to create a simple program.
- [Learning the Java Language](#) — Lessons describing the essential concepts and features of the Java Programming Language.
- [Essential Java Classes](#) — Lessons on exceptions, basic input/output, concurrency, regular expressions, and the platform environment.
- [Collections](#) — Lessons on using and extending the Java Collections Framework.
- [Swing](#) — An introduction to the Swing GUI toolkit, with an overview of features and a visual catalog of components. See below for a more comprehensive tutorial on Swing.
- [Deployment](#) — How to package applications and applets using JAR files, and deploy them using Java Web Start and Java Plug-in.
- [Preparation for Java Programming Language Certification](#) — List of available training and tutorial resources.

## Creating Graphical User Interfaces

This trail is available in book form as *The JFC Swing Tutorial*. To buy this book, refer to the box to the right.

- [Creating a GUI with Swing](#) — A comprehensive introduction to GUI creation on the Java platform.

## Specialized Trails and Lessons

These trails and lessons are only available as web pages.

- [Custom Networking](#) — An introduction to the Java platform's powerful networking features.
- [The Extension Mechanism](#) — How to make custom APIs available to all applications running on the Java platform.
- [Full-Screen Exclusive Mode API](#) — How to write applications that more fully utilize the user's graphics hardware.
- [Generics](#) — An enhancement to the type system that supports operations on objects of various types while providing compile-time type safety. Note that this lesson is for advanced users. The [Java Language](#) trail contains a [Generics](#) lesson that is suitable for beginners.
- [Internationalization](#) — An introduction to designing software so that it can be easily be adapted (localized) to various languages and regions.
- [JavaBeans](#) — The Java platform's component technology.
- [JDBC Database Access](#) — Introduces an API for connectivity between the Java applications and a wide range of databases and a data sources.
- [JMX](#) — Java Management Extensions provides a standard way of managing resources such as applications, devices, and services.
- [JNDI](#) — Java Naming and Directory Interface enables accessing the Naming and Directory Service such as DNS and LDAP.
- [JAXP](#) — Introduces the Java API for XML Processing (JAXP) 1.4 technology.
- [RMI](#) — The Remote Method Invocation API allows an object to invoke methods of an object running on another Java Virtual Machine.
- [Reflection](#) — An API that represents ("reflects") the classes, interfaces, and objects in the current Java Virtual Machine.
- [Security](#) — Java platform features that help protect applications from malicious software.
- [Sound](#) — An API for playing sound data from applications.
- [2D Graphics](#) — How to display and print 2D graphics in applications.
- [Sockets Direct Protocol](#) — How to enable the Sockets Direct Protocol to take advantage of InfiniBand.

# También importante

“Bundle” con java (jdk) y netbeans en moodle (versiones windows y linux)  
+ documentación de java.

The screenshot shows the NetBeans website homepage for version 6.9.1. The page features a navigation menu with links for Home, IDE, Platform, Plugins, Docs & Support, Community, and Partners. The main content area highlights the NetBeans IDE 6.9.1, including a download button for the free IDE and links to learn more or get the DVD image. There are also sections for Featured News, Plugins, Tutorials, Partners, and a NetBeans Community Poll. The footer includes a shop, site map, about us, contact, and legal information, along with logos for various companion projects and sponsors like Oracle.

**NetBeans** Choose page language Search:  Custom Search

Home IDE Platform Plugins Docs & Support Community Partners

## NetBeans IDE 6.9.1

Runs on Windows, Linux, Mac OS X and Solaris. NetBeans IDE is open-source and free.

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[Configuring PHP, Apache, MySQL, and Xdebug for PHP development in Mac OS X](#)

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[ICEsoft Technologies](#)

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### NetBeans Community Poll

Share your opinion with the NetBeans Community about developer trends and topics.

For what scenario or task would you want

- Job performance reviews
- Answers for "Who Wants to be a Millionaire"
- Small talk (Not the programming language)
- Filling out tax papers
- Identifying the perfect DNA strand

[Polls Archive](#)

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