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# La evolución y el futuro de Java

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— Jaime Medina Delgado —  
@mitocode

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# James Gosling



# Características

Orientado a  
objetos

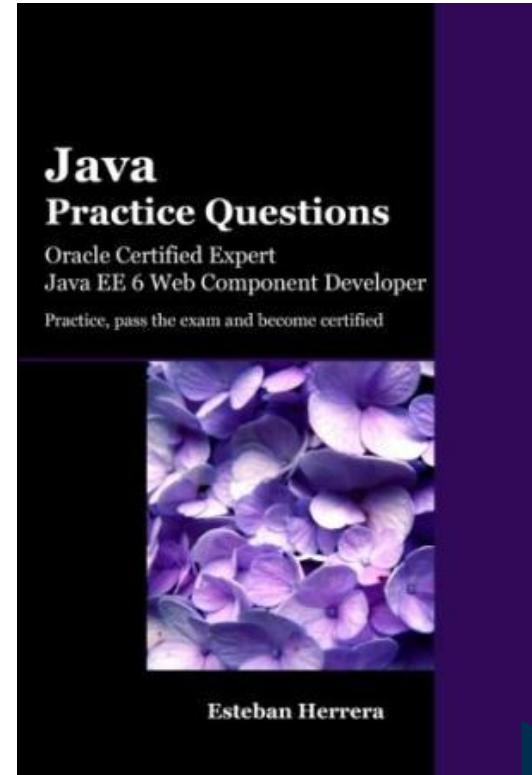
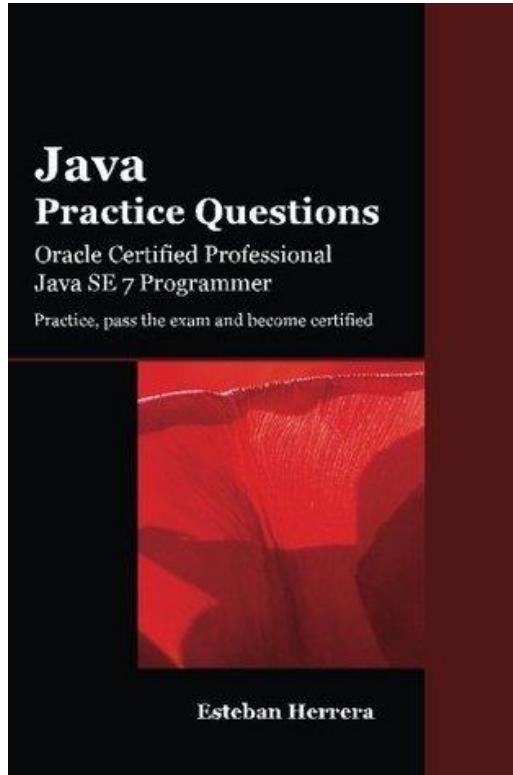
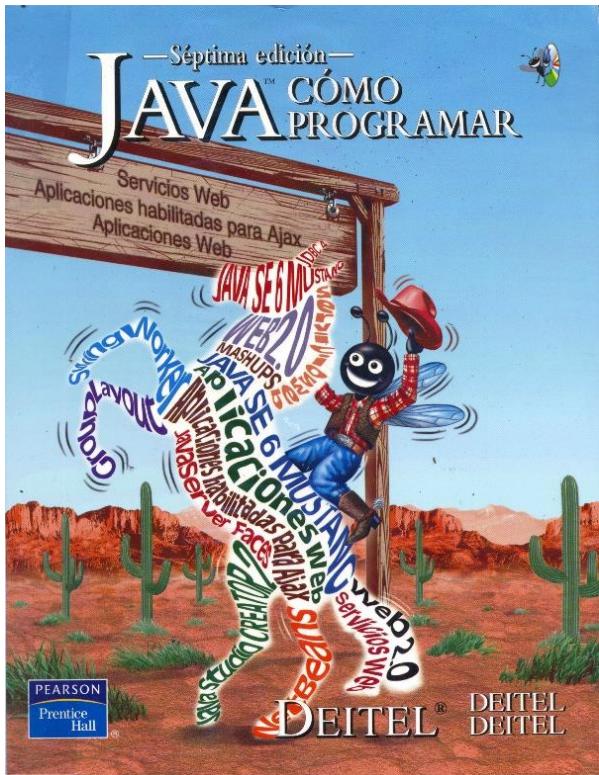
Imperativo\*

Multiplataforma

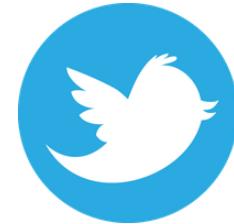
Recolector de  
basura

etc

# Literatura recomendada



# ¿Quienes usan Java?



NETFLIX

# Legendary Techie James Gosling Joins Amazon Web Services



**James Gosling**

about 5 months ago



It's time for a change. I'm leaving Boeing Defense (nee Liquid Robotics), with many fond memories. Today I start a new Adventure at Amazon Web Services.

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1.8K

186

325

# ¿Quienes más?

# ¿Quienes más?



# TIOBE Index for October 2017

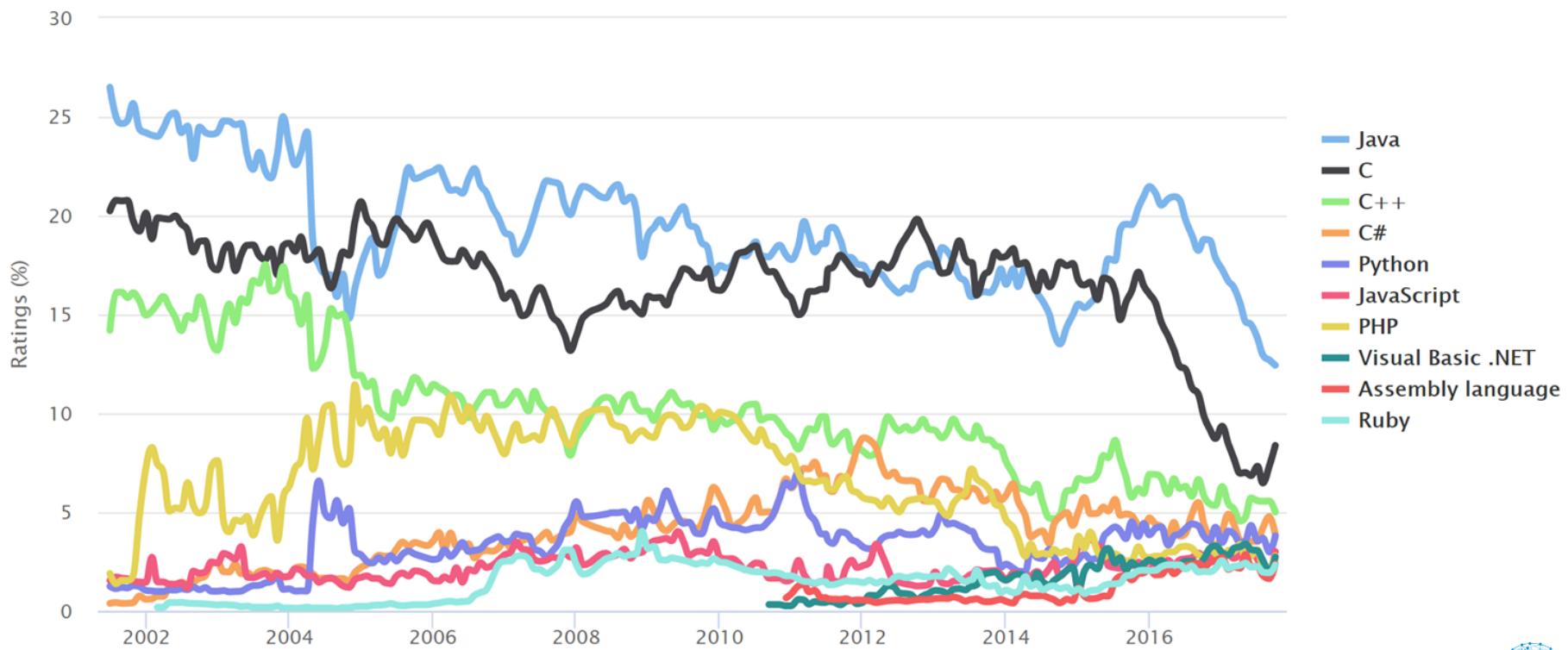
Oct 2017	Oct 2016	Change	Programming Language	Ratings	Change
1	1		Java	12.431%	-6.37%
2	2		C	8.374%	-1.46%
3	3		C++	5.007%	-0.79%
4	4		C#	3.858%	-0.51%
5	5		Python	3.803%	+0.03%
6	6		JavaScript	3.010%	+0.26%
7	7		PHP	2.790%	+0.05%
8	8		Visual Basic .NET	2.735%	+0.08%
9	11	▲	Assembly language	2.374%	+0.14%
10	13	▲	Ruby	2.324%	+0.32%

Fuente: <https://www.tiobe.com/tiobe-index/>



# TIOBE Programming Community Index

Source: [www.tiobe.com](http://www.tiobe.com)



Fuente: <https://www.tiobe.com/tiobe-index/>

# Very Long Term History

To see the bigger picture, please find below the positions of the top 10 programming languages of many years back. Please note that these are *average* positions for a period of 12 months.

Programming Language	2017	2012	2007	2002	1997	1992	1987
Java	1	2	1	1	15	-	-
C	2	1	2	2	1	1	1
C++	3	3	3	3	2	2	5
C#	4	5	7	12	-	-	-
Python	5	7	6	11	27	-	-
Visual Basic .NET	6	17	-	-	-	-	-
PHP	7	6	4	5	-	-	-
JavaScript	8	9	8	7	22	-	-
Perl	9	8	5	4	4	11	-
Assembly language	10	-	-	-	-	-	-
COBOL	25	27	17	9	3	9	9

Fuente: <https://www.tiobe.com/tiobe-index/>

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Programming Language	2017	2012	2007	2002	1997	1992	1987
Java	1	2	1	1	15	-	-
C	2	1	2	2	1	1	1
C++	3	3	3	3	2	2	5
C#	4	5	7	12	-	-	-
Python	5	7	6	11	27	-	-
Visual Basic .NET	6	17	-	-	-	-	-
PHP	7	6	4	5	-	-	-
JavaScript	8	9	8	7	22	-	-
Perl	9	8	5	4	4	11	-
Assembly language	10	-	-	-	-	-	-
COBOL	25	27	17	9	3	9	9

Fuente: <https://www.tiobe.com/tiobe-index/>

# Programming Language Hall of Fame

The hall of fame listing all "Programming Language of the Year" award winners is shown below. The award is given to the programming language that has the highest rise in ratings in a year.

Year	Winner
2016	Go
2015	Java
2014	JavaScript
2013	Transact-SQL
2012	Objective-C
2011	Objective-C
2010	Python
2009	Go
2008	C
2007	Python
2006	Ruby
2005	Java
2004	PHP
2003	C++

Fuente: <https://www.tiobe.com/tiobe-index/>

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2011	Objective-C
2010	Python
2009	Go
2008	C
2007	Python
2006	Ruby
2005	Java
2004	PHP
2003	C++

Fuente: <https://www.tiobe.com/tiobe-index/>

# Evolución de la JDK



JDK 1  
(01/1996)



# Evolución de la JDK



JDK 1  
(01/1996)      JDK 1.1  
(02/1997)



# Evolución de la JDK



JDK 1      JDK 1.1      J2SE 1.2  
(01/1996)    (02/1997)    (12/1998)



# Evolución de la JDK



JDK 1      JDK 1.1      J2SE 1.2      J2SE 1.3  
(01/1996)    (02/1997)    (12/1998)    (05/2000)



# Evolución de la JDK



JDK 1  
(01/1996)      JDK 1.1  
(02/1997)      J2SE 1.2  
(12/1998)      J2SE 1.3  
(05/2000)      J2SE 1.4  
(02/2002)



# Evolución de la JDK



JDK 1  
(01/1996)      JDK 1.1  
(02/1997)      J2SE 1.2  
(12/1998)      J2SE 1.3  
(05/2000)      J2SE 1.4  
(02/2002)      J2SE 1.5  
(09/2004)



# Evolución de la JDK



JDK 1 (01/1996)	JDK 1.1 (02/1997)	J2SE 1.2 (12/1998)	J2SE 1.3 (05/2000)	J2SE 1.4 (02/2002)	J2SE 1.5 (09/2004)	Java SE 1.6 (12/2006)
--------------------	----------------------	-----------------------	-----------------------	-----------------------	-----------------------	-----------------------------



# Evolución de la JDK



JDK 1 (01/1996)	JDK 1.1 (02/1997)	J2SE 1.2 (12/1998)	J2SE 1.3 (05/2000)	J2SE 1.4 (02/2002)	J2SE 1.5 (09/2004)	Java SE 1.6 (12/2006)
--------------------	----------------------	-----------------------	-----------------------	-----------------------	-----------------------	-----------------------------



# Evolución de la JDK

ORACLE®

Java SE

1.7

(07/2011)



# Evolución de la JDK



Java SE  
1.7  
(07/2011)

Java SE  
1.8  
(03/2014)



# Evolución de la JDK



Java SE      Java SE      Java SE  
1.7            1.8            1.9  
(07/2011)    (03/2014)    (09/2017)



# Evolución de la JDK



Java SE      Java SE      Java SE      Java SE  
1.7            1.8            1.9            1.10  
(07/2011)    (03/2014)    (09/2017)    (X/2020)



Java SE

Java ME

Java EE

Java FX

# Java SE

- Core
  - Clases
  - Hilos
  - Interfaces
  - Herencias
- Acceso a base de datos
  - JDBC API
- Interfaz gráfica de usuario (GUI)
  - AWT
  - SWING

# Java EE

- Construido sobre Java SE
- Provee API para desarrollo de aplicaciones escalables, seguras, confiables.
  - Servlets
  - JSP
  - JPA
  - JSF
  - EJB
  - JAX-WS
  - JAX-RS, JAAS

# Java ME

- Para dispositivos pequeños como teléfonos móviles



- Para dispositivos pequeños como teléfonos móviles



- Para dispositivos pequeños como teléfonos móviles





- Para dispositivos pequeños como teléfonos móviles



# Java FX

- Para construir Rich Internet Applications (RIAs)
- SWING con esteroides
- Anexada a la Java SE 8





## Java Community Process

<https://www.jcp.org/en/home/index>



# SPECS

Java Specification  
Request (JSR)





# Evolución de Java EE



JPE 1  
(05/1998)



# Evolución de Java EE



JPE 1      J2EE 1.2  
(05/1998)    (12/1999)



# Evolución de Java EE



JPE 1      J2EE 1.2      J2EE 1.3  
(05/1998)    (12/1999)    (09/2001)



# Evolución de Java EE



JPE 1      J2EE 1.2      J2EE 1.3      J2EE 1.4  
(05/1998)    (12/1999)    (09/2001)    (11/2003)



# Evolución de Java EE



JPE 1  
(05/1998)    J2EE 1.2  
(12/1999)    J2EE 1.3  
(09/2001)    J2EE 1.4  
(11/2003)    Java EE 5  
(05/2006)



# Evolución de Java EE



JPE 1  
(05/1998)    J2EE 1.2  
(12/1999)    J2EE 1.3  
(09/2001)    J2EE 1.4  
(11/2003)    Java EE 5  
(05/2006)    Java EE 6  
(12/2009)



# Evolución de Java EE



JPE 1 (05/1998)	J2EE 1.2 (12/1999)	J2EE 1.3 (09/2001)	J2EE 1.4 (11/2003)	Java EE 5 (05/2006)	Java EE 6 (12/2009)	Java EE 7 (06/2013)
--------------------	-----------------------	-----------------------	-----------------------	------------------------	------------------------	------------------------



# Evolución de Java EE

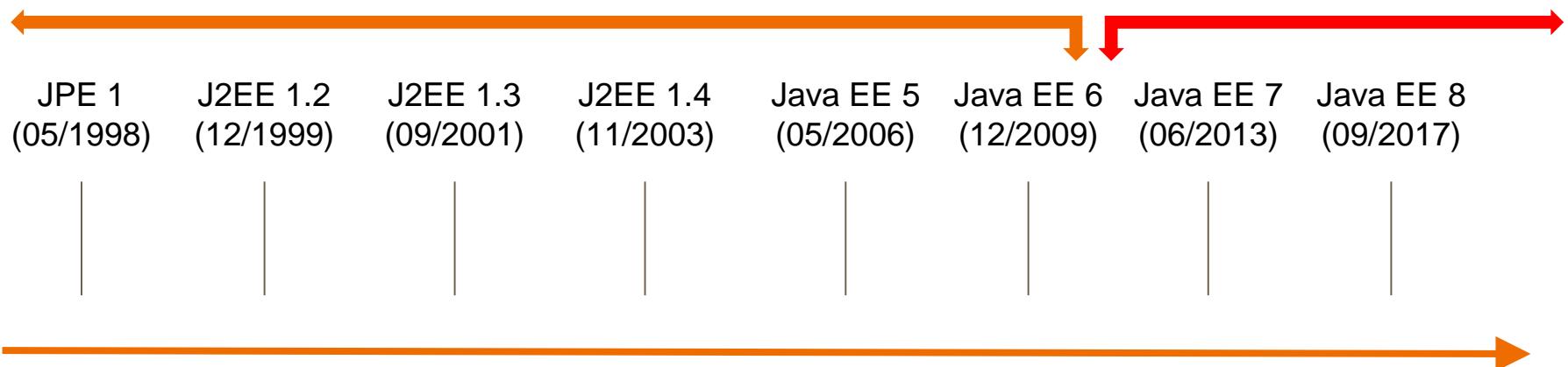
JPE 1 (05/1998)	J2EE 1.2 (12/1999)	J2EE 1.3 (09/2001)	J2EE 1.4 (11/2003)	Java EE 5 (05/2006)	Java EE 6 (12/2009)	Java EE 7 (06/2013)	Java EE 8 (09/2017)
--------------------	-----------------------	-----------------------	-----------------------	------------------------	------------------------	------------------------	------------------------



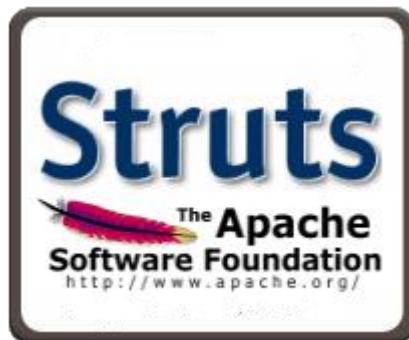
# Evolución de Java EE



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# Frameworks y Herramientas



vaadin }>



# Java Web Frameworks Index

The Java Web Frameworks index is an efficient popularity index for the main Java web frameworks available today. We combine public data from StackOverflow, LinkedIn, GitHub, and Google search, to compute the popularity rank of each framework.

Fuente: <https://zeroturnaround.com/webframeworksindex/>

Rank	Framework	Popularity
1	Spring mvc	29.39
2	JSF	15.19
3	Spring Boot	11.69
4	GWT	7.6
5	Grails	6.73
6	Struts	7.47
7	Play framework	4.16
8	Seam	1.88
9	jax-rs	3.1
10	Vaadin	2.45
11	Wicket	1.92
12	Tapestry	1.83
13	JHipster	0.73
14	Dropwizard	1.05
15	Sparkjava	0.76
16	Lagom	0.71
17	Vert.x	0.72
18	Ratpack	0.15
19	Rapidoid	0

## Data sources



Fuente: <https://zeroturnaround.com/webframeworksindex/>



# Entonces Java EE o\vs Frameworks



# Podemos usarlo juntos



# Podemos usarlo juntos



**Podemos usarlo juntos**

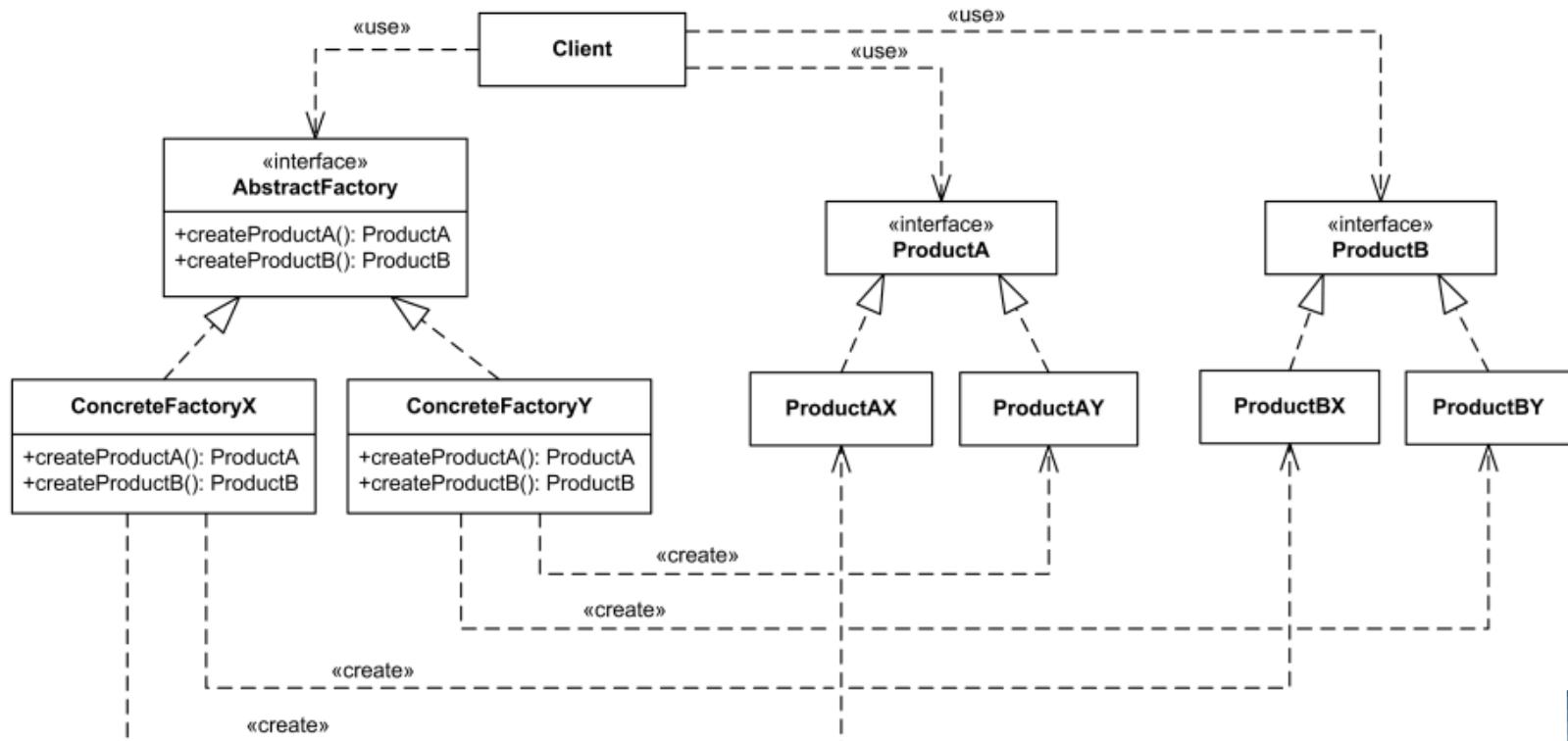
**JPA** +



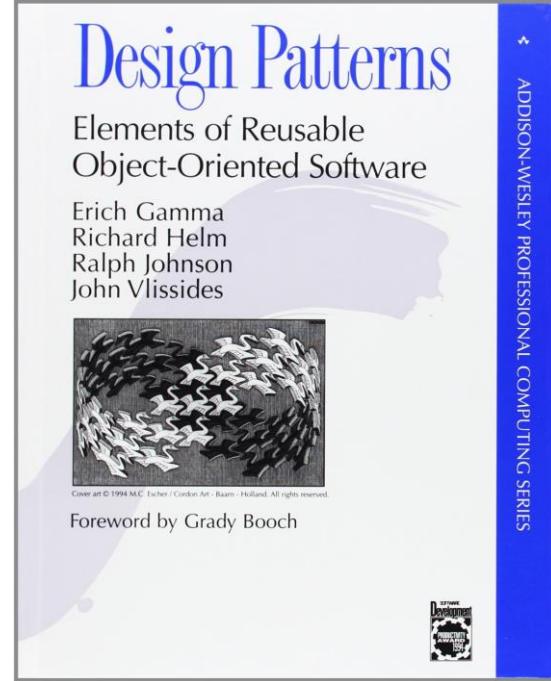
# Podemos usarlo juntos



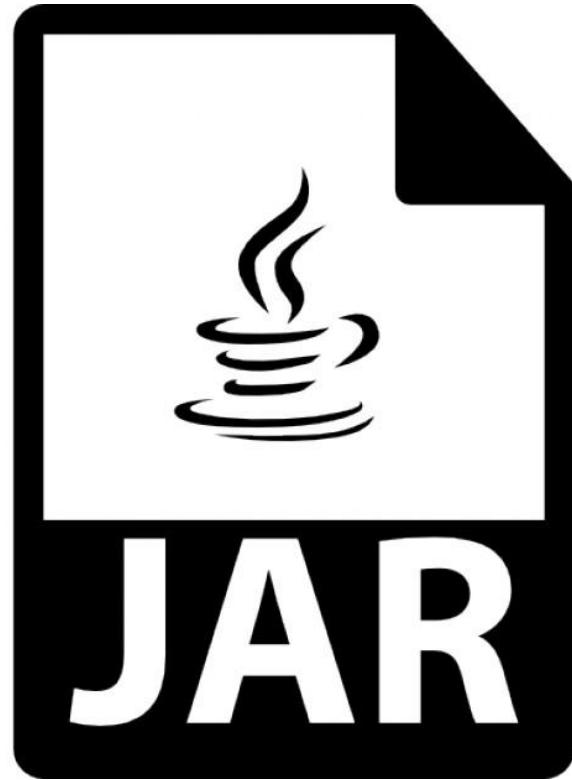
# Patrones de Diseño



# Patrones de diseño



<https://www.martinfowler.com/bliki/GangOfFour.html>





*maven*



Gradle



# ¿Qué piden las empresas para un Java Developer?



# ¿Qué piden las empresas para un Java Developer?

Java EE

# ¿Qué piden las empresas para un Java Developer?

Java EE

Frameworks

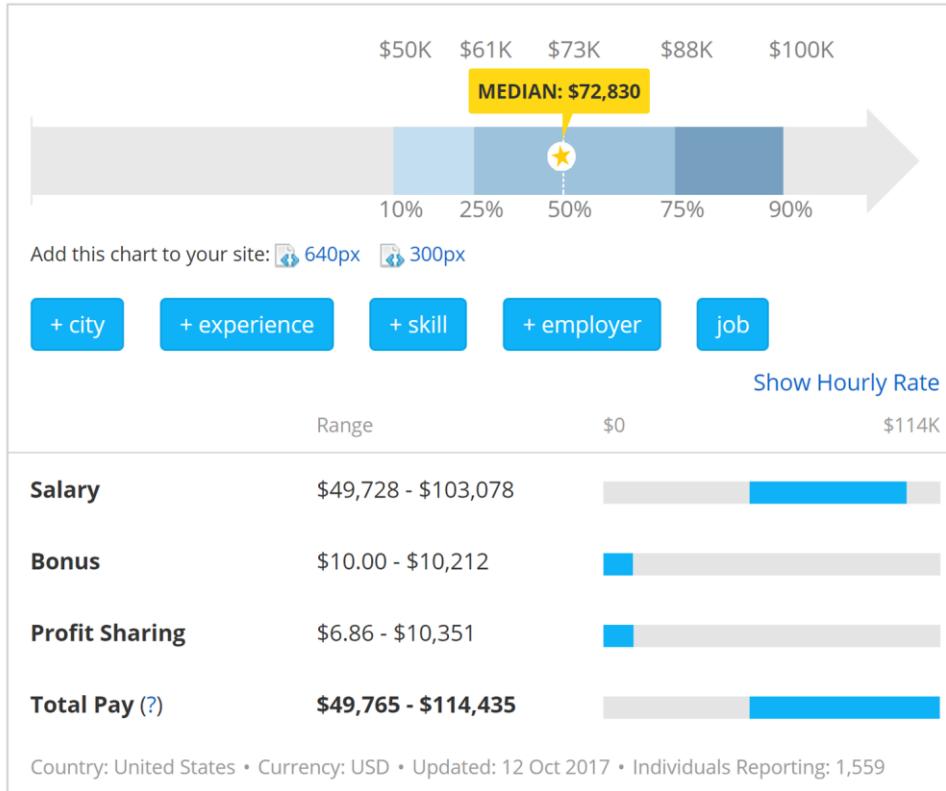
# ¿Qué piden las empresas para un Java Developer?

Java EE

Frameworks

Base de  
datos

# ¿Cuánto puede ganar un Java Developer?



Fuente: [https://www.payscale.com/research/US/Job=Java\\_Developer/Salary](https://www.payscale.com/research/US/Job=Java_Developer/Salary)

# ¿Y en Perú?



# ¿Y en Perú?



Junior : S/850 - S/2500  
S.Senior: S/2500 - S/4000  
Senior : S/4000 - S/6000  
Arquitecto: S/6000+

# Casos de éxito



Spotify®



NETFLIX

# JavaOne 2017 Keynote: Oracle

A man with a beard, wearing a grey t-shirt, stands on a stage holding a remote control. He is positioned on the left side of the frame. To his right is a large presentation slide with a teal and light blue geometric background. On the slide, the text "More than { 3 000 000 000 streams per day.  
4 000 000 requests per second." is displayed. At the bottom of the slide, a black bar contains the text "streams per day and we have more than 4 million requests". In the top right corner of the slide, there is a small circular icon with an 'i' inside.

More than { 3 000 000 000 streams per day.  
4 000 000 requests per second.

streams per day and we have more than 4 million requests

Fuente: <https://www.youtube.com/watch?v=Tf5rlIS6tkg>

# JavaOne 2017 Keynote: Oracle

A video still from a JavaOne 2017 keynote. On the left, a man with a beard, wearing a grey t-shirt, stands on stage. On the right, a slide titled "Microservices. Tons of them." is displayed. The slide includes a diagram illustrating the microservices architecture.

**Microservices.**  
Tons of them.

Java based, some 1200 in production. Uses open sourced Apollo framework to make it easy to build new services. One click from creation to deployed. Backend running in fully redundant multiple data centers around the world. Ownership distributed to autonomous teams, you run what you build.

known as a micro service architecture as we decided to start exploring Java

The diagram illustrates the microservices architecture with the following layers:

- Clients**: Represented by five small rectangles labeled "c".
- Perimeter**: Represented by a horizontal rectangle.
- Aggregation**: Represented by a large rectangle containing three smaller rectangles.
- Data**: Represented by three small rectangles at the bottom level.

Arrows show connections from clients to the perimeter, and from the perimeter to the aggregation layer. Within the aggregation layer, arrows show connections between the three data components.

Fuente: <https://www.youtube.com/watch?v=Tf5rlIS6tkg>

## Explorar

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 Nueva Lista

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 Buscar

DESCRIPCIÓN GENERAL

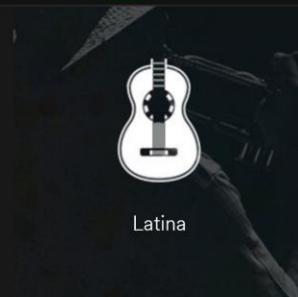
LISTAS DE ÉXITOS

GÉNEROS Y ESTADOS DE ÁNIMO

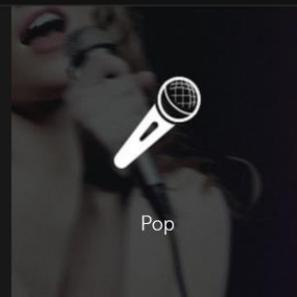
NOVEDADES

DESCUBRIR

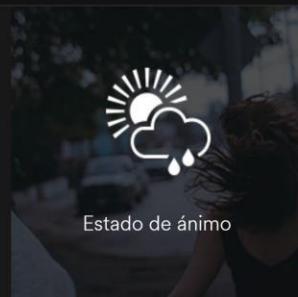
MÁS



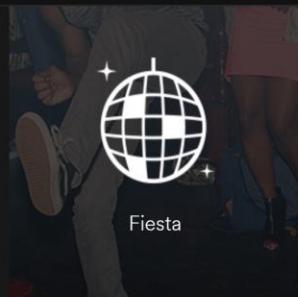
Latina



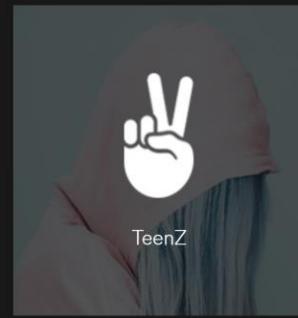
Pop



Estado de ánimo



Fiesta



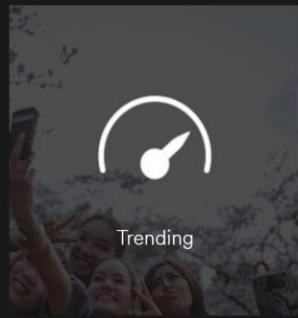
TeenZ



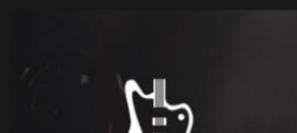
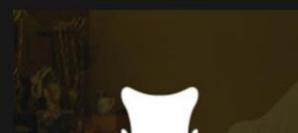
Concentración



Rock



Trending



Jaime Medina

## Actividad de los amigos

Rock in Rio

Very Very Very

I.O.I

Bubblegum K-Pop

ENCONTRAR AMIGOS

0:01



3:27

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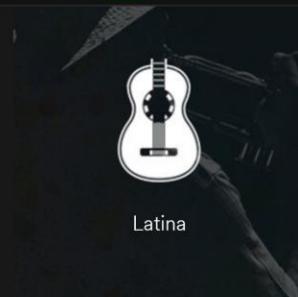
LISTAS DE ÉXITOS

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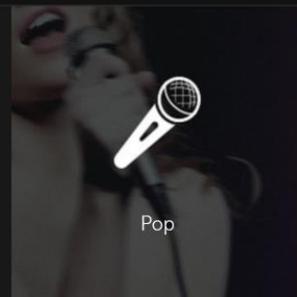
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DESCUBRIR

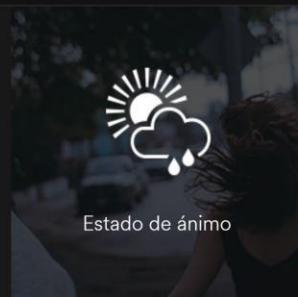
MÁS



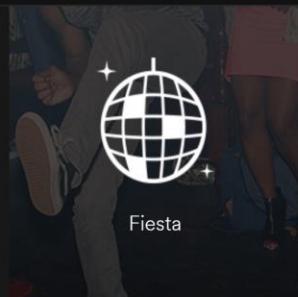
Latina



Pop



Estado de ánimo



Fiesta



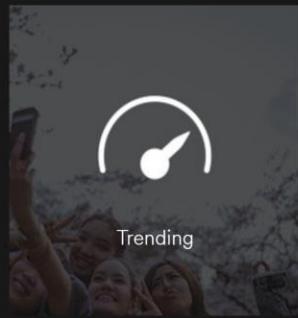
TeenZ



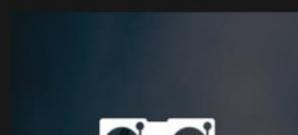
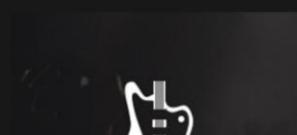
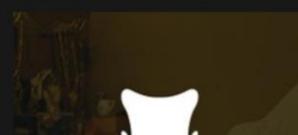
Concentración



Rock



Trending



Jaime Medina

## Actividad de los amigos

Rock in Rio

Very Very Very

I.O.I

Bubblegum K-Pop

ENCONTRAR AMIGOS

0:01



3:27

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DESCRIPCIÓN GENERAL LISTAS DE ÉXITOS GÉNEROS Y ESTADOS DE ÁNIMO NOVEDADES DESCUBRIR MÁS

Latina Pop Estado de ánimo Fiesta

TeenZ Concentración Rock Trending

JAY-Z DURDIN Jason Derulo Want to Want Me +

0:01 3:27

Jaime Medina

Actividad de los amigos

Rock in Rio  
Very Very Very  
I.O.I  
Bubblegum K-Pop

ENCONTRAR AMIGOS

The image shows the Spotify desktop application interface. A red box highlights the left sidebar containing navigation links such as 'Explorar', 'Radio', and various library and discovery sections. Another red box highlights the top center search bar and the main content area featuring a grid of cards for 'DESCRIPCIÓN GENERAL', 'ESTADOS DE ÁNIMO', and 'Trending' categories. The bottom section shows a playback controls bar with a song preview for 'Want to Want Me' by Jason Derulo.

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Latina Pop Estado de ánimo Fiesta

TeenZ Concentración Rock Trending

JAY-Z DURVOGUE Want to Want Me + Jason Derulo 0:01 3:27

Jaime Medina

Actividad de los amigos

Rock in Rio 2 d  
Very Very Very  
I.O.I  
Bubblegum K-Pop

ENCONTRAR AMIGOS

The image is a screenshot of the Spotify desktop application. It features a dark-themed interface with various sections and interactive elements. On the left, there's a vertical sidebar with a red border containing links for 'Explorar', 'Radio', and other library sections like 'Tu Daily Mix' and 'Archivos Locales'. The main content area has a red border around its top section, which includes a search bar with placeholder text 'Buscar'. Below the search bar are tabs for 'DESCRIPCIÓN GENERAL', 'LISTAS DE ÉXITOS', 'GÉNEROS Y ESTADOS DE ÁNIMO', 'NOVEDADES', 'DESCUBRIR', and 'MÁS'. Under 'DESCRIPCIÓN GENERAL', there are eight cards with icons and labels: 'Latina' (guitar), 'Pop' (microphone), 'Estado de ánimo' (sun and clouds), 'Fiesta' (globe), 'TeenZ' (hand peace sign), 'Concentración' (desk lamp), 'Rock' (amp), and 'Trending' (people at a concert). At the bottom, a red border highlights the playback controls, showing a track by 'JAY-Z DURVOGUE' titled 'Want to Want Me' by Jason Derulo, currently at 0:01 of 3:27. The right side of the screen shows a 'Actividad de los amigos' (Friends' Activity) panel with a post from 'Jaime Medina' about 'Rock in Rio' featuring 'Very Very Very' and 'I.O.I' with a 'Bubblegum K-Pop' link, timestamped '2 d'. A red box also surrounds the 'ENCONTRAR AMIGOS' (Find Friends) button in this panel.



Jaime Medina

Explorar

Radio

TU BIBLIOTECA

Tu Daily Mix

Escuchad. recient.

Canciones

Álbumes

Artistas

Emisoras

Archivos Locales

Podcasts

PLAYLISTS

My Shazam Tracks

Descubrimiento sema...

2010s Pop Explosion

This Is: Sia

Sucessos de Paula Fer...

Éxitos Chile

+ Nueva Lista



Want to Want Me +

Jason Derulo

0:01

3:27

 Buscar

DESCRIPCIÓN GENERAL

LISTAS DE ÉXITOS

GÉNEROS Y ESTADOS DE ÁNIMO

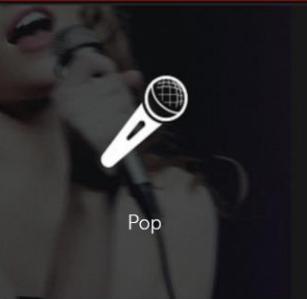
NOVEDADES

DESCUBRIR

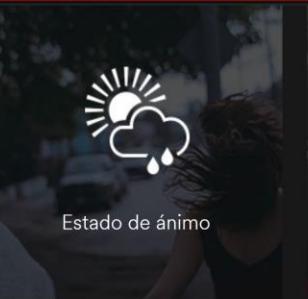
MÁS



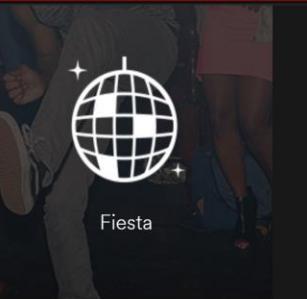
Latina



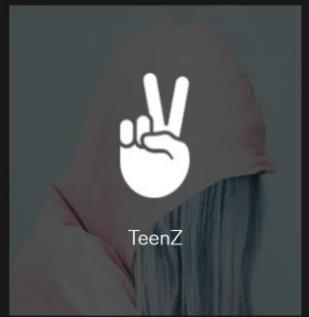
Pop



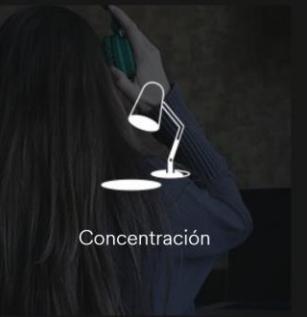
Estado de ánimo



Fiesta



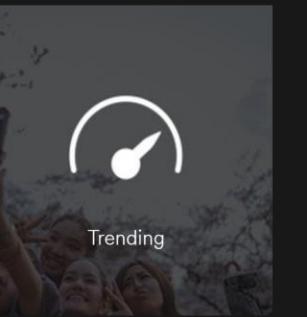
TeenZ



Concentración



Rock



Trending

## Actividad de los amigos

Rock in Rio

Very Very Very

I.O.I

Bubblegum K-Pop

ENCONTRAR AMIGOS

# JavaOne 2017 Keynote: Oracle



Fuente: <https://www.youtube.com/watch?v=Tf5rlIS6tkg>

# Java EE moves to Eclipse

Posted on: September 12, 2017



Rich Sharples, Senior Director of Product Management, Red Hat



If you've been following the [news](#) about Oracle's new direction for Java EE, you'll know that one of the motivations for changing the governance and process is to move Java EE forward in a more agile and responsive manner.

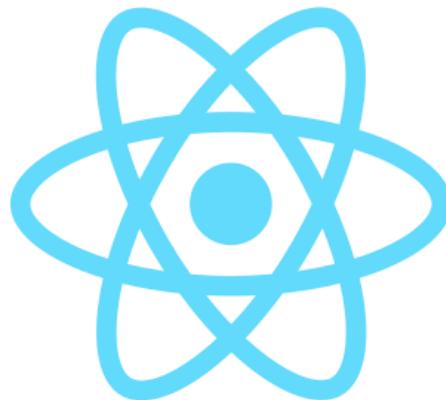
So it's a good sign that within a month of initially [announcing their intentions](#), Oracle (with help from IBM and Red Hat) have chosen the [Eclipse Foundation](#) as the future home for Java EE. You can read [Oracle's announcement here](#).

This is a pretty important, first, tangible step in moving Enterprise Java forward and it's encouraging to see Oracle moving ahead at a rapid pace. Java EE is an established technology that many organizations depend on for their business critical applications. Java EE is also a large body of

work with Technology Specifications, Reference Implementations and TCKs from multiple vendors and open source projects so there's still a significant amount of work yet to happen – but this is a great start.

Fuente: <http://middlewareblog.redhat.com/2017/09/12/java-ee-moves-to-eclipse/>

# EL BOOM JAVASCRIPT



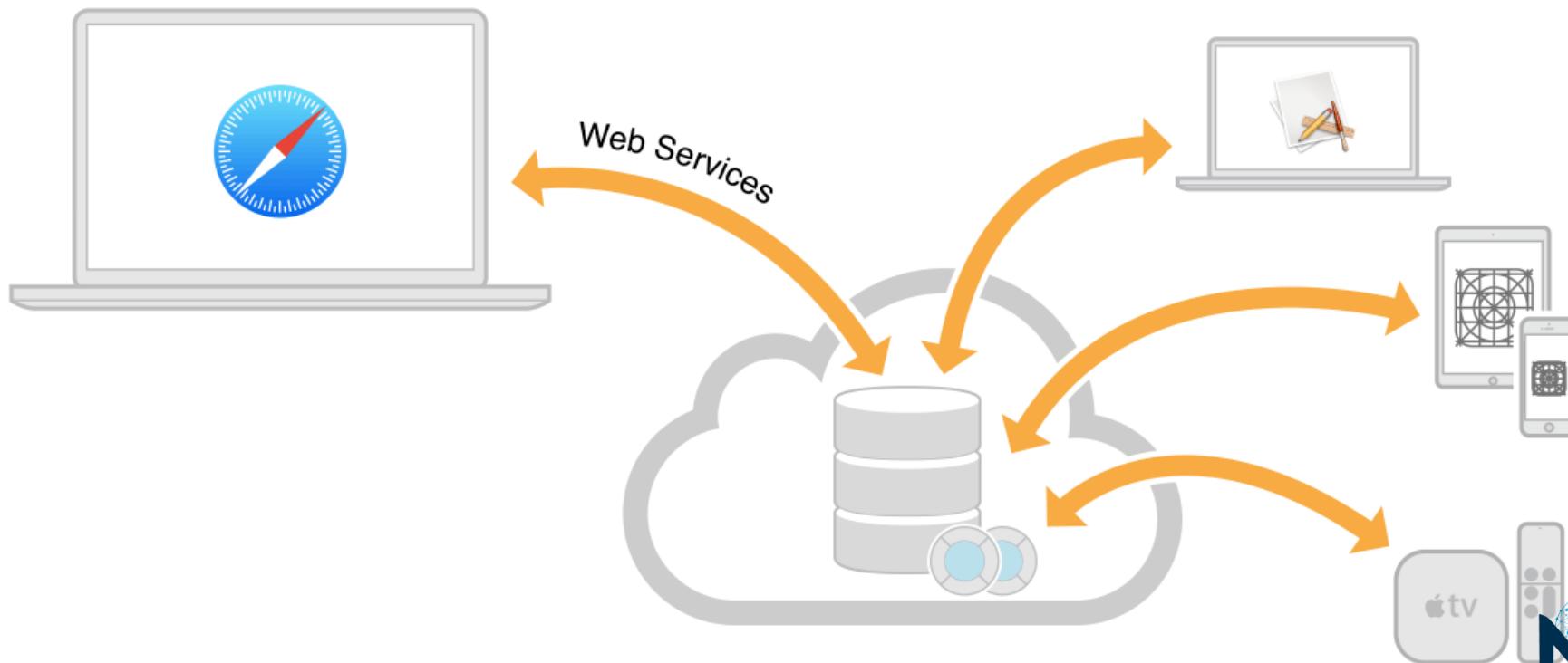
# EL BOOM JAVASCRIPT



JavaScript Developers



# ¡Servicios Web!



# LA TENDENCIA

HTML



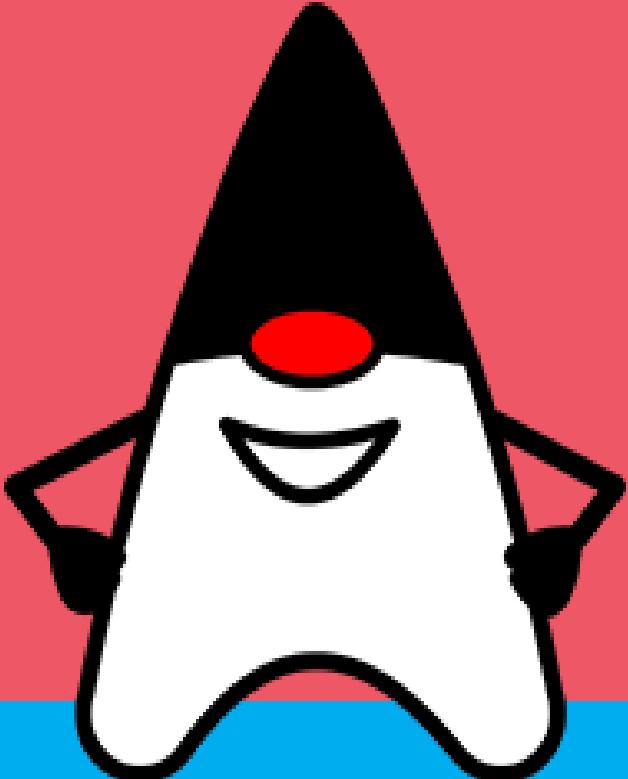
CSS



CoffeeScript

Front-End  
development





# Ready for Java 9?

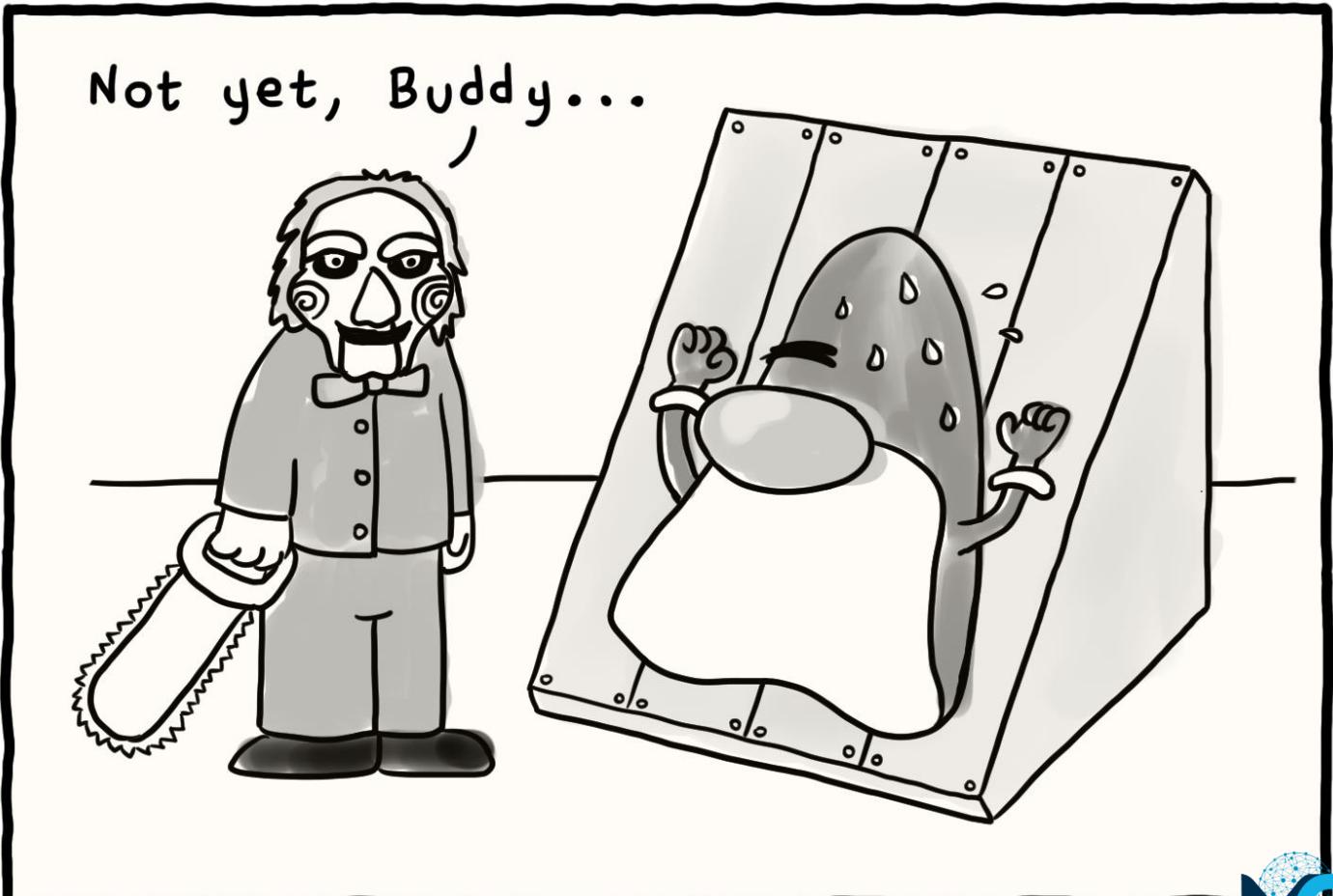
# JShell (REPL)

```
mvala[~/sw/jdk9/bin] λ ./jshell
| Welcome to JShell -- Version 9-internal
| For an introduction type: /help intro
```

```
jshell> System.out.println("Hello World!")
Hello World!
```

```
jshell> █
```

# Jigsaw



Daniel Stori {turnoff.us}

# JDK 9

- Mejoras en las colecciones
- Modularidad (Jigsaw)
- JShell
- Stream API mejoras
- etc.

# ¿Donde alojo mis apps?



heroku



DigitalOcean



# VPS



# CONCLUSIONES



Trabajo  
Futuro

# CONCLUSIONES



Trabajo  
Futuro



Nube

• Trabajo futuro  
• Nube

# CONCLUSIONES



Trabajo  
Futuro



Nube



Proyectos a  
largo plazo

# CONCLUSIONES



Trabajo  
Futuro



Nube



Proyectos a  
largo plazo



Frameworks

# ¡Quiero aprender más!

MitoCode  
23.290 suscriptores

SUSCRITO 23 K

INICIO VÍDEOS LISTAS DE REPRODUCCIÓN CANALES COMENTARIOS MÁS INFORMACIÓN

Listas de reproducción creadas ORDENAR POR

 NodeJS	 MitoCalls	 Spring Framework	 ¡Aprende y Ayuda!	 Python 3 Básico	 Java 8
Actualizado ayer					

 Java 7 SE Básico	 Java 7 SE Avanzado	 Consejos y más!	 Primefaces Avanzado	 Ruby	 JavaServer Faces

 Primefaces	 JSF + Primefaces Ejemplo Ventas MvSQL + JDBC	 Spring Framework MVC	 Android SDK

# ¡Quiero aprender más!



MitoCode Network

## Ya diste el primer paso

Expande tus conocimientos

¡ QUIERO APRENDER !

347 .widget-area-sidebar  
348 font-size: 13px;  
Cursos Premium Cursos Gratis Blog Ayuda Social Más

350  
351  
352 /\* =Menu  
353 -----  
354  
355 #access {  
356 display: inline-block;  
357 height: 69px;  
358 float: right;  
359 margin: 11px 28px 0px 0px;  
360 background-color: #000;  
361 width: 69px;  
362 }  
363  
364 #access ul {  
365 font-size: 13px;  
366 list-style: none;  
367 margin: 0 0 0 -0.8125em;  
368 padding-left: 0;  
369 z-index: 99999;  
370 text-align: right;

371 li {  
372 display: inline-block;  
373 text-align: left;

# System.exit(0);

