

# Frikiminutos 2016 (enero–abril), serie B

## ETSIT – URJC

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Este documento (o uno muy similar) está disponible en  
<http://cursosweb.github.io>

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# ¿Te está traicionando tu navegador?

# Panopticlick

The screenshot shows the Panopticlick homepage. At the top left is the EFF logo with the text "A RESEARCH PROJECT OF THE ELECTRONIC FRONTIER FOUNDATION". To its right is a "DONATE" button. The main title "PANOPTICCLICK" is prominently displayed in large, bold, black letters. Below it is the subtitle "Is your browser safe against tracking?". A large orange section contains text about browser tracking and a "TEST ME" button. Another section below discusses tracking analysis and privacy protection.

When you visit a website, online trackers and the site itself may be able to identify you – even if you've installed software to protect yourself. It's possible to configure your browser to thwart tracking, but many people don't know how.

Panopticlick will analyze how well your browser and add-ons protect you against online tracking techniques. We'll also see if your system is uniquely configured—and thus identifiable—even if you are using privacy-protective software.

**TEST ME**

<https://panopticclick.eff.org/>

- Comprobación de técnicas de tracking
- Basta con cargar el sitio con tu navegador
- Análisis de varias técnicas de tracking
- Especialmente interesante: fingerprinting

# Resultado del análisis

Test	Result
Is your browser blocking tracking ads?	✗ no
Is your browser blocking invisible trackers?	✗ no
Does your browser unblock 3rd parties that promise to honor <b>Do Not Track</b> ?	✗ no
Does your browser protect from <b>fingerprinting</b> ?	✗ your browser has a nearly-unique fingerprint

Show full results for fingerprinting

Note: because tracking techniques are complex, subtle, and constantly evolving, Panopticlick does not measure all forms of tracking and protection.

[Prueba con y sin la navegación privada de tu navegador]

Metodología: <https://panopticclick.eff.org/about>

## Fingerprinting

Your browser fingerprint appears to be unique among the 6,374,146 tested so far.

Currently, we estimate that your browser has a fingerprint that conveys at least 22.6 bits of identifying information.

The measurements we used to obtain this result are listed below. You can [read more about our methodology, statistical results, and some defenses against fingerprinting here](#).

Browser Characteristic	bits of identifying information	one in x browsers have this value	value
Limited supercookie test	0.83	1.77	DOM localStorage: Yes, DOM sessionStorage: Yes, IE userData: No
Hash of canvas fingerprint	N/A	N/A	fa773662a8ede348034cb3d3976388ff
Screen Size and Color Depth	12.12	4448.11	1067x600x24
Browser Plugin Details	21.6	3187073.0	Plugin 0: Gnome Shell Integration; This plugin provides integration with Gnome Shell for live extension enabling and disabling. It can be used only by extensions.gnome.org; libgnome-shell-browser-plugin.so; (Gnome Shell Integration Dummy Content-Type; application/x-gnome-shell-integration; ). Plugin 1: Google Talk Plugin Video Renderer; Version: 5.41.0.0; librtpoid.so; (Google Talk Plugin Video Renderer; application/o1d; o1d). Plugin 2: Google Talk Plugin; Version: 5.41.0.0; librppgoogletalk.so; (Google Talk Plugin; application/googletalk; googletalk). Plugin 3: Shockwave Flash; Shockwave Flash 11.2 r202; libflashplayer.so; (Shockwave Flash; application/x-shockwave-flash; swf) (FutureSplash Player; application/futuresplash; spl). Plugin 4: bjninstallplugin; npbjninstallplugin_2.125.24.5.so; (Blue Jeans Installation Plugin; application/x-bjninstallplugin; version=2.125.24.5; ) (Blue Jeans Installation Plugin; application/x-bjninstallplugin; ). Plugin 5: bjinplugin; npbjnplugin_2.125.24.5.so; (Blue Jeans Video Plugin; application/x-bjinplugin; version=2.125.24.5; ) (Blue Jeans Video Support Plugin; application/x-bjnpluginslave; version=2.125.24.5; ) (Blue Jeans Diagnostic Plugin;

# Trabajo top

# ¿Qué es un trabajo *bueno*?

- Un trabajo que te permita ser creativo
- Un trabajo donde trabajes con últimas tecnologías
- Un trabajo donde puedas ascender sin dejar de ser ingeniero
- Un trabajo donde te paguen bien (y otros beneficios)

Hay muchas empresas donde buscan este tipo de perfil: Google, Apple, Facebook, Microsoft, Yahoo!, Amazon...

# Salarios en las compañías top

Rank	Company Name	Sector	Average Salary
1	Twitter, Inc.	Social Networking	\$120,111.11
2	Apple, Inc.	Computers, Peripherals	\$113,319.21
3	LinkedIn, Corp	Social Networking	\$111,720.00
4	Cisco Systems	Computer Networking	\$107,998.32
5	Qualcomm	Wireless	\$107,632.31
6	IBM	Information Technology	\$106,508.00
7	Facebook, Inc.	Social Networking	\$105,167.62
8	Google, Inc.	Internet, Computers	\$104,594.27
9	Hewlett Packard	Computers	\$104,379.00
10	Oracle	Computers	\$104,058.03

<http://img59.imageshack.us/img59/802/toppaytech.png>

# ¿Qué te piden en estos trabajos?

- Estructuras de datos
- Algoritmia
- Experiencia en programación
- Redes de ordenadores
- Sistemas operativos

# Más lecturas

- Hay varios libros sobre este tema, algunos en la biblioteca:
  - Cracking the coding interview: 150 programming interview questions and solutions
  - The Google Interview
  - Elements of Programming Interviews: The Insiders' Guide
  - Top 10 coding interview problems asked in Google with solutions: Algorithmic Approach
  - Are You Smart Enough to Work at Google?: Fiendish Puzzles And Impossible Interview Questions From The World's Top Companies
  - Get a Job WITHOUT an Interview - Google & Beyond!: "We don't mind to lose a good applicant, but definitely not hire a bad applicant."
  - The Google Resume: How to Prepare for a Career and Land a Job at Apple, Microsoft, Google, or any Top Tech Company

# Viéndose con gente...

# Meetup

WEDNESDAY, FEBRUARY 3

6:30 PM

Madrid BIM Group

## Dynamo y sus aplicaciones en BIM

13 Members going

7:00 PM

PHPMad

## iTutorial de PHP, acabado! ¿Y ahora que?

94 Members going **6 spots left!**

7:00 PM

Madrid Drones Meetup

## Reunión del grupo + taller de cambio de firmware en los microdrones

4 Drone Lovers going

7:00 PM

NSCoder Night Madrid

## NSPresenters

40 NSCoders going

<http://meetup.com>

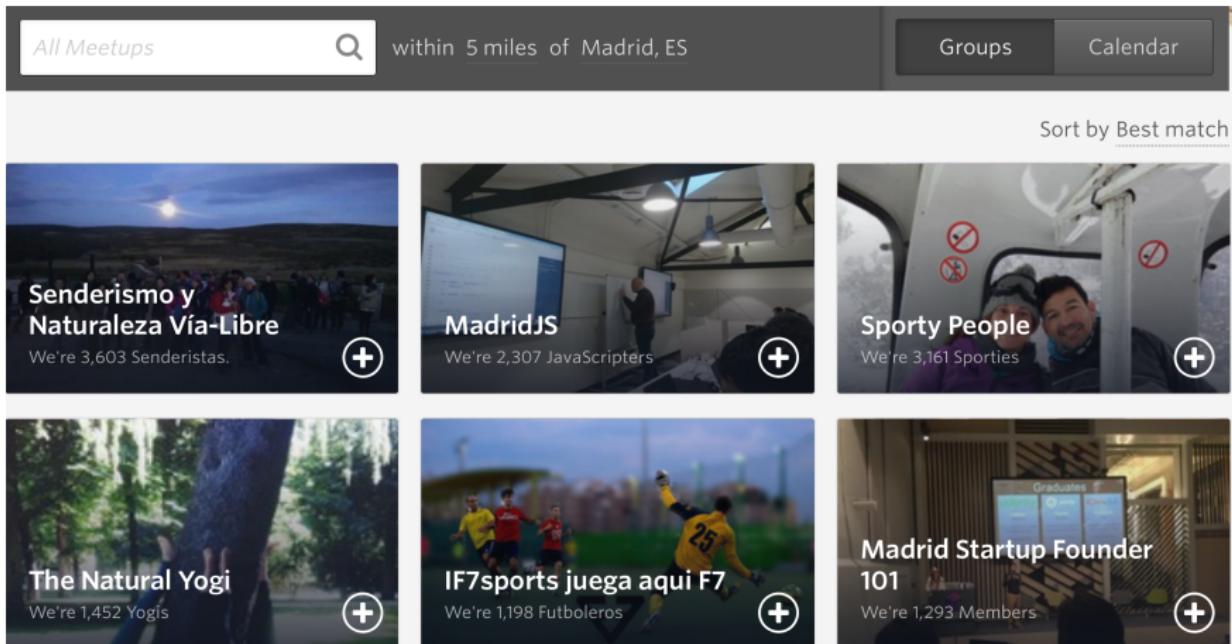


- Información sobre reuniones cercanas
- Mucho contenido técnico
- Y mucho que no

# Grupos

All Meetups  within 5 miles of Madrid, ES Groups Calendar

Sort by Best match



The screenshot shows a grid of six group cards. Each card includes a thumbnail image, the group's name, its member count, and a 'Join' button.

- Senderismo y Naturaleza Vía-Libre**  
We're 3,603 Senderistas. 
- MadridJS**  
We're 2,307 JavaScripters 
- Sporty People**  
We're 3,161 Sporties 
- The Natural Yogi**  
We're 1,452 Yogis 
- IF7sports juega aquí F7**  
We're 1,198 Futboleros 
- Madrid Startup Founder 101**  
We're 1,293 Members 

# Reuniones

**MADRID • JS**

**Madrid, Spain**  
Founded Aug 6, 2011

[About us...](#)  
[+ Invite friends](#)

JavaScripers 2,308  
Group reviews 61  
Upcoming Meetups 2  
Past Meetups 60  
Our calendar

## Keep it simple, use React

[Export](#) [Tell a friend](#) [Share](#)

**Thursday, February 11, 2016**  
7:00 PM

**Impact Hub Next**  
C / Alameda, 22, Madrid ([map](#))

Este febrero tendremos **no una charla especial, sino dos**. En este caso vamos a aprovechar la visita de Javi Jiménez desde Tailandia: nos va a contar su experiencia haciendo proyectos grandes con React.

**Keep it simple, use React**

Actualmente React está siendo utilizado por organizaciones como Khan Academy, Netflix, Yahoo, Airbnb, Doist, Facebook, Instagram, Sony, Atlassian y muchas otras. Esto demuestra el

**Are you going?**

[Yes](#) [No](#)

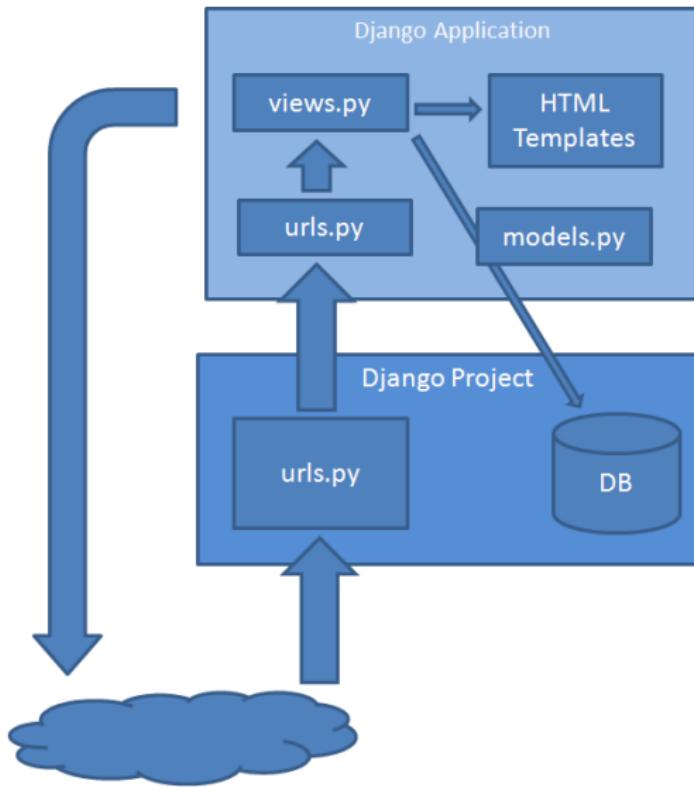
**277 going**

**soyjavi**  
EVENT HOST  
A self-taught human, in love with creating new stuff.

**Manuel Juan Fosela**  
CO-ORGANIZER  
EVENT HOST  
Programador web o eufimísticamente Ingeniero de Software de Internet XD

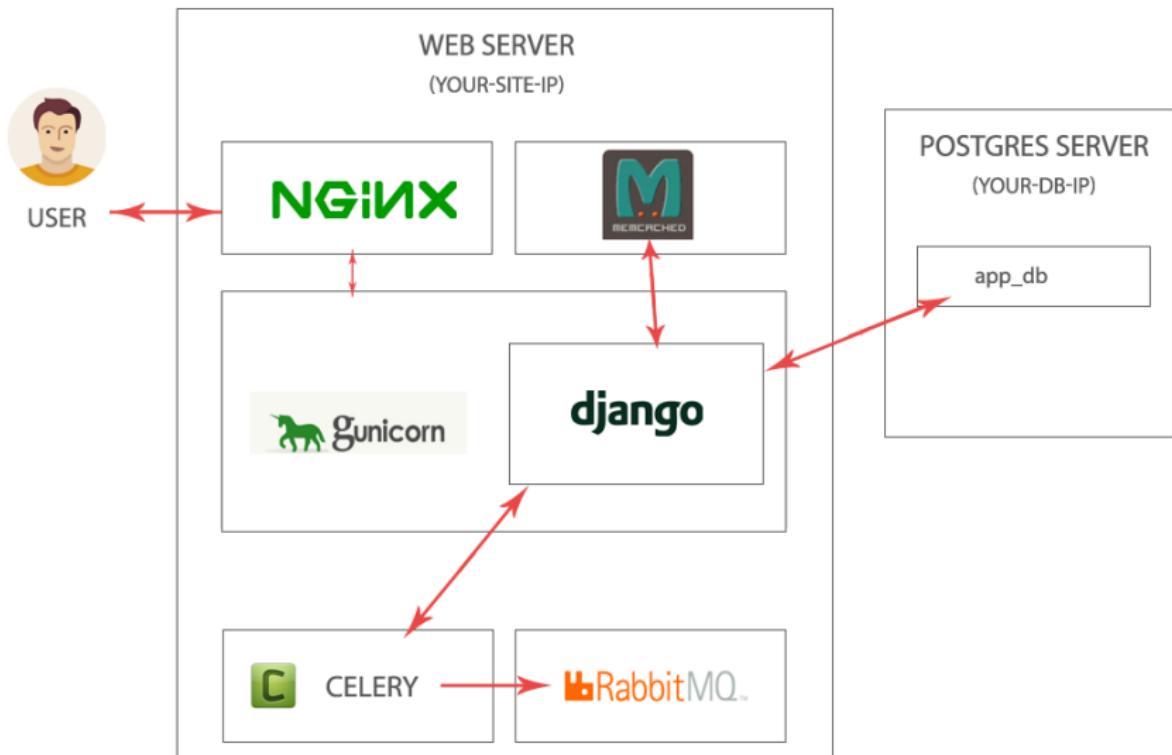
# Servidor web en Producción

# Lo que enseñamos en clase



- Mono-hilo
- Mono-tarea
- Caché básico
- Base de datos limitada (sqlite)
- Pensado para páginas dinámicas
- Sin planificación
- No tiempo real

# Un servidor web en producción



# Tecnologías

- Django: Framework web
- Nginx: Servidor web con balanceo de carga (<http://nginx.org/>)
- Memcached: Caché (<http://memcached.org/>)
- gunicorn: Servidor HTTP (<http://gunicorn.org/>)
- Celery: Tiempo real y planificación de tareas  
(<http://www.celeryproject.org/>)
- RabbitMQ: Mensajería (<https://www.rabbitmq.com/>)
- PostgreSQL: Base de datos (<http://www.postgresql.org/>)

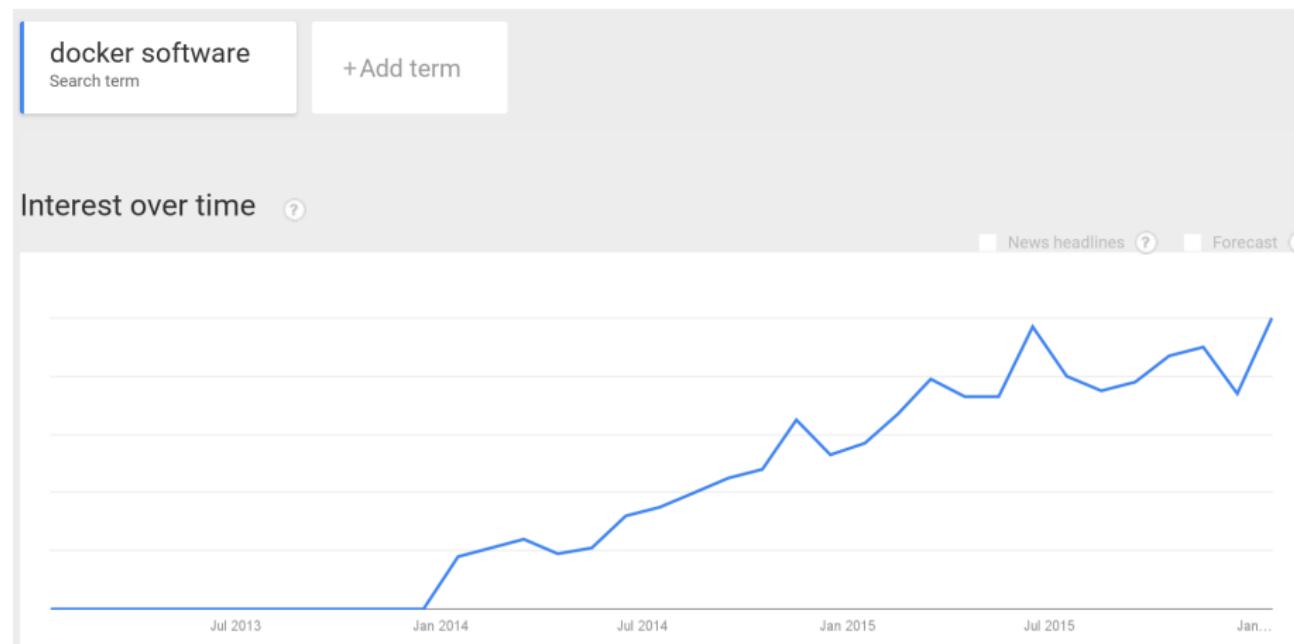
# Contenedores por todas partes



# Contenedores software

- Virtualización sobre sistema operativo
- Evolución de la idea de chroot
- Aislamiento (disco, memoria)
- Gestión de recursos
- Más ligero que máquinas virtuales completas
- Mismo kernel que host
- Docker, LXC, LXD, FreeBSD Jail...

# Docker (search trend)



# Docker



<http://docker.com>

<http://hub.docker.com/>

- Automatización del despliegue de aplicaciones en contenedores software
- Montado sobre cgroups (gestión de recursos), namespaces (separación de recursos), sistema de ficheros con unión

## Referencias y enlaces

Luke Price, "Containers, Port of Rotterdam", CC-by 2.0

<https://www.flickr.com/photos/lukeprice88/9703431992>

# Virtualizando, que es gerundio

# Máquina virtual

*Máquina virtual:*

*"Entorno de sistema operativo  
o aplicación  
que se instala sobre software  
que imita un hardware dedicado.*

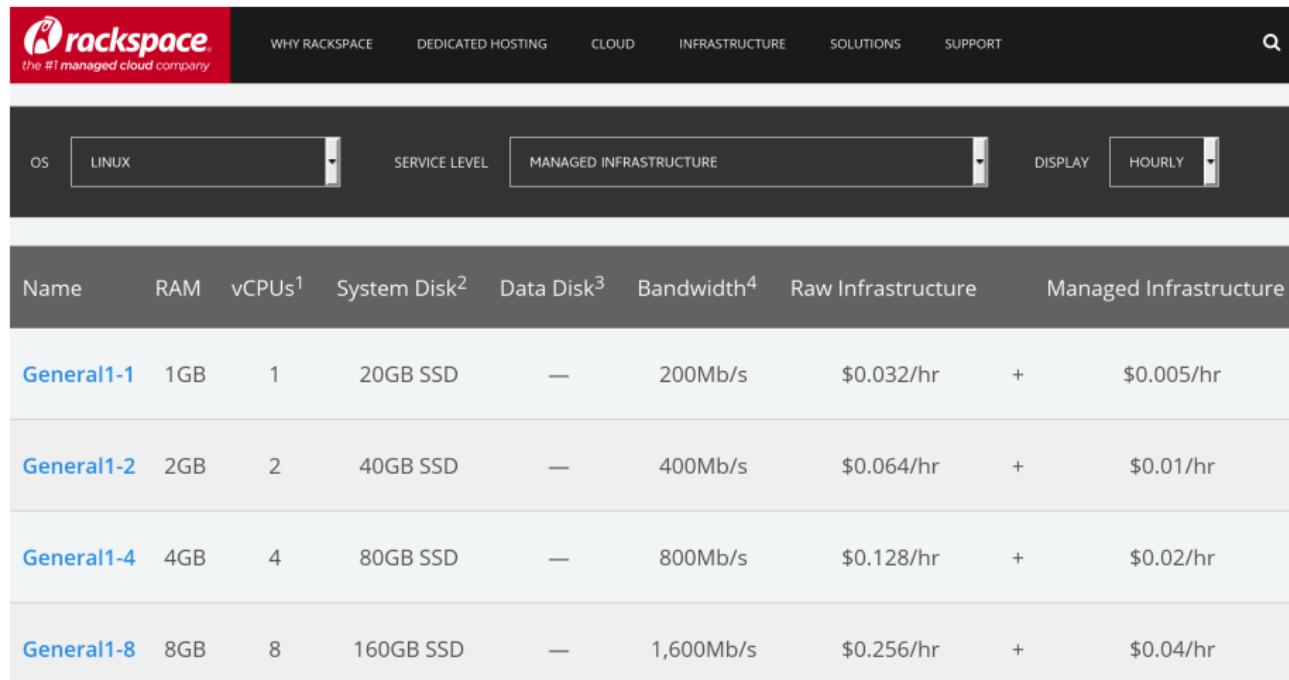
*Hipervisor:*

*comparte y gestiona el hardware  
aisla cada entorno*

# Algunos sistemas usados en virtualización

- QEMU: máquina virtual, emula varias arquitecturas hardware
- Xen: hipervisor con arquitectura microkernel
- KVM: extiende Linux con funciones de hipervisor
- VirtualBox: hipervisor para x86

# Una oferta cualquiera...



The screenshot shows the Rackspace website's server offerings page. At the top, there's a navigation bar with links for WHY RACKSPACE, DEDICATED HOSTING, CLOUD, INFRASTRUCTURE, SOLUTIONS, and SUPPORT, along with a search icon. Below the navigation is a filter section with dropdown menus for OS (set to LINUX), SERVICE LEVEL (set to MANAGED INFRASTRUCTURE), DISPLAY (set to HOURLY), and a currency dropdown. The main content area displays a table of server offerings:

Name	RAM	vCPUs <sup>1</sup>	System Disk <sup>2</sup>	Data Disk <sup>3</sup>	Bandwidth <sup>4</sup>	Raw Infrastructure	Managed Infrastructure
<b>General1-1</b>	1GB	1	20GB SSD	—	200Mb/s	\$0.032/hr	+ \$0.005/hr
<b>General1-2</b>	2GB	2	40GB SSD	—	400Mb/s	\$0.064/hr	+ \$0.01/hr
<b>General1-4</b>	4GB	4	80GB SSD	—	800Mb/s	\$0.128/hr	+ \$0.02/hr
<b>General1-8</b>	8GB	8	160GB SSD	—	1,600Mb/s	\$0.256/hr	+ \$0.04/hr

# Atom

# Introduciendo Atom

The screenshot shows the Atom code editor interface. On the left, there's a sidebar with a tree view of project files: build, docs, dot-atom, exports, keymaps, menus, node\_modules, resources, script, spec, src (which is selected), static, vendor, .coffeelintignore, .gitattributes, and .gitignore. The main editor area displays the file 'atom.coffee' with the following content:

```
18
19 # Essential: Atom global for dealing with packages, themes, menus, and the window system.
20 #
21 # An instance of this class is always available as the `atom` global.
22 module.exports =
23   class Atom extends Model
24     @version: 1 # Increment this when the serialization format changes
25
26     # Load or create the Atom environment in the given mode.
27     #
28     # Returns an Atom instance, fully initialized.
29     @loadOrCreate: (mode) ->
30       startTime = Date.now()
31       atom = @deserialize(@loadState(mode)) ? new this({mode, @version})
32       atom.deserializeTimings.atom = Date.now() - startTime
33
```

At the bottom of the editor, it says 'src/atom.coffee\*' followed by line numbers 31, 17. To the right, there are status indicators for 'UTF-8', 'CoffeeScript', and 'master'. Above the editor, there are tabs for 'atom.coffee' and 'Settings'.

<http://atom.io> (Hay paquete Debian)

# Características

- Basado HTML, JavaScript, CSS, and Node.js
- Programado en CoffeeScript (compilado a JavaScript)
- Autocompletado
- Paquetes adicionales
- Muchos temas
- Configurable
- Multiplataforma
- ... y es software libre

# Coffeescript

# The basics



[coffeescript.org](http://coffeescript.org)

- Sintaxis más sencilla
- Orientado a ser legible
- Breve
- Indentación
- No hay paréntesis
- En 2012 fue el 11º lenguaje más popular en GitHub
- Se puede probar en línea

# ¿Cómo funciona?

1

**Write code in .coffee file**

2

**Compile into .js file**

3

**Include .js file in web pages**  
`<script src="my.js"></script>`

# Ejemplos

```
# Assignment:
number: 42
opposite_day: true

# Conditions:
number: -42 if opposite_day

# Functions:
square: x => x * x.

# Arrays:
list: [1, 2, 3, 4, 5]

# Objects:
math: {
  root: Math.sqrt
  square: square
  cube: x => x * square(x).
}

# Array comprehensions:
cubed_list: math.cube(num) for num in list.
```



```
var __a, __b, __c, __d, cubed_list, list, math, num,
number, opposite_day, square;
// Assignment:
number = 42;
opposite_day = true;
// Conditions:
if (opposite_day) {
  number = -42;
}
// Functions:
square = function(x) {
  return x * x;
};
// Arrays:
list = [1, 2, 3, 4, 5];
// Objects:
math = {
  root: Math.sqrt,
  square: square,
  cube: function(x) {
    return x * square(x);
}
};
// Array comprehensions:
__a = list;
__d = [];
for (__b=0, __c=__a.length; __b<__c; __b++) {
  num = __a[__b];
  __d[__b] = math.cube(num);
```

# Navegar en tres dimensiones

# WebGL



Mantenido por el  
Khronos Group

- API JavaScript para gráficos interactivos en 3D
- Primeros desarrollos por Mozilla
- Proporcionada por los principales navegadores
- Puede mezclarse con HTML
- Basado en OpenGL

# Bibliotecas y utilidades

- API alto nivel: three.js, babylon.js
- Motores de juegos: Unreal 4, Unity 5
- Creación de escenas: Blender con Blend4Web, Clara.io

<http://threejs.org/>

<http://babylonjs.com/>

<https://blend4web.com/>

# Algunos ejemplos

- Cube

<http://www.playmapscube.com/>

- Experience Curiosity (Blend4Web)

<http://eyes.nasa.gov/curiosity/>

- Sponza demo (babylon.js)

<http://www.babylonjs.com/Demos/Sponza/>

- Above the clouds (three.js)

<http://earth.plus360degrees.com/>

# Referencias y enlaces

WebGL en Wikipedia

<https://en.wikipedia.org/wiki/WebGL>

WebGL en Mozilla Developer Network

[https://developer.mozilla.org/en-US/docs/Web/API/WebGL\\_API](https://developer.mozilla.org/en-US/docs/Web/API/WebGL_API)

“3D image of Cornell Box scene made with WebGL”,

from StormEngineC 3D Library, GFDL 1.2

[https://commons.wikimedia.org/wiki/File:WebGL\\_Cornell\\_Box.png](https://commons.wikimedia.org/wiki/File:WebGL_Cornell_Box.png)

“WebGL tutorial”, by Mozilla

[https://developer.mozilla.org/en-US/docs/Web/API/WebGL\\_API/Tutorial](https://developer.mozilla.org/en-US/docs/Web/API/WebGL_API/Tutorial)

# El fin del tiempo

# El problema del año 2038

En Unix,  
el tiempo se media  
con un entero  
de 32 bits con signo.

Número de segundos  
a partir de “the epoch”

- The epoch (tiempo 0):  
00:00:00 UTC,  
1 enero 1970
- Tiempo más avanzado  
posible:  
03:14:07 UTC,  
19 enero 2038
- Un segundo más:  
20:45:52 UTC,  
13 diciembre 1901

## 32 bits en acción

Binary : 01111111 11111111 11111111 11111111

Decimal : 2147483647

Date : 2038-01-19 03:14:07 (UTC)

Date : 2038-01-19 03:14:07 (UTC)

[https://en.wikipedia.org/wiki/Year\\_2038\\_problem#/media/  
File:Year\\_2038\\_problem.gif](https://en.wikipedia.org/wiki/Year_2038_problem#/media/File:Year_2038_problem.gif)

# 32 bits en acción (sobrepasados)

Binary : 10000000 00000000 00000000 00000000

Decimal : -2147483648

Date : 1901-12-13 20:45:52 (UTC)

Date : 2038-01-19 03:14:08 (UTC)

Sobrepasamiento de entero

# Más información

- Unix time en tiempo real  
<http://www.coolepochcountdown.com/>
- Celebrando el 1234567890:  
<https://youtu.be/z7F17qC04Zo>
- Numberphile: End of Time (Unix)  
<https://youtu.be/QJQ691PTKsA>
- Wikipedia: el problema del 2038  
[https://en.wikipedia.org/wiki/Year\\_2038\\_problem](https://en.wikipedia.org/wiki/Year_2038_problem)
- ¿No recuerdas el complemento a uno?  
[https://en.wikipedia.org/wiki/Signed\\_number\\_representations](https://en.wikipedia.org/wiki/Signed_number_representations)