Django & Node.js

Modern Javascript with Django

makersquad.fr

Romain Dorgueil

romain@makersquad.fr

Building software from Zero to Market

rdorgueil

makersquad.fr

Content

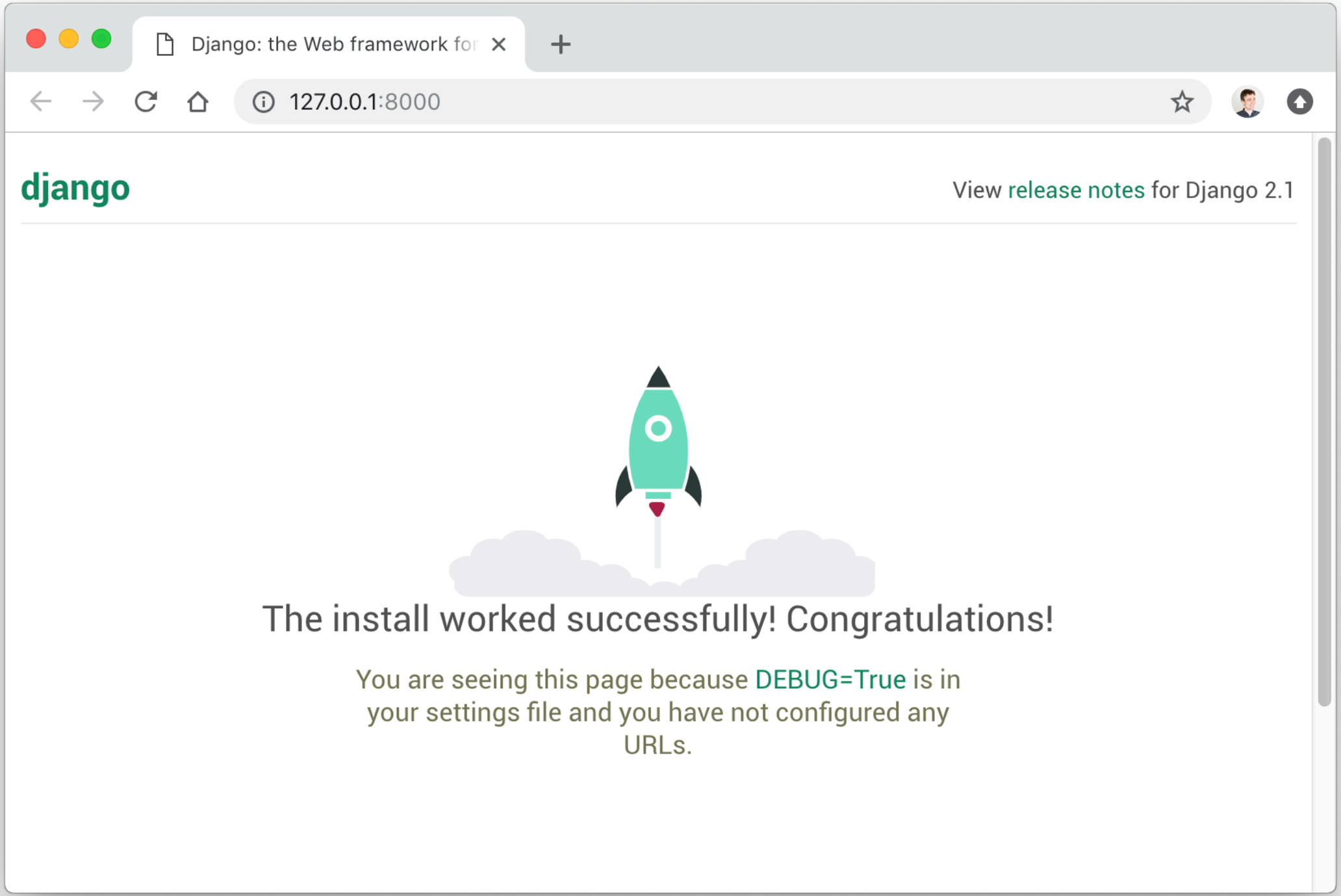
Story of a new Django project.

Hello, Django

```
$ django-admin startproject pyparis

$ cd pyparis

$ ./manage.py runserver
```


Django: the Web framework for
127.0.0.1:8000
django
View release notes for Django 2.1
The install worked successfully! Congratulations!
You are seeing this page because DEBUG=True is in your settings file and you have not configured any URLs.

Dev Tools

Install dependencies ...

```
$ pip install django-debug-toolbar

$ pip install django-extensions
```

Change settings.py ...

```
if SHOULD_USE_DEVTOOLS:
    INSTALLED_APPS += [
        "debug_toolbar",
        "django_extensions",
    ]
```

... let's try to do

modern js/css ...

Let’s see how you *may* do it manually, starting from scratch.

Try it at home!
(then run away)

Webpack

```
$ npm init

$ npm install webpack webpack-cli --save-dev

$ mkdir src
$ echo "console.log('Hello, world')" > src/index.js

$ ./node_modules/.bin/webpack
```

```
$ cat dist/main.js
```

```
!function(e){var t={};function r(n){if(t[n])return t[n].exports;var o=t[n]={i:n,l:!
1,exports:{}};return e[n].call(o.exports,o,o.exports,r),o.l=!0,o.exports}
r.m=e,r.c=t,r.d=function(e,t,n){r.o(e,t)||Object.defineProperty(e,t,{enumerable:!
0,get:n})},r.r=function(e){"undefined"!=typeof
Symbol&&Symbol.toStringTag&&Object.defineProperty(e,Symbol.toStringTag,
{value:"Module"}),Object.defineProperty(e,"__esModule",{value:!0})},r.t=function(e,t)
{if(1&t&&(e=r(e)),8&t)return e;if(4&t&&"object"==typeof e&&e&&e.__esModule)return e;var
n=Object.create(null);if(r.r(n),Object.defineProperty(n,"default",{enumerable:!0,value:e}),
2&t&&"string"!=typeof e)for(var o in e)r.d(n,o,function(t){return e[t]}.bind(null,o));return
n},r.n=function(e){var t=e&&e.__esModule?function(){return e.default}:function(){return
e};return r.d(t,"a",t),t},r.o=function(e,t){return
Object.prototype.hasOwnProperty.call(e,t)},r.p="",r(r.s=0)}([function(e,t)
{console.log("Hello, world.")}]);
```

Webpack

Read from webpack output dir ...

```
STATICFILES_DIRS = [
    os.path.join(BASE_DIR, "dist"),
]
```

Make sure we can read deps ...

```
./node_modules/.bin/webpack --output-public-path "/static/"
```

Modern JS

Let's replace the code

```
import('lodash').then(lodash => {
    const upperCase = lodash.memoize(
        string => string.toUpperCase()
    );
    let foo = [1, 2, 3].map(x => x**2);
    console.log(upperCase(String(foo).toString()));
});
```

Details not important (tldr: not doing much)

Webpack

$ cat dist/main.js

```
$ cat dist/main.js
!function(e){function t(t){for(var n,o,i=t[0],u=t[1],a=0,l=[];a<i.length;a++)o=i[a],r[o]&&l.push(r[o][0]),r[o]=0;for(n in u)Object.prototype.hasOwnProperty.call(u,n)&&(e[n]=u[n]);for(c&&c(t);l.length;)l.shift()()}var n={},r={0:0};function o(t){if(n[t])return n[t].exports;var r=n[t]={i:t,l:!1,exports:{}};return e[t].call(r.exports,r,r.exports,o),r.l=!0,r.exports}o.e=function(e){var t=[],n=r[e];if(0!==n)if(n)t.push(n[2]);else{var i=new Promise(function(t,o){n=r[e]=[t,o]});t.push(n[2]=i);var u,a=document.getElementsByTagName("head")
[0],c=document.createElement("script");c.charset="utf-8",c.timeout=120,o.nc&&c.setAttribute("nonce",o.nc),c.src=function(e){return o.p+""+({}[e]||e)+".js"}(e),u=function(t){c.onerror=c.onload=null,clearTimeout(l);var n=r[e];if(0!==n){if(n){var o=t&&("load"===t.type?"missing":t.type),i=t&&t.target&&t.target.src,u=new Error("Loading chunk "+e+" failed.\n("+o+": "+i+")");u.type=o,u.request=i,n[1](u)}r[e]=void 0}};var l=setTimeout(function(){u({type:"timeout",target:c})},12e4);c.onerror=c.onload=u,a.appendChild(c)}return
Promise.all(t)},o.m=e,o.c=n,o.d=function(e,t,n){o.o(e,t)||Object.defineProperty(e,t,{enumerable:!0,get:n})},o.r=function(e){"undefined"!=typeof Symbol&&Symbol.toStringTag&&Object.defineProperty(e,Symbol.toStringTag,{value:"Module"}),Object.defineProperty(e,"__esModule",{value:!0})},o.t=function(e,t){if(1&t&&(e=o(e)),8&t)return e;if(4&t&&"object"==typeof e&&e&&e.__esModule)return e;var n=Object.create(null);if(o.r(n),Object.defineProperty(n,"default",{enumerable:!0,value:e}),2&t&&"string"!=typeof e)for(var r in e)o.d(n,r,function(t){return
e[t]}.bind(null,r));return n},o.n=function(e){var t=e&&e.__esModule?function(){return e.default}:function(){return e};return o.d(t,"a",t),t},o.o=function(e,t){return Object.prototype.hasOwnProperty.call(e,t)},o.p="/static/",o.oe=function(e){throw console.error(e),e};var i=window.webpackJsonp=window.webpackJsonp||[],u=i.push.bind(i);i.push=t,i=i.slice();for(var a=0;a<i.length;a++)t(i[a]);var c=u;o(o.s=0)}([function(e,t,n){n.e(1).then(n.t.bind(null,1,7)).then(e=>{const t=e.memoize(e=>e.toUpperCase());let
n=[1,2,3].map(e=>e**2);console.log(t(String(n).toString()))})}]);
```

$ cat dist/1.js

```
(window.webpackJsonp=window.webpackJsonp||[]).push([[1],[,function(n,t,r){(function(n,e){var u;
/**
 * @license
 * Lodash <https://lodash.com/>
 * Copyright JS Foundation and other contributors <https://js.foundation/>
 * Released under MIT license <https://lodash.com/license>
 * Based on Underscore.js 1.8.3 <http://underscorejs.org/LICENSE>
 * Copyright Jeremy Ashkenas, DocumentCloud and Investigative Reporters & Editors
 */(function(){var i,o=200,f="Unsupported core-js use. Try https://npms.io/search?q=ponyfill.",a="Expected a function",c="__lodash_hash_undefined__",l=500,s="__lodash_placeholder__",h=1,p=2,v=4,_=1,g=2,y=1,d=2,b=4,w=8,m=16,x=32,j=64,A=128,k=256,O=512,I=30,R="...",E=800,z=16,S=1,L=2,W=1/0,C=9007199254740991,U=1.7976931348623157e308,B=NaN,T=4294967295,$=T-1,D=T>>>1,P=[["ary",A],["bind",y],["bindKey",d],["curry",w],["curryRight",m],["flip",O],["partial",x],["partialRight",j],["rearg",k]],M="[object Arguments]",F="[object Array]",N="[object
```

Babel (JS)

Super-modern browsers are cool, but ...

```
npm install -D babel-loader @babel/core @babel/preset-env
```

In webpack.config.js ...

```
module.exports = {
  module: {
    rules: [
      {
        test: /\.m?js$/,
        exclude: /(node_modules|bower_components)/,
        use: {
          loader: 'babel-loader',
          options: {
            presets: ['@babel/preset-env']
          }
        }
      }
    ]
  }
}
```

Babel (JS)

```
ERROR in ./src/index.js
Module build failed (from ./node_modules/babel-loader/lib/index.js):
SyntaxError: /Users/rd/Experiments/PyParis/pyparis/src/index.js: Support for the experimental syntax 'dynamicImport' isn't currently enabled (1:1):

> 1 | import('lodash').then(lodash => {
    | ^
  2 |     const upperCase = lodash.memoize(string => string.toUpperCase());
  3 |     let foo = [1, 2, 3].map(x => x**2);
  4 |     console.log(upperCase(String(foo).toString()));
```

```
npm install --save-dev @babel/plugin-syntax-dynamic-import
```

.babelrc

```
{
  "plugins": ["@babel/plugin-syntax-dynamic-import"]
}
```

package.json

```
"browserslist": "> 0.25%, not dead"
```

Works again!

Yay.

Time to prod

Few days to get to an empty project.

Ready to code.

Cost of Ownership

Webpack n to **Webpack n+1**

Cost of Training

Webpack (&Plugins &Loaders) Babel
Django Celery Honcho K8S Docker SASS
EcmaScript Bootstrap Precss Postcss
Node.js (and new syntaxes) Python …

Reusability ?

Nope.

Maintainability ?

Hard.

Pas content !

State of Node.js

Hello, JS

- Server-side : Express, Koa, …
- Client-side : React.js, Vue.js, Angular, …

Hello, JS

- Mobile : React Native, Cordova
- Desktop : Electron, …

Hello, JS

- « Universal » applications
  - One code base
  - Many targets

Dev Experience

- Create react app (or vue.js)
- Hot module reload (HMR)

What to learn ?

What to do ?

Biggest issue

- Two different package management systems together.
- What could go wrong ?

Proposal

- Bundle a `package.json` in a python egg (or wheel, …)

Django Zero

Let's enter the danger zone.

(at your own risks)

Summary

- Let's learn from other ecosystems.
- Node.js pushes the web forward.
- Django-zero is proof-of-concept.
- Not bulletproof. Let's talk.

A few more things

- Allauth
- Pytest
- Gunicorn
- Celery
- Honcho
- Docker images
- K8S manifests
- …

https://django-zero.github.io/

romain@makersquad.fr

rdorgueil