

Introduction to Coffeescript

Michael Heraly

November 13, 2014

Presentation of JavaScript and CoffeeScript

Why CoffeeScript

Beginners' mistakes in CoffeeScript

CoffeeScript reference

JavaScript and CoffeeScript

JavaScript and CoffeeScript

Web browsers can only interpret JavaScript.

JavaScript and CoffeeScript

Web browsers can only interpret JavaScript.

But the problem is that JavaScript is **ugly** (and verbose).

JavaScript and CoffeeScript

Web browsers can only interpret JavaScript.

But the problem is that JavaScript is **ugly** (and verbose).

```
var cubes = (function() {  
  var _i, _len, _results;  
  _results = [];  
  for (_i = 0, _len = list.length; _i < _len; _i++) {  
    num = list[_i];  
    _results.push(math.cube(num));  
  }  
  return _results;  
})();
```

JavaScript and CoffeeScript

Web browsers can only interpret JavaScript.

But the problem is that JavaScript is **ugly** (and verbose).

```
var cubes = (function() {  
  var _i, _len, _results;  
  _results = [];  
  for (_i = 0, _len = list.length; _i < _len; _i++) {  
    num = list[_i];  
    _results.push(math.cube(num));  
  }  
  return _results;  
})();
```

While the equivalent code in CoffeeScript is :

JavaScript and CoffeeScript

Web browsers can only interpret JavaScript.

But the problem is that JavaScript is **ugly** (and verbose).

```
var cubes = (function() {  
  var _i, _len, _results;  
  _results = [];  
  for (_i = 0, _len = list.length; _i < _len; _i++) {  
    num = list[_i];  
    _results.push(math.cube(num));  
  }  
  return _results;  
})();
```

While the equivalent code in CoffeeScript is :

```
cubes = (math.cube(num) for num in list)
```


Ugly JavaScript classes

If you need more complex JS, like classes, here is the code :

Ugly JavaScript classes

If you need more complex JS, like classes, here is the code :

```
var Animal = (function() {  
    function Animal(name) {  
        this.name = name;  
    }  
  
    Animal.prototype.move = function(meters) {  
        return alert(this.name + (" moved " + meters + "m."));  
    };  
  
    return Animal;  
})();
```

Ugly JavaScript classes

If you need more complex JS, like classes, here is the code :

```
var Animal = (function() {  
  function Animal(name) {  
    this.name = name;  
  }  
  
  Animal.prototype.move = function(meters) {  
    return alert(this.name + (" moved " + meters + "m."));  
  };  
  
  return Animal;  
})();
```

...And there is still no inheritance involved...

And CoffeeScript classes

The CoffeeScript syntax is closer to the Python one.

```
class Animal
  constructor: (@name) ->

  move: (meters) ->
    alert @name + " moved #{meters}m."
```

Why CoffeeScript

Why CoffeeScript

- Easier than JavaScript

Why CoffeeScript

- Easier than JavaScript
- Exposes the *good* parts of JS (and avoid the **bad** ones)

Why CoffeeScript

- Easier than JavaScript
- Exposes the *good* parts of JS (and avoid the **bad** ones)
- Cleaner code.

Why CoffeeScript

- Easier than JavaScript
- Exposes the *good* parts of JS (and avoid the **bad** ones)
- Cleaner code.
- Write less, do more.

How CoffeeScript is used

How CoffeeScript is used

CoffeeScript is translated into JavaScript to allow web browsers to interpret the code.

How CoffeeScript is used

CoffeeScript is translated into JavaScript to allow web browsers to interpret the code.

So...why not directly write JavaScript?

How CoffeeScript is used

CoffeeScript is translated into JavaScript to allow web browsers to interpret the code.

So...why not directly write JavaScript?

As shown previously, CoffeeScript is really better to keep a clean and maintainable code.

It is a kind of great syntactic sugar, so you can still use libraries like jQuery.

How CoffeeScript is used

CoffeeScript is translated into JavaScript to allow web browsers to interpret the code.

So...why not directly write JavaScript?

As shown previously, CoffeeScript is really better to keep a clean and maintainable code.

It is a kind of great syntactic sugar, so you can still use libraries like jQuery.

If you're still not convinced, check out the [differences](#) of code you need to write !

CoffeeScript syntax differences with JavaScript

- No keyword `var` to declare a variable before using it.
- No `{ }` to delimit the `if-else` blocks.
- `()` to surround a condition in `if` are not necessary.
- No `;` at the end of instructions.
- Declare a function `square` with a parameter `x` :

```
square = (x) ->  
  x*x
```

- Returns are implicit.
- Use `and` instead of `&&`.
- Use `or` instead of `||`.
- Use `#` to put inline comments
(and `###...###` is equivalent to `/*...*/`)

Beginners' mistakes to avoid in CoffeeScript

Like Python, **indentation** is made by (at least) 2 **spaces**.

It is the only way to define a code block (in a method, **if**, **else**, ...).

Beginners' mistakes to avoid in CoffeeScript

Example of a “static” CoffeeScript class :

```
class window.Utils
  @calc: (x, y) ->
    ...
```

- `class window.Utils` attaches the `Utils` class to the `window` object (containing the DOM document).
- The `@` character declares that the `calc` method is static.
- `x` and `y` are the parameters of the `calc` method.
- If you call a static method from another class, the syntax is `<Class name>.<method name>`.
- If you call a static method from the same class, you can use the syntax `@<method name>`.

Beginners' mistakes to avoid in CoffeeScript

Example of a CoffeeScript class :

```
class window.Person:  
  @name  
  
  constructor: (name) ->  
    @name = name  
  
  getName: () =>  
    @name
```

- The @ means that name is an instance field.
- The return of the getName method is implicit.
- As getName is an **instance method**, => must be used (instead of ->) to define that this relates to the corresponding Person object, and not to the this where the method has been called.
(that is due to one of the quirks of JS)

In case you **really** need it

If you want to use something that doesn't exist in CoffeeScript (shouldn't happen), you can embed JS code between '...':

```
hi = 'function() {  
  return [document.title, "Hello JavaScript"].join(": ");  
'
```

But use this **only** if you need it.

It is much better to keep a coherent code in CoffeeScript.

For more informations

CoffeeScript reference documentation :

<http://coffeescript.org>