



The story of Smart Mobile Studio™

A coupe of years ago



Yay... A mobile app



Yet another mobile app...



There was something nagging us...



Duh... We were *there* during the 90's



...but we were wrong...

**JavaScript has become
very powerful**

Capability of JS

- <http://js1k.com/>
- <http://www.kingsquare.nl/jsc64>

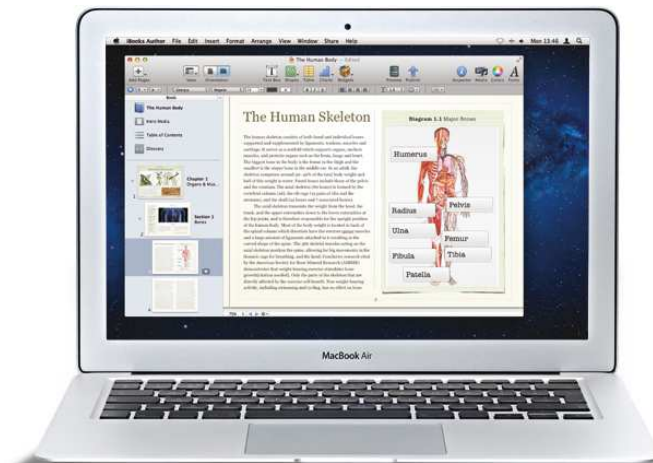
Influence



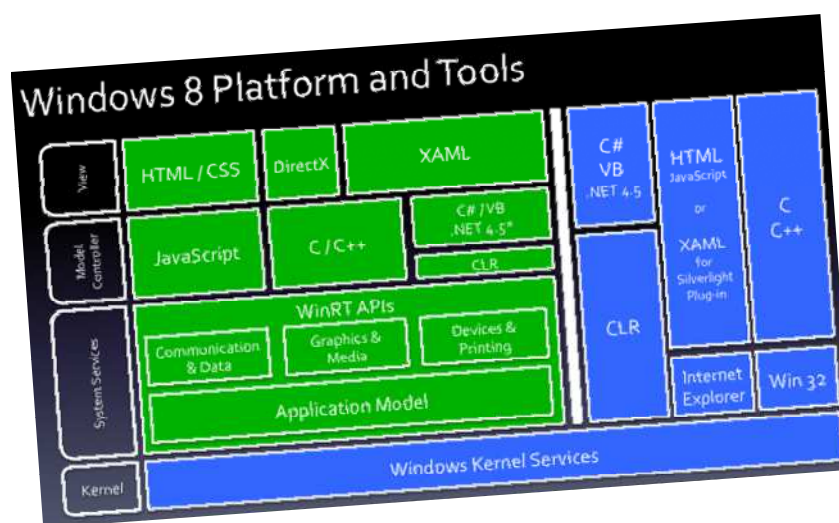
Influence



Influence



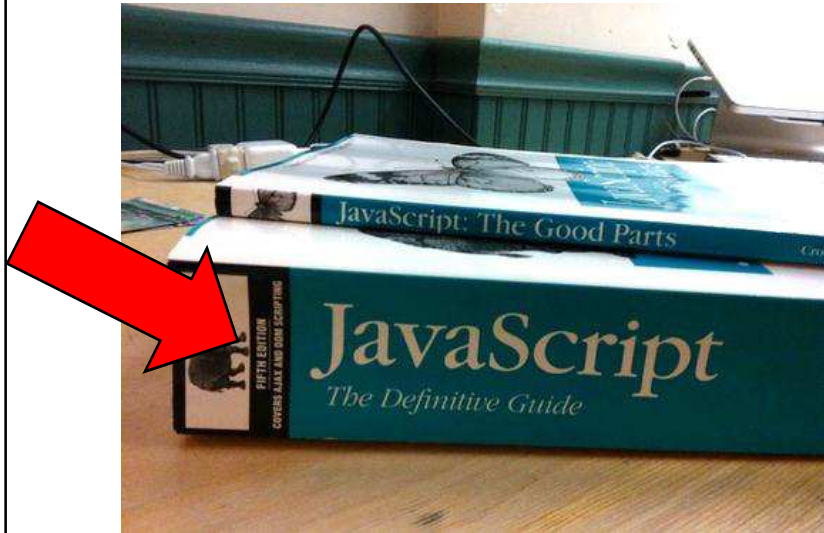
Influence



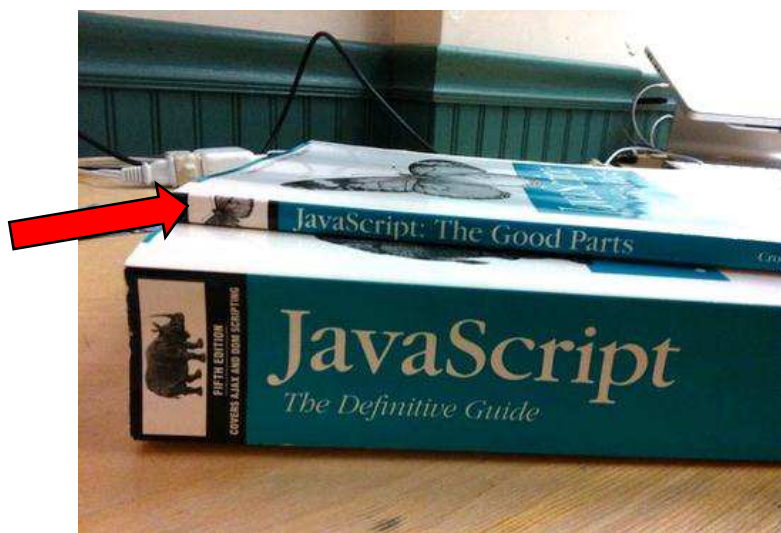
JavaScript is definitely important

The problem is that...

...it *is* a complicated language



- even if it *has* some «Good Parts»



Disadvantages

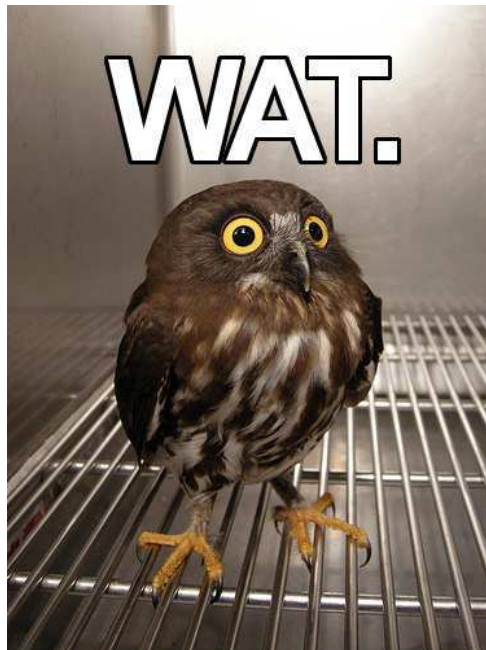
- Prototype-based (No OOP support as we know it: Classes, inheritance, polymorphism, interfaces etc.)
- Weak/loose/dynamic typing
- Etc...

`++ [[]] [+ []] + [+ []]`

This is a valid statement in JS!
Guess what the result is...

10

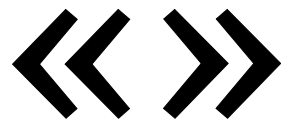
I'll prove it in a second...






[] + []

Array + Array



Empty-string





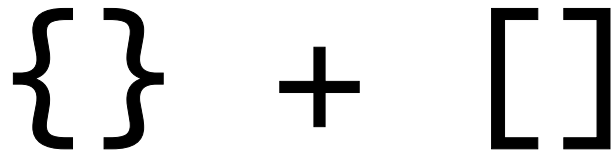
The diagram consists of three large, bold, black symbols arranged horizontally: an empty array notation `[]`, a plus sign `+`, and an empty object notation `{}`.

Array + Object



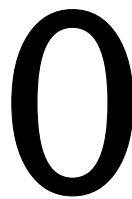
The diagram shows the text `[object Object]` in a large, bold, black font.

En empty object



{ } + []

Object + Array



0

Yupp... Null!



{ } + { }

Object + Object

NaN

Well... That *is* actually Not A Number...



...so we planned to change the world



we got dressed and ready to rumble...



**Our plan was to compile
Object Pascal into
JavaScript and create a
framework to manage the
whole thing...**



We love Pascal, right?

...and we should use what we love!



Object Pascal for JavaScript

Code name: **OP4JS**

First code name was actually

LetsPutSomeLipstickOnThatPig

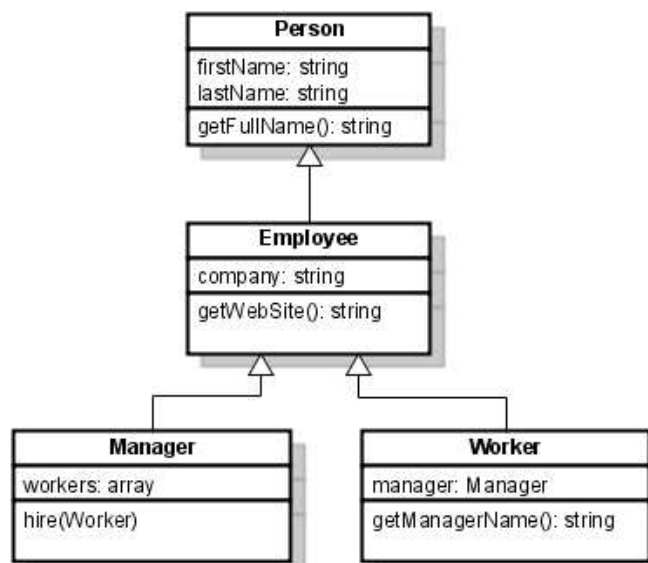
Smart Mobile Studio™

The essence of Smart Mobile Studio is:

- 1) Convert ordinary Pascal Classes and Pascal code into advanced JavaScript code.
- 2) The JavaScript code creates and handles the DOM through unique handles.

A simple example

...of what we're trying to avoid



JavaScript 1/4

```
1 var inheriting = { };
2
3 function Person(first, last) {
4   if (arguments[0] === inheriting) return;
5   this.firstName = first;
6   this.lastName = last;
7 };
8
9 Person.prototype.getFullName = function() {
10   return this.firstName + ' ' + this.lastName;
11 };
```

JavaScript 2/4

```
1 function Employee(first, last, company) {
2   if (arguments[0] === inheriting) return;
3   Person.call(this, first, last);
4   this.company = company;
5 };
6
7 Employee.prototype = new Person(inheriting);
8
9 // Overrides Person
10 Employee.prototype.getFullName = function() {
11   return this.lastName + ', ' + this.firstName;
12 };
```

JavaScript 3/4

```

1 function Employee(first, last, company) {
2   if (arguments[0] === inheriting) return;
3   Person.call(this, first, last);
4   this.company = company;
5 };
6
7 Employee.prototype = new Person(inheriting);
8
9 Employee.base = Person.prototype;
10
11 // Overrides Person
12 Employee.prototype.getFullName = function(firstLastFormat) {
13   if (firstLastFormat)
14     return Employee.base.getFullName.call(this);
15   else
16     return this.lastName + ', ' + this.firstName;
17 };

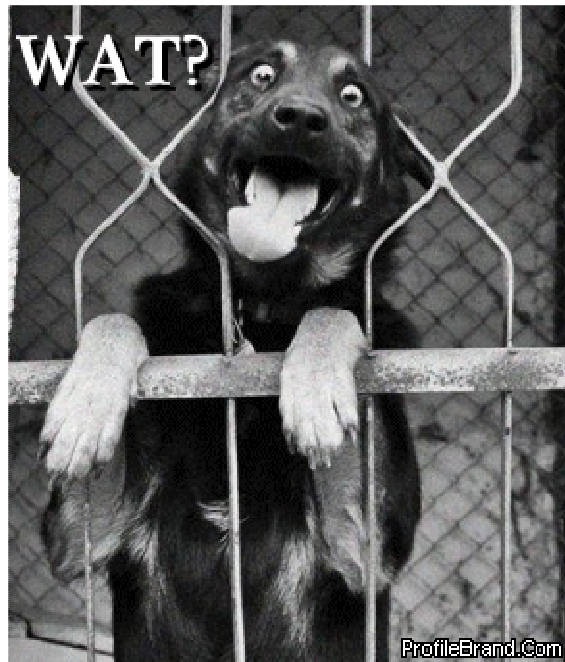
```

JavaScript 4/4

```

1 function Manager(first, last, company) {
2   Employee.call(this, first, last, company);
3   this.workers = [];
4 };
5
6 Manager.prototype = new Employee(inheriting);
7
8 Manager.base = Employee.prototype;
9
10 // Overrides Employee
11 Manager.prototype.getFullName = function(firstLastFormat) {
12   var name = Manager.base.getFullName.call(this, firstLastFormat);
13   return name + ' (' + this.company + ')';
14 };

```



What's wrong with this?

```

19 TPerson = class
20     FFirstName: String;
21     FLastName: String;
22     function GetFullName: String;
23 end;
24
25 TEmployee = class(TPerson)
26     FCompany: String;
27     function GetWebSite: String;
28 end;
29
30 TManager = class(TEmployee)
31     FWorkers: array of TPerson;
32     procedure DoHire(APerson: TPerson);
33 end;
34
35 TWorker = class(TEmployee)
36     FWorkers: array of TPerson;
37     procedure GetManagerName(APerson: TPerson);
38 end;

```

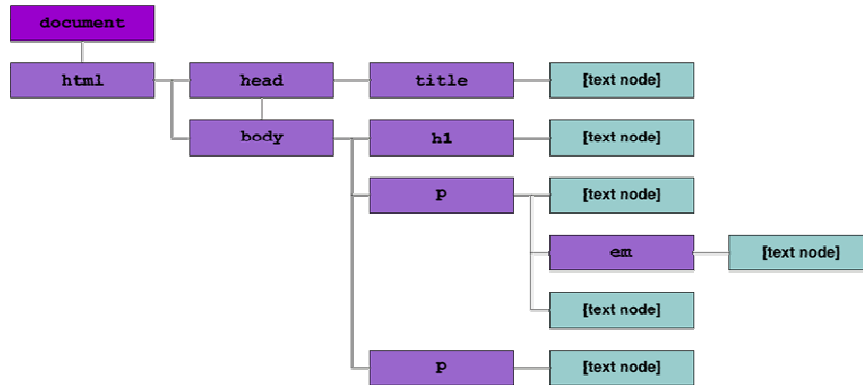
The Architecture

...the «how it's done»-part

The Document Object Model

```
<html>
  <head>
    <title>This is a Document!</title>
  </head>
  <body>
    <h1>This is a header!</h1>
    <p id="excitingText">
      This is a paragraph! <em>Excitement</em>!
    </p>
    <p>
      This is also a paragraph, but it's not nearly as exc
    </p>
  </body>
</html>
```

The Document Object Model



The Document Object Model

```

Source
1 <!DOCTYPE html>
2 <html manifest="app.manifest">
3 <head>
4 <!--
5 Meta-references
6 CSS-code
7 JavaScript code
8 -->
9 </head>
10
11
12 <body>
13 </body>
14
15
16 </html>
17
  
```

The Smart Mobile Studio Architecture

```

58 TW3Label = class(TW3CustomControl)
59 private
60     FCaption: String;
61     FTextAlign: TTextAlign;
62     FContainer: TW3LabelText;
63 protected
64     procedure setCaption(const aValue: String); virtual;
65     procedure setTextAlign(aNewAlignment: TTextAlign); virtual;
66     procedure Resize; override;
67     procedure InitializeObject; override;
68     procedure FinalizeObject; override;
69 public
70     property Container: TW3LabelText read FContainer;
71 published
72     property AlignText: TTextAlign read FTextAlign write setText;
73     property Caption: String read FCaption write setCaption;
74 end;

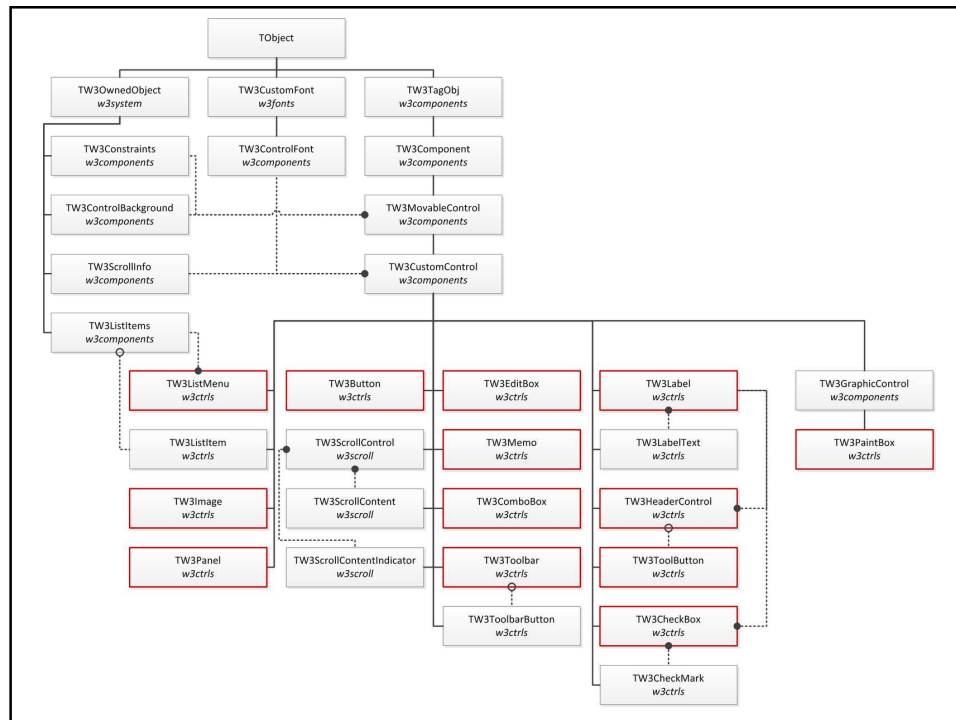
```

The Smart Mobile Studio Architecture

```

80 TW3TagObj = class(TObject)
81 private
82     FOwner: THandle;
83     FTagId: String;
84     FObjReady: Boolean;
85     FTagValue: Integer;
86     FUpdating: Integer;
87     FHandle: THandle;
88     function getAttached: Boolean;
89     function getUpdating: Boolean;
90 protected
91     function getInnerHTML: String;
92     procedure setInnerHTML(aValue: String);
93     function getInnerText: String;
94     procedure setInnerText(aValue: String);
95     function makeElementTagId: String; virtual;
96     function makeElementTagObj: THandle; virtual;
97     procedure StyleTagObject; virtual;
98     procedure AfterUpdate; virtual;
99     (* We override these rather than the constructor.

```



The Smart Mobile Studio Architecture

```

470 procedure TW3Memo.setText (aValue:String) ;
471 begin
472     Handle.value:=aValue;
473 end;
474
475 function TW3Memo.getText:String;
476 begin
477     //if varIsValidRef(Handle) then
478     if (handle) then
479     begin
480         //if varIsValidRef(Handle.value) then
481         if (handle.value) then
482             Result:=w3_getPropertyAsStr(Handle,'value');
483         end;
484     end;
485 end;

```

The Smart Mobile Studio Architecture

```

334 procedure TW3ToolBarButton.setCaption(aNewCaption:String);
335 var
336     mHtml: String;
337 begin
338     if aNewCaption<>FCaption then
339     begin
340         FCaption:=aNewCaption;
341
342         if FGlyph.Ready then
343         begin
344             mHtml:=mHtml + '';
346         end;
347         mHtml:=mHtml + FCaption;
348
349         innerHtml:=mHtml;
350     end;
351 end;
352

```

The Smart Mobile Studio Architecture

```

533 class function TW3CustomBrowserAPI.getDocument:THandle;
534 Begin
535     asm
536         @result=window.document;
537     end;
538 end;
539
540 class function TW3CustomBrowserAPI.getBody:THandle;
541 Begin
542     asm
543         @result=window.document.body;
544     end;
545 end;
546
547 class function TW3CustomBrowserAPI.getWindow:THandle;
548 Begin
549     asm
550         @result=window;
551     end;
552 end;
553

```


**But *where* and *how* do you run
the generated code?**

**But *where* and *how* do you run
the generated code?**

- Directly in any browser
- In a native container

Where to go from here

- Get the Smart Mobile Studio trial
 - <http://smartmobilestudio.com/trial/>
- Try the demos and showcases
 - <http://smartmobilestudio.com/showcases/>
- Browse the documentation online
 - <http://smartmobilestudio.com/documentation/>
- Read the blogs
 - <http://www.smartprogrammer.org/>
- Visit the forums
 - <http://smartmobilestudio.com/forums/>
- Buy the book
 - <http://leanpub.com/asmartbook>
- Follow on social media:
 - <https://plus.google.com/114108549026060823053/posts>
 - <https://www.facebook.com/SmartMobileStudio>
 - <https://twitter.com/OP4JS>

The End ...

... actually:
Stop. Demo time!