

Martin B. Nielsen, MBNDATA

Meetup February 2019

APEX Front end
development

Ballerup, 2019



MBNDATA

APEX Full Stack Developer

The screenshot shows the MBNDATA website. At the top, there's a banner with the text: "Vi bygger software løsninger, yder konsulentbistand og underviser indenfor Oracle og APEX." Below this are three service cards: "IT Konsulentbistand" (with a person icon), "APEX Kursus" (with a graduation cap icon), and "Productivity Apps" (with a cloud icon). Each card has a brief description. At the bottom, there's a section titled "Built with ā'pěks" featuring logos for DOAG, Oracle Certifications (Certified Expert, Certified Associate, Certified Expert, Oracle Application Express Developer), and Oracle Database SQL.

MBNDATA

IT-Konsulerter Kurser Productivity Apps APEX Om MBNDATA

Vi bygger software løsninger, yder konsulentbistand og underviser indenfor Oracle og APEX.

IT Konsulentbistand

APEX Kursus

Productivity Apps

Vores konsulenter er klar til at hjælpe vores kunder godt igennem perioder med spidsbelastninger i den interne IT afdeling. Vi arbejder både med korte og meget lange aftale perioder, hvor konsulanten typisk er placeret hos kunden. Vi hjælper gerne med udviklings & driftsopgaver indenfor: **Oracle Application Express (APEX)**, **Oracle database**, **SQL**, **PL/SQL**, **Oracle E-Business Suite**, **Java** og meget mere.

Oracle Application Express (APEX) har været vores primære værktøj i mange år. Den erfaring vil vi gerne dele med andre, igennem en række APEX kurser som vi udbyder. Kurserne kan tages både **online, eller i kursus lokalet (hos os, ellerude hos vores kunder)**. Kurserne stiller et APEX workspace til rådighed for den enkelte deltager, og indeholder min. 50% hands on Lab øvelser. Kurserne afvikles altid med den nyeste version af APEX (med mindre en anden version ønskes).

Productivity Apps er en række applikationer der leveres med som **en del af Application Express**. Oracle har bygget en række robuste database centriske web applikationer som kan benyttes enten **on-premise eller som cloud baserede løsninger**. Hos MBNDATA kan vi hjælpe med at implementere disse applikationer i virksomheden. Vi kan også yde support på applikationerne samt lave tilpasninger og integrationer til virksomhedens andre løsninger.

Built with ā'pěks

(c) MBNDATA, 2017, CVR-nr.: 19 76 85 46 Set Screen Reader Mode On

DOAG Conference + Exhibition November 21 - 24 in Nuremberg 2017 doag.org

ORACLE Certified Expert Oracle Database SQL

ORACLE Certified Associate PL/SQL Developer

ORACLE Certified Expert Oracle Application Express Developer

Portrait of Martin B. Nielsen, a man with glasses and a beard. Below the portrait is contact information: MBNDATA, Havnegade 2, DK-4300 Holbæk, Tel.: +45 40 98 96 37, E-mail: martin@mbndata.dk, www.mbndata.dk. To the right is the MBNDATA logo.

Martin B. Nielsen

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ORACLE APEX SPECIALISTERNE

ORACLE ACE Associate



MBNDATA

APEX Test Workspace

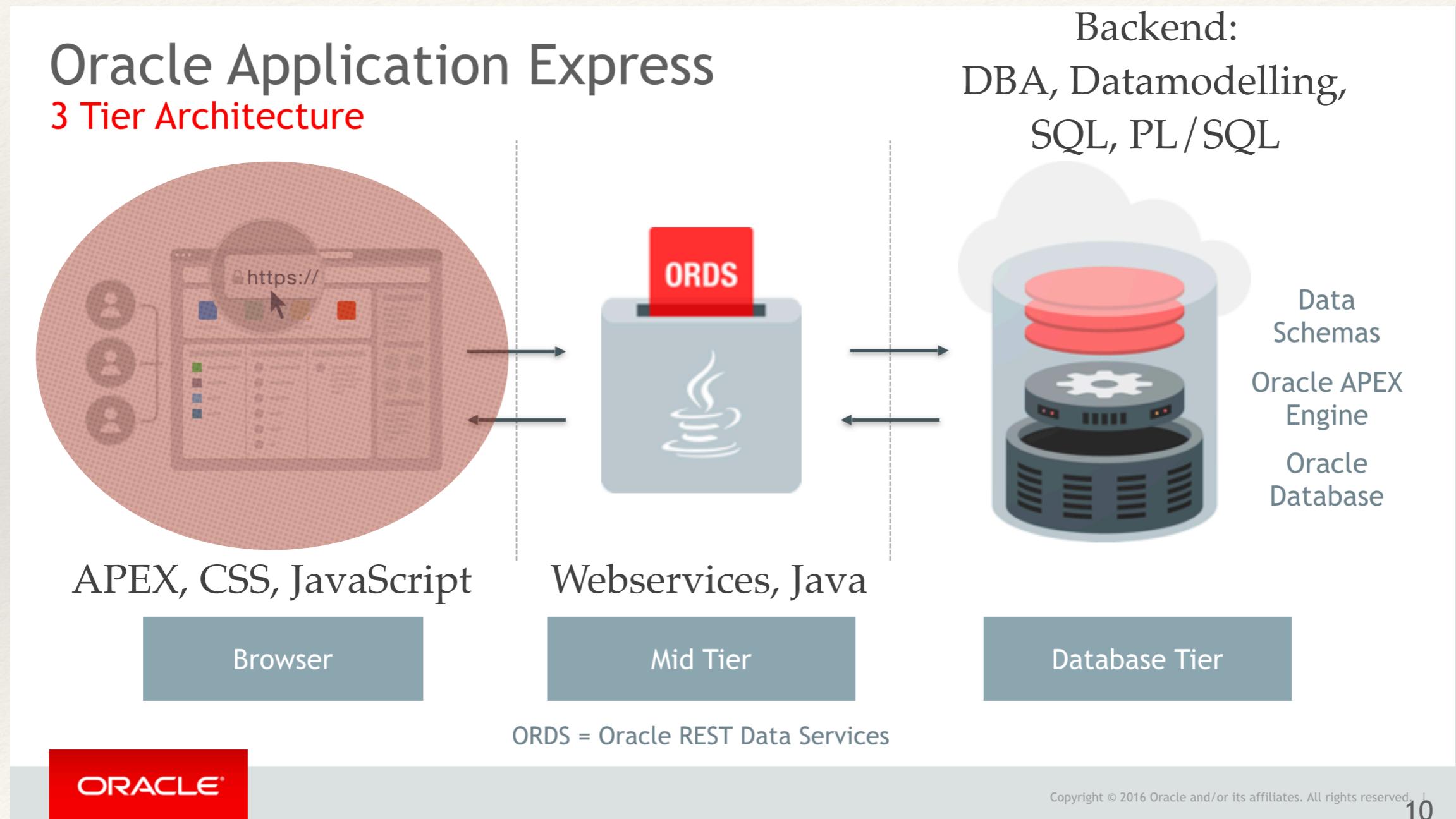
APEX 18.2

<http://apex.oracle.com>

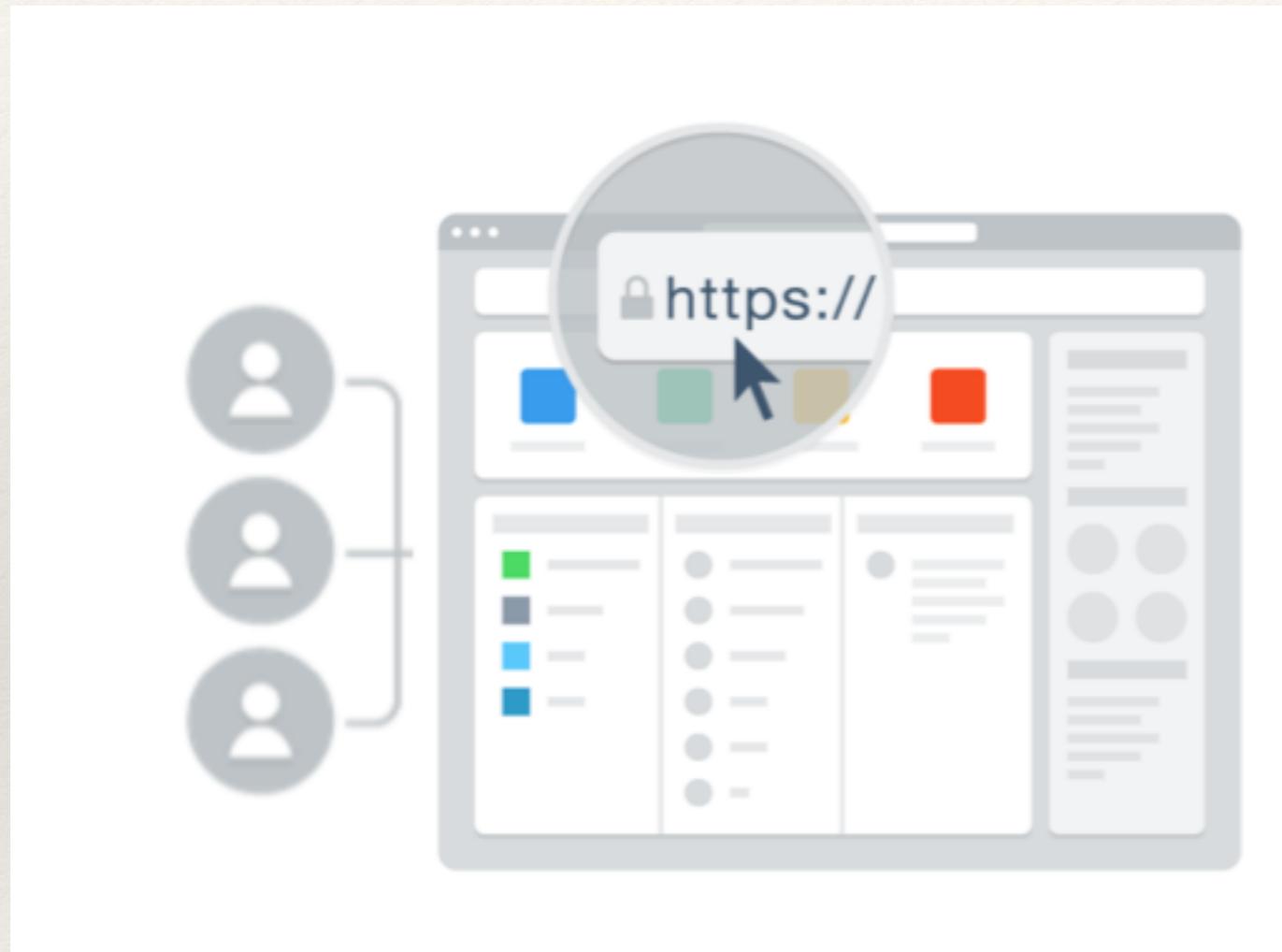


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APEX Architecture



Front End - APEX



Styling

- Theme
- Theme Style
- Templates
- Theme-roller
- Live template options

Client side logic

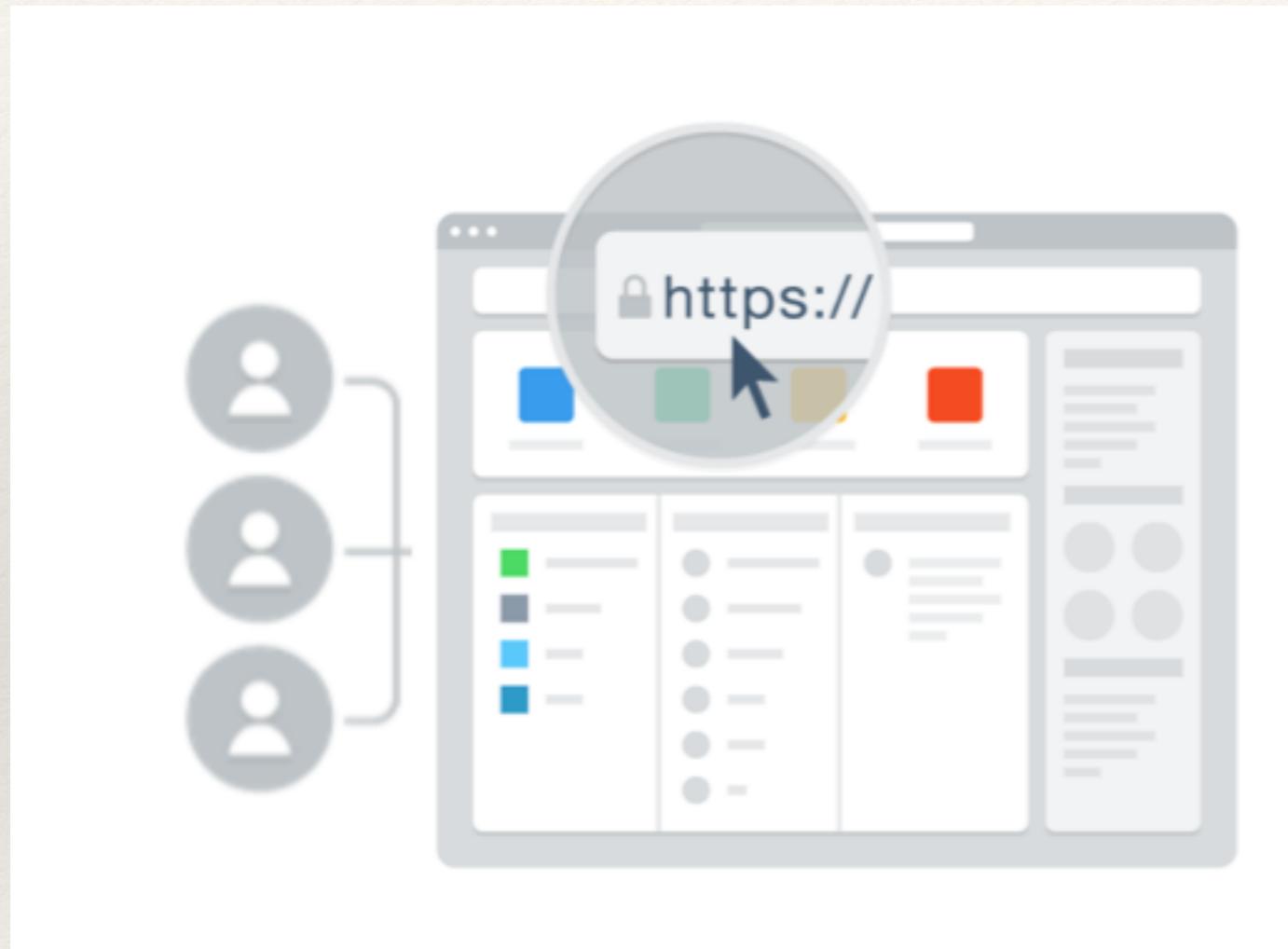
- Dynamic Actions



Demo - APEX Front end



Front End - Custom



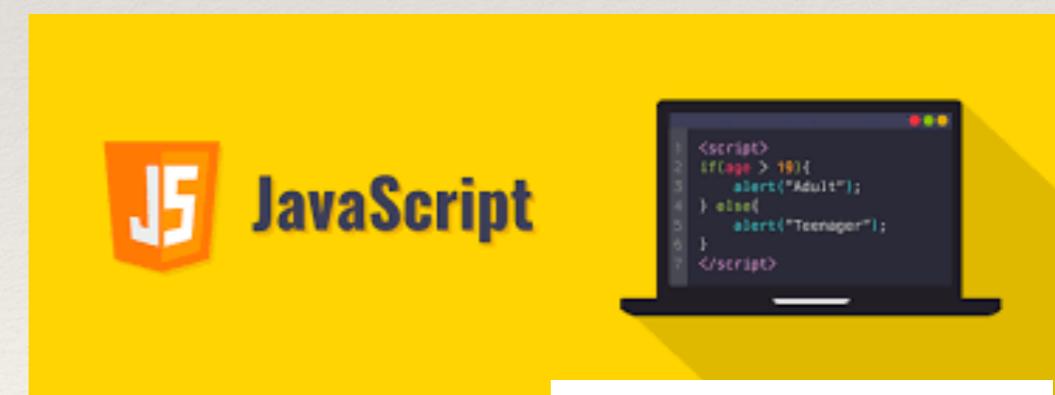
Styling

{less}

stylus



Client side logic



TypeScript



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Browser Devtools

The screenshot shows the Oracle Application Express login dialog over a browser window. The dialog features a pencil icon and fields for workspace ('mbndata'), username ('MARTIN@MBNDATA.DK'), and password ('.....'). A 'Remember workspace and username' checkbox is checked. Below the dialog is the Chrome Network tab, which displays a timeline of network requests. The table below lists these requests:

Name	Status	Type	Initiator	Size	Time	Waterfall
apex_version.js?v=18.2.0.00.12	200	script	/pls/apex/f?p=4550:1:105792176244983::::24	(from me...)	0 ms	
desktop_all.min.js?v=18.2.0.00.12	200	script	/pls/apex/f?p=4550:1:105792176244983::::35	(from me...)	0 ms	
www_flow.js_messages?p_app_id=4550&p_lang=e...	200	script	/pls/apex/f?p=4550:1:105792176244983::::36	(from me...)	0 ms	
legacy_pre18.min.js?v=18.2.0.00.12	200	script	/pls/apex/f?p=4550:1:105792176244983::::37	(from me...)	0 ms	
legacy_18.min.js?v=18.2.0.00.12	200	script	/pls/apex/f?p=4550:1:105792176244983::::38	(from me...)	0 ms	
builder_all.min.js?v=18.2.0.00.12	200	script	/pls/apex/f?p=4550:1:105792176244983::::39	(from me...)	0 ms	
ora_apex_is	200	script	/pls/apex/f?p=4550:1:105792176244983::::687	(from me...)	0 ms	

CSS Primer - Selectors

Selectors

.class { font-weight: bold; }	
div	Element
.class	Class
#id	ID
[disabled]	Attribute
[role="dialog"]	Attribute

Combinators

.parent .child	Descendant
.parent > .child	Direct descendant
.child + .sibling	Adjacent sibling
.child ~ .sibling	Far sibling

Pseudo-classes

:target	eg, h2#foo:target
:disabled	
:focus	
:active	
:nth-child(3)	3rd child
:nth-child(3n+2)	2nd child in groups of 3
:nth-child(-n+4)	
:nth-last-child(2)	
:nth-of-type(2)	

Attribute selectors

[role="dialog"]	= Exact
[class~="box"]	~= Has word
[class = "box"]	= Exact or prefix (eg, value-)
[href\$=".doc"]	\$= Ends in
[class*="-is-"]	*= Contains

Pseudo-class variations

:first-of-type	
:last-of-type	
:nth-of-type(2)	
:only-of-type	
:first-child	
:last-child	
:nth-child(2)	
:only-child	



CSS Primer - Properties

background-clip
background-color
background-image
background-origin
background-position
background-repeat
background-size
border
border-bottom
border-bottom-color
border-bottom-left-radius
border-bottom-right-radius
border-bottom-style
border-bottom-width
border-collapse
border-color
border-image
border-image-outset
border-image-repeat
border-image-slice
border-image-source
border-image-width
border-left
border-left-color
border-left-style
border-left-width
border-radius
border-right
border-right-color
border-right-style
border-right-width
border-spacing
border-style
border-top
border-top-color
border-top-left-radius
border-top-right-radius

CSS Properties	
<input type="text"/> Search..	
A	
align-content	Specifies the alignment between the lines inside a flexible container when the items do not use all available space
align-items	Specifies the alignment for items inside a flexible container
align-self	Specifies the alignment for selected items inside a flexible container
all	Resets all properties (except unicode-bidi and direction)
animation	A shorthand property for all the <i>animation-*</i> properties
animation-delay	Specifies a delay for the start of an animation
animation-direction	Specifies whether an animation should be played forwards, backwards or in alternate cycles
animation-duration	Specifies how long an animation should take to complete one cycle
animation-fill-mode	Specifies a style for the element when the animation is not playing (before it starts, after it ends, or both)
animation-iteration-count	Specifies the number of times an animation should be played
animation-name	Specifies a name for the @keyframes animation
animation-play-state	Specifies whether the animation is running or paused
animation-timing-function	Specifies the speed curve of an animation
B	
backface-visibility	Defines whether or not the back face of an element should be visible when facing the user



SASS Primer

<https://sass-lang.com/guide>

```
sass --watch app/sass:public/stylesheets
```

Sass would watch all files in the `app/sass` folder for changes, and compile CSS to the `public/stylesheets` folder.

Variables

Think of variables as a way to store information that you want to reuse throughout your stylesheet. You can store things like colors, font stacks, or any CSS value you think you'll want to reuse. Sass uses the `$` symbol to make something a variable. Here's an example:

SCSS SYNTAX

Sass SCSS ⇒ CSS

```
$font-stack: Helvetica, sans-serif;  
$primary-color: #333;  
  
body {  
  font: 100% $font-stack;  
  color: $primary-color;  
}
```

When the Sass is processed, it takes the variables we define for the `$font-stack` and `$primary-color` and outputs normal CSS with our variable values placed in the CSS. This can be extremely powerful when working with brand colors and keeping them consistent throughout the site.



CSS Demo

JavaScript Primer

- 1.Javascript Native
- 2.Namespaces
- 3.JQuery
- 4.APEX Javascript API



JavaScript Compatibility

<http://kangax.github.io/compat-table/es6/>

Feature name	►	Current browser	Compilers/polyfills										Desktop browsers										Server					
			98%	56%	71%	71%	50%	68%	17%	5%	11%	96%	96%	98%	98%	98%	99%	99%	95%	59%	97%	97%	98%	Node ≥6.5 <7 ^[3]	Node ≥8.10 <9 ^[3]	Node ≥10.9 <11 ^[3]		
proper tail calls (tail call optimisation)	►	0/2	0/2	0/2	0/2	0/2	0/2	0/2	0/2	0/2	0/2	0/2	0/2	0/2	0/2	0/2	2/2	2/2	2/2	0/2	0/2	0/2	0/2	0/2	0/2	0/2	0/2	
default function parameters	►	7/7	4/7	4/7	4/7	5/7	5/7	0/7	0/7	0/7	7/7	7/7	7/7	7/7	7/7	7/7	7/7	7/7	7/7	0/7	7/7	7/7	7/7	7/7	7/7	7/7	7/7	
rest parameters	►	5/5	4/5	3/5	3/5	2/5	4/5	0/5	0/5	0/5	5/5	5/5	5/5	5/5	5/5	5/5	5/5	5/5	5/5	0/5	5/5	5/5	5/5	5/5	5/5	5/5	5/5	
spread syntax for iterable objects	►	15/15	15/15	13/15	13/15	11/15	14/15	0/15	0/15	0/15	15/15	15/15	15/15	15/15	15/15	15/15	15/15	15/15	15/15	11/15	15/15	15/15	15/15	15/15	15/15	15/15	15/15	
object literal extensions	►	6/6	6/6	6/6	6/6	5/6	6/6	0/6	0/6	0/6	6/6	6/6	6/6	6/6	6/6	6/6	6/6	6/6	6/6	5/6	6/6	6/6	6/6	6/6	6/6	6/6	6/6	
for..of loops	►	9/9	9/9	9/9	9/9	6/9	9/9	0/9	0/9	0/9	9/9	9/9	9/9	9/9	9/9	9/9	9/9	9/9	9/9	9/9	8/9	9/9	9/9	9/9	9/9	9/9	9/9	9/9
octal and binary literals	►	4/4	2/4	4/4	4/4	2/4	4/4	2/4	0/4	0/4	4/4	4/4	4/4	4/4	4/4	4/4	4/4	4/4	4/4	4/4	4/4	4/4	4/4	4/4	4/4	4/4	4/4	4/4
template literals	►	5/5	4/5	4/5	4/5	3/5	3/5	0/5	0/5	0/5	5/5	5/5	5/5	5/5	5/5	5/5	5/5	5/5	5/5	5/5	5/5	5/5	5/5	5/5	5/5	5/5	5/5	5/5
RegExp "y" and "u" flags	►	6/6	4/6	4/6	4/6	0/6	0/6	0/6	0/6	0/6	6/6	6/6	6/6	6/6	6/6	6/6	6/6	6/6	6/6	2/6	0/6	6/6	6/6	6/6	6/6	6/6	6/6	6/6
destructuring declarations	►	22/22	20/22	21/22	21/22	20/22	21/22	0/22	0/22	0/22	22/22	22/22	22/22	22/22	22/22	22/22	22/22	22/22	22/22	21/22	22/22	22/22	22/22	22/22	22/22	22/22	22/22	22/22
destructuring assignment	►	24/24	23/24	24/24	24/24	22/24	24/24	0/24	0/24	0/24	24/24	24/24	24/24	24/24	24/24	24/24	24/24	24/24	24/24	21/24	24/24	24/24	24/24	24/24	24/24	24/24	24/24	24/24
destructuring parameters	►	24/24	19/24	21/24	21/24	20/24	21/24	0/24	0/24	0/24	23/24	24/24	24/24	24/24	24/24	24/24	24/24	24/24	24/24	23/24	18/24	24/24	24/24	24/24	24/24	24/24	24/24	24/24
Unicode code point escapes	►	2/2	1/2	1/2	1/2	1/2	1/2	0/2	0/2	0/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2
new.target	►	2/2	0/2	0/2	0/2	0/2	0/2	0/2	0/2	0/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	0/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2



JavaScript Primer

If - Else

```
if ((age >= 14) && (age < 19)) {           // logical condition
    status = "Eligible.";                   // executed if condition is true
} else {
    status = "Not eligible.";             // executed if condition is false
}



Switch Statement


switch (new Date().getDay()) {               // input is current day
    case 6:                                // if (day == 6)
        text = "Saturday";
        break;
    case 0:                                // if (day == 0)
        text = "Sunday";
        break;
    default:                               // else...
        text = "Whatever";
}
```

Variables

```
var a;                                     // variable
var b = "init";                            // string
var c = "Hi" + " " + "Joe";                // = "Hi Joe"
var d = 1 + 2 + "3";                        // = "33"
var e = [2,3,5,8];                          // array
var f = false;                             // boolean
var g = /()/.exec("abc");                  // RegEx
var h = function(){};
const PI = 3.14;                            // constant
var a = 1, b = 2, c = a + b;                // one line
let z = 'zzz';                            // block scope local variable



Strict mode



```
"use strict"; // Use strict mode to write secure code
x = 1; // Throws an error because variable is not declared
```



Values



```
false, true // boolean
18, 3.14, 0b10011, 0xF6, NaN // number
"flower", 'John' // string
undefined, null, Infinity // special
```



Operators



```
a = b + c - d; // addition, subtraction
a = b * (c / d); // multiplication, division
x = 100 % 48; // modulo. 100 / 48 remainder = 4
a++; b--; // postfix increment and decrement
```



Bitwise operators


```

Basics

On page script

```
<script type="text/javascript"> ...
</script>
```

Include external JS file

```
<script src="filename.js"></script>
```

Functions

```
function addNumbers(a, b) {
    return a + b; ;
}
x = addNumbers(1, 2);
```

Edit DOM element

```
document.getElementById("elementID").innerHTML = "Hello World!";
```

Output

```
console.log(a); // write to the browser console
document.write(a); // write to the HTML
alert(a); // output in an alert box
confirm("Really?"); // yes/no dialog, returns true/false depending on user choice
prompt("Your age?", "0"); // input dialog. Second argument is the default value
```

Comments

```
/* Multi line
   comment */
// One line
```

Data Types

```
var age = 18; // number
var name = "Jane"; // string
var name = {first:"Jane", last:"Doe"}; // object
var truth = false; // boolean
var sheets = ["HTML", "CSS", "JS"]; // array
var a; typeof a; // undefined
var a = null; // value null
```

Objects

```
var student = { // object name
    firstName:"Jane", // list of properties and values
    lastName:"Doe",
    age:18,
    height:170,
    fullName : function() { // object function
        return this.firstName + " " + this.lastName;
    }
};
student.age = 19; // setting value
student.age++; // incrementing
```

Loops

For Loop

```
for (var i = 0; i < 10; i++) {
    document.write(i + ":" + i*3 + "<br />");
}
var sum = 0;
for (var i = 0; i < a.length; i++) {
    sum += a[i];
} // parsing an array
html = "";
for (var i of custOrder) {
    html += "<li>" + i + "</li>";
}
```

While Loop

```
var i = 1; // initialize
while (i < 100) { // enters the cycle if statement is true
    i *= 2; // increment to avoid infinite loop
    document.write(i + ", "); // output
}
```

Do While Loop

```
var i = 1; // initialize
do {
    i *= 2; // increments to avoid infinite loop
    document.write(i + ", "); // output
} while (i < 100) // repeats cycle if statement is true
```

Break

```
for (var i = 0; i < 10; i++) {
    if (i == 5) { break; } // stops and exits the cycle
    document.write(i + ", "); // last output number is 4
}
```

Continue

```
for (var i = 0; i < 10; i++) {
    if (i == 5) { continue; } // skips the rest of the cycle
    document.write(i + ", "); // skips 5
}
```

Strings

```
var abc = "abcdefghijklmnopqrstuvwxyz";
var esc = 'I don\'t \n know'; // \n new line
var len = abc.length; // string length
abc.indexOf("lmno"); // find substring, -1 if doesn't contain
abc.lastIndexOf("lmno"); // last occurrence
abc.slice(3, 6); // cuts out "def", negative values count from end
abc.replace("abc", "123"); // find and replace, takes regular expression
abc.toUpperCase(); // convert to upper case
abc.toLowerCase(); // convert to lower case
```



JavaScript Compatibility

Browser & Platform Market Share

December 2018

January 2019

December 2018

November 2018

October 2018

September 2018

August 2018

July 2018

June 2018

May 2018

April 2018

March 2018

February 2018

January 2018

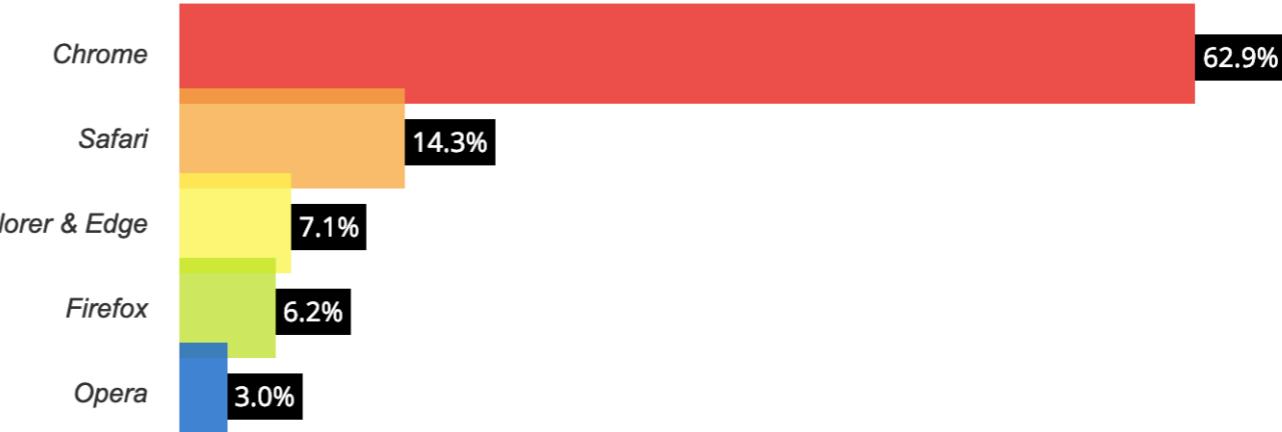
December 2017

November 2017

October 2017

Web Browser Market Share

[View Monthly Trends](#)



Top 10 Web Browsers

1	Chrome 70	21.71%
2	Chrome 71	20.13%
3	Safari 12	8.89%
4	Safari 11	3.26%
5	IE 11	3.03%
6	Chrome 63	2.06%
7	Firefox 63	1.93%
8	UC 12	1.91%
9	Firefox 64	1.86%
10	Chrome 69	1.83%

Top 10 Platforms

1	Windows 10	16.62%
2	Android 8	14.06%
3	Windows 7	13.81%
4	Android 7	9.65%
5	iOS 12	9.40%
6	Android 6	7.83%
7	Android 5	6.02%
8	Mac OS X	3.92%
9	iOS 11	3.24%
10	Android 4	2.81%



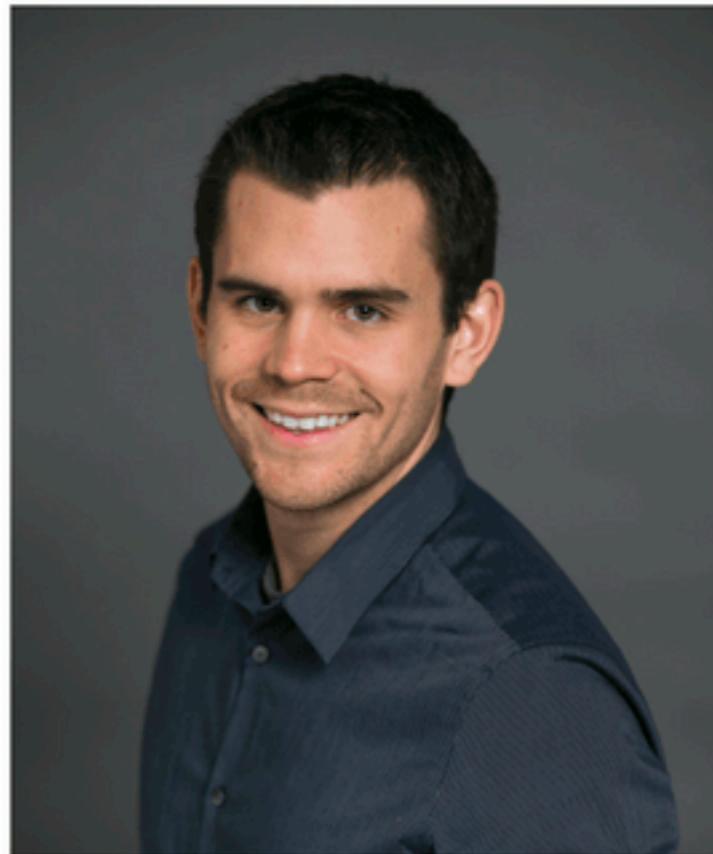
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<https://www.w3counter.com/globalstats.php?year=2018&month=12>

JavaScript Demo

APEX Nitro

<https://github.com/OraOpenSource/apex-nitro>



MBNDATA

APEX Nitro

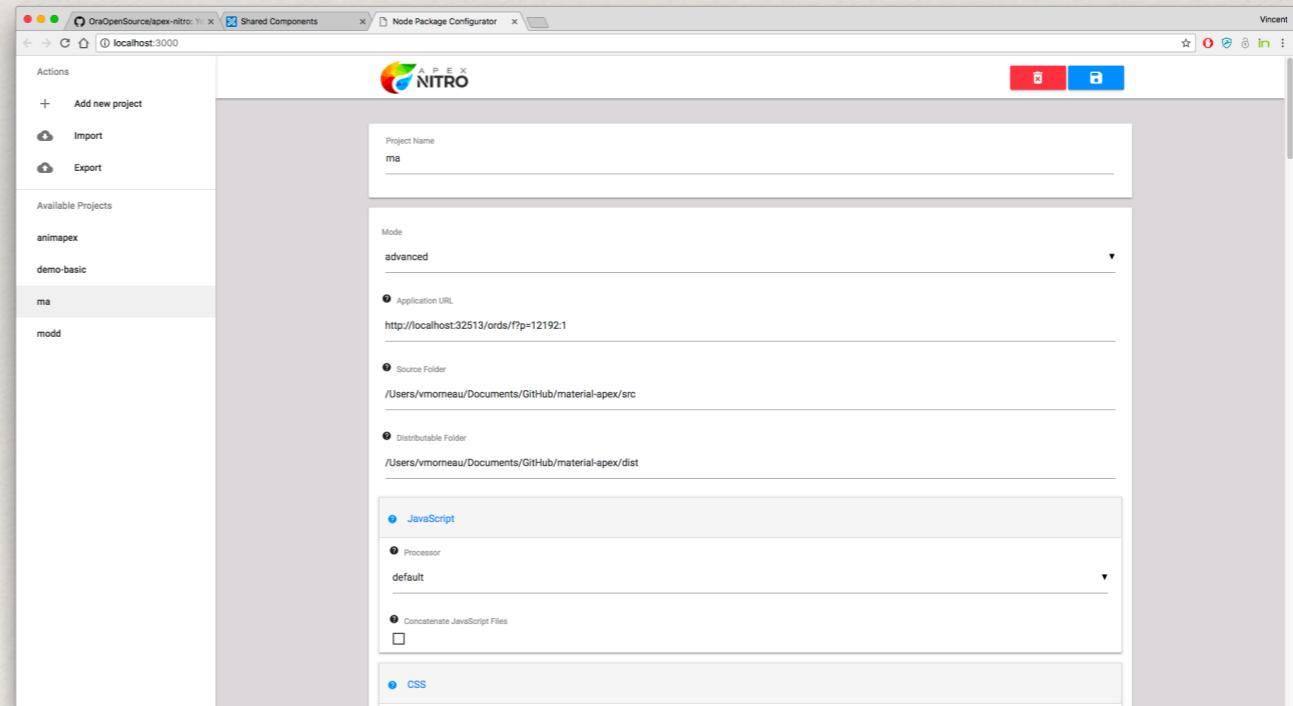
What APEX Nitro does

- Browser Synchronization
- File Minification
- File Concatenation
- Source Mapping
- Error Handling
- CSS Preprocessing
- CSS Auto-Prefixer
- Theme Roller Customization



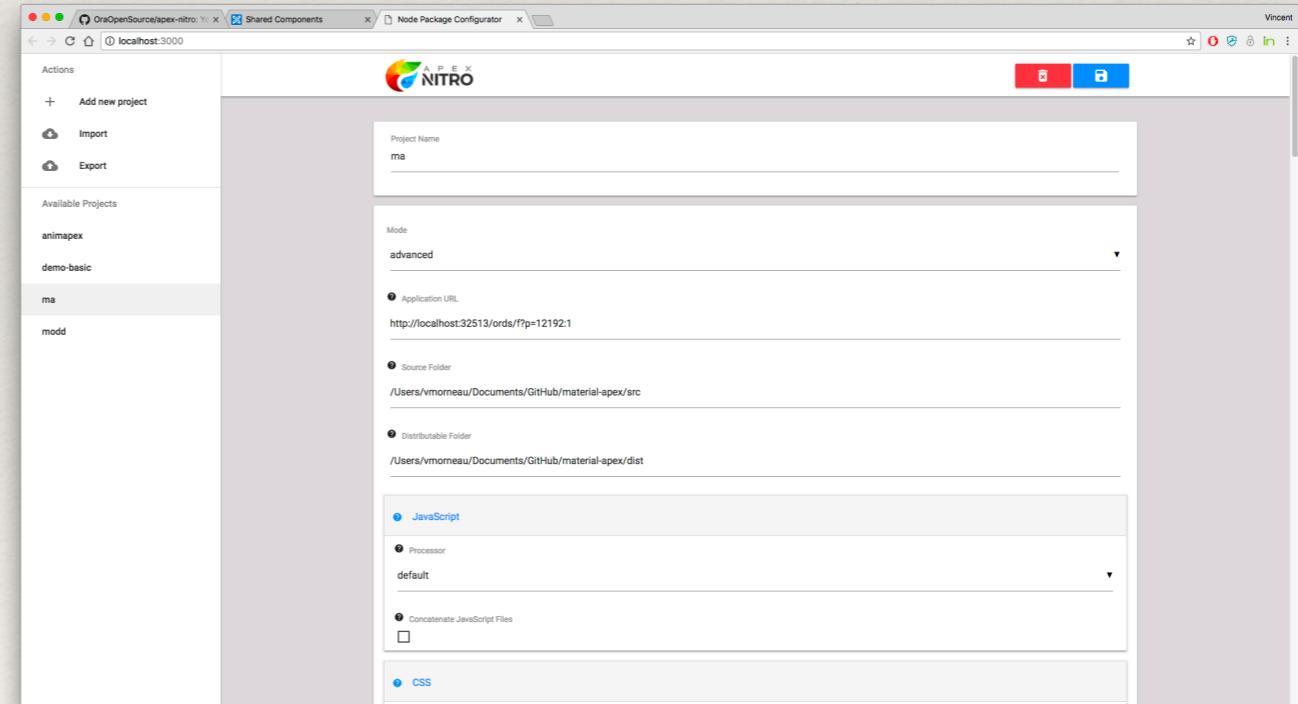
APEX Nitro - Setup

1. Install node (npm)
2. npm install -g apex-nitro
3. apex-nitro config <project>



APEX Nitro - Setup

1. Install node (npm)
2. npm install -g apex-nitro
3. apex-nitro config <project>
4. Configure you APEX Application



Nitro Demo

Thank You

Questions ?



Oracle APEX 19.1 Early Adopter

<https://apexea.oracle.com/>



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