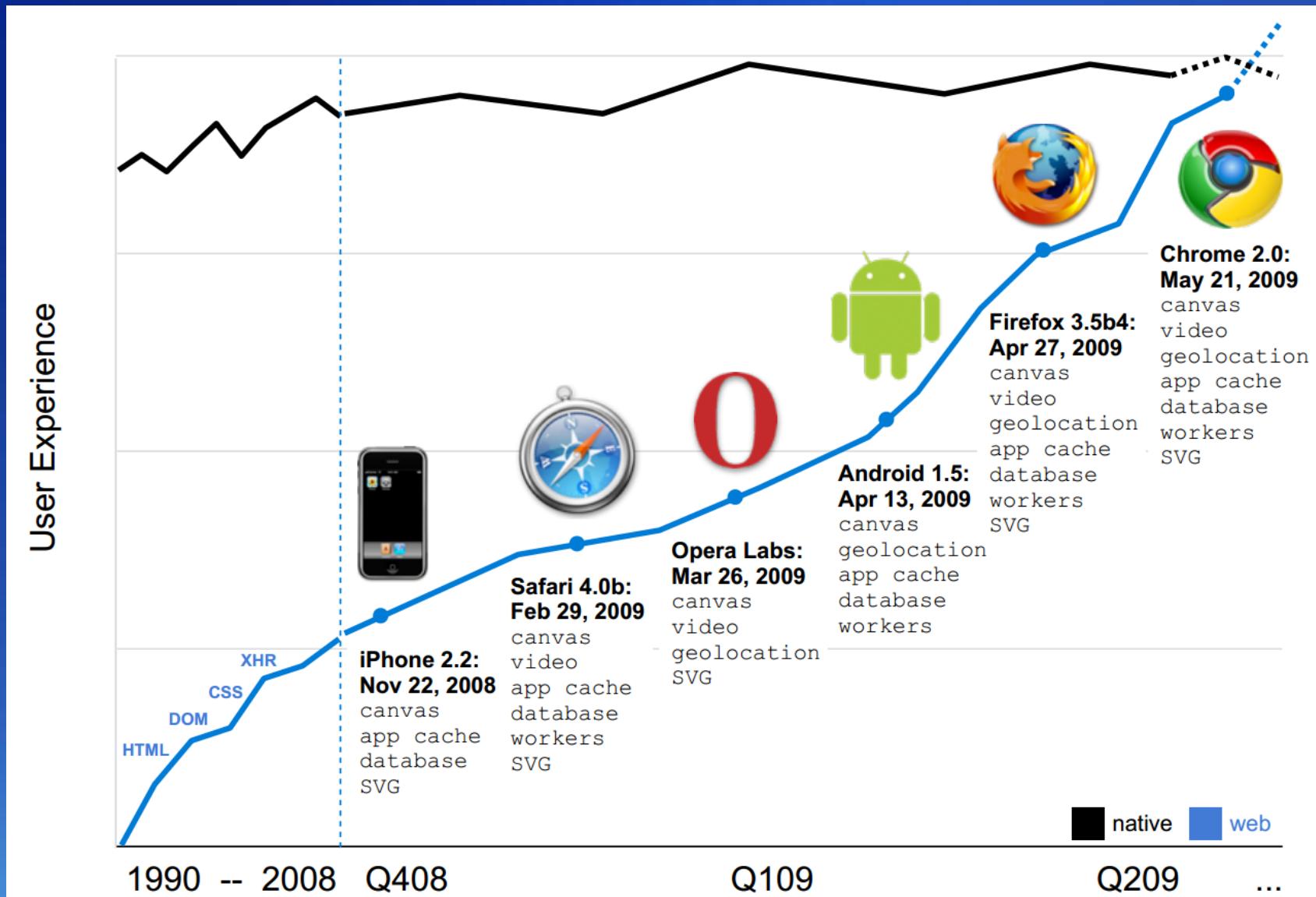


A close-up photograph of a person's hands typing on a white computer keyboard. The background is a solid blue color.

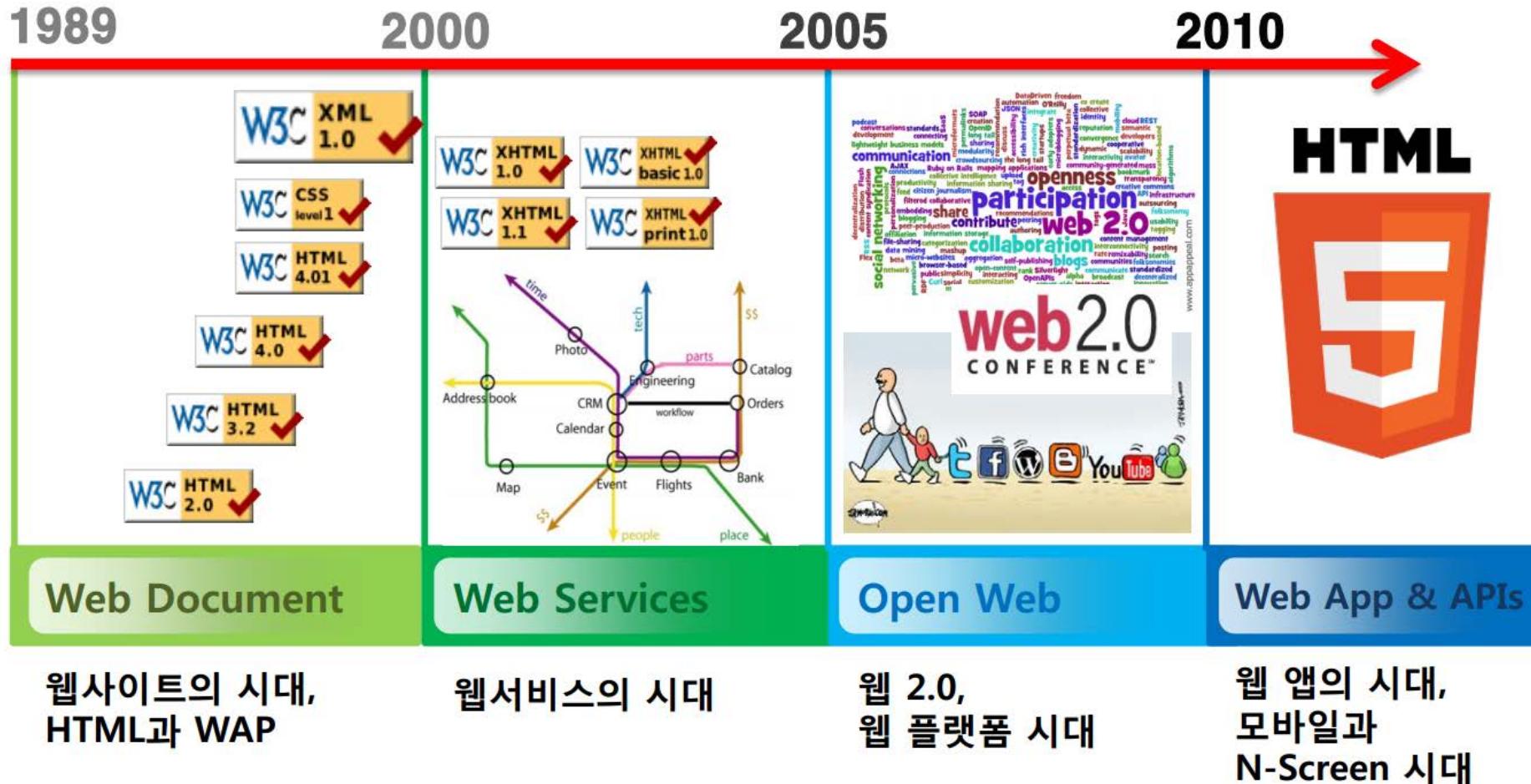
Hello JavaScript!

Bok, Jong Soon
javaexpert@nate.com
www.javaexpert.co.kr

The Web Platform is Accelerating



Evolution of World Wide Web

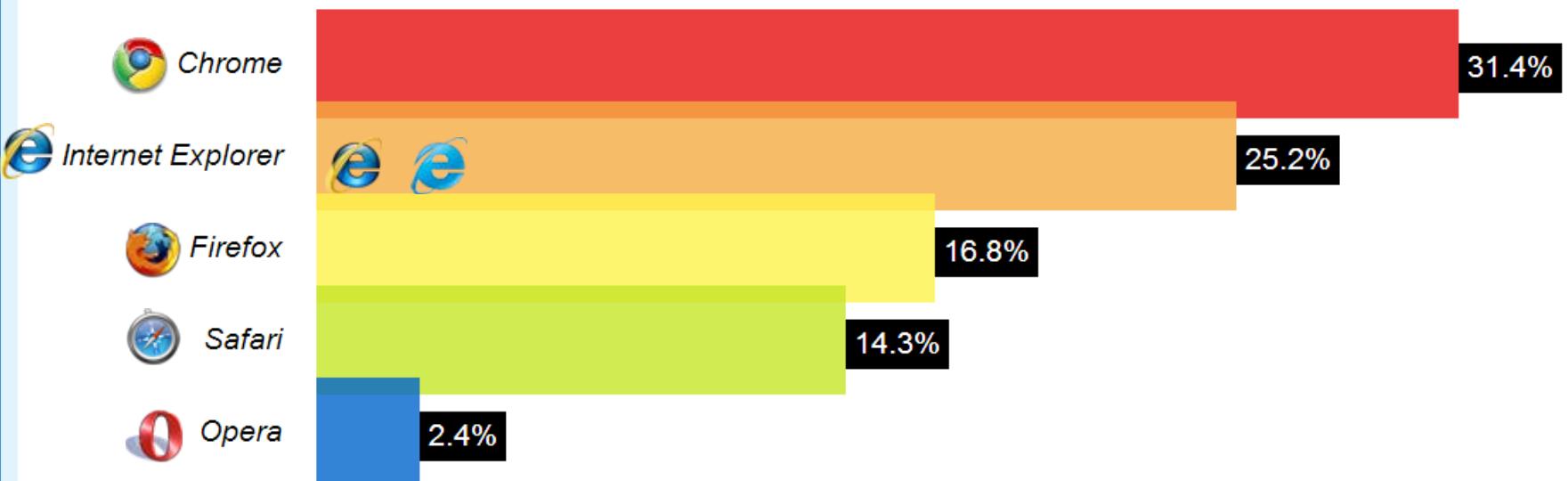


Present Web Browser Market Share

September, 2013

Web Browser Market Share

[NEW: View Trends](#)



Present Web Browser Market Share(Cont.)

September, 2013

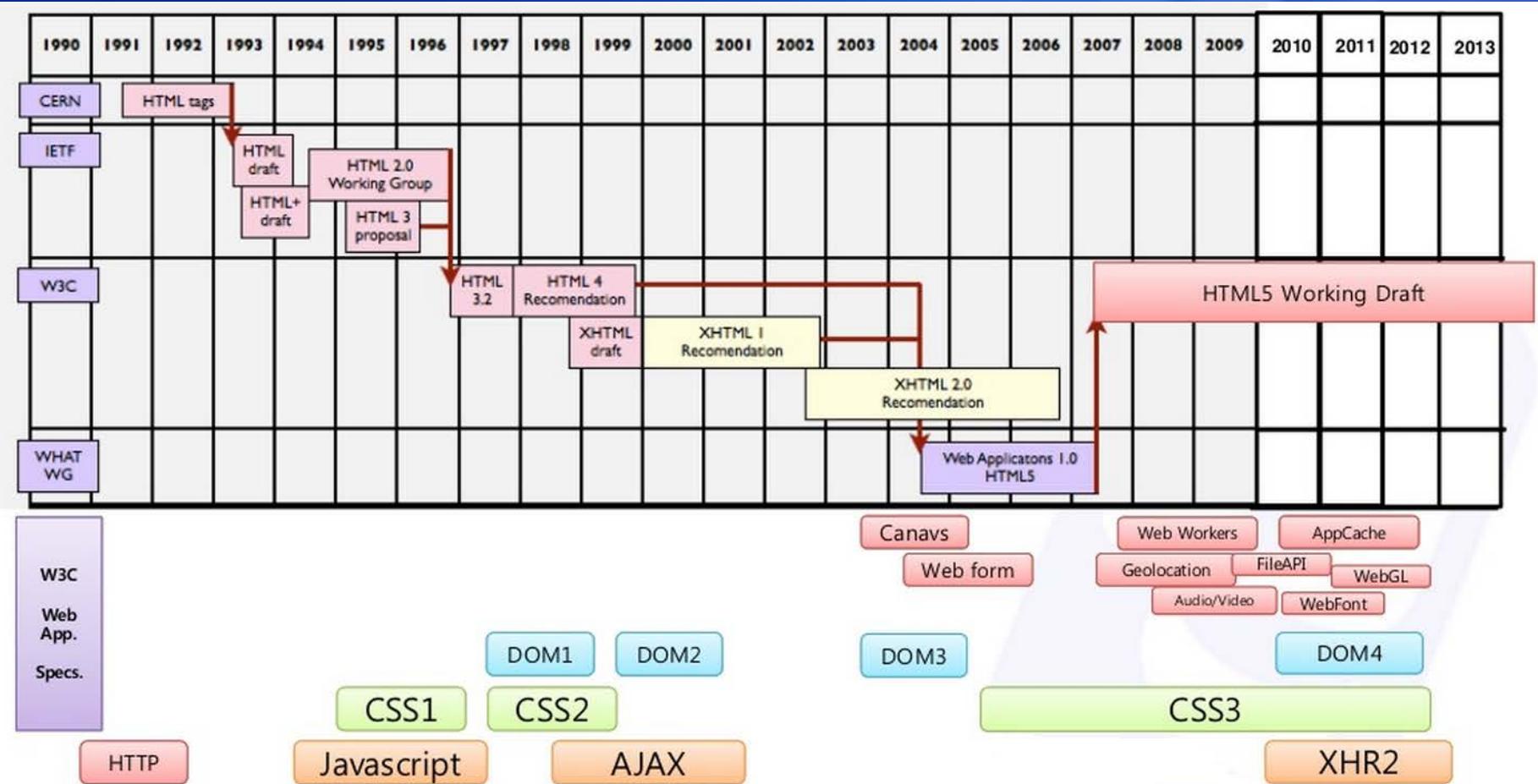
Web Browsers		
1	Chrome 29	25.86%
2	Firefox 23	10.38%
3	Safari 6	8.79%
4	Internet Explorer 10	8.67%
5	Internet Explorer 8	7.31%
6	Internet Explorer 7	4.46%
7	Internet Explorer 9	4.41%
8	Android 4	2.77%
9	Safari 5	2.61%
10	Safari 7	2.25%

HTML 5

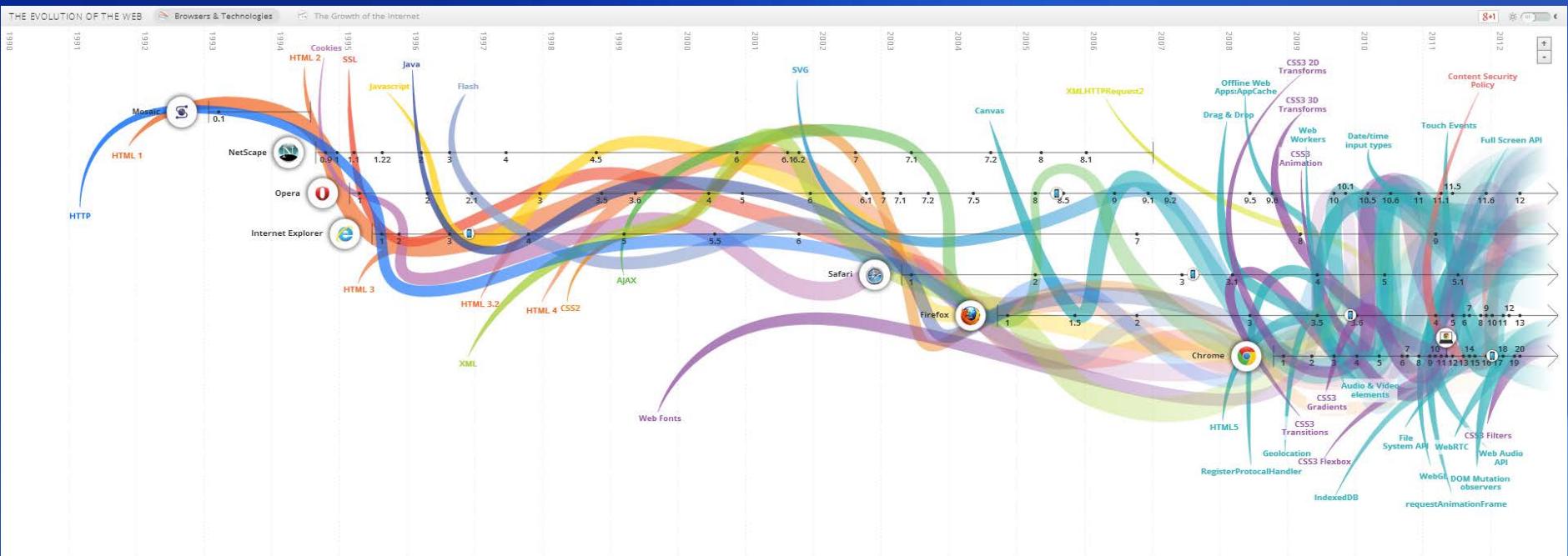
• HTML5 ← HTML5 + CSS3 + JavaScript API



Web App Technology Timeline



The Evolution of the WEB



Source : <http://evolutionofweb.appspot.com/>

What is JavaScript?

- Formerly *LiveScript*
- Netscape's simple, cross-platform, World-Wide Web scripting language.
- Is intimately tied to the World-Wide Web.
- Currently runs in only three environments.
 - As a server-side scripting language.
 - As an embedded language in server-parsed HTML.
 - As an embedded language run in web browsers.

What is JavaScript? (Cont.)

- Is a **lightweight** programming language.
- Is programming code that can be inserted into HTML pages.
- JavaScript code can be executed by all modern web browsers.
- Is easy to learn.

HTML vs. CSS vs. JavaScript



Features

- Is tightly integrated with the browser Document Object Model
- A simplified C-like syntax
- Component-based Language -> Composite Libraries available
- Runs "100x" slower than C
- No need to file & memory management.
- Easy to use
- Object-based Language
- Not strict to type check
- No executable file
- Not relation to Java

JavaScript History

- The First Script : Apple's *HyperCard** in 1987.
- MS's VBA** in 1993.



* <http://en.wikipedia.org/wiki/HyperCard>

** http://en.wikipedia.org/wiki/Visual_Basic_for_Applications

JavaScript History (Cont.)

- Was originally developed in Netscape, by Jared Russell.
- Developed under the name *Mocha* Project(LiveConnect is Server-side tech.)
- Hires Brendan Eich at MicroUnity Systems Engineering → Role to new programming language design & implementation.
- LiveScript* was the official name for the language in beta releases of Netscape Navigator 2.0 in September 1995.

JavaScript History (Cont.)

- Release Java Language in 1995 at SUN Microsystems.
- Renamed JavaScript on December 4, 1995 at Netscape browser version 2.0B3.
- MS releases IE & VBScript against Netscape
→ Jscript
- JScript was included in IE 3.0, released in August 1996.

JavaScript History (Cont.)

- Occurs cross-browser compatibility problems.
- Netscape toward to standardization.
- Report on JavaScript Specification to ECMA Conference on November, 1996.
- Releases ECMA-262 in 1997.
- [ECMA-262](#)
- [ECMA-327](#)
- [ECMA-357\(E4X\)](#)

JavaScript Versions

Versions	Date	JScript	Web Browser Version	ECMAScript
1.0	Mar 1996	1.0	NN 2, IE3	-
1.1	Aug 1996	2.0	NN 3	
1.2	Jun 1997	3.0	NN 4.0 ~ 4.05, 03	
1.3	Oct 1998	4.0	NN 4.06 ~ 4.7x, IE 4.05	ECMAScript 1 + 2
1.4		5.0	0 6	
1.5	Nov 2000	5.5 ~ 5.8	NN 6.0, FF 1, IE 5.5 ~ 8, O 7, S 3.0 ~ 5, G 1.0 ~ 10.0.666	ECMAScript 3
1.6	Nov 2005		FF 1.5	
1.7	Oct 2006		FF 2.0, G 28.0.1500.95	ECMAScript 4
1.8	Jun 2008		FF 3.0, O 11.50	ECMAScript 4
1.8.1		9.0	FF 3.5	-
1.8.5	Jul 2010		FF 4.0, IE 9, O11.60	ECMAScript 5



IE :



O :



G :



S :



JavaScript Engines

Web Browsers	JavaScript Engines
Firefox	SpiderMonkey
MSIE	Jscript
Safari	JavaScriptCore
Google Chrome	V8
Carakan	Carakan

Cross-browser Compatibility Support

- Microsoft's IE9 :
[http://msdn.microsoft.com/library/ff729665\(v=VS.94\).aspx](http://msdn.microsoft.com/library/ff729665(v=VS.94).aspx)
- Opera :
<http://www.opera.com/docs/specs/presto29/ecmascript/>
 - ECMA-262 v2. and v3
 - ECMA-262 v.5
- Firefox :
https://developer.mozilla.org/en/JavaScript/Reference/About#JavaScript_history
- Safari :
<https://developer.apple.com/library/mac/#documentation/AppleApplications/Conceptual/SafariJSProgTopics/WebKitJavaScript.html>
- Google Chrome :
<http://code.google.com/chrome/devtools/docs/overview.html>
- Camino : <http://caminobrowser.org/>

Hello World!

```
1  <!DOCTYPE html>
2  <html>
3      <head>
4          <title> Hello, World </title>
5          <meta charset="utf-8">
6          <script type="text/javascript">
7              alert("Hello, World");
8          </script>
9      </head>
10     <body>
11
12     </body>
13 </html>
```

Hello World! Once Again

```
1  <!DOCTYPE html>
2  <html>
3    <head>
4      <title> Hello, World Once Again </title>
5      <meta charset="utf-8">
6      <script type="text/javascript">
7        function hello(){
8          //say hello to the world
9          var msg = "Hello, World";
10         document.open();
11         document.write(msg);
12         document.close();
13     }
14   </script>
15 </head>
16 <body onload="hello()">
17
18 </body>
19 </html>
```

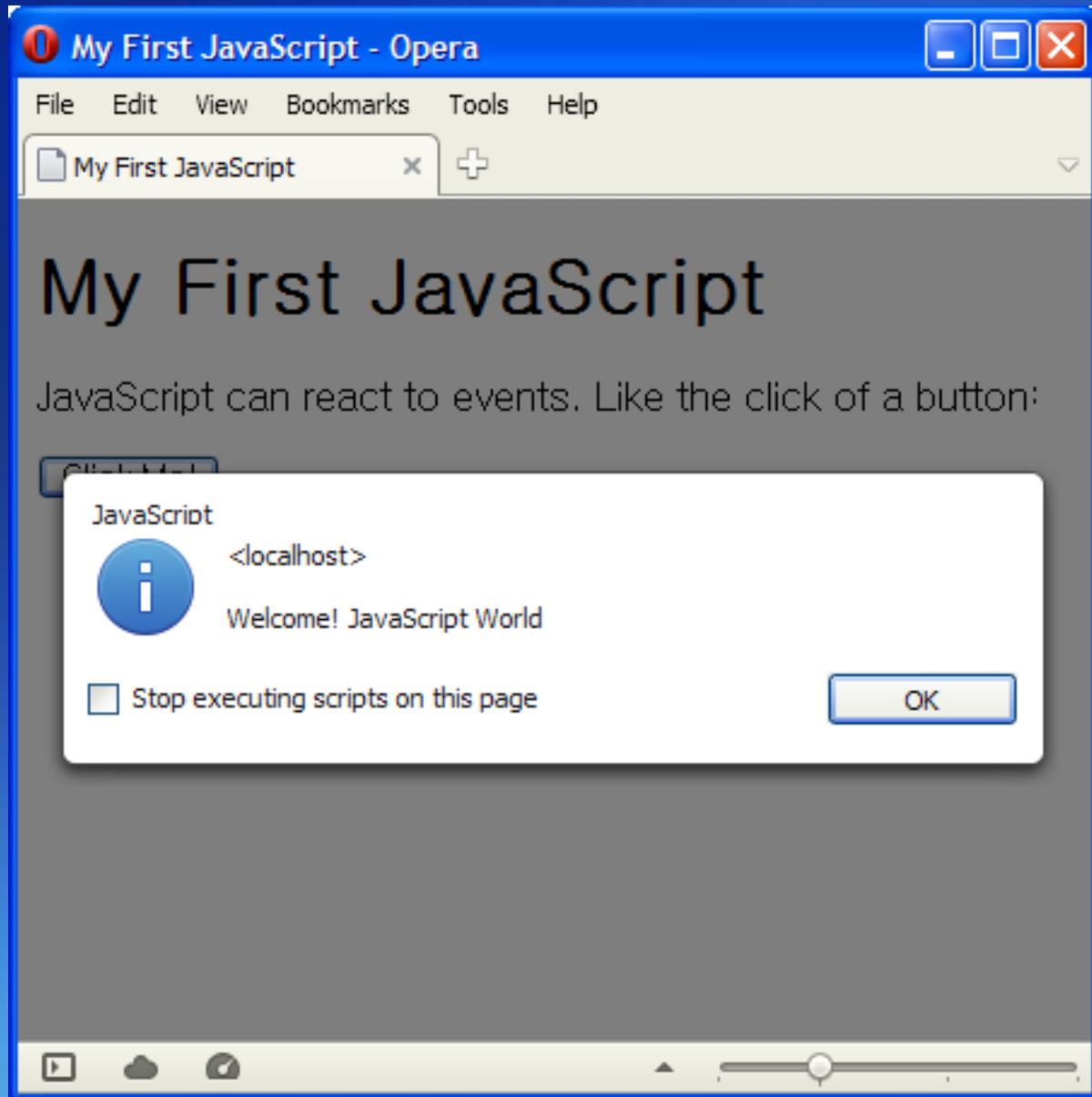
Lab1 : My First JavaScript

- **Web Browsers**
 - IE10, Firefox, Google Chrome, Opera, Safari
- **Text Editors**
 - Notepad++ or Editplus
- **Files**
 - helloworld.html

Lab1 : helloworld.html

```
1  <!DOCTYPE html>
2  <html>
3      <head>
4          <title> My First JavaScript </title>
5          <meta charset="utf-8">
6      </head>
7      <body>
8          <h1>My First JavaScript</h1>
9
10         <p>
11             JavaScript can react to events. Like the click of a button:
12         </p>
13
14         <button type="button" onclick="alert('Welcome! JavaScript World')">Click Me!</button>
15     </body>
16 </html>
```

Lab1 : Result



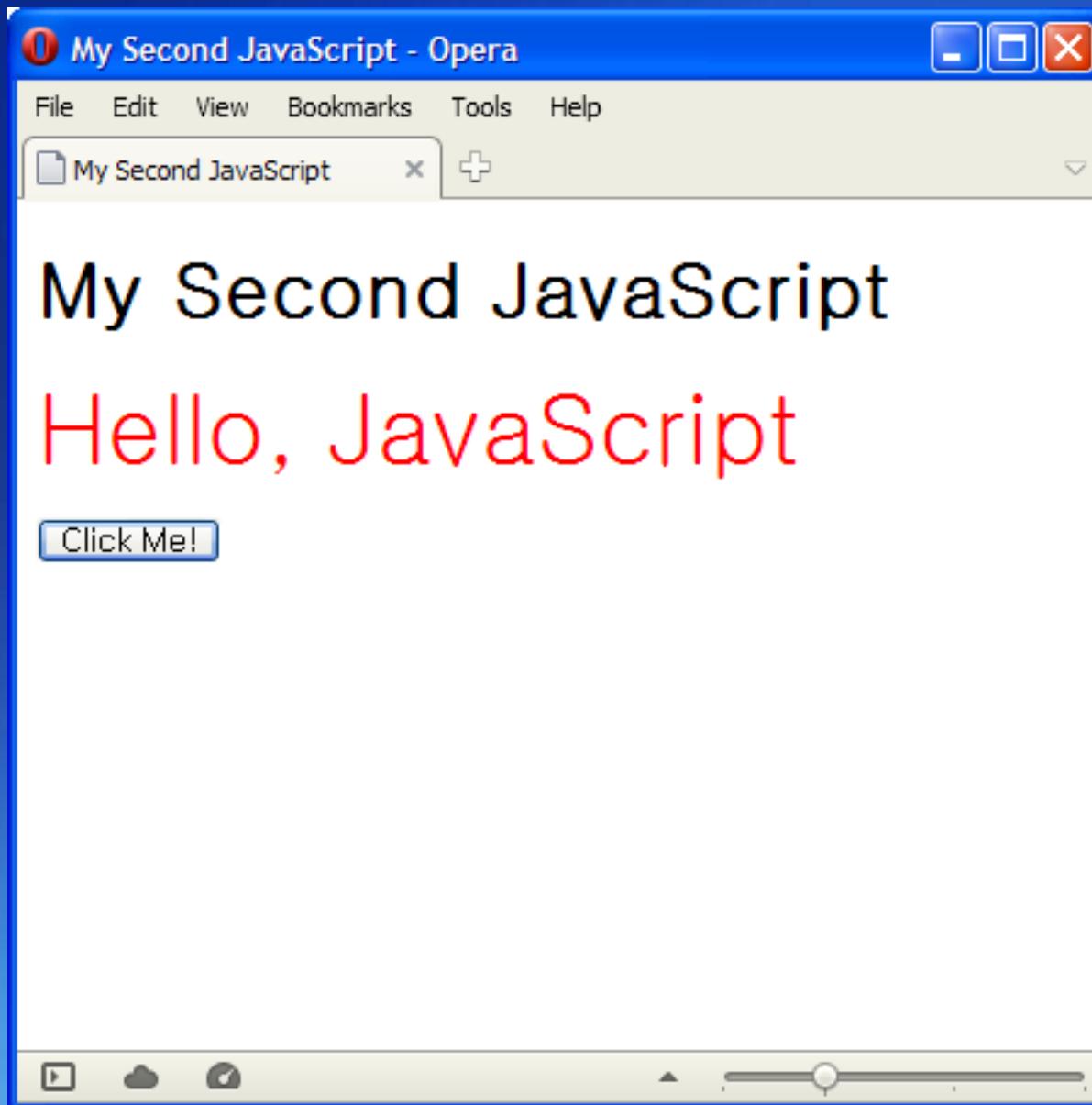
Lab2 : My Second JavaScript

- Web Browsers
 - IE10, Firefox, Google Chrome, Opera, Safari
- Text Editors
 - Notepad++ or Editplus
- Files
 - helloworld1.html

Lab2 : helloworld1.html

```
1  <!DOCTYPE html>
2  <html>
3      <head>
4          <title> My Second JavaScript </title>
5          <meta charset="utf-8">
6      </head>
7      <body>
8          <h1>My Second JavaScript</h1>
9
10         <p id="demo">
11             JavaScript can change the content of an HTML element.
12         </p>
13
14         <script type="text/javascript">
15             function myFunction(){
16                 x = document.getElementById("demo");
17                 x.innerHTML =
18                     "<span style='color:red;font-size:30pt'>Hello, JavaScript</span>";
19             }
20         </script>
21
22         <button type="button" onclick="myFunction()">Click Me!</button>
23     </body>
24 </html>
```

Lab2 : Result



Lab3 : My Third JavaScript

- **Web Browsers**
 - IE10, Firefox, Google Chrome, Opera, Safari
- **Text Editors**
 - Notepad++ or Editplus
- **Files**
 - helloworld2.html

Lab3 : helloworld2.html

```
1  <!DOCTYPE html>
2  <html>
3      <head>
4          <title> My Third JavaScript </title>
5          <meta charset="utf-8">
6      </head>
7      <body>
8          <h1>Click the light bulb to turn on/off the light</h1>
9          <script type="text/javascript">
10             function changeImage(){
11                 element = document.getElementById("myimages");
12                 if(element.src.match("bulbon"))
13                     element.src = "images/pic_bulboff.jpg";
14                 else
15                     element.src = "images/pic_bulbon.jpg";
16             }
17         </script>
18
19         <img id="myimages" onclick="changeImage()"
20             src = "images/pic_bulboff.jpg" width="100" height="180">
21     </body>
22 </html>
```

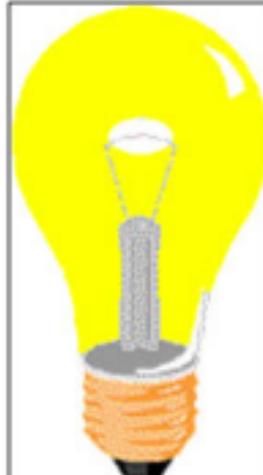
Lab3 : Result

My Third JavaScript - Opera

File Edit View Bookmarks Tools Help

My Third JavaScript +

Click the light bulb to turn on/off the light



The screenshot shows a window titled "My Third JavaScript - Opera". The window contains a message "Click the light bulb to turn on/off the light" above a yellow lightbulb icon. The lightbulb is a simple graphic with a yellow glass and a grey screw base. The Opera browser interface is visible, including the menu bar, tabs, and status bar.

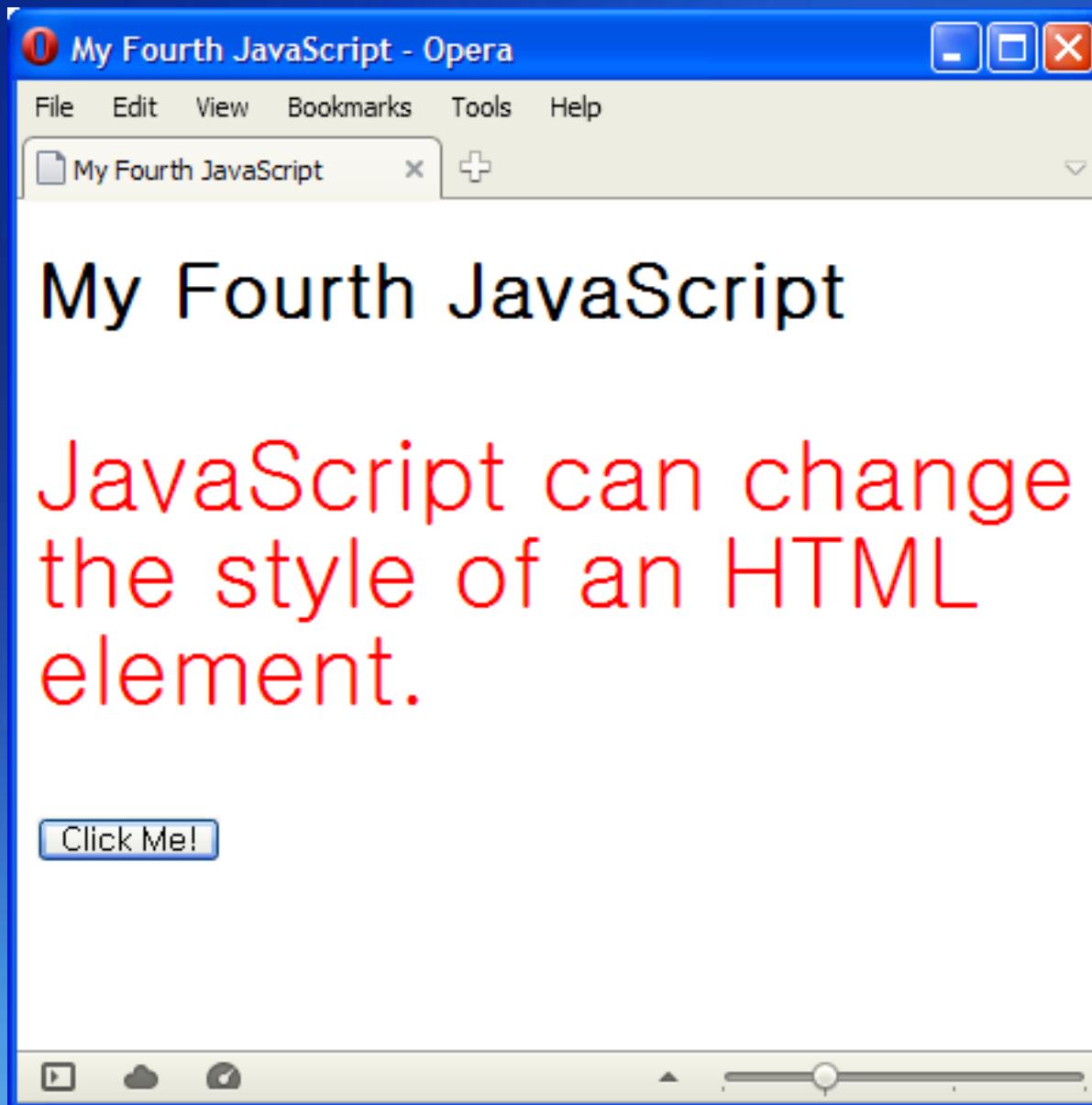
Lab4 : My Fourth JavaScript

- **Web Browsers**
 - IE10, Firefox, Google Chrome, Opera, Safari
- **Text Editors**
 - Notepad++ or Editplus
- **Files**
 - helloworld3.html

Lab4 : helloworld3.html

```
1  <!DOCTYPE html>
2  <html>
3  | <head>
4  | | <title> My Fourth JavaScript </title>
5  | | <meta charset="utf-8">
6  | </head>
7  | <body>
8  | | <h1>My Fourth JavaScript</h1>
9
10 | | <p id="demo">
11 | | | JavaScript can change the style of an HTML element.
12 | | </p>
13 | | <script type="text/javascript">
14 | | | function myFunction(){
15 | | | | x = document.getElementById("demo");
16 | | | | x.style.color = "#ff0000";
17 | | | | x.style.fontSize = "30pt";
18 | | | }
19 | | </script>
20
21 | | <button type="button" onclick="myFunction()">Click Me!</button>
22 | </body>
23 </html>
```

Lab4 : Result



The <script> Tag

- JavaScript in HTML must be inserted between <script> and </script> tags.
- **type** attribute → MIME type
 - **text/javascript**
 - **text/ecmascript**
 - **text/jscript**
 - **text/vbscript**
 - **text/vbs**
- **language** → Not recommend since HTML 4.01
- **src**

The <script> Tag (Cont.)

- JavaScript can be put in the <body> and in the <head> section of an HTML page.
- To insert a JavaScript into an HTML page, use the <script> tag.
- The <script> and </script> tells where the JavaScript starts and ends.
- The lines between the <script> and </script> contain the JavaScript:

```
<script type="text/javascript">
    alert("My First JavaScript!");
</script>
```

The <script> Tag (Cont.)

- You can place an unlimited number of scripts in an HTML document.
- Scripts can be in the <body> or in the <head> section of HTML, and/or in both.
- It is a common practice to put functions in the <head> section, or at the bottom of the page.

The <script> Tag (Cont.)

- A JavaScript Function in <head>

```
1  <!DOCTYPE html>
2  <html>
3    <head>
4      <script type="text/javascript">
5        function myFunction(){
6          document.getElementById("demo").innerHTML =
7            "My First JavaScript Function";
8        }
9      </script>
10     </head>
11
12   <body>
13
14     <h1>My Web Page</h1>
15
16     <p id="demo">A Paragraph</p>
17
18     <button type="button" onclick="myFunction()">Try it</button>
19
20   </body>
21 </html>
```

The <script> Tag (Cont.)

- A JavaScript Function in <body>

```
1  <!DOCTYPE html>
2  <html>
3    <body>
4
5      <h1>My Web Page</h1>
6
7      <p id="demo">A Paragraph</p>
8
9      <button type="button" onclick="myFunction()">Try it</button>
10
11     <script type="text/javascript">
12       function myFunction(){
13         document.getElementById("demo").innerHTML =
14           "My First JavaScript Function";
15       }
16     </script>
17
18   </body>
19 </html>
```

JavaScript Files

- To include a JavaScript library or script file in your web page, use this syntax:

```
<script type="text/javascript"  
       src="somejavascript.js">  
</script>
```

- External JavaScript files have the file extension **.js**.
- The script element contains no content, but the closing tag is still required.

JavaScript Files (Cont.)

```
1  <!DOCTYPE html>
2  <html>
3    <head>
4      <title> Hello, World! </title>
5      <meta charset="utf-8">
6      <script type="text/javascript" src="helloworld.js">
7        </script>
8    </head>
9    <body onload="hello()">
10   ...
11   </body>
12 </html>
```

```
1  /*
2   * filename : helloworld.js
3   * function : hello
4   * author : Shelley
5   * hello prints out the message, "Hello,World!"
6   */
7
8  function hello(){
9    //say hello to the world
10   var msg = "Hello, <em>World!</em>";
11   document.open();
12   document.write(msg);
13   document.close();
14 }
```

noscript

- Some browsers or other applications are not equipped to process JavaScript, or are limited.

```
1  <!DOCTYPE html>
2  <html>
3    <head>
4      <title> Hello, World! </title>
5      <meta charset="utf-8">
6      <script type="text/javascript">
7        function hello(){
8          //say hello to the world
9          var msg = "Hello, <em>World!</em>";
10         document.open();
11         document.write(msg);
12         document.close();
13     }
14   </script>
15 </head>
16 <body onload="hello()">
17   <noscript>
18     <p>I'm still here, World!</p>
19   </noscript>
20 </body>
21 </html>
```

Comments

- Single line comments :
 - Using the double slash (//).
- Multiline comments :
 - Using /* and */

Sites using JavaScript

- http://www.dreamwv.com/primer/page/s_pertab.html

Periodic Table of the Elements (JavaScript) - Opera

File Edit View Bookmarks Tools Help

Periodic Table of the Ele... +

Web www.dreamwv.com/primer/page/s_pertab.html

Search with Google

solid liquid THE PERIODIC TABLE gas synth

43 Technetium Perrier & Segre 1937 Discoverer

1 H	2 He																
3 Li	4 Be	5 B	6 C	7 N	8 O	9 F	10 Ne										
11 Na	12 Mg	13 Al	14 Si	15 P	16 S	17 Cl	18 Ar										
19 K	20 Ca	21 Sc	22 Ti	23 V	24 Cr	25 Mn	26 Fe	27 Co	28 Ni	29 Cu	30 Zn	31 Ga	32 Ge	33 As	34 Se	35 Br	36 Kr
37 Rb	38 Sr	39 Y	40 Zr	41 Nb	42 Mo	43 Tc	44 Ru	45 Rh	46 Pd	47 Ag	48 Cd	49 In	50 Sn	51 Sb	52 Te	53 I	54 Xe
55 Cs	56 Ba	57 La	72 Hf	73 Ta	74 W	75 Re	76 Os	77 Ir	78 Pt	79 Au	80 Hg	81 Tl	82 Pb	83 Bi	84 Po	85 At	86 Rn
87 Fr	88 Ra	89 Ac	104 Rh	105 Db	106 Sq	107 Bh	108 Hs	109 Mt	110 Uun	111 Uuu	112 Uub	113 Uut	114 Uug				
lanthanons																	
58 Ce	59 Pr	60 Nd	61 Pm	62 Sm	63 Eu	64 Gd	65 Tb	66 Dy	67 Ho	68 Er	69 Tm	70 Yb	71 Lu				
actinons																	
90 Th	91 Pa	92 U	93 Np	94 Pu	95 Am	96 Cm	97 Bk	98 Cf	99 Es	100 Fm	101 Md	102 No	103 Lr				

Dmitri's Dream