TEMA 5:

ECMASCRIPT, DOM, NAVEGADOR

EI1042 - TECNOLOGÍAS Y APLICACIONES WEB

EI1036- TECNOLOGÍAS WEB PARA LOS SISTEMAS DE INFORMACIÓN

(2018/2019)

Universitat Jaume I

TABLA DE CONTENIDOS

1. INTRODUCCIÓN EMACSCRIPT

EVOLUCIÓN ECMASCRIPT

DIALECTOS/API

JAVASCRIPT

EDITORES EN LÍNEA:

http://jsfiddle.net/

https://codepen.io/idesi/pen/rLgaJO

OBJETOS

CREACIÓN DE OBJETOS

```
personObj = {nombre: "Carlos Sempere", apodo:"Doe", eda
```

```
var  Autor = new Object();
Autor.nombre = "Carlos Sempere";
Autor.apodo = "Doe" ;
Autor.edad = 50;
//objeto 'Autor' con atributos
```

```
function Persona(nombre,apodo,edad){
  this.nombre=nombre;
  this.apodo=apodo;
  this.age=edad;
}
var Autor= new Persona("Anas Sempere","Doe",50);
```

DECLARACIÓN VARIABLES /AMBITOS

EJEMPLO JS

```
var z; // sin inicializarla
var x = 42
y = 42 // sin declarar variable
let y = 13
const PI = 3.14;
let arr = [ 3 , 5 , 7 ];
arr.foo = "hola";

for (let i in arr) {
   console.log(i); // logs "0", "1", "2", "foo"
}

for (let i of arr) {
   console.log(i); // logs "3", "5", "7"
}
```

TIPOS DE DATOS

ARRAY

```
var colors = ["red", "green", "blue"];
```

```
var colors = new Array();
colors[0] = "red"; colors[2] = "blue";
colors[1]="green";
```

```
var colors = new Array(3,2,1,0);
```

FUNCIONES

```
function NombreFuncion (parametro1, ..., parámetro N )
{...
   return valor;
}
```

FUNCIONES

```
function grado() {
function titulo(name) {
return "Dr. " + name; }
return titulo; //una funcion!
}
var phd = grado();
phd("Turing"); //Dr Tuning
```

EJEMPLOS JAVASCRIPT(1) TRY-THROW-CATH

```
function getMonthName(mo) {
  mo = mo - 1 ; // Adjust month number for array index (1
  var months = ["Jan","Feb","Mar","Apr","May","Jun","Jul"
  "Aug","Sep","Oct","Nov","Dec"];
  if (months[mo]) { return months[mo]; }
  else { throw "InvalidMonth"; // Lanzamos una excepción.
}
myMonth=5;
try { // statements to try
  monthName = getMonthName(myMonth); // function could th
}catch (e) {
    monthName = "unknown";
    console.log(e); // pass exception object to error han
}
```

EJEMPLOS JAVASCRIPT(2)

```
function Primera(p1, p2) {
  p1(p2);}
// Función Literal
var Segunda = function (m1) {
  console.log(m1 / 10 );
};
// Pasando la Función Segunda como parámetro de Primera
Primera(Segunda, 20 );
```

FUNCIÓN ANÓNIMA

```
function (parametro1, ..., parametro N )
{ ...
return valor;
}
```

```
/* funcion anónima sin parámetros*/
(function() { alert("hola mundo") })()
/* funcion anonima como un parametro*/
(function(quien) {alert("hola "+quien)})("mundo")
```

```
return function(quien) {alert("hola "+quien)} ('mundo')
```

EJEMPLOS JAVASCRIPT(3)

```
var f1=function(x,y)
{
   var s=x+y;
   return s;
}
console.log(f1( 4 , 6 ));
var f2=f1;
console.log(f2( 3 , 3 ));
```

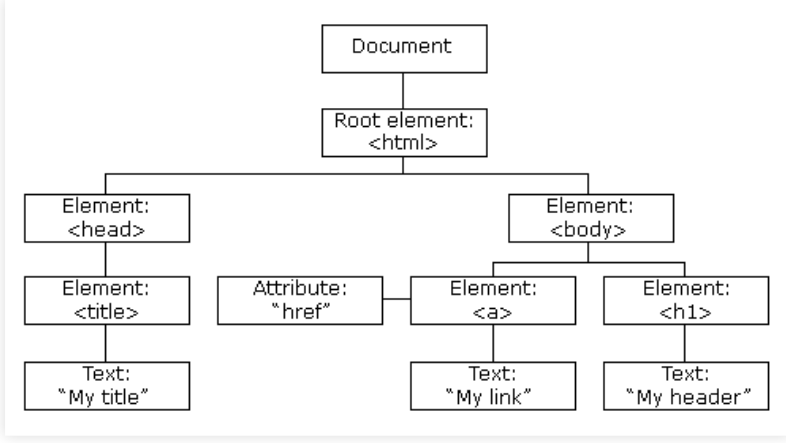
JAVASCRIPT EN EL NAVEGADOR

```
<button onclick="return handleClick(event, this);”>
```

```
<script > console.log(‘hola’);</script>
```

```
<script src=“url”></script>
```

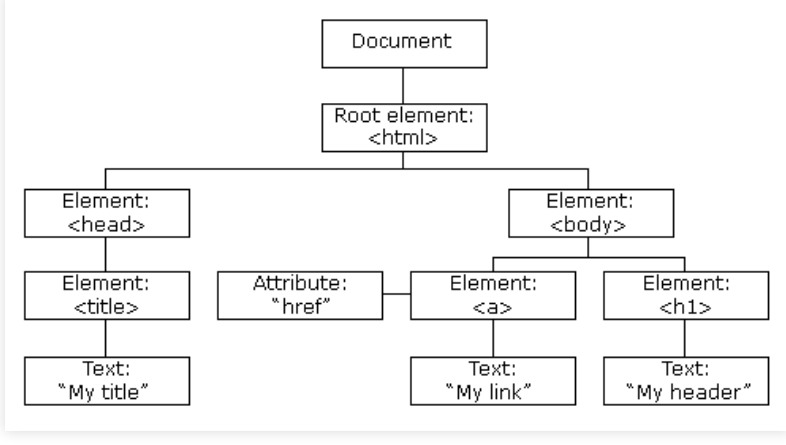
DOM (DOCUMENT OBJECT MODEL)



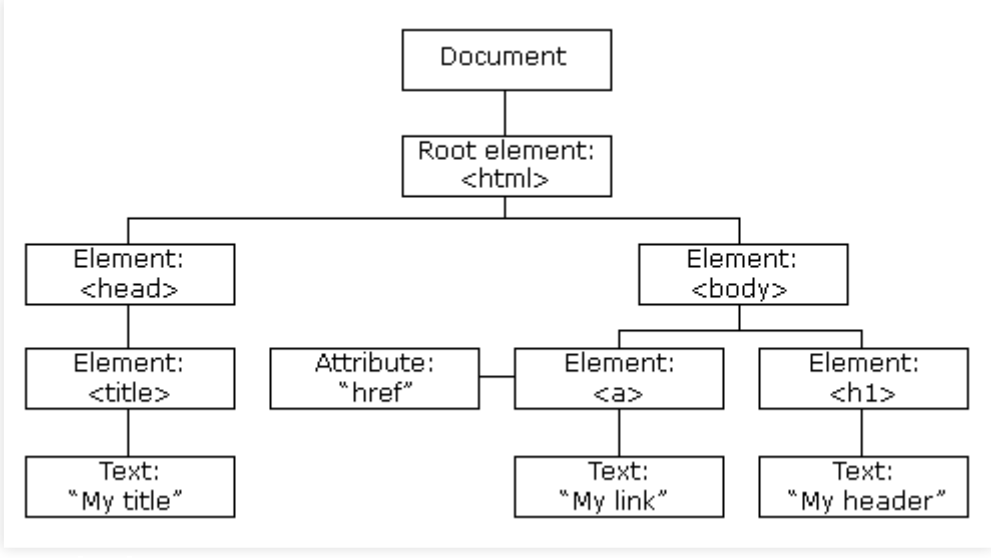
ORIGEN

https://www.w3.org/DOM/DOMTR
https://dom.spec.whatwg.org/

ÁRBOL DEL DOM: CORE DOM



TIPOS DE NODOS



ATRIBUTOS DE LOS NODOS

DOCUMENT NODE

ELEMENT NODE

PHP DOM

EJ:DOM PHP

```php
<?php
$doc = new DOMDocument();
$root = $doc->createElement('html');
$doc->appendChild($root);
$head = $doc->createElement('head');
$root->appendChild($head);

$title = $doc->createElement('title');
$title->appendChild ($doc->createTextNode('Este es el tít
$head->appendChild($title);
$body = $doc->createElement('body');
$root->appendChild($body);
$h1 = $doc->createElement('h1');
$root->appendChild($h1);
$h1->appendChild($doc->createTextNode('Esto es el cuerpo'
$doctype="<!DOCTYPE html >";
echo $doctype.$doc->saveHTML();
?>
```

https://piruletas.000webhostapp.com/teoria/T5/HTMLDOM.php

EJ: DOM PHP LOAD FROM STRING

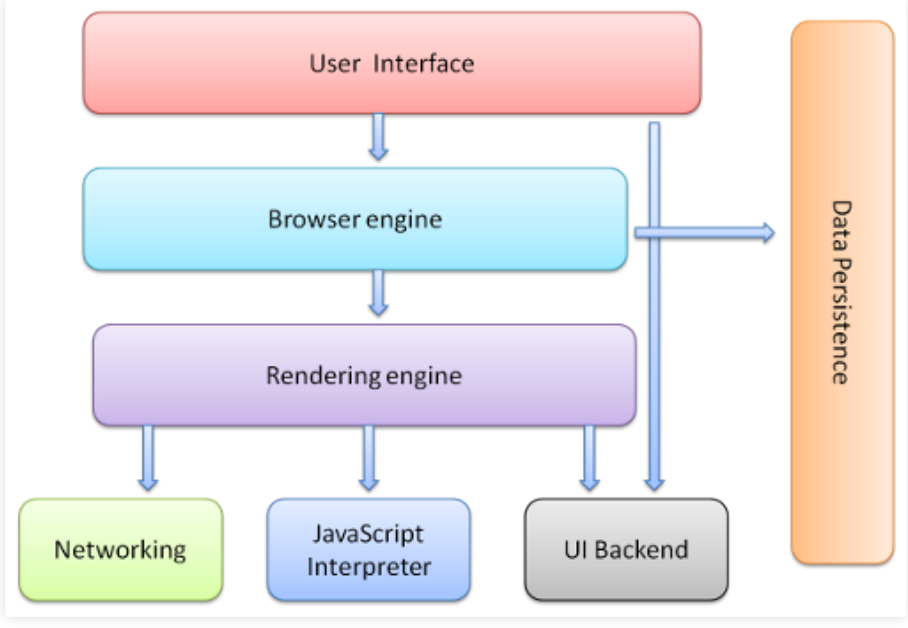
```php
<?php
$html='<html><head> <meta
charset="utf-8"><title>PHP_WEB</title></head><body>
<div><h1>Web page parsing</h1>
<p>This is an example Webpage.</p></div></body></html>';
$doc = new DOMDocument();
$doc->loadHTML ($html);
$h2 = $doc->createElement('h2');
$h1= $doc->getElementsByTagName("h1")[ 0 ];
$h1->parentNode->appendChild($h2);
$h2->appendChild($doc->createTextNode('Esto es el H2'));

$doctype="<!DOCTYPE html >";
echo $doctype.$doc->saveHTML();
?>
```

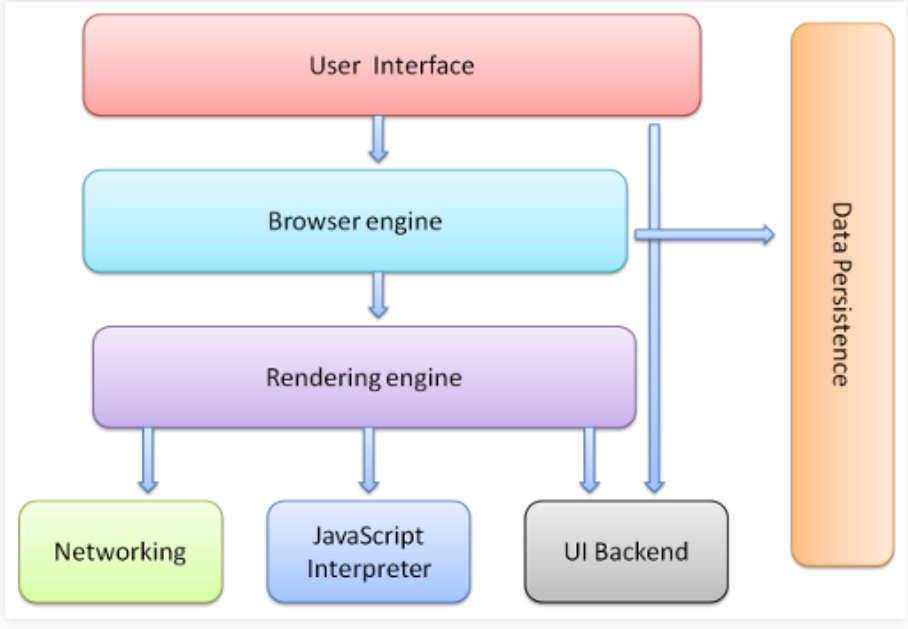
https://piruletas.000webhostapp.com/teoria/T5/HTMLDOM_Load.php

DOM JS NAVEGADOR

```
var doc = document.implementation.createHTMLDocument
        var p = doc.createElement("p");
        p.innerHTML = "This is a new paragraph.";

        doc.body.appendChild(p);
        p = doc.createElement("p");
        p.textContent = "This is a Other new paragrap
        doc.body.appendChild(p);

        // Replace the new HTML document
        Nuevo = doc.documentElement
        Ori = document.documentElement;
        document.replaceChild(Nuevo, Ori);
```

COMPONENTES NAVEGADOR WEB





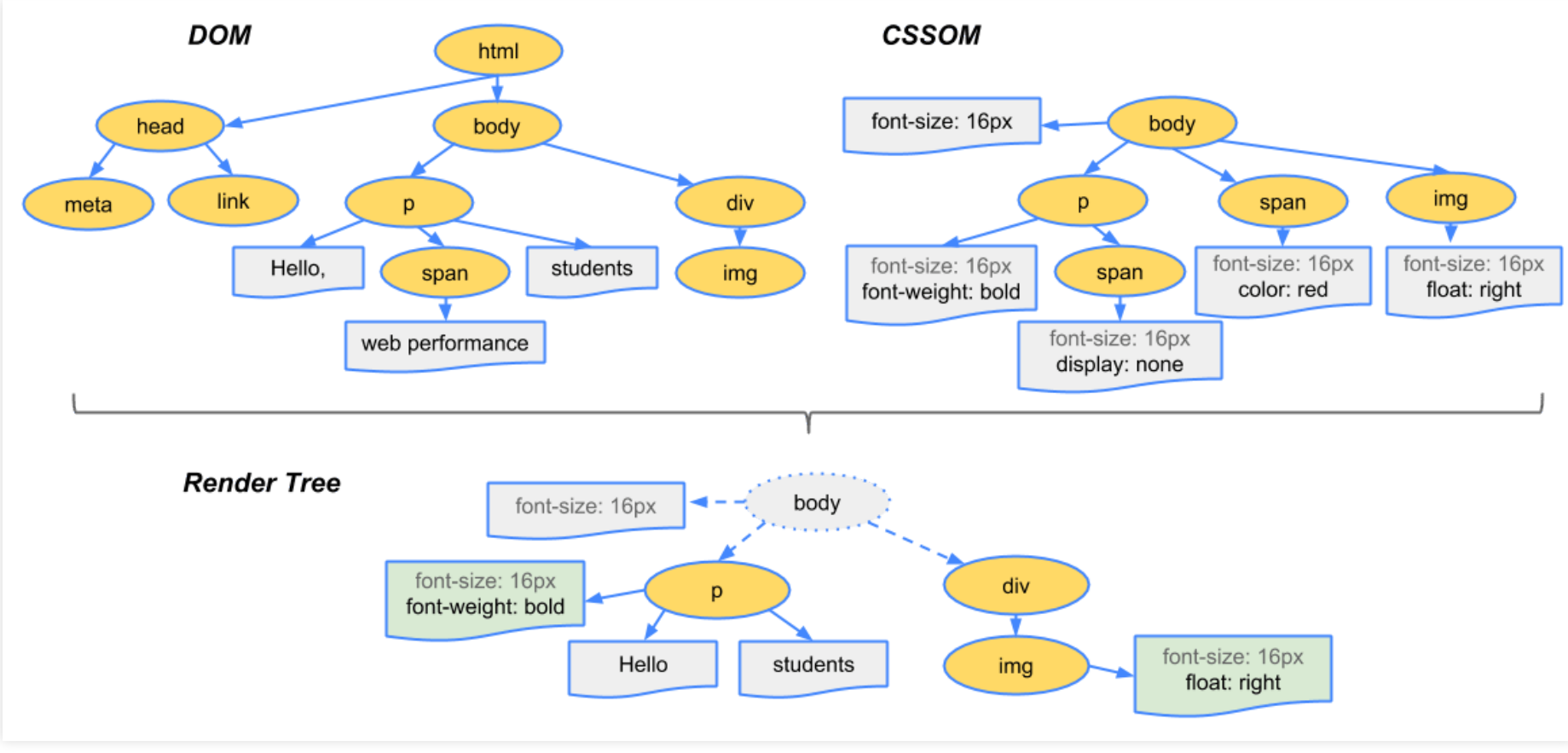
https://www.html5rocks.com/es/tutorials/internals/howbrowserswork/

MOTOR DE RENDERIZADO

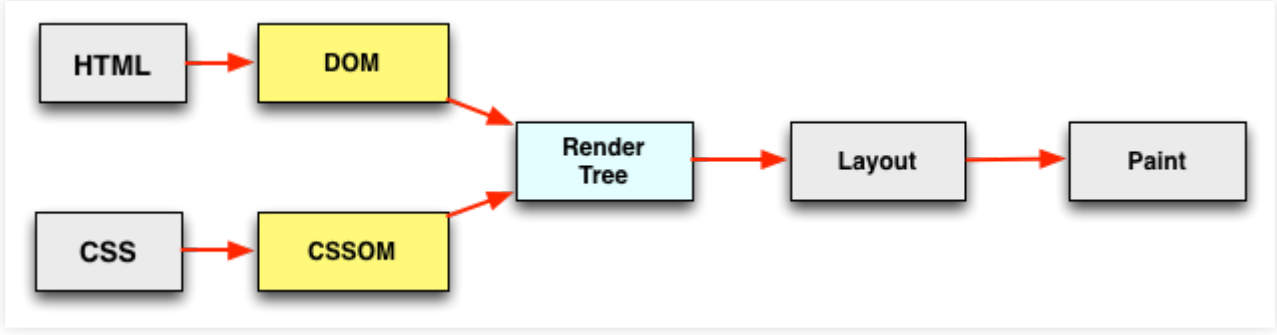
COMPONENTES NAVEGADORES

	Browser	Rendering / Layout Eng...	Scripting Engine
1	Chrome	Blink (C++)	V8 (C++)
2	Mozilla Firefox	Gecko (C++)	SpiderMonkey (C/C++)
3	IE Edge	EdgeHTML (C++)	Chakra JavaScript engine (...
4	Opera	Blink (C++)	V8 (C++)
5	Internet Explo...	Trident (C++)	Chakra JScript engine (C++)
6	Apple Safari	WebKit (C++)	JavaScript Core (Nitro)

RENDER TREE


DOM
html
head
body
meta
link
p
div
Hello,
span
students
img
web performance
CSSOM
font-size: 16px
body
p
span
img
font-size: 16px
font-weight: bold
span
font-size: 16px
color: red
font-size: 16px
float: right
font-size: 16px
display: none
Render Tree
font-size: 16px
body
font-size: 16px
font-weight: bold
p
div
Hello
students
img
font-size: 16px
float: right

FLUJO BÁSICO DEL MOTOR DE RENDERIZACIÓN



https://developers.google.com/web/fundamentals/performance/critical-rendering-path/render-tree-construction?hl=es-419

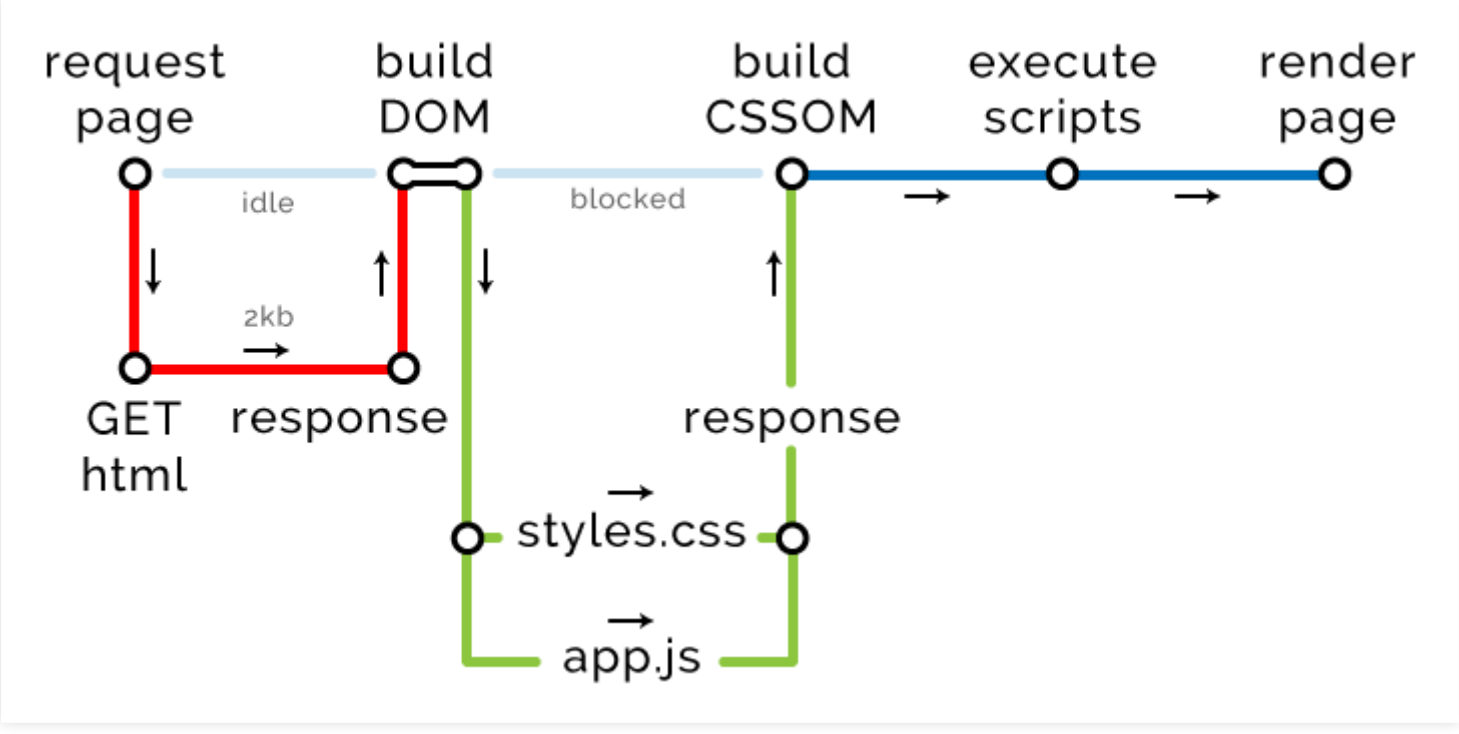
CSS RENDER

https://developer.mozilla.org/en-US/docs/Web/CSS/Reference

```
div.error-label{
    color: #fff;
    background-color: #DA362A;
    -webkit-border-radius: 5px;
    -moz-border-radius: 5px;
    border-radius: 5px;
}
```

Mozilla CSS extensions
WebKit CSS extensions
Microsoft CSS extensions

CRP: CRITICAL-RENDERING-PATH



https://hackernoon.com/optimising-the-front-end-for-the-browser-f2f51a29c572

https://piruletas.000webhostapp.com/teoria/T5/HTML_DOM.html

```
<script type="text/javascript">
var Autor="";   var node0;
function borrar(val) { node0=val;
  console.info("nodo a borrar:"+node0.nodeName);
  console.info("val:"+val.nodeName);
  var node=val.parentNode;
  node.removeChild(node0);
  alert("¿Algo borrado ?");
}
function recuperar(Id) {
  var node = document.getElementById(Id);
  node.appendChild(node0);
  alert("nodo recuperado:");
}
</script>
<p id="borrar">Mueve ratón <span
onMouseOver="borrar(this) ;">AQUÍ</span>:</p>
<p><span onClick="recuperar('borrar');">PULSA
AQUI</span> para recuperar el original</p>
</div>
```

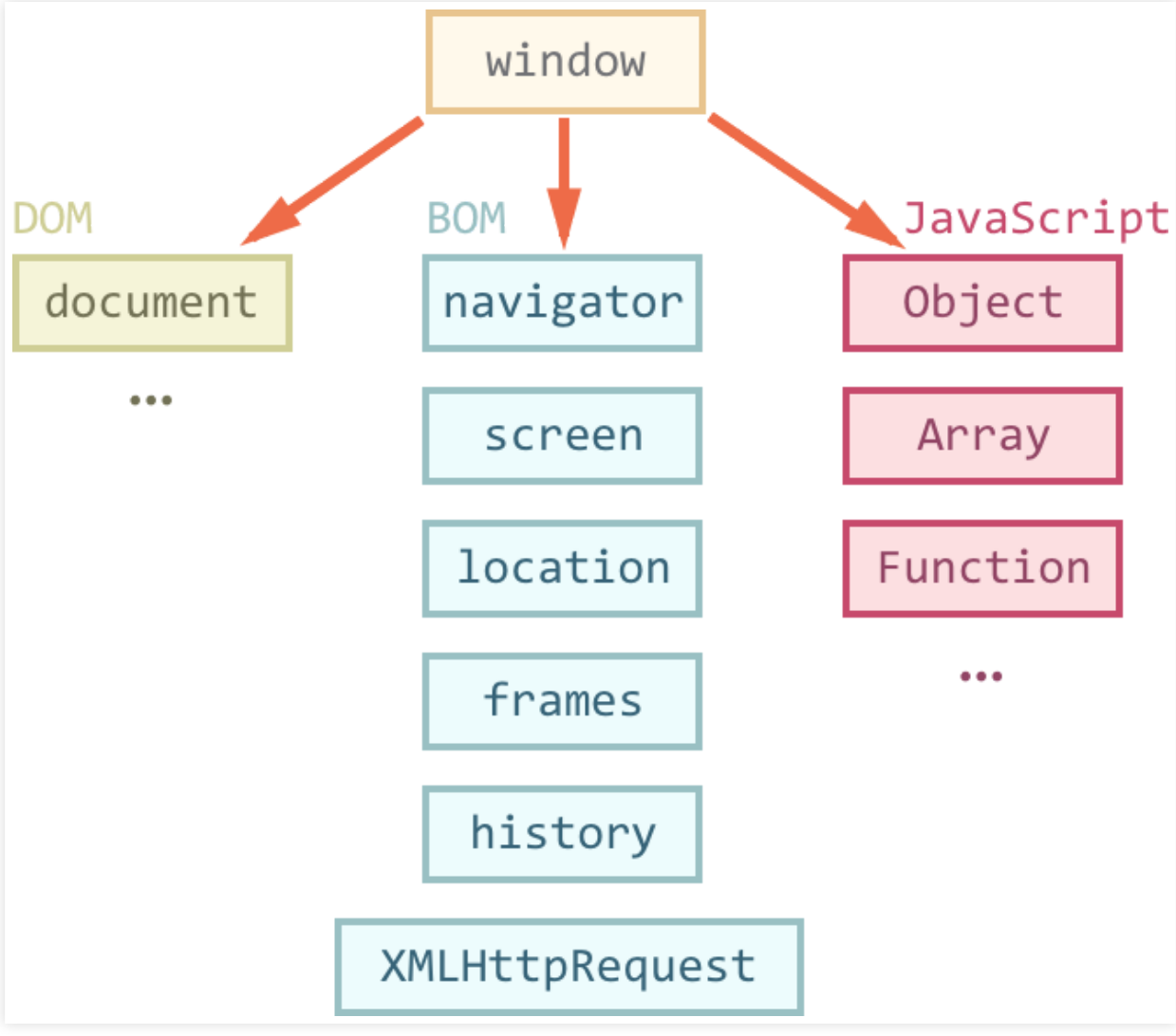
CUESTIONES

CUESTIONES DOM

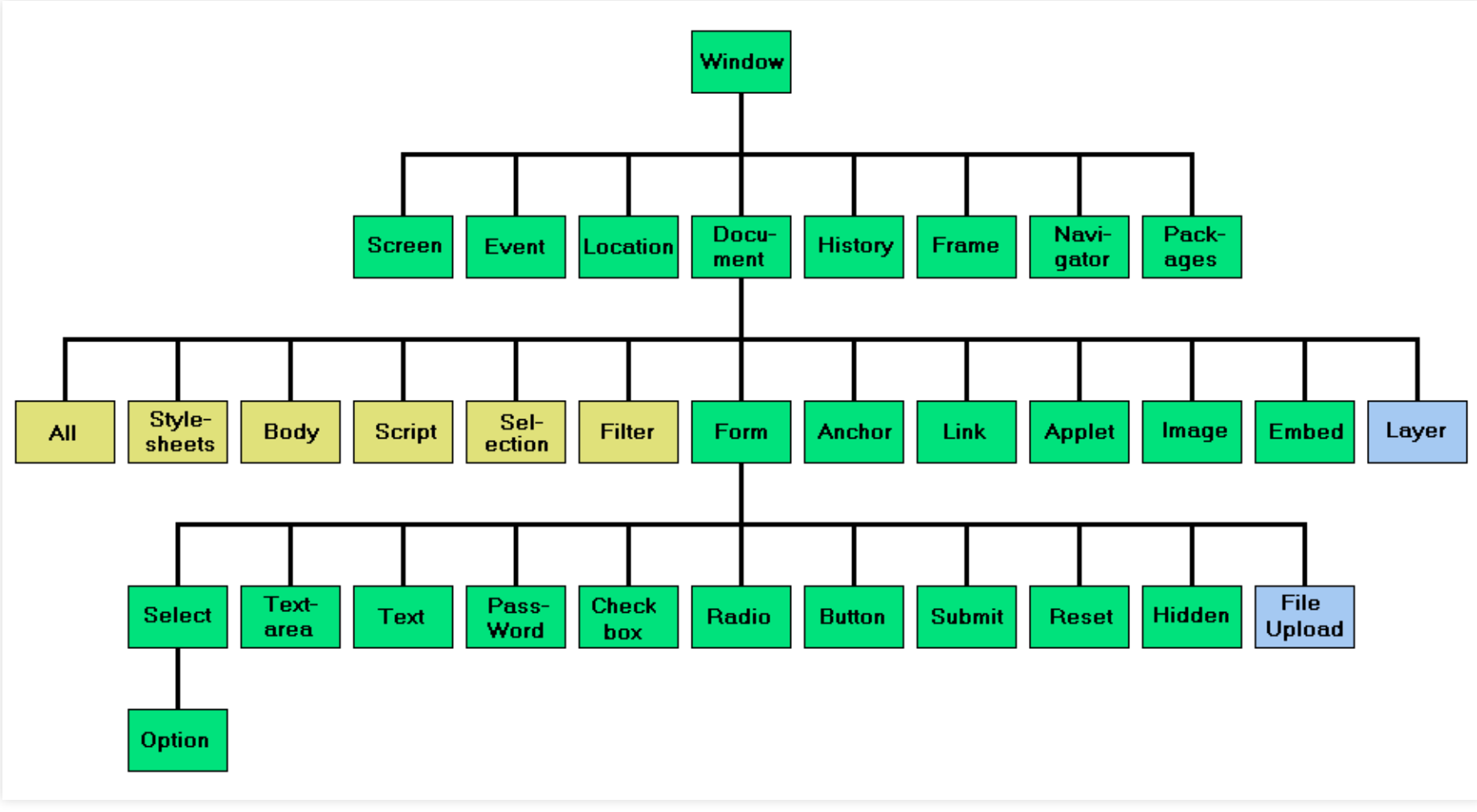
https://piruletas.000webhostapp.com/teoria/T5/FormEventHandlerError.html

```
<script type="text/javascript">º
        var ventana=window.open();
        var father, child;
        father=ventana.document.querySelector('head');
        child = document.createElement('title');
        child.textContent='HTMLDOM';
        father.appendChild(child);
        father=ventana.document.querySelector('body');
        child = document.createElement('h1');
        father.appendChild(child);
        child.textContent='Bienvenido ';
        child = document.createElement('h2');
        child.innerHTML='Esto es el H2';
        father.appendChild(child);
</script>
```

BOM: BROWSE OBJECT MODEL (BROWSER WEB API)



https://javascript.info/browser-environment



http://www.cs.ucc.ie/~gavin/javascript/05_img01.gif

WINDOW OBJECT

DOCUMENT OBJECT

EJEMPLO CREAR NUEVA VENTANA EN NAVEGADOR CON UN DOCUMENTO.

```
var ventana=window.open();
var father, child;
father=ventana.document.querySelector('head');
child = document.createElement('title');
child.textContent='HTMLDOM';
father.appendChild(child);
father=ventana.document.querySelector('body');
child = document.createElement('h1');
father.appendChild(child);
child.textContent='Bienvenido </br>';
child = document.createElement('h2');
child.innerHTML='Esto es el H2<br/>';
father.appendChild(child);
```

ELEMENT Y DOCUMENT

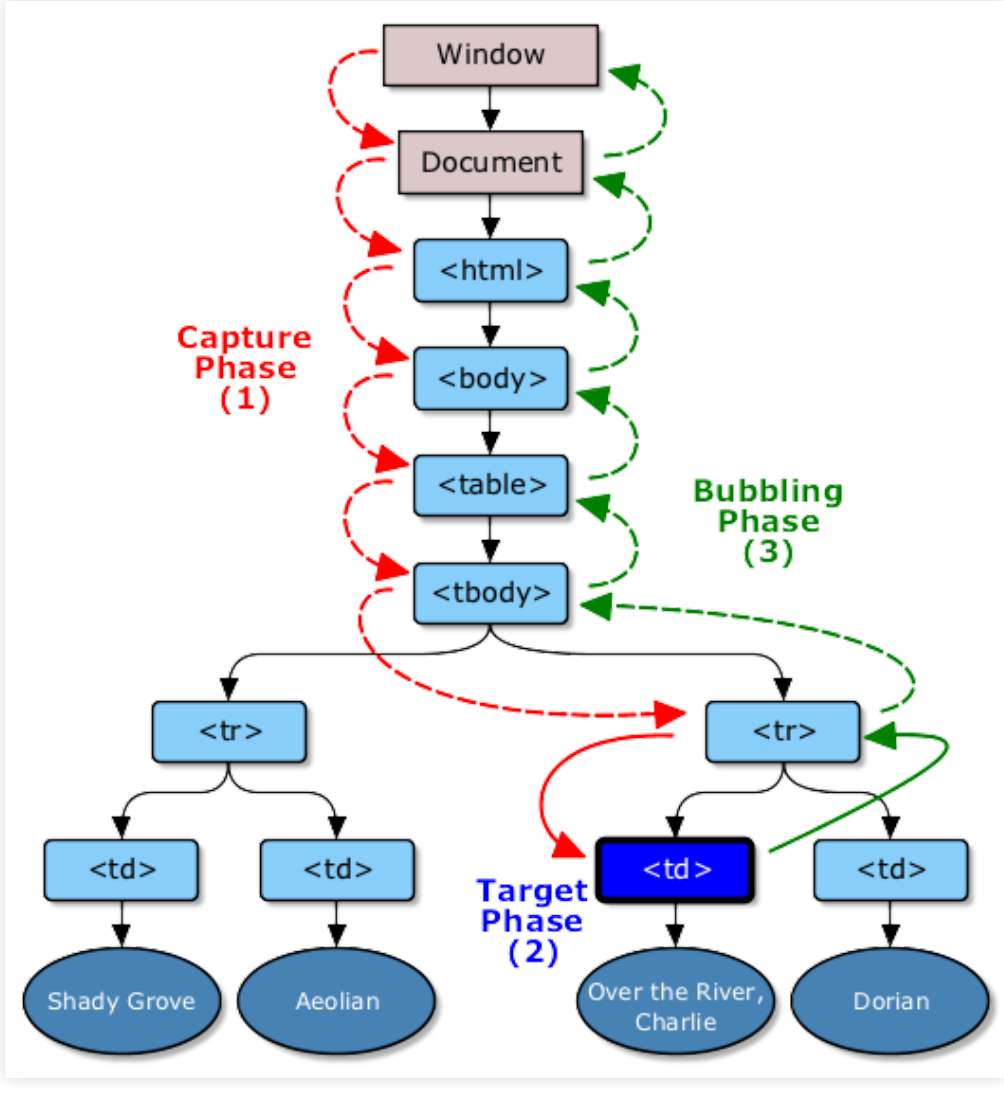
THIS OBJECT

https://developer.mozilla.org/es/docs/Web/JavaScript/Referencia/Op

```
window.alert('error');
alert("sin window!");
```

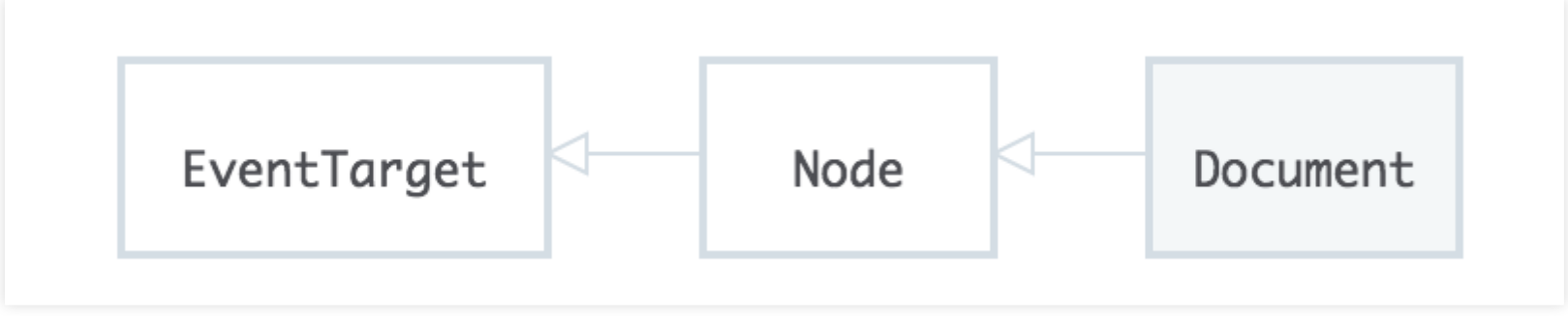
GESTIÓN DE EVENTOS

CAPTURE/BLUBBING



http://www.thatjsdude.com/images/eventBubble.pn

EVENT TARGET INTERFACE



REGISTRO EVENTOS

EJEMPLOS THIS

```
var o = {
  prop: 37 ,
  f: function() {
  return this.prop;
  }};
console.log(o.f()); // logs 37
function bluify(e){
  console.log(this === e.currentTarget); // Siempre true
  this.style.backgroundColor = '#A5D9F3';
  }

x.addEventListener('click', bluify, false);
```

https://piruletas.000webhostapp.com/teoria/T5/FormEventHandlerType.html

TEMPLATE: DOCUMENT FRAGMENT

```
<table id="producTable">
<thead>
<tr>
<td>UPC_Code</td>
<td>Product_Name</td>
</tr>
</thead>
<tbody><!-- Si existen datos se incluye aqui -->
</tbody>
</table>
<template id="productRow">
<tr>
<td class="record"></td>
<td></td>
</tr>
</template>
```

TEMPLATE: DOCUMENT FRAGMENT

```
if ('content' in document.createElement('template')) {

    // Instantiate the table with the existing HTML tbody
    // and the row with the template
    var t = document.querySelector('#productrow');

    // Clone the new row and insert it into the table
    var tb = document.querySelector("tbody");
    var clone = document.importNode(t.content, true);
    td = clone.querySelectorAll("td");
    td[0].textContent = "1235646565";
    td[1].textContent = "Stuff";

    tb.appendChild(clone);

    // Clone the new row and insert it into the table
    var clone2 = document.importNode(t.content, true);
    td = clone2.querySelectorAll("td");
    td[0].textContent = "0384928528";
    td[1].textContent = "Acme Kidney Beans 2";
```

```
    tb.appendChild(clone2);

}
```

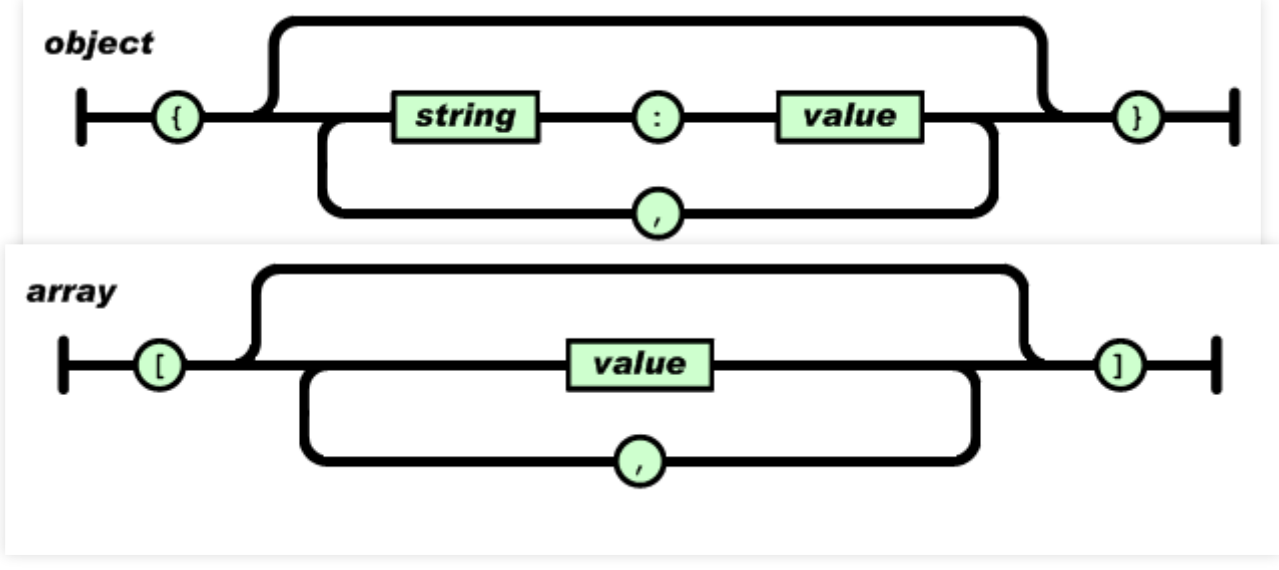
https://mdn.mozillademos.org/en-US/docs/Web/HTML/Element/template$samples/Example?revision=93413158

```
 <body>
<table id="producttable">
<thead>

<tr>


<td>UPC_Code</td>


<td>Product_Name</td>

</tr>
</thead>
<tbody>

<!-- existing data could optionally be included here -->
</tbody>
```

```
</table>

<template id="productrow">
<tr>

<td class="record"></td>

<td></td>
</tr>
</template>
 </html></body>
```

JSON:DATO ESCTRUTURADO

ESTRUCTURA DATOS JSON



ACCESO ELEMENTOS OBJETO JSON

```
JSONdata={"menu": {
"id": "file",
"value": "File",
"popup": {
"menuitem": [
{"value": "New", "onclick": "CreateNewDoc()"},
{"value": "Open", "onclick": "OpenDoc()"},
{"value": "Close", "onclick": "CloseDoc()"}
]
}
}}

var menu = JSONdata.menu;
fichero = JSONdata.menu.value; (
var submenu = JSONdata.menu.menuitem;
var submenuVal = JSONdata.menu.popup.menuitem[ 0 ]["value
```

EJERCICIOS

```
vfoo.bar = ar foo = {};"new property" (^) ;
foo.baz = 3 ;
varconsole.log (jsonString); jsonString = JSON.stringify(
//{"bar":"new property","baz":3}
```

JSON HTTP

```
- a objeto JSON en **JavaScript**.
- a un diccionario o array en **PHP**.
```

MÉTODOS OBJETO JSON JAVASCRIPT

EJEMPLO ENVÍO JSON CON JAVASCRIPT

```
var foo = {};
foo.bar = "new property";
foo.baz = 3 ;
var jsonString = JSON.stringify(foo);
console.log (jsonString);
//{"bar":"new property","baz":3}
var url = "JSONExample3.php createXMLHttpRequest()";
xmlHttp.open("POST", url, true);
xmlHttp.setRequestHeader("Content-Type","application/json
xmlHttp.onreadystatechange = handleStateChange;

xmlHttp.send(json);
```

JSON PHP

```php
$json =
'[{"0":"1","id_fruta":"1","1":"Manzana","nombre_fruta":"M
","2":"100","cantidad":"100"},{"0":"2","id_fruta":"2","1"
"nombre_fruta":"Platano","2":"167","cantidad":"167"},{"0"
_fruta":"3","1":"Pera","nombre_fruta":"Pera","2":"820","c
":"820"}]';
$array = json_decode($json);
print_r($_array)
//OBTENER UN DATO DIRECTAMENTE DEL ARRAY.
echo $array[ 0 ]->nombre_fruta;
//RECORRER Y RECUPERAR VALORES JSON CON
FOREACH.
foreach($array as $obj){
$id_fruta = $obj->id_fruta;
$nombre_fruta = $obj->nombre_fruta;
```

```
$cantidad = $obj->cantidad;
echo $id_fruta." ".$nombre_fruta." ".$cantidad;
}
```

```
Array ( [0] => stdClass Object ( [0] => 1 [id_fruta] => 1
=> 100 ) [1] => stdClass Object ( [0] => 2 [id_fruta] =>
=> 167 ) [2] => stdClass Object ( [0] => 3 [id_fruta] =>
820 ) )
```

EJEMPLO ENVÍO UNA TABLA CON JSON

```
[{"id":"1","nombre":"pepe","apellido":null,"email":null,"
,{"id":"2","nombre":"pepe","apellido":null,"email":null,"
```

```
header('Content-type: application/json');
$result= $pdo->prepare("SELECT * FROM usuarios ");
$result->execute();
$datos= $result->fetchAll(PDO::FETCH_ASSOC);
echo json_encode($datos);
```

```
https://dllido.al.nisu.org/Lab2017/T4/jsonTemplate0.php
```

```
var t = document.querySelector('#productrow');
var tb = document.getElementsByTagName("tbody");
var clone;
```

```
td[0].textContent =datos[i].id;
td[1].textContent = datos[i].nombre;
clone = document.importNode(t.content, true);
tb[0].appendChild(clone);
}
73
https://dllido.al.nisu.org/Lab2017/T4/listarTemplate0.htm
```

```
<table
id="producttable">
<thead>
<tr>
<td>UserID</td>
<td>UserName</td
>
</tr>
</thead>
<tbody>
</tbody>
</table>
<template
id="productrow">
<tr>
<td
```

```
class="record"></td>
<td></td>
</tr>
</template>
```

IFRAME NODE

SAMPLE IFRAME

```
<!DOCTYPE html>
<html><head>
<meta charset="utf-8">
<title>Web page parsing</title>
</head>
<body>
<div>
<h1>Web page parsing</h1>
<p>This is an example Web page.</p>
</div>
<iframe width="400" height="215" frameborder="0"
scrolling="no" marginheight="0" marginwidth="0"
src="https://maps.google.com/maps?f=q&amp;source=s_q&amp;
buenos+aires&amp;sll=37.0625,-95.677068&amp;sspn=38.63881
&amp;hq=&amp;hnear=Buenos+Aires,+Argentina&amp;z=11&amp;l
tput=embed"></iframe>**
</html>
```

https://piruletas.000webhostapp.com/teoria/T5/webDOMIframe.html

CORS

http://www.example2.com.

http://www.w3.org/TR/cors/ http://enable-cors.org

CORS EN EL SERVIDOR

http://www.example2.com

```php
<?php header('Access-Control-Allow-Origin: *'); ?>
```

```
Header set Access-Control-Allow-Origin "*"
```

CORS EN EL CLIENTE

GENERADORES

BABEL

```
<script src="https://unpkg.com/@babel/standalone/babel.mi
<!-- Your custom script here -->
<script type="text/babel">
const getMessage = () => "Hello World";
document.getElementById('output').innerHTML = getMessage(
</script>
```

BIBLIOGRAFÍA

https://dom.spec.whatwg.org/
https://www.html5rocks.com/es/tutorials/internals/howbrowserswork/