Outline

Introduction

- For a Web page, **HTML** supplies document **content and structure** while **CSS** provides **presentation styling**
- In addition, client-side scripts can **control browser actions** associated with a Web page.
- Client-side scripts are almost written in the **Javascript** language to control browser’s actions.
- Client-side scripting can make Web pages more **dynamic** and more **responsive**

Tasks performed by client-side scripts

- Checking **correctness** of user input
- **Monitoring** user events and **specifying reactions**
- **Replacing** and **updating** parts of a page
- Changing the **style** and **position** of displayed elements **dynamically**
- **Modifying** a page in **response** to **events**
- Getting browser **information**
- Making the Web page **different** depending on the browser and browser features
- **Generating HTML** code for parts of the page

Pros & Cons of Client Side Scripting

- **Pros**
  - Allow for **more interactivity** by immediately responding to users' actions.
  - **Execute quickly** because they do not require a trip to the server.
  - The web **browser** uses its own **resources**, and **eases** the **burden** on the **server**.
  - It **saves** network **bandwidth**.
- **Cons**
  - **Code** is loaded in the browser so it will be **visible** to the client.
  - Code is **modifiable**.
  - **Local files** and **databases cannot** be **accessed**.
  - User is **able** to **disable** client side scripting

CLIENT SIDE SCRIPTING VERSUS SERVER SIDE SCRIPTING

CLIENT SIDE SCRIPTING	SERVER SIDE SCRIPTING
A technique used in web development that involves using scripts that runs on the client machine's browser	A technique used in web development that involves using scripts on the webserver to produce a response that is customized for each client's request to the website
Executed in the client side or the web browser	Executed in the back end or the web server
HTML, CSS, and JavaScript are used	PHP, Python, Java, Ruby, and ASP.NET are used
Does not provide much security for the data	Provides more security for the data

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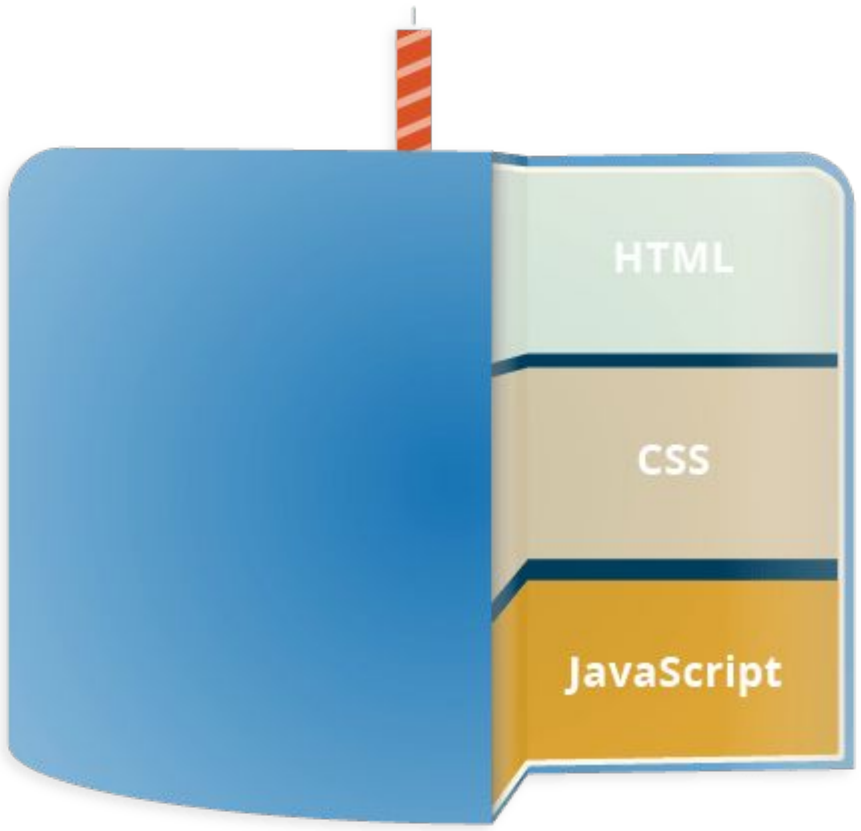
What is Javascript?

- JavaScript was first known as **LiveScript.**
- JavaScript is a scripting or programming language that allows you to implement complex features on web pages — every time a web page does more than just sit there and display static information for you to look at — displaying timely content updates, interactive maps, animated 2D/3D graphics, scrolling video jukeboxes, etc.
- JavaScript is the **Programming Language** for the Web.
- JavaScript can update and change both **HTML** and **CSS.**
- JavaScript can **calculate**, **manipulate** and **validate** data.

Layer Cake of Web Technology

- HTML is the markup language that we use to structure and give meaning to our web content, for example defining paragraphs, headings, and data tables, or embedding images and videos in the page.
- CSS is a language of style rules that we use to apply styling to our HTML content, for example setting background colors and fonts, and laying out our content in multiple columns.
- JavaScript is a scripting language that enables you to create dynamically updating content, control multimedia, animate images, and pretty much everything else.



First JS Program

```
<html>
  <body>
    <script language = "javascript" type = "text/javascript">
            document.write("Hello World!")
    </script>
  </body>
</html>
```

<script> tag

- The <script> tag is used to define a client-side script (JavaScript).
- The <script> element either contains **scripting statements, or** it points to an **external script** file through the **src** attribute.
- Example :

Code

```
<html>
  <head>
    <title>HTML script Tag</title>
  </head>
  <body>
    <script type="text/javascript">
      // Java Script Code Here
    </script>
  </body>
</html>
```

Code

```
<html>
  <head>
    <title>HTML script Tag</title>
  </head>
  <body>
    <script src="PathToJS">
    </script>
  </body>
</html>
```

Variables

- A variable can contain several types of value:
  - **Number** : a numeric value e.g. 156, 100, 1.2
  - **String** : character wrapped in quotes e.g. “rajkot”
  - **Boolean** : a value of true or false
  - **Null** : an empty variable
  - **Function** : a function name
  - **Object** : an object
- Attributes of Javascript variables :
  - It is a **case sensitive**. *(mynum and MyNum are different variables)*
  - It **cannot** contain **punctuation, space** or **start** with a **digit**
  - It **cannot** be a JavaScript **reserved** word
  - Names can contain letters, digits, underscores & dollar signs
  - Names must begin with a letter
  - Names cal also begin with $ and _

Example: Variable Declaration

```
<script>
    var carName = "Volvo";
    document.write(carName);
</script>
```

```
<script>
    var carName;
    document.write(carName);
</script>
```

```
undefined
```

Operators

1. Arithmetic
2. Assignment
3. Comparison (==, !=,<,<=,>,>=, ===(identity))
4. Bitwise
5. Ternary (vname=(condition)?value1:value2))
6. Logical (&&, || and !)
7. Typeof
8. String
9.

Conditions

If condition

```
if(a>10)
{
    alert(“A is > that 10”);
}
```

ternary operator

```
max = a>b ? a : b ;
```

switch

```
switch(expression)
{
    case lbl1:
      // code to execute
       break;
    case lbl2:
      // code to execute
      break;
}
```

Loops

for loop

Use when you know how many repetitions you want to do

syntax

```
for(initialize ; condition ; increment) { … }
```

example

```
for(x=0;x<10;x++) {
   // Code Here
}
```

while loop

Loops through block of code while condition is true

syntax

```
while(condition) { … }
```

example

```
while (x<10) {
    //Code Here
}
```

do while loop

Execute block at least once then repeat while condition is true

syntax

```
do{ … } while (condition);
```

example

```
do{
   // Code Here
} while (x<10)
```

Strings

- A **string** can be defined as a **sequence of letters, digits, punctuation and so on**.
- A **string** in a JavaScript is **wrapped** with **single or double quotes**
- Strings can be **joined** together with the **+ operator**, which is called **concatenation**.

  For Example,

  ```
  mystring = “my college name is ” + “LDRP”;
  ```

- As string is an object type it also has some useful features.

  For Example,

  ```
  lenStr = mystring.length;
  ```

  Which returns the **length** of the **string** in **integer**

Strings (Cont.)

- There are also number of methods available for string.

Method	Description
charAt	Returns the character at a specific index
indexOf	Find the first index of a character
lastIndexOf	Find the last index of a character
substring / substr	Return a section of a string.
replace	Replaces a specified value with another value in a string
toLowerCase	Convert a string to lower case.
toUpperCase	Convert a string to upper case.

Strings (Cont.)

- An **escape sequence** is a sequence of characters that **does not represent itself** when used inside a character or string, **but** is **translated into another character** or a **sequence of characters** that may be difficult or impossible to represent directly.
- Some Useful Escape sequences :

Sequence	Character
\t	Tab
\n	Newline
\r	Carriage return
\”	Double Quote
\’	Single Quote
\\	Backslash

Arrays

- An **array** is a **collection of data**, each item in array has an index to access it.
- Ways to use array in JavaScript
  - var myArray = new Array();

    myArray[0] = “ldrp”;

    myArray[1] = 222;

    myArray[2] = false;
  - var myArray = new Array(“ldrp” , 123 , true);

Functions

- A JavaScript function is a **block of code** designed to perform a particular task.
- A JavaScript function is **executed** when "**something**" **invokes** it.
- A JavaScript function is defined with the **function** keyword, **followed by a name, followed by parentheses ().**
- The **parentheses** may **include parameter** names **separated** by **commas**: (parameter1, parameter2, ...)
- The **code to be executed**, by the function, is placed inside **curly brackets**.
- Example :

Code

```
function myFunction(p1, p2) {
        return p1 * p2;
}
```

Functions (Cont.)

- When JavaScript **reaches a return** statement, the function will **stop executing**.
- If the function was invoked from a statement, JavaScript will "return" to execute the code after the invoking statement.
- The code inside the function will execute when "something" invokes (calls) the function:
  - When an **event occurs** (when a user clicks a button)
  - When it is invoked (**called**) from JavaScript code
  - **Automatically** (self invoked)

Pop up Boxes

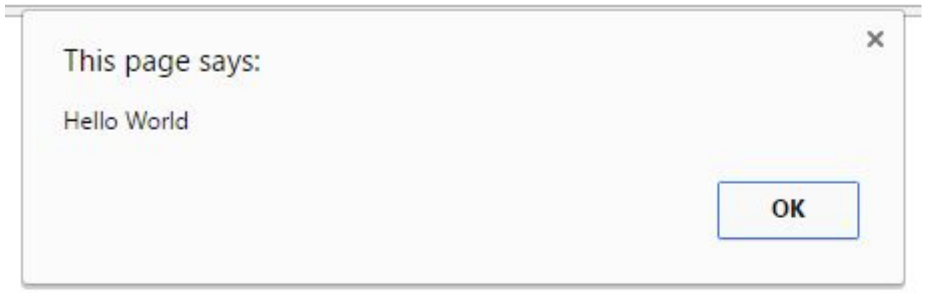
- Popup boxes can be used to raise an alert, or to get confirmation on any input or to have a kind of input from the users.
- JavaScript supports **three** types of popup boxes.
  - Alert box
  - Confirm box
  - Prompt box

Alert Box

- An **alert box** is used if you want to **make sure** information **comes through** to the **user**.
- When an alert box pops up, the user will **have to click "OK"** to proceed.
- It can be used to display the result of validation.

Code

```
<html>
    <head>
       <title>Alert Box</title>
   </head>
   <body>
       <script>
                     alert("Hello World");
       </script>
   </body>
</html>
```


This page says:

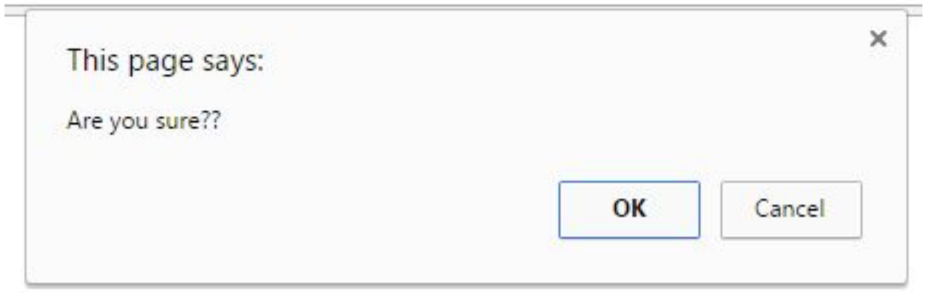
Hello World

Confirm Box

- A **confirm box** is used if you want the user to **accept something**.
- **When** a confirm box **pops up**, the user will have to **click** either "**OK**" or "**Cancel**" to proceed, If the user clicks "**OK**", the box **returns true**. If the user clicks "**Cancel**", the box **returns false**.
- Example :

Code

```
<script>
  var a = confirm(“Are you sure??");
  if(a==true) {
      alert(“User Accepted”);
  }
  else   {
      alert(“User Cancled”);
  }
</script>
```


This page says:

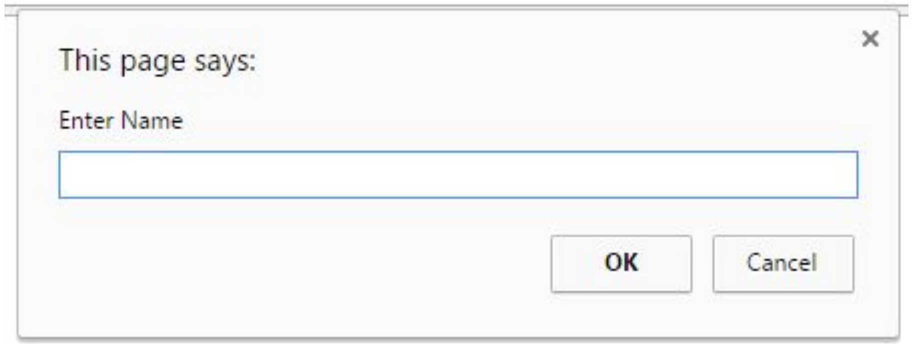
Are you sure??

Prompt Box

- A **prompt box** is used if you want the user to **input a value**.
- **When** a prompt box **pops up**, user have to click either "**OK**" or "**Cancel**" to proceed, If the user clicks "**OK**" the box **returns the input value**, If the user clicks "**Cancel**" the box **returns null**.

Code

```
<script>
  var a = prompt("Enter Name");
  alert("User Entered " + a);
</script>
```


This page says:

Enter Name

External JavaScript

- We can create external JavaScript file and embed it in many html pages.
- It provides code reusability because single JavaScript file can be used in several html pages.
- An external JavaScript file must be saved by .js extension.
- To embed the External JavaScript File to HTML we can use ***script*** tag with ***src*** attribute in the head section to specify the path of JavaScript file.
- For Example :

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

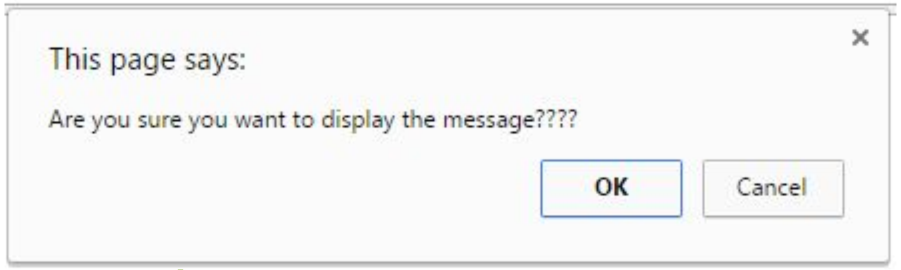
External JavaScript (Example)

message.js

```
function myAlert(msg) {
        if(confirm("Are you sure you want to display the message????")) {
                alert(msg);
        }
        else {
                alert("Message not Displayed as User Cancled Operation");
        }
}
```

myHtml.html

```
<html>
   <head>
      <script src="message.js"></script>
   </head>
   <body>
      <script> myAlert("Hello World"); </script>
   </body>
</html>
```



This page says:

Are you sure you want to display the message????

JavaScript Objects

- An object is just a special kind of data, with properties and methods.
- Accessing Object Properties
  - Properties are the values associated with an object.
  - The syntax for accessing the property of an object is below

    objectName.propertyName
  - This example uses the length property of the Javascript's inbuilt object(String) to find the length of a string:

    var message="Hello World!";

    var x=message.length;

JavaScript Objects (Cont.)

- Accessing Object Methods
  - Methods are the actions that can be performed on objects.
  - You can call a method with the following syntax.
    objectName.methodName()
  - This example uses the toUpperCase method of the String object to convert string to upper case:

```
        var message="Hello World!";
    var x=message.toUpperCase();
```

JavaScript’s inbuilt Objects

- JavaScript comes with some inbuilt objects which are,
  - String
  - Date
  - Array
  - Boolean
  - Math
  - RegExp

    etc….

Math Object in JavaScript

- The Math object allows you to perform mathematical tasks.
- The Math object includes several mathematical constants and methods.
- Example for using properties/methods of Math:

Code

```
<script>
        var x=Math.PI;
       var y=Math.sqrt(16);
</script>
```

Math Object (Cont.)

- Math object has some properties which are,

Properties	Description
E	Returns Euler's number(approx.2.718)
LN2	Returns the natural logarithm of 2 (approx.0.693)
LN10	Returns the natural logarithm of 10 (approx.2.302)
LOG2E	Returns the base-2 logarithm of E (approx.1.442)
LOG10E	Returns the base-10 logarithm of E (approx.0.434)
PI	Returns PI(approx.3.14)
SQRT1_2	Returns square root of ½
SQRT2	Returns square root of 2

Math Methods (Cont.)

Method	Description
abs(x)	Returns the absolute value of x
sin(x)	Returns the sine of x (x is in radians)
cos(x)	Returns the cosine of x (x is in radians)
tan(x)	Returns the tan of x (x is in radians)
acos(x)	Returns the arccosine of x, in radians
asin(x)	Returns the arcsine of x, in radians
atan(x)	Returns the arctangent of x as a numeric value
atan2(x)	Returns arctangent of x
random(x)	Returns random floating number between 0 to 1

Method	Description
exp(x)	Returns the value of Ex
ceil(x)	Returns x, rounded upwards to the nearest integer
floor(x)	Returns x, rounded downwards to the nearest integer
log(x)	Returns the natural logarithm(base E) of x
round(x)	Rounds x to the nearest integer
pow(x,y)	Returns the value of x to the power of y
max(x,y, z,...,n)	Returns the number with the highest value
sqrt(x)	Returns the square root of x

User Defined Objects

- JavaScript allows you to create your own objects.
- The first step is to use the new operator.

  var myObj= new Object();
- This creates an empty object.
- This can then be used to start a new object that you can then give new properties and methods.
- In object- oriented programming such a new object is usually given a constructor to initialize values when it is first created.

User - Defined Objects (Cont.)

- However, it is also possible to assign values when it is made with literal values.

example

```
<script>
            person={
            firstname: "Darshan",
                  lastname: "College",
            age: 50,
            eyecolor: "blue"
      }
      alert(person.firstname + " is " + person.age + " years old.");
 </script>
```

User - Defined Objects (Cont.)

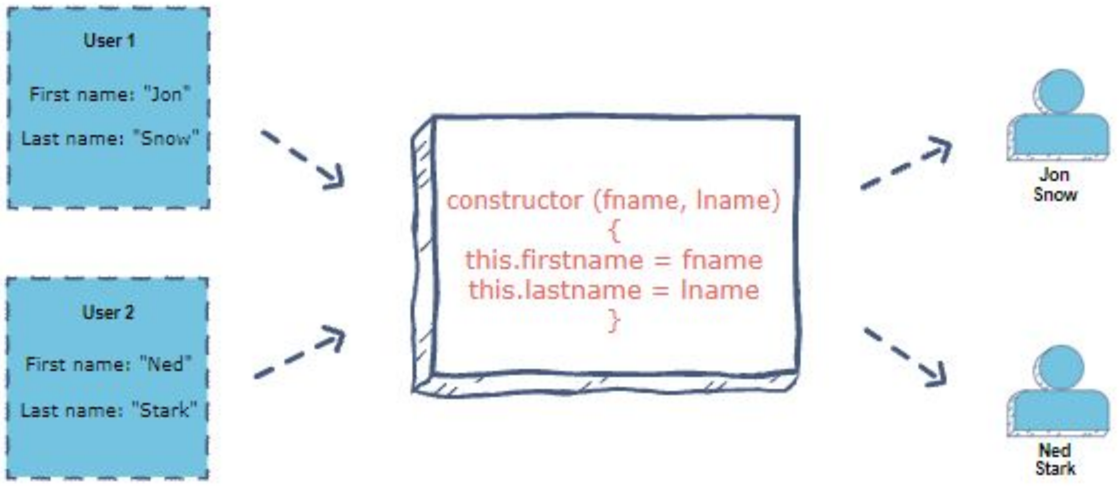
- A constructor is pre defined method that will initialize your object.
- To do this in JavaScript a function is used that is invoked through the *new* operator.
- Any properties inside the newly created object are assigned using *this* keyword, referring to the current object being created.

example

```
 <script>
        function person(firstname, lastname, age){
                this.firstname = firstname;
                this.lastname = lastname;
                this. changeFirstName = function (name){ this.firstname = name };
        }
        var person1=new person("Narendra","Modi",50);
        person1.changeFirstName(“NAMO”);
        alert(person1.firstname + “ ”+ person1.lastname);
</script>
```

Constructor

- A **constructor** is a function that creates an instance of a class which is typically called an "object".
- In JavaScript, a constructor gets called when you declare an object using the `new` keyword.
- To initialize two instances with different names, you will use the same constructor function,



- A new empty object is created
- `this` keyword starts referring to that newly created object and hence it becomes the *current instance* object
- The newly created object is then returned as the constructor's returned value

Constructor (Ex)

```
function User(first, last) {
  this.firstName = first
  this.lastName = last
}



var user1 = new User("Jon", "Snow")
console.log(user1)
var user2 = new User("Ned", "Stark")
console.log(user2)
```

Document Object Model (DOM)

- The Document Object Model is a platform and language neutral interface that will allow programs and scripts to dynamically access and update the content, structure and style of documents.
- The **window** object is the primary point from which most other objects come.
- From the current window object **access** and **control** can be given to most aspects of the **browser features** and the **HTML document**.
- When we write :

```
document.write("Hello World");
```

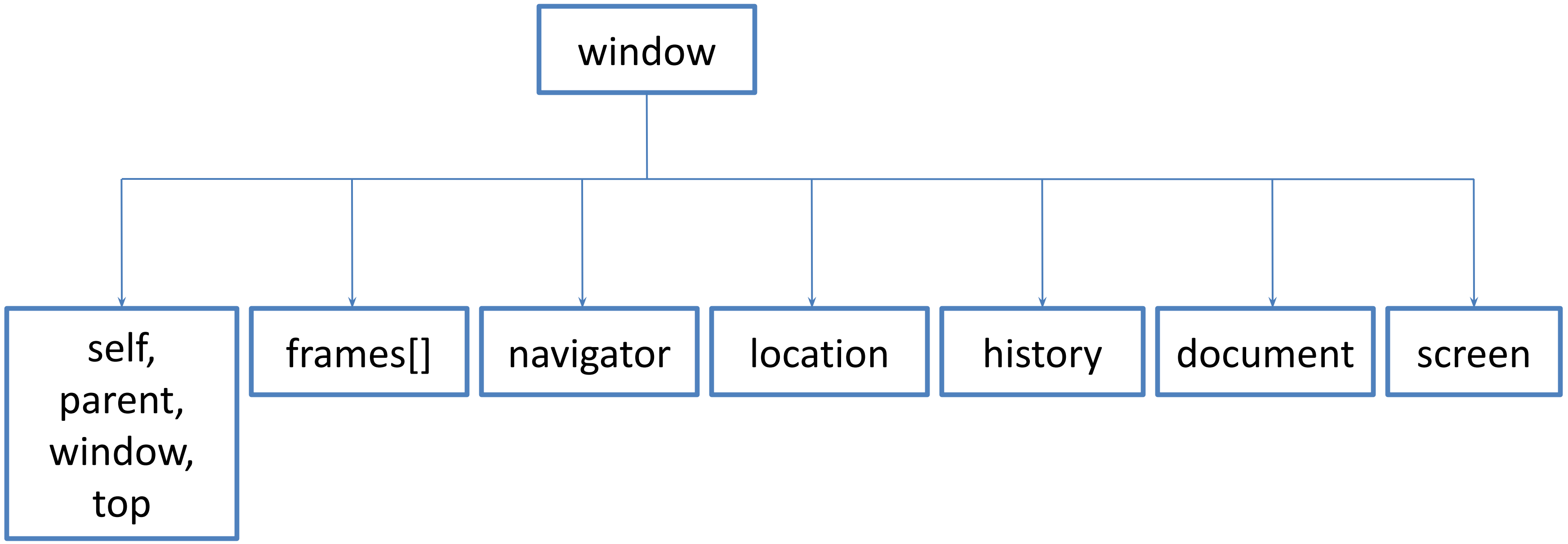
- We are actually writing :

```
window.document.write("Hello World");
```

The **window** is just there by default

DOM (Cont)

- This **window** object represents the window or frame that displays the document and is the global object in client side programming for JavaScript.
- All the client side objects are connected to the window object.



Document Object Properties

Property	Description
anchors	Returns a collection of all the anchors in the document
applets	Returns a collection of all the applets in the document
body	Returns the body element of the document
cookie	Returns all name/value pairs of cookies in the document
domain	Returns the domain name of the server that loaded the document
forms	Returns a collection of all the forms in the document
images	Returns a collection of all the images in the document
links	Returns a collection of all the links in the document (CSSs)
referrer	Returns the URL of the document that loaded the current document
title	Sets or returns the title of the document
URL	Returns the full URL of the document

Document Object Methods

Method	Description
write()	Writes HTML expressions or JavaScript code to a document
writeln()	Same as write(), but adds a newline character after each statement
open()	Opens an output stream to collect the output from document.write() or document.writeln()
close()	Closes the output stream previously opened with document.open()
getElementById()	Accesses element with a specified id
getElementsByName()	Accesses all elements with a specified name
getElementsByTagName()	Accesses all elements with a specified tag name
setTimeout(), clearTimeout()	Set a time period for calling a function once; or cancel it.

getElementById()

- When we suppose to get the reference of the element from HTML in JavaScript using id specified in the HTML we can use this method.
- Example :

HTML

```
<html>
   <body>
      <input type="text" id="myText">
   </body>
</html>
```

JavaScript

```
<script>
   function myFunction()
   {
      var txt = document.getElementById("myText");
      alert(txt.value);
   }
</script>
```

getElementsByName()

- When we suppose to get the reference of the elements from HTML in JavaScript using name specified in the HTML we can use this method.
- It will return the array of elements with the provided name.
- Example :

HTML

```
<html>
   <body>
      <input type="text"
name="myText">
   </body>
</html>
```

JavaScript

```
<script>
function myFunction()
{
  a=document.getElementsByName("myText")[0];
   alert(a.value);
}
</script>
```

getElementsByTagName()

- When we suppose to get the reference of the elements from HTML in JavaScript using name of the tag specified in the HTML we can use this method.
- It will return the array of elements with the provided tag name.
- Example :

HTML

```
<html>
   <body>
      <input type="text" name="uname">
      <input type="text" name="pword">
   </body>
</html>
```

JavaScript

```
<script>
function myFunction() {
  a=document.getElementsByTagName("input");
  alert(a[0].value);
  alert(a[1].value);
}
</script>
```

Forms using DOM

- We can access the elements of form in DOM quite easily using the name/id of the form.
- Example :

HTML

```
<html>
  <body>
   <form name="myForm">
     <input type="text" name="uname">
     <input type="text" name="pword">
     <input type="button" onClick="f()">
  </form>
  </body>
</html>
```

JS

```
function f()
{
   var a = document.forms["myForm"];
   var u = a.uname.value;
   var p = a.pword.value;
   if(u=="admin" && p=="123")
   {
      alert("valid");
   }
   else
   {
       alert("Invalid");
   }
}
```

Validation

- Validation is the process of **checking** data against a **standard** or **requirement**.
- Form validation normally used to occur at the server, after client entered necessary data and then pressed the Submit button.
- If the data entered by a client was incorrect or was simply missing, the server would have to send all the data back to the client and request that the form be resubmitted with correct information.
- This was really a lengthy process which used to put a lot of burden on the server.
- JavaScript provides a way to validate form's data on the client's computer before sending it to the web server.

Validation (Cont.)

Form validation generally performs two functions.

1. **Basic Validation**
   - Emptiness
   - Confirm Password
   - Length Validation etc……
2. **Data Format Validation**

   Secondly, the data that is entered must be checked for correct **form** and **value**.

   - Email Validation
   - Mobile Number Validation
   - Enrollment Number Validation etc….

Validation using RegExp

- A regular expression is an object that describes a pattern of characters.
- Regular expressions are used to perform pattern-matching and "search-and-replace" functions on text.
- example:

```
var pattern = "^ [\\w]$";   // will allow only words in the string
var regex = new RegExp(pattern);
If(regex.test(testString)){
        //Valid
} else {
        //Invalid
}
```

RegExp (Cont.) (Metacharacters)

- To find **word** characters in the string we can use **\w**
  - We can also use [a-z], [A-Z] or [a-zA-Z] for the same
- To find **non-word** characters in the string we can use **\W**
- to find **digit** characters in the string we can use **\d**
  - We can also use [0-9] for the same
- To find **non-digit** characters in the string we can use **\D**
- We can use **\n** for **new line** and **\t** for tab

RegExp (Cont.) (Quantifiers)

Quantifier	Description
n+	Matches any string that contains at least one *n*
n*	Matches any string that contains zero or more occurrences of *n*
n?	Matches any string that contains zero or one occurrences of *n*
n$	Matches any string with *n* at the end of it
^n	Matches any string with *n* at the beginning of it
n{X}	Matches any string that contains a sequence of *X* *n*'s
n{X,Y}	Matches any string that contains a sequence of X to Y *n*'s
n{X,}	Matches any string that contains a sequence of at least X *n*'s

Email Validation Using RegExp

JavaScript

```
<script>
	function checkMail()
	{
		var a = document.getElementById("myText").value;
		var pattern ="^[\\w-_\.]*[\\w-_\.]\@[\\w]\.+[\\w]+[\\w]$”;
		var regex = new RegExp(pattern);
		if(regex.test(a))
		{
			alert("Valid");
		}
		else
		{
			alert("Invalid");
		}
	}
</script>
```

DHTML – Combining HTML,CSS & JS

- DHTML, or Dynamic HTML, is really just a combination of HTML, JavaScript and CSS.
- The main problem with DHTML, which was introduced in the 4.0 series of browsers, is **compatibility**.
- The main focus generally when speaking of DHTML is animation and other such dynamic effects.

DHTML (Cont)

- We can obtain reference of any HTML or CSS element in JavaSCript using below 3 methods.
  1. document.getElementById(“IdOfElement”)
  2. document.getElementsByName(“NameOfElement”)
  3. document.getElementsByTagName(“TagName”)
- After obtaining the reference of the element you can change the attributes of the same using reference.attribute syntax
- For Example :

HTML Code

```
<img src=“abc.jpg” id=“myImg”>
```

JS Code

```
<script>
  var a = document.getElementById(‘myImg’);
  a.src  = “xyz.jpg”;
</script>
```

DHTML (Cont) (Example)

JavaScript

```
<html>
    <body>
        <div id=“myDiv”>
       Red Alert !!!!!!
        </div>
        <script>
           var objDiv = document.getElementById(“myDiv”);
           var colors = [‘white’,’yellow’,’orange’,’red’];
           var nextColor = 0;
     setInterval(“objDiv.style.backgroundColor = colors[nextColor++%colors.length];”,500);
        </script>
    </body>
</html>
```

HTML Element Properties

Event	Description
className	Sets or returns the class attribute of an element
id	Sets or returns the id of an element
innerHTML	Sets or returns the HTML contents (+text) of an element
style	Sets or returns the style attribute of an element
tabIndex	Sets or returns the tab order of an element
title	Sets or returns the title attribute of an element
value	Sets or returns the value attribute of an element

Mouse Events

Event	Attribute	Description
click	onclick	The event occurs when the user clicks on an element
dblclick	ondblclick	The event occurs when the user double-clicks on an element
mousedown	onmousedown	The event occurs when a user presses a mouse button over an element
mousemove	onmousemove	The event occurs when a user moves the mouse pointer over an element
mouseover	onmouseover	The event occurs when a user mouse over an element
mouseout	onmouseout	The event occurs when a user moves the mouse pointer out of an element
mouseup	onmouseup	The event occurs when a user releases a mouse button over an element

Keyboard Events

Event	Attribute	Description
keydown	onkeydown	The event occurs when the user is pressing a key or holding down a key
keypress	onkeypress	The event occurs when the user is pressing a key or holding down a key
keyup	onkeyup	The event occurs when a keyboard key is released

Frame/Object Events

Event	Attribute	Description
abort	onabort	The event occurs when an image is stopped from loading before completely loaded (for <object>)
error	onerror	The event occurs when an image does not load properly (for <object>, <body> and <frameset>)
load	onload	The event occurs when a document, frameset, or <object> has been loaded
resize	onresize	The event occurs when a document view is resized
scroll	onscroll	The event occurs when a document view is scrolled
unload	onunload	The event occurs when a document is removed from a window or frame (for <body> and <frameset>)

Form Events

Event	Attribute	Description
blur	onblur	The event occurs when a form element loses focus
change	onchange	The event occurs when the content of a form element, the selection, or the checked state have changed (for <input>, <select>, and <textarea>)
focus	onfocus	The event occurs when an element gets focus (for <label>, <input>, <select>, textarea>, and <button>)
reset	onreset	The event occurs when a form is reset
select	onselect	The event occurs when a user selects some text (for <input> and <textarea>)
submit	onsubmit	The event occurs when a form is submitted

II. AJAX

- Ajax (stands for Asynchronous JavaScript and XML)is a set of web development techniques that uses various web technologies on the client-side to create asynchronous web applications.
- With Ajax, web applications can send and retrieve data from a server asynchronously (in the background) without interfering with the display and behaviour of the existing page.
- There is no need of refreshing the page/browser.
- AJAX is based on the following open standards −
- Browser-based presentation using HTML and Cascading Style Sheets (CSS).
- Data is stored in XML format and fetched from the server.
- Behind-the-scenes data fetches using XMLHttpRequest objects in the browser.
- JavaScript to make everything happen
- Though Ajax is the key solution used for creating Rich Internet Applications (RIAs) for dynamic web sites, there are numerous alternatives to Ajax some of which are as follows:

CSS
HTML
XML
XUL
XBL
RDF
JavaScript

II. jQuery

- jQuery is a lightweight, "write less, do more", JavaScript library.
- The purpose of jQuery is to make it much easier to use JavaScript on your website.
- jQuery takes a lot of common tasks that require many lines of JavaScript code to accomplish, and wraps them into methods that you can call with a single line of code.
- jQuery also simplifies a lot of the complicated things from JavaScript, like AJAX calls and DOM manipulation.
- The jQuery library contains the following features:

❖ HTML/DOM manipulation
❖ CSS manipulation
❖ HTML event methods
❖ Effects and animations
❖ AJAX
❖ Utilities

-

II. jQuery Example

Adding jQuery to Your Web Pages

- Download the jQuery library from jQuery.com (jQuery.com)
- Include jQuery from a CDN, like Google

There are two versions of jQuery available for downloading:

- Production version - this is for your live website because it has been minified and compressed
- Development version - this is for testing and development (uncompressed and readable code)

Place the downloaded file in the same directory as the pages where you wish to use it.

II. jQuery Syntax

jQuery Syntax

The jQuery syntax is tailor-made for selecting HTML elements and performing some action on the element(s).

Basic syntax is: **$(*selector*).*action*()**

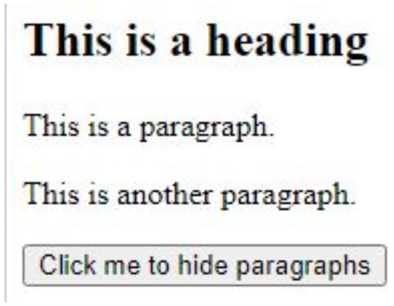
- A $ sign to define/access jQuery
- A (selector) to "query (or find)" HTML elements
- A jQuery action() to be performed on the element(s)

Examples:

- $(this).hide() - hides the current element.
- $("p").hide() - hides all <p> elements.
- $(".test").hide() - hides all elements with class="test".
- $("#test").hide() - hides the element with id="test".

II. jQuery Eg to hide

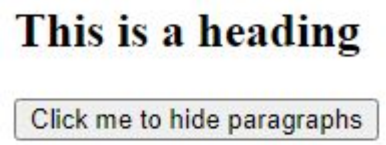
```
<!DOCTYPE html>
<html>
<head>
<script src="https://ajax.googleapis.com/ajax/libs/jquery/3.5.1/jquery.min.js"></script>
<script>
$(document).ready(function(){
  $("button").click(function(){
    $("p").hide();
  });
});
</script>
</head>
<body>

<h2>This is a heading</h2>

<p>This is a paragraph.</p>
<p>This is another paragraph.</p>

<button>Click me to hide paragraphs</button>

</body>
</html>
```



This is a heading

This is a paragraph.

This is another paragraph.



This is a heading

II. jQuery Eg (for Study)

```
<!DOCTYPE html>
<html>
<head>
<script src="https://ajax.googleapis.com/ajax/libs/jquery/3.5.1/jquery.min.js"></script>
<script>
$(document).ready(function(){
  $("input").focus(function(){
    $(this).css("background-color", "yellow");
  });
  $("input").blur(function(){
    $(this).css("background-color", "green");
  });
});
</script>
</head>
<body>

Name: <input type="text" name="fullname"><br>
Email: <input type="text" name="email">

</body>
</html>
```

II. Reference Book

1) **JavaScript and JQuery: The Ultimate Beginner's Guide to Learn JavaScript and JQuery Step by Step | 1st Edition | 2020**
2) **Murach's JavaScript and jQuery (4th Edition)**