HTML , CSS, JS

HTML – Is the language of Web/Internet

JavaScript – Is the Programming Language of Web/Internet (Inline/Internal/External)

CSS – Is the Styling Language of the Web/Internet

CSS – Cascading Style Sheet (Inline/Internal/External)

HTML is not case and space sensitive – Body/ Data presentation Layer

JavaScript is case sensitive – Soul of the Web

CSS – Beautifier

HTML is tag based language. Tags are pre-defined. Tags can also have attributes.

HTML tags can trigger events when user interacts with it.

Page Events (onload), Keyboard Events (onkeypress,onkeyup, onfocus,onblur), Mouse Events (onmouseover, onmouseout, onclick, ondoubleclick)

Color in html is represented by a)color name b) RGB() c) HSL d) Hexadecimal value #ff0045

UTF = Unicode Text Format (Each Character is of 2 bytes[16 bits] in size)

ASCII = Americal Standard Code for Information Interchange

Client – Server – [ Request & Response Object]

Client will send a request to server

Server validate the request, for valid request it will send the proper response object, for invalid request it will send the error response.

Each request will get response from the server.

Client & Server === Sending & Receiving data (Two way communication) Transfer of data at both sides

The rules associated to the data transfer is called as protocol

Protocol (Generally refers to set of rules)

http = hypertext transfer protocol

ftp = file transfer protocol

smtp = simple mail transfer protocol

pop = post office protocol

http send the data in the form Request object and receives the data in the form of Response Object from the server.

Web Server while sending the response back to the client, it will also send a status code

HTTP Status Code:

Status code is a 3 digit number shared by the server to the client.

If the status code starts with 1xx : Informational data

If the status code starts with 2xx : successful

If the status code starts with 3xx : Redirection

If the status code starts with 4xx : client error (404 – Resource not available in the server side)

If the status code starts with 5xx : server side error

CSS – Cascading Style sheet (This will have .css extension)

CSS is responsible for displaying/styling the html elements in browser and also in paper.

Applied in 3 ways

1. Inline (style attribute is used)

<h1 style="color:blue;text-align:center;">This is a heading</h1>  
<p style="color:red;">This is a paragraph.</p>

1. Internal (style tag is used)

<!DOCTYPE html>  
<html>  
<head>  
<style>  
body {  
  background-color: linen;  
}  
  
h1 {  
  color: maroon;  
  margin-left: 40px;  
}  
</style>  
</head>  
<body>  
  
<h1>This is a heading</h1>  
<p>This is a paragraph.</p>  
  
</body>  
</html>

1. External (link tag is used with src attribute) <link rel="stylesheet" href="mystyle.css">

Selectors in CSS

1. ID selector (#) <p id="para1">Me too!</p>

#para1 {  
  text-align: center;  
  color: red;  
}

1. Class Selector (.) <p class="center">Me too!</p>

.center {  
  text-align: center;  
  color: red;  
}

1. Element Selector (html\_tag)
2. Universal Selector (\*)

\*{  
  text-align: center;  
  color: red;  
}

When All three method of CSS is applied together to a HTML file, then preference will be given to

1. Inline and then internal and finally to external style.

JavaScript is the Programming Language for Web/Internet

JS is case sensitive.

JS is dynamically/loosely typed, multi-paradigm, single-threaded, event-loop based programming language.

Dynamically/loosely typed -- No need to define the data type of the variable while declaring it.

Also, a variable can hold any type of data.

Example :

X=25; (number)

X=34.67; (number)

X=873458793475983475n; (bigint)

X=false;(Boolean)

X=”hello” (string)

X={“id”:100,”name”:”abc”}; (object)

X=[2,5,7,9,25] (array)

Four ways of Declaring a variable

1. Using var keyword (var a; ) – Global scoped variable – can declare n number of times
2. Using let keyword (let a; ) --- block scoped variable – no redeclaration
3. Using const keyword (const a; ) – declaring a constant – no redeclaration , no re-assignment
4. Using no keyword a; --- (normal/local variable)

Let keyword is used for creating variables

Variable created with let can’t be redefined. But variable created with var keyword can be redeclared

var x=45; //creating a variable called x first time

var x =75; //re-creating a variable which is already declared – valid – no error

let x=45; //creating a variable called x using let keyword for the first time - Valid – no error

let x =75; //re-creating a variable which is already declared using let keyword – InValid – runtime error – not allowed

x=75; this is valid

Template literals are strings that enclosed within the backtick character(`). Template literals allow for embedded expressions (placeholders), which are indicated by the dollar sign and curly braces ($(expression}). These expressions can be used to evaluate code.

Template Literal or String interpolation

function sayHello(){

return "Hello World!!!"

}

var x = 10;

var y = 20;

document.write(`${sayHello()}, The product of the variables ${x} and ${y} are

${x\*y}`);

In JavaScript, all function arguments are passed by value. ( Changes you are making to variable will not be affected)

**Anonymous Function**

**SIF/IIFE**

SIF – Self Invoked Function

IIFE – Immediately Invoked Function Expression

var anon = function() {

alert('I am anonymous');

};

IIFE :

(function(){

// do this right now

console.log("Look at me, I'm running");

})();

Function Types

1)Self Invoking or IIFE

2) Callback Functions

3) Asynchronous Function

4) Function Expression/ Anonymous Function

5) Callback function

Example for callback functions:

function funcOne(x) { alert("x = " + x); }

function funcTwo(y, callback) {

callback(y);

}

funcTwo(2, funcOne);

Callback functions --- A callback function is a function that gets executed after another function completes the execution. This enable parallel programming. (Doing two or more steps or executing different sections of a program at the same time)

In JavaScript arrowFunctions are anonymous function which is similar to the lambda methods in JAVA.

() 🡪 { } ; --- Lambda method in JAVA

() => { } ; --- (Fat) Arrow Function in JavaScript

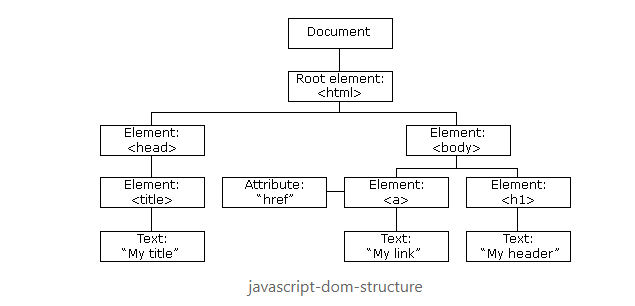
DOM – Document Object Model

Browser will maintain DOM object.

The browser creates a tree-like hierarchical representation of the HTML document, that tree-like structure is known as **DOM Structure** or a **DOM tree**.

Each HTML page will have a DOM.

In DOM, the root element is document & window.



JSON – JavaScript Object Notation

class Employee {

private int id;

private String name;

}

Representing Employee object using xml

employee.xml

<employee>

<id>100</id>

<name>ABC</name>

</employee>

employees.xml

<employees>

<employee>

<id>100</id>

<name>ABC</name>

</employee>

<employee>

<id>100</id>

<name>ABC</name>

</employee>

</employees>

Representing employee object in JSON format

employee = {“id” :100, “name”:”abc”};

employee.id = 105;

employee.name = “abc123”;

JSON stores the data in key,value pair.

employees = [ {“id” :100, “name”:”abc”}, {“id” :101, “name”:”xyz”} ]

employees[0].id = 200;

employees[0].name = “abcupdated”;

JSON will consume less memory space compared to XML file.

JSON is easy interpret both by human and parser.

For each Event, there is a Event Listener associated to it.

Event Listener --- An event listener is a function in JavaScript that waits for an event to occur

The Syntax of addEventListener() function: element.addEventListener(event, function, useCapture)

Where,

* event - Specifies the name of the event.
* function - Specifies the function to run when the event occurs
* useCapture - It is an optional parameter takes a boolean value. If the parameter value is true then the event handler is executed in the capturing phase. If the parameter value is false then the event handler is executed in the bubbling phase.

AJAX – Asynchronous JavaScript And XML

1. partial data to the server
2. It will run in parallel mode.

AJAX is not a single technology. It’s combination of Java Script and XML

Create AJAX Demo Project in Eclipse EE

1. Open Eclipse EE
2. Create a new Dynamic web project (File🡪New🡪Other🡪 web(Dynamic Web Project))
3. Provide the project name as “ajaxdemo”

Partial page submit – Instead of submitting the whole data/ entire page. Sending only required details.

Create web.xml file by selecting the “Deployment Descriptor” 🡪 Generate Deployment Descriptor Stub

If User is already registered, we should reject his registration for the second time.

<https://www.javatpoint.com/ajax-example-with-database>