JavaScript:

Layout of HTML:

<header>

<nav>

<section>

<article>

<aside>

<footer>

Attributes: It is given to each tag to apply a behaviour of the tag.

JavaScript:

- It is a light-weight interpreted programming language with some object-oriented capabilities
- It is an open, cross-platform scripting language
- It complements Java programming language
- It integrates with other backend technologies

Data Types:

1. Number
2. String
3. Boolean
4. Object
5. Null
6. Symbol
7. Undefined

Built-in functions:

(i) Concat()
(ii) toUpperCase()
(iii) toLowerCase()
(iv) slice()
(v) valueOf()
(vi) match()
(vii) Date()
(viii) Filter()

(ix) Pop()

(x) Reduce()

(xi) Round()

Ways of embedding JS code in HTML:

(i)   Use "<Script>" tag (JS code inside HTML)

(ii)   Adding JS file as source (JS code outside HTML)

Arrays:

Var array1 = new Array()

Var array2 = new Array{'value1', "value2'}

Var array3 = new Array{value1, value'}

DOM (Document Object Model):

➢ It is a platform and language-neutral interface
➢ It allows programs & scripts to dynamically access the content
➢ It updates the structure & style of a document
➢ "Document Object" represents the whole html document
➢ When HTML document is loaded in browser, it becomes document object
➢ It is the root element in html document
➢ It has properties & methods
➢ It is an interface that treats a HTML or XML document as tree-structured

Properties of Document Object:
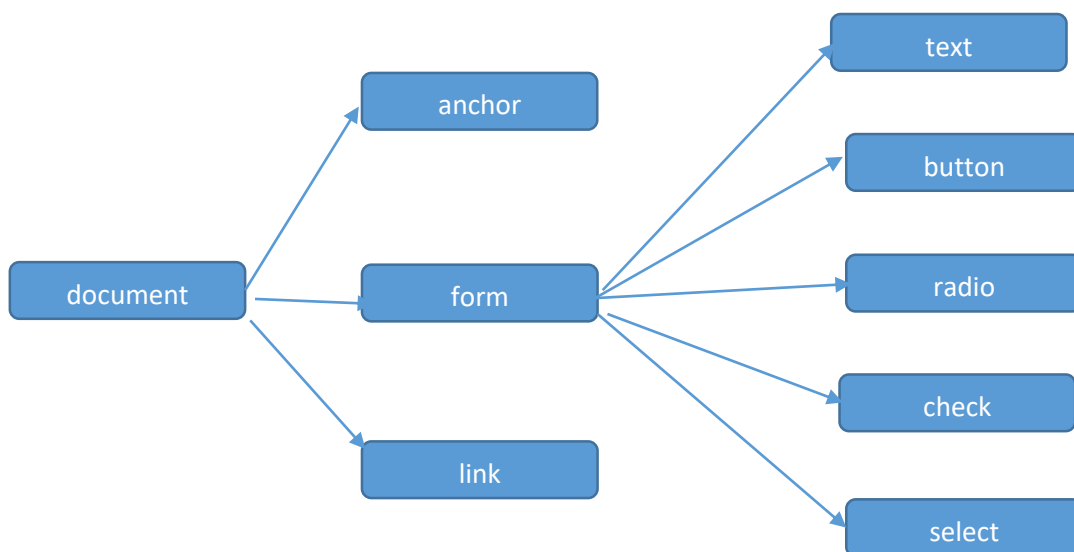
Methods of document object:

- ✓ Write()
- ✓ getElementByID()
- ✓ getElementsByName()
- ✓ getElementsByTagName()
- ✓ getElementsByClassName()

Example 1 (Javascript code inside HTML)

Html:

```html
<script type="text/javascript">
    function msg(){
        alert("Welcome to CTS");
    }
</script>
<form name="form1">
    <input type="button" onclick="msg()" value="PrintName"/>
</form>
```

Example 2: (Javascript code outside HTML)

Html:

```html
<html>
    <head>
        <script type="text/javascript" src="message.js"></script>
    </head>
    <body>
        <p>JavaScript Example</p>
        <form>
            <input type="button" value="Click" onclick="msg()"/>
        </form>
    </body>
</html>
```

Javascript:

```javascript
function msg(){
    alert("Welcome to CTS");
}
```

Example 3: (document.getElementByID)

Html:

```html
<html>
    <head>
```

```html
        <script type="text/javascript" src="getInput.js"></script>
    </head>
    <body>
        <p>Welcome to Session</p>
        <form>
            Enter Number: <input type="text" id="number" name="number"/>
            <br/>
            <input type="button" value="Click" onclick="getCube()"/>
            <br/>
            Result : <input type="text" id="result" name="result"/>
        </form>
    </body>
</html>
```

Javascript:

```javascript
function getCube(){
    var number = document.getElementById("number").value;
    alert(number*number*number);
    var n1 = number*number*number;
    var myelement = document.getElementById("result");
    myelement.value=n1;
}
```

Example 4: (document.getElementsByName)

Html:

```html
<html>
    <head>
        <script type="text/javascript" src="getInput.js"></script>
    </head>
    <body>
        <p>Welcome to Session</p>
        <form>
            Male: <input type="radio" id="male" name="gender" value="male"/>
            Female: <input type="radio" id="female" name="gender"
value="female"/>
            Other: <input type="radio" id="other" name="gender"
value="other"/>
            <br/>
            <input type="button" value="TotalGenders"
onclick="totalElements()"/>
            <br/>
            <input type="button" onclick="getChecked()" value="RadioChecked">
            <br/>
            <p id="demo"></p>
        </form>
    </body>
```

```
</html>
```

Javascript:

```
function totalElements(){
    var allGenders = document.getElementsByName("gender");
    alert("Total Genders :" + allGenders.length)
}
function getChecked(){
    var x = document.getElementById("male").checked;
    document.getElementById("demo").innerHTML=x;
}
```

Example 5: (Create table dynamically using JavaScript)

Html:

```
<html>
    <head>
        <script type="text/javascript" src="createTable.js"></script>
    </head>
    <body>
        <p>Welcome to College</p>
        <form>
            <button type="button" id="displayStudent"
onclick="newTable()">Student Details</button>
            <table>
                <tr>
                    <td>

                    </td>
                </tr>
            </table>
        </form>
    </body>
</html>
```

Javascript:

```
let student = [
    {id:"1001", name:"Sam", dept:"ECE", college:"ASSC"},
    {id:"1002", name:"John", dept:"MECH", college:"TPPT"},
    {id:"1003", name:"Mike", dept:"CSE", college:"ASSC"}
];

function generateTableHead(table, data){
    let thead = table.createTHead();
    let row = thead.insertRow();
```

```javascript
    for(let key of data){
        let th = document.createElement("th");
        let text = document.createTextNode(key);
        th.appendChild(text);
        row.appendChild(th);
    }
}

function generateTable(table, data){
    for(let element of data){
        let row = table.insertRow();
        for(let key in element){
            let cell = row.insertCell();
            let text = document.createTextNode(element[key]);
            cell.appendChild(text);
        }
    }
}

function newTable(){
    let table = document.querySelector("table");
    let data = Object.keys(student[0]);
    generateTableHead(table, data);
    generateTable(table, student);
}
```

Example 6: (document.getElementsByTagName)

Html:

```html
<script type="text/javascript">
        function countPara(){
            var totalPara = document.getElementsByTagName("p");
            alert("Total P Tags : " + totalPara.length);
        }
        function countH2(){
            var totalH2 = document.getElementsByTagName("h2");
            alert("Total H2 Tags : " + totalH2.length);
        }
    </script>

    <p>This is Para1</p>
    <p>This is Para2</p>
    <h2>This is H2 Tag1</h2>
    <h2>This is H2 Tag2</h2>
    <p>This is Para3</p>
    <h3>This is H3 Tag1</h3>
    <h3>This is H3 Tag2</h3>
    <h3>This is H3 Tag3</h3>
```

```html
<br/>
<button onclick="countPara()">Count P</button>
<br/>
<button onclick="countH2()">Count H2</button>
```