

Java Script By Mayur Purushvani

What is Java script :

JavaScript is a scripting or programming language that allows you to implement complex features on web pages.

It is lightweight, cross-platform, object-oriented programming language.

Used in different places :

- Client side : JavaScript
- Server side : NodeJS

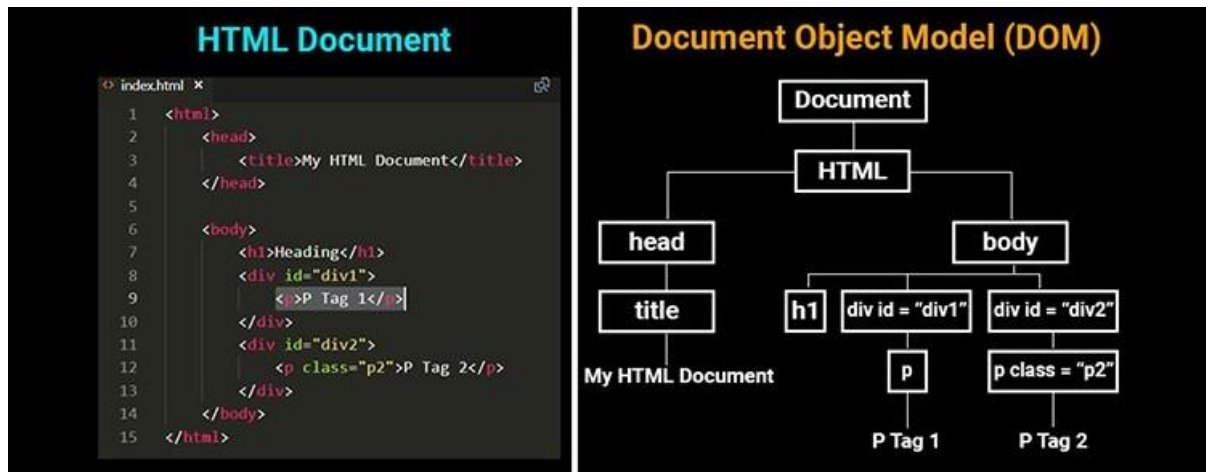
Frameworks/libraries like react and angular are 100% based on javascript.

3 essential parts of website development :

1. HTML
 - a. Add structures to our web pages
 - b. Tags used for e.g. : <div>,<p>,<section>
2. CSS
 - a. Add Styles to our web pages
 - b. E.g. : colors, image, border, margin
 - c. It can use Ids, classes and direct tags to reference html tags
3. JS
 - a. Adds programming to our web page.
 - b. Add functionality : Client side validations, effects and events, etc.

How Java script connect with HTML :

DOM – Domain Object Model



JS View :

- Element Node [Which represents the Elements like head,title]
- Attribute Node [Which represent the Attribute like id,class]
- Text Node [Which represent the text of any element node like "My HTML Document" inside title]

2 Ways to add javascript in your HTML file :

1. Inside HTML file use <script> tag.
2. Outside HTML file, you have a .js file and just put it on your HTML file.

Simple Hello World ! Program :

```
<html>
  <head>
    <title>Hello World!</title>
  </head>

  <script type="text/javascript">
    document.write("<h1>Hello World!</h1>");
  </script>

  <body>

  </body>
</html>
```

OR You can create a new file named demo.js

```
document.write("<h1>Hello World!</h1>");
```

and inside that file just put document.write line and inside html file you just type :

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

</script>
```

Comments in JS :

```
//
```

```
/* .... */
```

Variables And Data Types In JS :

- Variable provides us with named storage that our program can be manipulated.
- It is Case sensitive. You can not declare built-in functions or variables name as your variables name. and also you cannot start a variable with digit.
- Data types :
 - Primitive :
 - Number
 - String
 - Boolean
 - Trivial / Other types :
 - Null
 - Undefined
 - Composite Types :
 - Objects
 - Arrays
 -
- Javascript is LOOSELY typed programming language.
- Javascript is DYNAMICALLY typed scripting language.

```
•
• JS is dynamic and loosely typed
•
• var num = 16;
• var name = "mayur";
• var flag = false;
•
```

Operators :

- Javascript operators are symbol which are used to assign values, compare values, perform arithmetic operations and more.
- The variable operations is called operand.

Comparison Operators :

Comparison Operators – Comparison and Logical operators are used to test for true or false.
Comparison operators are used in logical statements to determine equality or difference between variables or values. Given that x = 5, the table below explains the comparison operators:

Operator	Description	Comparing	Returns
<u>==</u>	<u>equal to</u>	x == 8 x == 5 x == "5"	false true true
===	equal value and equal type	x === 5 x === "5"	true false
!=	not equal	x != 8	true
!==	not equal value or not equal type	x !== 5 x !== "5" x !== 8	false true true
>	greater than	x > 8	false
<	less than	x < 8	true
>=	greater than or equal to	x >= 8	false
<=	less than or equal to	x <= 8	true

Logical Operators :

Logical (or Relational) Operators – Comparison and Logical operators are used to test for true or false.
Logical operators are used to determine the logic between variables or values.

Given that x = 6 and y = 3, the table below explains the logical operators:

Operator	Description	Example
&&	and	(x < 10 && y > 1) is true
	or	(x == 5 y == 5) is false
!	not	!(x == y) is true

Assignment Operators :

Assignment Operators - Assignment operators assign values to JavaScript variables.

Operator	Example	Same As
=	x = y	x = y
+=	x += y	x = x + y
-=	x -= y	x = x - y
*=	x *= y	x = x * y
/=	x /= y	x = x / y
%=	x %= y	x = x % y
<<=	x <<= y	x = x << y
>>=	x >>= y	x = x >> y
>>>=	x >>>= y	x = x >>> y
&=	x &= y	x = x & y
^=	x ^= y	x = x ^ y
=	x = y	x = x y
**=	x **= y	x = x ** y

Conditional (ternary) Operators :

Conditional (Ternary) Operator - JavaScript also contains a conditional operator that assigns a value to a variable based on some condition.

Syntax –

variablename = (condition) ? value1:value2

var voteable = (age < 18) ? "Too young":"Old enough";

String Operators :

String Operators - The + operator can also be used to add (concatenate) strings.

```
var txt1 = "John";  
var txt2 = "Doe";  
var txt3 = txt1 + " " + txt2;
```

Output –

John Doe

Type Operators :

Operator	Description
typeof	Returns the type of a variable
instanceof	Returns true if an object is an instance of an object type

Bitwise Operators :

Operator	Description	Example	Same as	Result	Decimal
&	AND	5 & 1	0101 & 0001	0001	1
 	OR	5 1	0101 0001	0101	5
~	NOT	~ 5	~0101	1010	10
^	XOR	5 ^ 1	0101 ^ 0001	0100	4
<<	Zero fill left shift	5 << 1	0101 << 1	1010	10
>>	Signed right shift	5 >> 1	0101 >> 1	0010	2
>>>	Zero fill right shift	5 >>> 1	0101 >>> 1	0010	2

Associativity :

```
var a = 3;
var b = 8;
var c = 6;
var result = c + b + "mayur" + a + b; //left to right
The output is : 14mayur38
```

Operators precedence :

```
var a = 3;
var b = 8;
var c = 6;
var result = a+b*c; OR (a+b)*c
The output is : 51 OR 66
```

Variable Mutation and Type coercion :

Variable mutation In which you can assign a type of variable like below example. I've a int value and I'll reassign the string value in that variable.

```
var rollNo = 10;

rollNo = "ten";

console.log(rollNo);
```

Type coercion in which converting all the variables In a single variable or data type.

```
var myname = "mayur";
var age = "22";
var happy = true;

console.log("My name is "+myname + " My age is "+ age + " is i'm happy :"+
+ happy);
```