

# Why We Learn JavaScript ?



JavaScript is a **Event Based** Programming Language

- Click
- Double Click
- Right Click
- Mouse Hover
- Mouse Out
- Drag Drop
- Key Press
- Key Up
- Load
- Unload
- Resize
- Scroll

# Benefits of learning JavaScript:



## Web Development

- jQuery
- Angular Js
- React Js
- VueJS
- NodeJS

## Desktop App Development

- Electron JS

## Mobile App Development

- Angular Js
- React Js
- VueJS
- React Native
- NodeJS

# Uses of JavaScript in Web Development :



- Dropdown Menu
- Animated Sliders
- Maps
- Chart - Graphs
- Pop-up window
- Audio Players
- Video Players
- Zoom effect
- Animated Gallery
- Form Validations
- Accordions
- Calendar

## 2 Ways to Implement JavaScript :



- Inpage JavaScript
- External JavaScript

# Inpage JavaScript



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

    </script>
  </head>
  <body>
    <h1>Yahoo Baba</h1>
    <script>
    </script>
  </body>
</ html>
```

```
1 <!DOCTYPE html>
2 <html>
3 <head>
4   <title>JavaScript</title>
5   <script>
6     document.write("Hello World<br><br>");
7     document.write("<i><b>Hello from Yahoo Baba</b></i>");
8   </script>
9 </head>
10 <body>
11   <h1>Yahoo Baba</h1>
12 </body>
13 </html>
14
```

Yahoo babas



```
document.write("Yahoo Babas");
document.write("Yahoo Babas");
document.write("Yahoo Babas");
```

# Use of Variables :



A = Yahoo baba

```
document.write(A);
```

```
document.write(A);
```

```
document.write(A);
```

```
1 <!DOCTYPE html>
2 <html>
3 <head>
4   <title>JavaScript</title>
5   <script>
6     var z = "Hello World";
7     var x = 100.25;
8     z = "Wow";
9     z = 85;
10    document.write(z);
11    document.write(z);
12    //document.write(x);
13  </script>
14 </head>
15 <body>
16
17 </body>
18 </html>
19
```



Reading list



Go to main Dashboard

**Roll No. : 2008390100006**

**Enrollment No. :**

**200839010063609**

```
#include<stdio.h>
#include<conio.h>
void main()
{
    int a[10],b[10],i,c[10],j,k=0,n1,n2;

    // taking input set A

    printf("Enter number of element of set A\n");
    scanf("%d",&n1);
    printf("Enter the element of set A \n");
    for(i=0;i<n1;i++)
        scanf("%d",&a[i]);

    // taking input set B

    printf("Enter number of element of set B\n");
    scanf("%d",&n2);
    printf("Enter the element of set B \n");
    for(i=0;i<n2;i++)
        scanf("%d",&b[i]);

    // logic for calculate union

    // copy the element of set A in set C
    for(i=0;i<n1;i++)
    {
        // repeted element is not allowed so we
        for(j=0;j<k;j++)
        {
            if(c[j]==a[i])
                break;
        }
        if(j==k) //if not repesated then store
        {
            c[k]=a[i];
            k++;
        }
    }

    // copy element of set B in set C
    for(i=0;i<n2;i++)
        if(c[i]==b[i])
            break;
```

```
if(j==k) //if not repesated then store
{
    c[k]=a[i];
    k++;
}
// copy element of set B in set C
for(i=0;i<n2;i++)
{
    // check for repeted element
    for(j=0;j<k;j++)
    {
        if(c[j]==b[i])
            break;
    }
    if(j==k) // if element is not repeted then
    {
        c[k]=b[i];
        k++;
    }
}

// printing of union of set A and set B
printf("Union of set A and B is:-\n");
for(i=0;i<k;i++)
    printf("%d ",c[i]);
```

ber of element of set A

 Share Edit



- Var
- Let
- Const

Western Notes

Chords

Scientific Pitch Notation

Staff Notes

Lyrics

Aaj se teri saari galiyan meri ho gayi

**EAAGF#G, GF#EF# EF#DDE**

Aaj se mera ghar tera ho gaya (x2)

**EAAGF#G, F#EF#EDE**

Aaj se meri saari khushiyan teri ho gayi

**EAAGF#G, GF#EF# EF#DDE**

Aaj se tera gham mera ho gaya

**EAAGF#G, F#EF#EDE**



## Walk on Piano

O tere kaandhe ka jo til hai

**BBB ABBB ABAG**

O tere seene mein jo dil hai

**AAAA GAAAGAGF#**

O teri bijli ka jo bill hai

**BBB ABBB ABAG**

Aaj se mera ho gaya

**AAA ABAGF#E**

O mere khwabon ka ambar

**BBBB ABB ABAG**

O meri khushiyon ka samandar

**AAAA GAAAGAGF#**

O mere pin code ka number

**BBB ABBB ABAG**

Aaj se tera ho gaya

**AAA ABAGF#E**

These are demo notes for respective song. You can try it on your instrument if it works for you and you are comfortable to play with our notes, you can surely get full notes by paying us. Just click the Buy Now button below and see our packages.



# Different Type of Data Types :



`var x = "Hello World";` → String

`var x = 25;` → Number

`var x = true;` → Boolean

`var x = ["HTML","CSS","JS"];` → Array

`var x = {first:"Jane", last:"Doe"};` → Object

`var x = null;` → Null

`var x;` → Undefined

```
1 <!DOCTYPE html>
2 <html>
3 <head>
4   <title>JavaScript</title>
5   <script>
6     var x = 'Y';
7     x = -34.50;
8     x = false;
9     x = undefined;
10
11     x = ["HTML", "CSS", "JS"];
12
13     x = {
14       name : "Yahoo Baba",
15       country : "India"
16     }
17     x = "34";
18     document.write(x);
19     document.write("<br>");
20     document.write(typeof x);
```

# Different Type of Arithmetic Operators :



Operator	Description
+	Addition
-	Subtraction
*	Multiplication
**	Exponentiation
/	Division
%	Modulus (Remainder)
++	Increment
--	Decrement

```
1  <!DOCTYPE html>
2  <html>
3  <head>
4      <title>JavaScript</title>
5  <script>
6      var a = 10;
7      var b = 3;
8      document.write(a + b);
9      document.write("<br>");
10     a--;
11     document.write(a + b);
12 </script>
13 </head>
14 <body>
15
16 </body>
17 </html>
18
```

13

12

# Different Type of Assignment Operators :



Operator	Example	Same As
=	$x = y$	$x = y$
$+=$	$x += y$	$x = x + y$
$-=$	$x -= y$	$x = x - y$
$*=$	$x *= y$	$x = x * y$
$/=$	$x /= y$	$x = x / y$
$%=$	$x %= y$	$x = x \% y$
$**=$	$x **= y$	$x = x ** y$

```
1 <!DOCTYPE html>
2 <html>
3   <head>
4     <title>JavaScript</title>
5     <script>
6       var x = 50;
7
8       console.log([1,2,3]);
9     </script>
10   </head>
11   <body>
12     <h1>Yahoo Baba</h1>
13   </body>
14 </html>
```

# Yahoo Baba

Elements    Console **Sources**    Network    ▾    ;    X

top    Filter    Default levels    1 hidden    ⚙

▶ (3) [1, 2, 3] console.html:18

Live reload enabled. console.html:39

▶

```
1 <!DOCTYPE html>
2 <html>
3   <head>
4     <title>JavaScript</title>
5     <script>
6       var x = 50;
7
8       console.table([1,2,3]);
9     </script>
10   </head>
11   <body>
12     <h1>Yahoo Baba</h1>
13   </body>
14 </html>
15
```

Yahoo Baba

Elements    Console    Sources    Network    ▾    X

top    Filter    Default levels    2 hidden    [console.html:8](#)

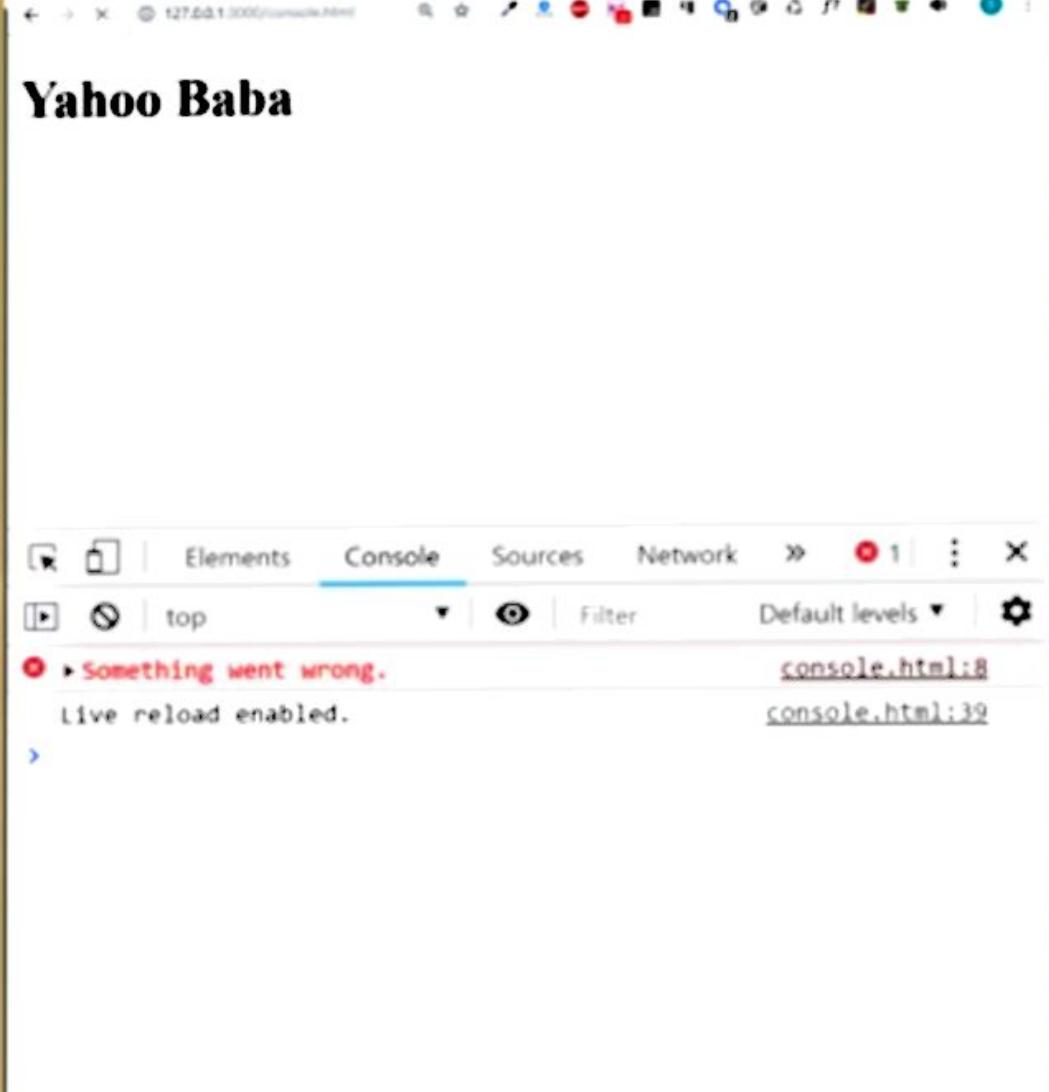
(index)	Value
0	1
1	2
2	3

▶ Array(3)    [console.html:39](#)

Live reload enabled.

▶

```
1 <!DOCTYPE html>
2 <html>
3   <head>
4     <title>JavaScript</title>
5     <script>
6       var x = 50;
7
8       console.error("Something went wrong.");
9     </script>
10   </head>
11   <body>
12     <h1>Yahoo Baba</h1>
13   </body>
14 </html>
```



```
1 <!DOCTYPE html>
2 <html>
3 <head>
4   <title>JavaScript</title>
5   <script>
6     var x = 50;
7
8     console.warn("This is just warning.");
9     console.warn("This is just warning.");
10    console.warn("This is just warning.");
11    console.warn("This is just warning.");
12    console.warn("This is just warning.");
13  </script>
14 </head>
15 <body>
16   <h1>Yahoo Baba</h1>
17 </body>
18 </html>
19
```

127.0.0.1:3000/console.html

# Yahoo Baba

Elements    Console    Sources    Network    5 | ▾ 1 hidden

top

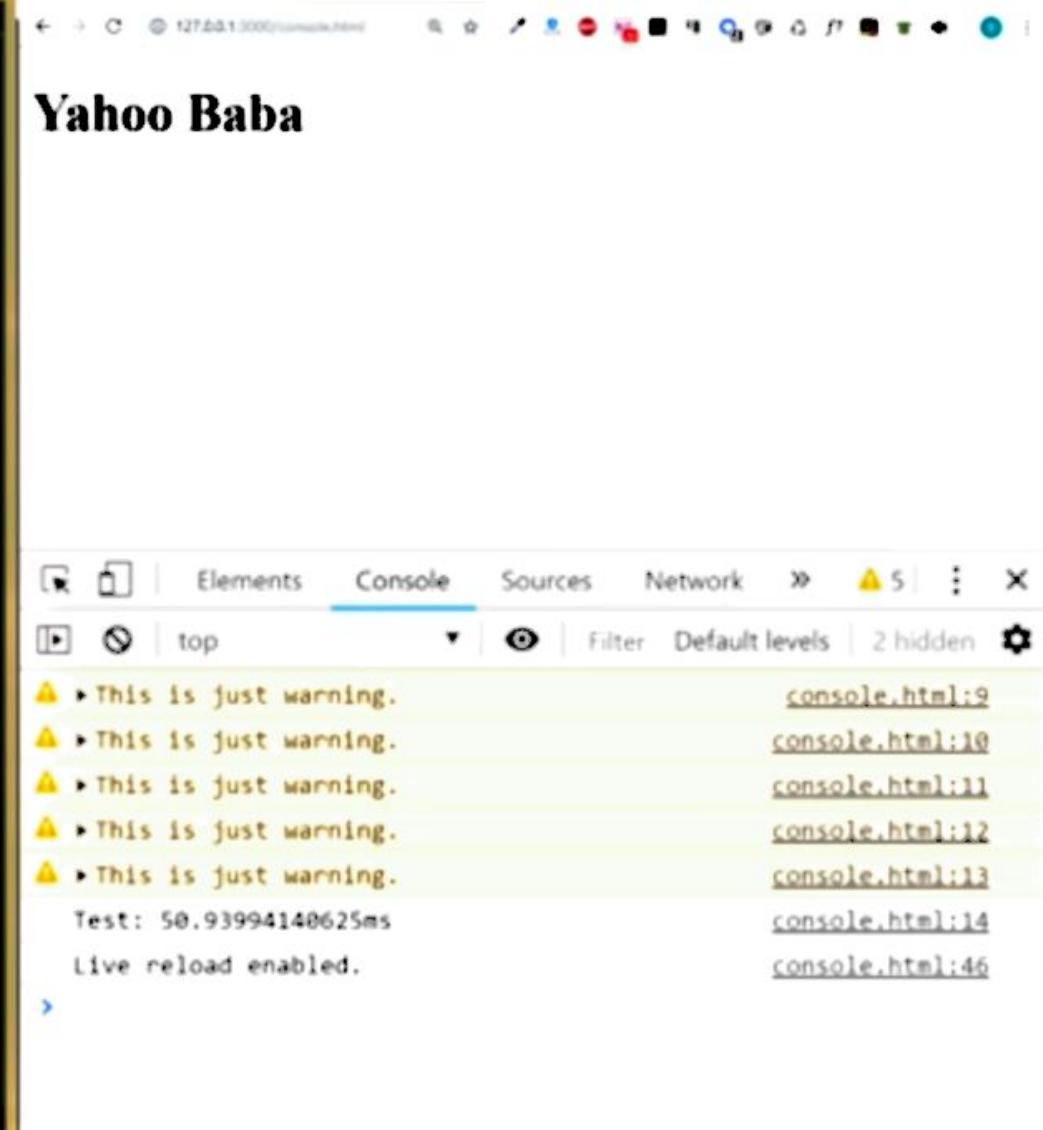
Filter    Default levels

- ⚠ This is just warning.  
console.html:8
- ⚠ This is just warning.  
console.html:9
- ⚠ This is just warning.  
console.html:10
- ⚠ This is just warning.  
console.html:11
- ⚠ This is just warning.  
console.html:12

Live reload enabled.

>

```
1 <!DOCTYPE html>
2 <html>
3 <head>
4   <title>JavaScript</title>
5   <script>
6     var x = 50;
7
8     console.time("Test");
9     console.warn("This is just warning.");
10    console.warn("This is just warning.");
11    console.warn("This is just warning.");
12    console.warn("This is just warning.");
13    console.warn("This is just warning.");
14    console.timeEnd("Test");
15    //console.clear();
16  </script>
17 </head>
18 <body>
19   <h1>Yahoo Baba</h1>
20 </body>
21 </html>
```



## Comparison Operator :



```
var x = 15;
```

```
var y = 25;
```





```
var x = 15;  
var y = 25;
```

True / False

$x > y$



False

# What is If Statement ? :



If ————— Conditions ————— False

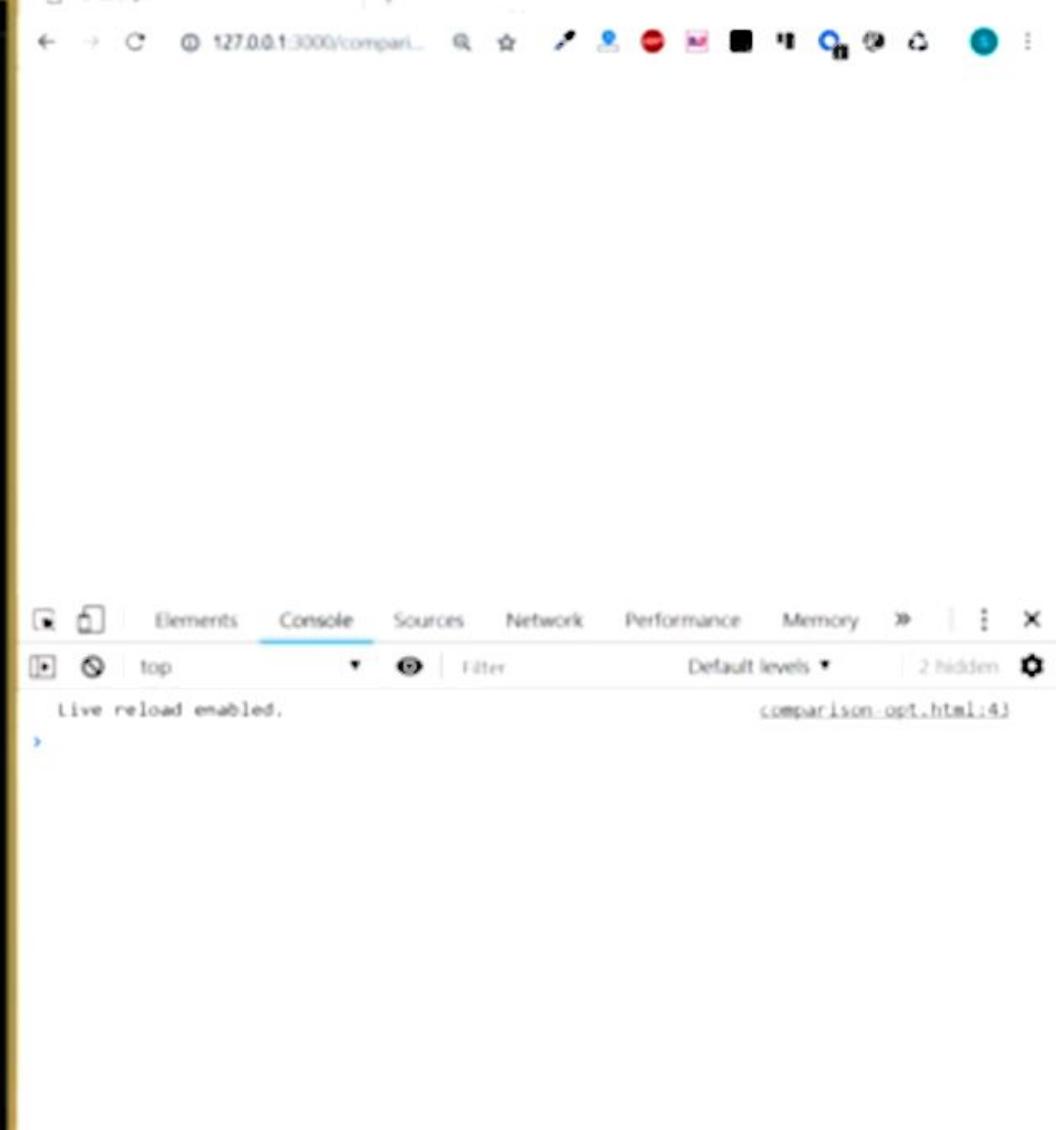


True

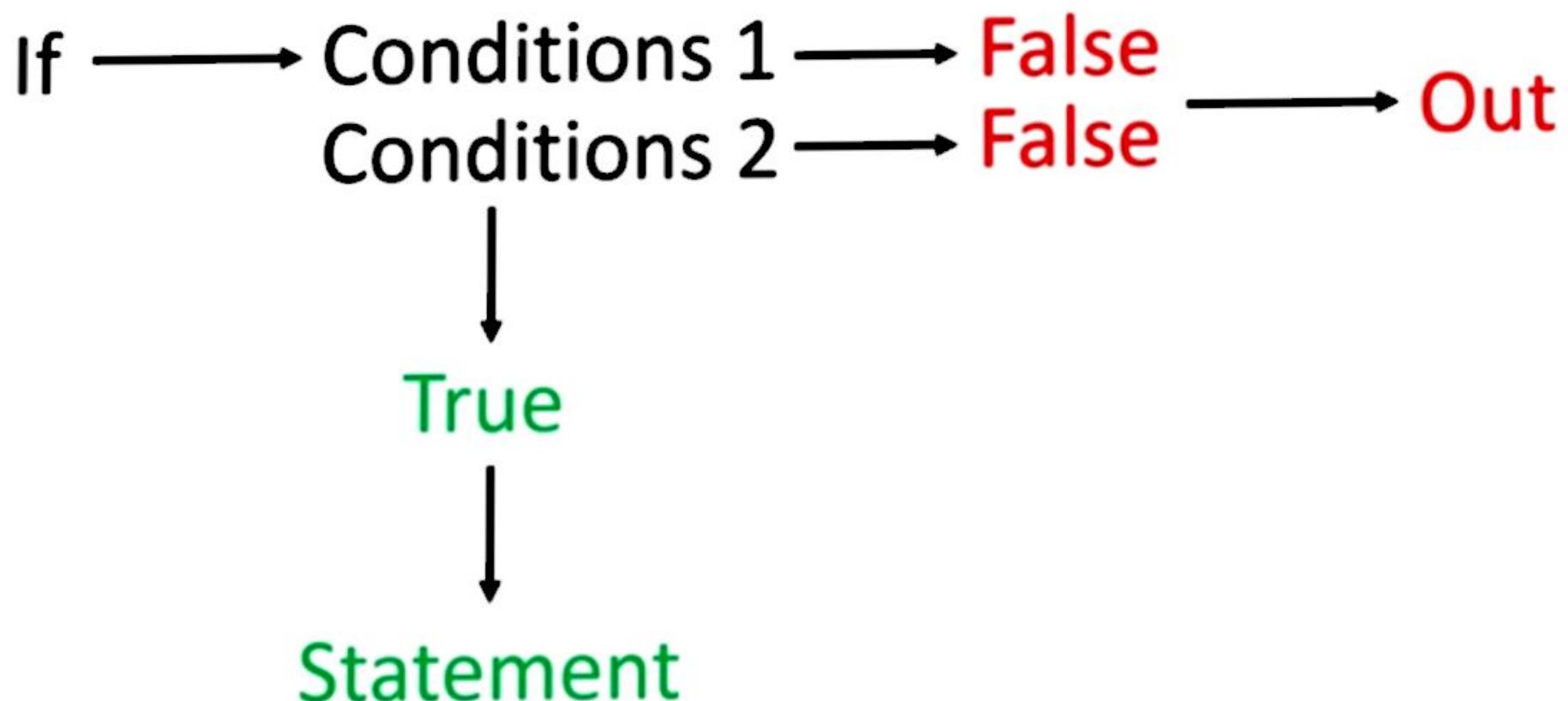


Statement

```
comparison-opt.html
1 <!DOCTYPE html>
2 <html>
3 <head>
4   <title>JavaScript</title>
5   <script>
6     var a = 100;
7     var b = "100";
8
9     if(a === b){
10       document.write("Yahoo Baba");
11     }
12
13   </script>
14 </head>
15 <body>
16
17 </body>
18 </html>
19
```



# What are Logical Operators ? :



# Different Type of Logical Operator



Operator	Name
&&	Logical AND
	Logical OR
!	Logical NOT

## If Statement with Logical AND :



```
If(Condition 1 && Condition 2){  
}
```

## If Statement with Logical OR :



```
If(Condition 1 || Condition 2){  
}  
}
```



Run only when either one condition must be TRUE

## If Statement with Logical NOT :



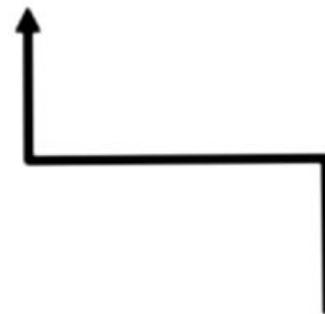
```
If !(Condition){
```

```
}
```

True



False



False



True

The image shows a split-screen view of a code editor and a browser developer tools console.

**Code Editor (Left):**

```
1 <!DOCTYPE html>
2 <html>
3 <head>
4   <title>JavaScript</title>
5   <script>
6     var a = 30;
7     var b = 15;
8     console.log(!a >= 12);
9     //if (!a >= 12){
10    //  console.log("Yes you are eligible")
11    //}
12   </script>
13 </head>
14 <body>
15
16 </body>
17 </html>
```

**Developer Tools Console (Right):**

- Elements tab is visible.
- Console tab is active.
- Output:
  - top
  - Default levels ▾ 2 hidden
  - logical\_operators.html:8 true
  - logical\_operators.html:42 Live reload enabled.

## If Else Statement in JavaScript :



```
var x = 15;
```

```
If(x > 30){
```

```
    document.write("X is Greater");
```

```
} else{
```

```
    document.write("X is Smaller");
```

```
}
```

```
if-else-statement.html
1 <!DOCTYPE html>
2
3 <html>
4   <head>
5     <title>JavaScript</title>
6     <script>
7       var name = 'Yahoo Baba';
8       var gender = "Male";
9
10      if(gender == "Male"){
11        document.write("Hello Mr." + name);
12      }else{
13        document.write("Hello Miss." + name);
14      }
15    </script>
16  </head>
17  <body>
18</body>
```

JavaScript

127.0.0.1:3000/if-else-st... Paused

Hello Mr. Yahoo Baba

# If Else Statement in JavaScript :



```
if (time < 10) {  
} else if (time < 20) {  
} else {  
}
```

# If Else If Statement in JavaScript :



Percentage	Grade
80 – 100%	Merit
60 – 79%	Ist Division
45 – 59%	IIInd Division
33 – 44%	IIIrd Division
Less than 33%	Fail

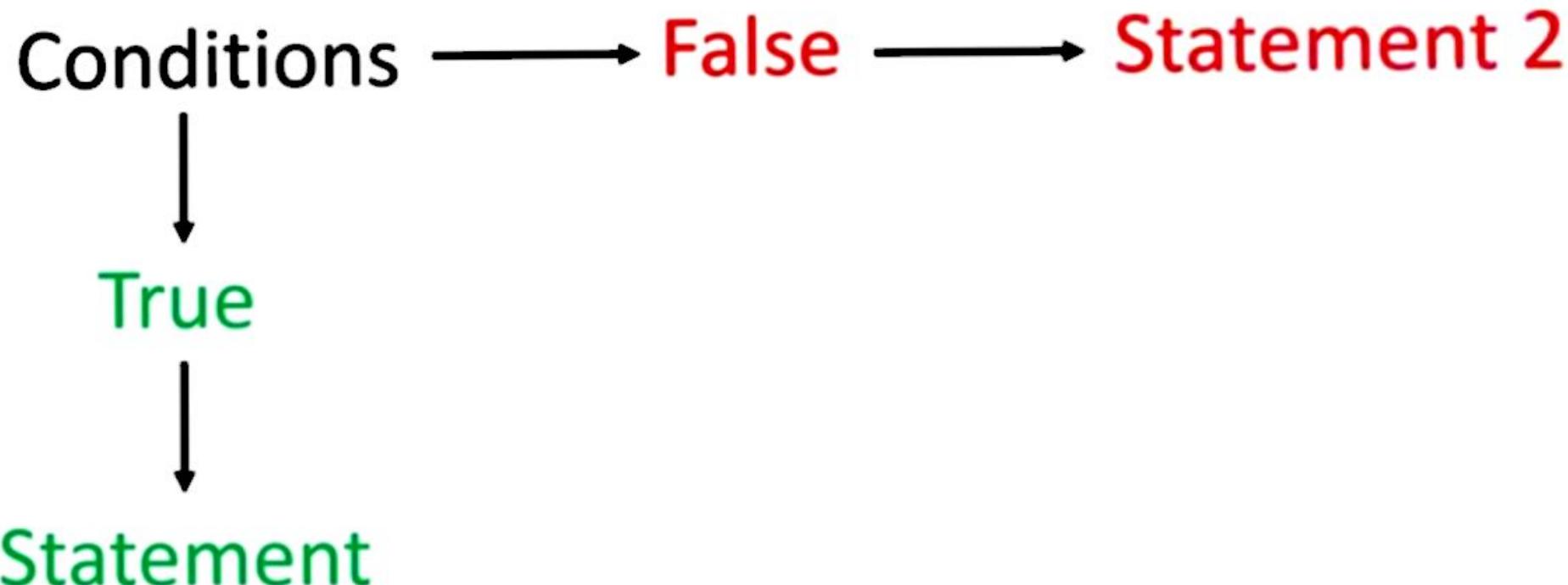
```
1 // If-else-statement.html
2
3 ad>
4 <title>JavaScript</title>
5 <script>
6 var per = 120;
7
8 if(per >= 80 && per <= 100){
9     document.write("You are in Merit.");
10 }else if(per >= 60 && per < 80){
11     document.write("You are in Ist Division.")
12 }else if(per >= 45 && per < 60){
13     document.write("You are in IIInd Division.")
14 }else if(per >= 33 && per < 45){
15     document.write("You are in IIIrd Division.")
16 }else if(per < 33){
17     document.write("You are Fail.");
18 }else{
19     document.write("Please Enter Valid Percent.");
20 }
21 </script>
```

JavaScript

127.0.0.1:3000/if-else-sta... Paused

Please Enter Valid Percentage.

# What is Ternary Operator ? :



# Conditional Ternary Operator :



(Condition) ? **True Statement** : **False Statement**



```
1 <!DOCTYPE html>
2 <html>
3 <head>
4   <title>JavaScript</title>
5   <script>
6     var a = 100;
7     var b;
8     b = (a == 100)? "True" : "False";
9
10    document.write(b);
11  </script>
12 </head>
13 <body>
14
15 </body>
16 </html>
```

```
1 <!DOCTYPE html>
2 <html>
3 <head>
4   <title>JavaScript</title>
5   <script>
6     var a = 100;
7     var b;
8     (a == 500)? b = "True" : b = "False";
9
10    document.write(b);
11  </script>
12 </head>
13 <body>
14
15 </body>
16 </html>
```

```
1 <!DOCTYPE html>
2 <html>
3 <head>
4   <title>JavaScript</title>
5   <script>
6     var a = 100;
7     var b;
8     b = "Value is " + (a > 10 ? "True" : "False");
9
10    document.write(b);
11  </script>
12 </head>
13 <body>
14
15 </body>
16 </html>
```

# Switch Statement in JavaScript :



```
switch (expression) {  
    case condition 1: statement(s)  
        break;  
  
    case condition 2: statement(s)  
        break;  
  
    case condition 3: statement(s)  
        break;  
  
    default: statement(s)  
}
```

```
1 <!DOCTYPE html>
2 <html>
3 <head>
4   <title>JavaScript</title>
5   <script>
6     var day = 5;
7
8     switch (day) {
9       case 0:
10         document.write("Today is Monday");
11         break;
12       case 1:
13         document.write("Today is Tuesday");
14         break;
15       case 2:
16         document.write("Today is Wednesday");
17         break;
18       case 3:
19         document.write("Today is Thursday");
20         break;
```

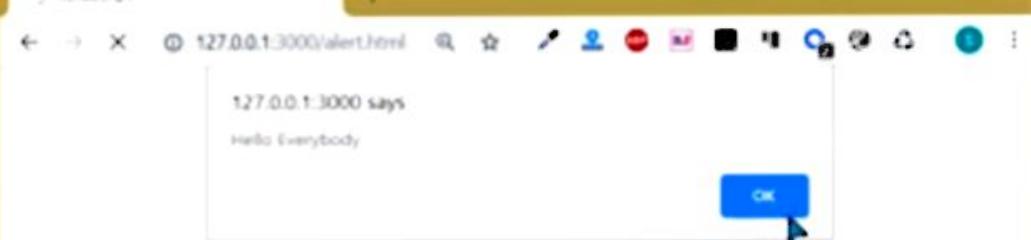
```
switchcase.html
1<html>
2<head>
3</head>
4<title>JavaScript</title>
5<script>
6var day = 5;
7
8switch (day) {
9    case 0: case 1: case 2:
10        document.write("Today is Monday");
11        document.write("Today is Monday");
12    break;
13    case 3:
14        document.write("Today is Thursday");
15    break;
16    case 4:
17        document.write("Today is Friday");
18    break;
19    case 5:
20        document.write("Today is Saturday");
21    break;
22    case 6:
```

```
1 <head>
2   <title>JavaScript</title>
3   <script>
4     var age = 25;
5
6
7
8   switch (true) {
9     case (age >= 15 && age <= 20):
10       document.write("You are Eligible");
11       break;
12     case (age >= 21 && age <= 30):
13       document.write("You are Not Eligible");
14       break;
15
16     default:
17       document.write("Enter the valid Age.");
18   }
19   </script>
20 </head>
21 <body>
```

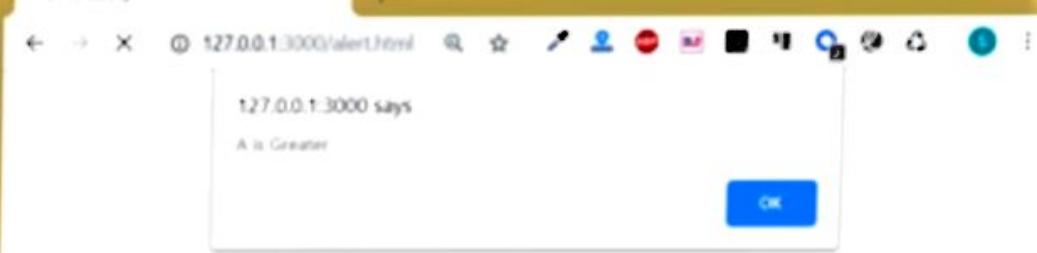
# JavaScript Alert Box



```
1 <!DOCTYPE html>
2 <html>
3   <head>
4     <title>JavaScript</title>
5     <script>
6       alert("Hello Everybody")
7     </script>
8   </head>
9   <body>
10
11 </body>
12 </html>
13
```



```
1  alert.html
2
3  <!DOCTYPE html>
4  <html>
5  <head>
6      <title>JavaScript</title>
7      <script>
8          var a = 40;
9          var b = 20;
10         if(a > b){
11             alert("A is Greater");
12         }else{
13             alert("B is Greater");
14         }
15     </script>
16 </head>
17 <body>
18 </body>
19 </html>
20
```



# JavaScript Confirm Box



```
1 <!DOCTYPE html>
2 <html>
3   <head>
4     <title>JavaScript</title>
5     <script>
6       confirm("Do you like our Website ?");
7     </script>
8   </head>
9   <body>
10
11 </body>
12 </html>
13
```

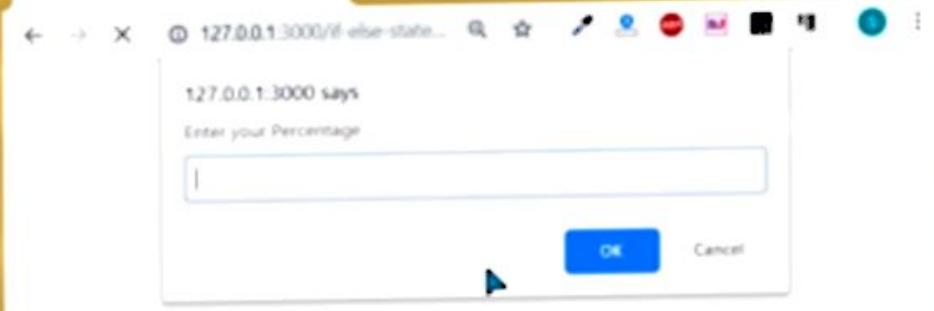




# JavaScript Prompt Box

**Yahoobaba**  
[Yahoobaba.net](http://Yahoobaba.net)

```
prompt.html | # else statement.html
1  <!DOCTYPE html>
2  <html>
3  <head>
4  <title>JavaScript</title>
5  <script>
6      var per = prompt("Enter your Percentage : ");
7
8      if(per >= 80 && per <= 100){
9          document.write("You are in Merit.");
10     }else if(per >= 60 && per < 80){
11         document.write("You are in Ist Division.");
12     }else if(per >= 45 && per < 60){
13         document.write("You are in IInd Division.");
14     }else if(per >= 33 && per < 45){
15         document.write("You are in IIIrd Division.");
16     }else if(per < 33){
17         document.write("You are Fail.");
18     }else{
19         document.write("Please Enter Valid Percentage.");
20     }
21 </script>
```



# JavaScript Functions



```
document.write("Wow you are");
document.write("<br>");
document.write("Greater");
....
```

```
document.write("Wow you are");
document.write("<br>");
document.write("Greater");
....
```

```
document.write("Wow you are");
document.write("<br>");
document.write("Greater");
```

```
ABC{
    document.write("Wow you are");
    document.write("<br>");
    document.write("Greater");
}
```

```
ABC();
....
```

```
ABC();
....
```

```
ABC();
```

# Functions Syntax in JavaScript :



```
function functionName(){ ← Function Definition  
    Statement  
}
```

```
functionName(); ← Calling a Function
```

```
1 <!DOCTYPE html>
2 <html>
3 <head>
4   <title>JavaScript</title>
5   <script>
6     function hello(){
7       document.write("Hello| EveryBody");
8     }
9
10    hello();
11    hello();
12    hello();
13    hello();
14  </script>
15 </head>
16 <body>
17
18 </body>
19 </html>
```



The screenshot shows a web browser window with the URL `127.0.0.1:3000/function...`. The page content displays the string "Hello| EveryBody" repeated four times, indicating that the `document.write` function was called four times from the script block.

```
functions.html
6 function hello(){
7     document.write("Hello EveryBody");
8 }
9
10 function yahoo(){
11     document.write("Hello Yahoo Baba");
12 }
13
14 hello();
15 document.write("<br>");
16 document.write("<br>");
17 document.write("<br>");
18 yahoo();
19 document.write("<br>");
20 hello();
21 hello();
22 </script>
23 </head>
24 <body>
```

Hello EveryBody

Hello Yahoo Baba

Hello EveryBodyHello EveryBody

# JavaScript

## Functions with Parameters

**YahooBaba**  
[Yahoobaba.net](http://Yahoobaba.net)



```
var a = 10;  
var b = 20;  
document.write(a + b);  
....  
....  
....  
  
var a = 30;  
var b = 40;  
document.write(a + b);  
....  
....  
....  
  
var a = 25;  
var b = 55;  
document.write(a + b);
```

```
function sum(a , b){  
    document.write(a + b);  
}  
  
sum(10,20);  
....  
....  
  
sum(30,40);
```

# Functions Syntax in JavaScript :



```
function functionName(parameter1, parameter2){  
    Statement  
}
```

```
functionName(argument1, argument2);
```



```
1 <!DOCTYPE html>
2 <html>
3 <head>
4 <title>JavaScript</title>
5 <script>
6 function hello(fname, lname){
7     document.write("Hello" + fname + " " + lname);
8 }
9
10 hello("Yahoo", "Baba");
11
12 <script>
13 <head>
14 <body>
15 <dy>
16 <ml>
17
18
```

The screenshot shows a browser window with the URL 127.0.0.1:3000/functions.html. The page content is "Hello Yahoo Baba". The browser interface includes a back button, forward button, search bar, and various control icons. At the top right, there is a status bar with the word "Paused" and a circular progress indicator.

```
var a = 10;  
var b = 20;  
document.write(a + b);  
....  
....  
....  
var a = 30;  
var b = 40;  
document.write(a + b);  
....  
....  
....  
var a = 25;  
var b = 55;  
document.write(a + b);
```

```
function sum(a , b){  
    document.write(a + b);  
}  
  
sum(10,20);
```

# Functions Syntax in JavaScript :



```
function functionName(parameter1, parameter2){  
    Statements  
    return value  
}  
  
var a = functionName(argument1, argument2);
```

```
functions.html
```

```
1 <!DOCTYPE html>
2 <html>
3 <head>
4   <title>JavaScript</title>
5   <script>
6     function fullname(fname = "Yahoo", lname = "Baba"){
7       var a = fname + " - " + lname;
8
9       return a;
10    }
11
12    var fn = fullname("Ram","Singh");
13    document.write(fn);
14  </script>
15 </head>
16 <body>
17
18 </body>
19 </html>
```

Ram - Singh

```
1 <!DOCTYPE html>
2 <html>
3 <head>
4   <title>JavaScript</title>
5   <script>
6     function fullname(fname = "Yahoo", lname = "Baba"){
7       var a = fname + " " + lname;
8
9       return a;
10    }
11
12  var fn = fullname("Ram","Singh");
13  document.write(fn);
14 </script>
15 </head>
16 <body>
17
18 </body>
19 </html>
20
```

Ram Singh

```
1 <!DOCTYPE html>
2 <html>
3 <head>
4   <title>JavaScript</title>
5   <script>
6     function sum(math,eng,sc){
7       var s = math + eng + sc;
8
9       return s;
10    }
11
12    function percentage(tt){
13    }
14
15
16    var total = sum(55,65,75);
17    document.write(total);
18  </script>
19 </head>
20 <body>
21
22 </body>
23 </html>
```

195

```
File Edit View Insert Cell Kernel Help
1 <!DOCTYPE html>
2 <html>
3 <head>
4   <title>JavaScript</title>
5   <script>
6     function sum(math,eng,sc){
7       var s = math + eng + sc;
8
9       return s;
10    }
11
12   function percentage(tt){
13     var per = tt/300 * 100;
14     document.write(per);
15   }
16
17   var total = sum(80,65,75);
18
19   percentage(total);
20   </script>
21 </head>
22 <body>
23
```

65

# JavaScript

## Global & Local Variables



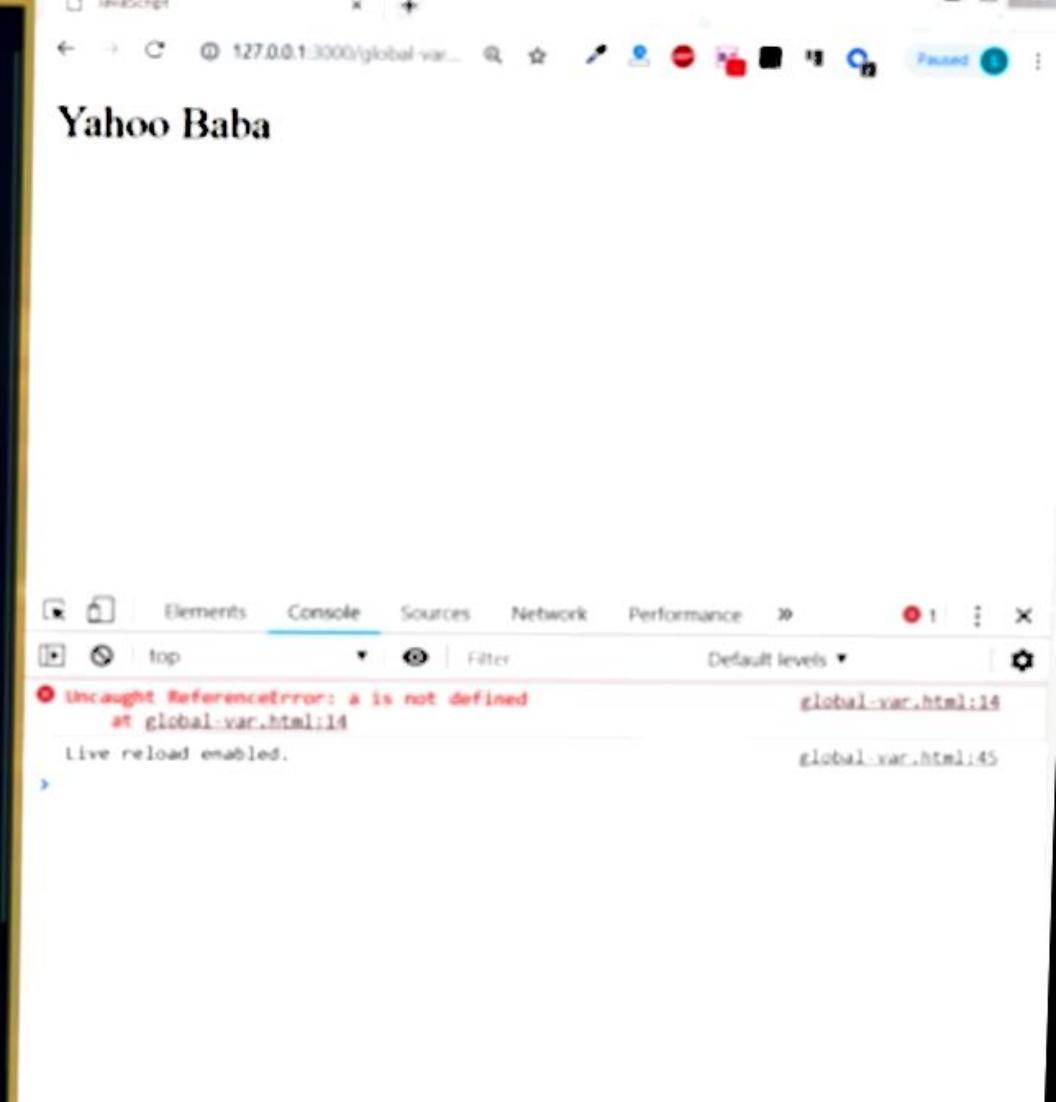
# Global & Local Variables in JavaScript :



```
var a = 10; ← Global Variable
```

```
function functionName(){
    var b = 25;
}
```

```
global-var.html
1 <!DOCTYPE html>
2 <html>
3 <head>
4   <title>JavaScript</title>
5   <script>
6
7
8     function hello(){
9       var a = "Yahoo Baba";
10      document.write(a + "<br>");
11    }
12
13    hello();
14    document.write(a);
15  </script>
16 </head>
17 <body>
18
```



# JavaScript Events



# JavaScript Basic Events



- Click
- Double Click
- Right Click
- Mouse Hover
- Mouse Out
- Mouse Down
- Mouse Up
- Key Press
- Key Up
- Load
- Unload
- Resize
- Scroll

```
1 <!DOCTYPE html>
2 <html>
3   <head>
4     <title>JavaScript</title>
5     <script>
6       function hello(){
7         alert("Hello Everyone");
8       }
9
10    </script>
11  </head>
12  <body>
13    <button onclick="hello()">Click Me</button>
14  </body>
15 </html>
16
```



```
1 <!DOCTYPE html>
2 <html>
3 <head>
4   <title>JavaScript</title>
5   <script>
6     function hello(){
7       document.write("Hello Everyone");
8     }
9
10  </script>
11 </head>
12 <body>
13   <button onclick="hello()">Click Me</button>
14 </body>
15 </html>
16
```

# JavaScript Basic Events

- Click (`onclick`)
- Double Click (`ondblclick`)
- Right Click (`oncontextmenu`)
- Mouse Hover (`onmouseenter`)
- Mouse Out (`onmouseout`)
- Mouse Down (`onmousedown`)
- Mouse Up (`onmouseup`)
- Key Press (`onkeypress`)
- Key Up (`onkeyup`)
- Load (`onload`)
- Unload (`onunload`)
- Resize (`onresize`)
- Scroll (`onscroll`)

```
global-var.html | events.html
1 <!DOCTYPE html>
2 <html>
3 <head>
4   <title>JavaScript</title>
5   <script>
6     function hello(){
7       alert("Hello Everyone");
8     }
9
10  </script>
11 </head>
12 <body onscroll="hello()">
13   <button onclick="hello()">Click Me</button>
14   <p>Lorem ipsum dolor sit amet, consectetur  
nemo deserunt molestiae nam alias dignissim  
pariatur nesciunt sed, blanditiis illum off  
temporibus dolore, dolores cupiditate repel  
Consequuntur obcaecati praesentium, at quia
```

im dolor sit amet, consectetur adipisciing elit.  
tur voluptates, cum doloremque delectus expedita.  
s iusto tempore nemo unde totam officia, quas odio  
ndi quam est voluptatem at atque asperiores sed eum  
cum nulla eius ut magnam, earum accusantium. Non  
it nesciunt aliquid aut quas accusantium cumque,  
neque ipsa, laudantium voluptas quis officiis, odit  
aque quae voluptas ullam id excepturi tempore velit  
o deserunt molestiae nam alias dignissimos  
n delectus, quam libero soluta eius mollitia a veritatis  
Fugit ipsam, soluta, dolorem at labore cum laborum  
Sint dolorum cum, repellendus, provident id odit  
e ipsa mollitia fugiat porro ex numquam doloribus  
is eos. Asperiores, provident doloribus ea aperiam quia  
um, optio, doloremque dignissimos repellendus  
e animi omnis consequatur temporibus dolorem quod!  
re pariatur nesciunt sed, blanditiis illum officiis itaque  
ovident, dicta reiciendis voluptatibus neque, vel!

# JavaScript

## While Loop



```
document.write("Hello Yahoo Baba");
Loop(10 Times){
    document.write("Hello Yahoo Baba");
}
```

# Loop is Divided in 3 Parts :



Initialization

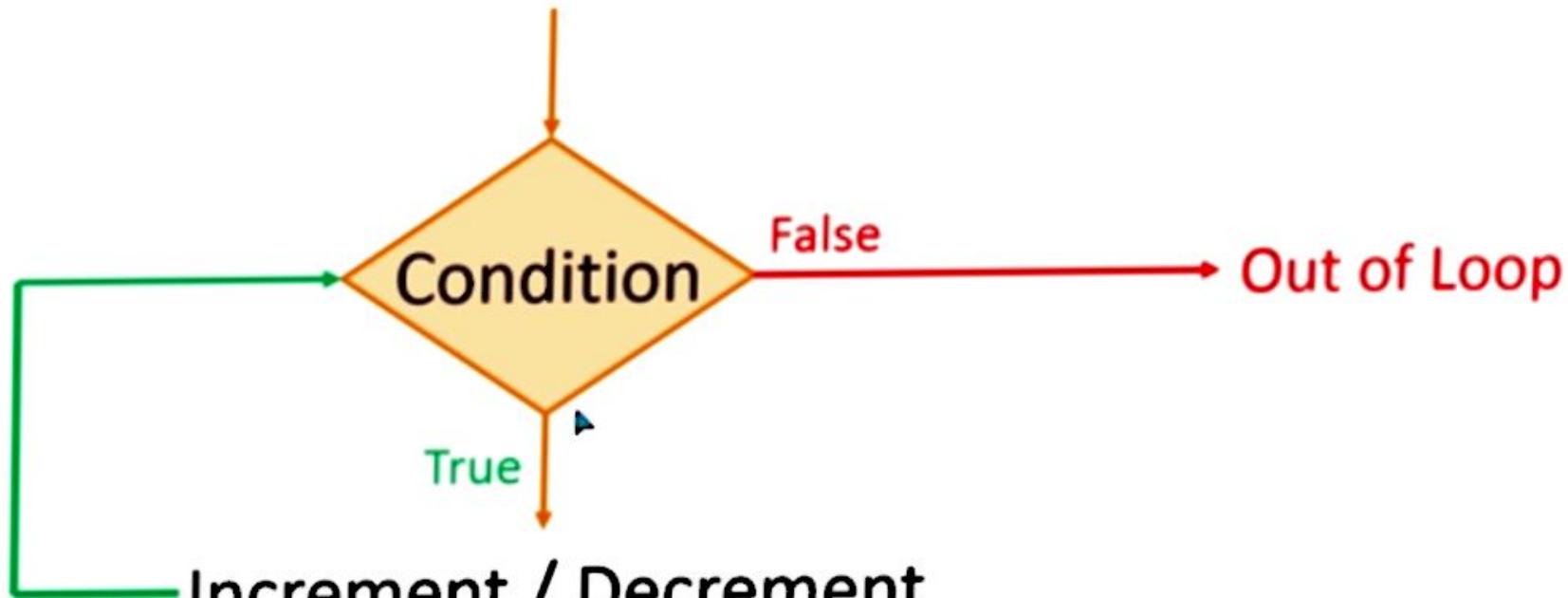
Condition

False

Out of Loop

True

Increment / Decrement



# Type of Loops in JavaScript :



- while loop
- do/while loop
- for loop
- for/in loop
- forEach

# While Loop Syntax in JavaScript :



```
var a = 1;
```

```
while(a <= 10){  
    document.write("Yahoo Baba");  
    a = a + 1;  
}
```

```
white-loop.html
1 <!DOCTYPE html>
2 <html>
3   <head>
4     <title>JavaScript</title>
5     <script>
6       var a = 10;
7       document.write("<ul>");
8       while(a >= 1){
9         document.write("<li>" + a + ") Hello Yahoo")
10        a = a + 1;
11      }
12      document.write("</ul>");
13    </script>
14  </head>
15  <body>
16
17  </body>
18 </html>
```

JavaScript

Paused

- 1) Hello Yahoo baba
- 2) Hello Yahoo baba
- 3) Hello Yahoo baba
- 4) Hello Yahoo baba
- 5) Hello Yahoo baba
- 6) Hello Yahoo baba
- 7) Hello Yahoo baba
- 8) Hello Yahoo baba
- 9) Hello Yahoo baba
- 10) Hello Yahoo baba

```
white-loop.html
1 <!DOCTYPE html>
2 <html>
3 <head>
4   <title>JavaScript</title>
5   <script>
6     var a = 10;
7     document.write("<ul>");
8     while(a >= 1){
9       document.write("<li>" + a + ") Hello Yahoo")
10      a = a - 1;
11    }
12    document.write("</ul>");
13  </script>
14 </head>
15 <body>
16
17 </body>
18 </html>
```

Paused

- 10) Hello Yahoo baba
- 9) Hello Yahoo baba
- 8) Hello Yahoo baba
- 7) Hello Yahoo baba
- 6) Hello Yahoo baba
- 5) Hello Yahoo baba
- 4) Hello Yahoo baba
- 3) Hello Yahoo baba
- 2) Hello Yahoo baba
- 1) Hello Yahoo baba

## Do While Loop Syntax in JavaScript :



```
var a = 1;  
do{  
    document.write("Yahoo Baba");  
    a = a + 1;  
} while(a <= 10)
```

• do-while-loop.html

```
<!DOCTYPE html>
<html>
<head>
    <title>JavaScript</title>
    <script>
        var a = 1;
        do{
            document.write("Hello Yahoo Baba<br>");
            a = a + 1;
        }while(a <= 10)

    </script>
</head>
<body>

</body>
</html>
```

◀ ▶

for-loop.htm

```
<!DOCTYPE html>
<html>
<head>
    <title>JavaScript</title>
    <script>
        for(var a = 1; a <= 10; a++){
            document.write("Hello Yahoo Baba<br>");
        }
    </script>
</head>
<body>

</body>
</html>
```

JavaScript

# JavaScript

## Even / Odd Number With Loop

```
1 <!DOCTYPE html>
2 <html>
3 <head>
4   <title>JavaScript</title>
5   <script>
6     for(var a = 1; a <= 100; a++){
7       if(a % 2 == 0){
8         document.write(a + "<br>");
9       }
10      }
11    </script>
12  </head>
13  <body>
14
15  </body>
16 </html>
17
```

2  
4  
6  
8  
10  
12  
14  
16  
18  
20  
22  
24  
26  
28  
30  
32  
34  
36  
38  
40

# JavaScript

## Nested Loop



```
1 <!DOCTYPE html>
2 <html>
3 <head>
4   <title>JavaScript</title>
5   <script>
6     for(var a = 1; a <= 100; a = a+10){
7       for(var b = a; b < a+10 ; b++){
8         document.write(b + " ");
9       }
10      document.write("<br>");
11    }
12  </script>
13 </head>
14 <body>
15
16 </body>
17 </html>
18
```

JavaScript

1 2 3 4 5 6 7 8 9 10  
11 12 13 14 15 16 17 18 19 20  
21 22 23 24 25 26 27 28 29 30  
31 32 33 34 35 36 37 38 39 40  
41 42 43 44 45 46 47 48 49 50  
51 52 53 54 55 56 57 58 59 60  
61 62 63 64 65 66 67 68 69 70  
71 72 73 74 75 76 77 78 79 80  
81 82 83 84 85 86 87 88 89 90  
91 92 93 94 95 96 97 98 99 100

A	B
1	1
2	1 2
3	1 2 3
4	1 2 3 4
5	1 2 3 4 5

```
for(var a = 1; a <= 5; a++){  
    for(var b = 1; b <= a; b++){  
        document.write(b);  
    }  
}
```

```
1 <!DOCTYPE html>
2 <html>
3 <head>
4   <title>JavaScript</title>
5   <script>
6     for(var a = 1; a <= 5; a++){
7       for(var b = 1; b <= a ; b++){
8         document.write(b + " ");
9       }
10      document.write("<br>");
11    }
12  </script>
13 </head>
14 <body>
15
16 </body>
```

1  
1 2  
1 2 3  
1 2 3 4  
1 2 3 4 5

nested-loop.html

```
1 <!DOCTYPE html>
2 <html>
3 <head>
4   <title>JavaScript</title>
5   <script>
6     for(var a = 1; a <= 5; a++){
7       for(var b = 1; b <= a ; b++){
8         document.write(a + " ");
9       }
10      document.write("<br>");
11    }
12  </script>
13 </head>
14 <body>
15
16 </body>
17 // Line 1
```

12345

1223344555

A	B
5	5 5 5 5 5
4	4 4 4 4
3	3 3 3
2	2 2
1	1

	A	B
5		5 5 5 5 5
4		4 4 4 4
3		3 3 3
2		2 2
1		1

```

for(var a = 5; a >= 1; a--){
    for(var b = 1; b <= a; b++){
        document.write(a);
    }
    document.write("<br>");
}

```

A	B
5	5 4 3 2 1
4	4 3 2 1
3	3 2 1
2	2 1
1	1

```
for(var a = 5; a >= 1; a--){
    for(var b = a; b >= 1; b--){
        document.write(b);
    }
}
```

# Data Types in JavaScript :



- String
- Number
- Boolean
- Array
- Object
- Null
- Undefined



# What is Array ?



```
var a = 10;
```

```
var a = 10,20,30; → Error
```

```
var a = "10,20,30"; → String
```

```
var a = [10,20,30]; → Array
```

```
1 <!DOCTYPE html>
2 <html>
3 <head>
4   <title>JavaScript</title>
5   <script>
6     var ary = [10,20,30,40,50];
7     var sum = 0;
8     document.write("<ul>");
9     for(var a = 0; a <= 4; a++){
10       document.write("<li>" + ary[a] + "</li>")
11       sum = sum + ary[a];
12     }
13     document.write("</ul>");
14   </script>
15 </head>
16 <body>
17
18 </body>
```

- 10
- 20
- 30
- 40
- 50

```
1 DOCTYPE html>
2 <html>
3 <head>
4 <title>JavaScript</title>
5 <script>
6     var ary = [10, 20, 30, 40, 50];
7     var sum = 0;
8     document.write("<ul>");
9     for(var a = 0; a <= 4; a++){
10         document.write("<li>" + ary[a] + "</li>");
11         sum = sum + ary[a];
12     }
13     document.write("</ul>");
14     document.write("Total Sum : " + sum);
15 </script>
16 <head>
17 <body>
```

- 10
- 20
- 30
- 40
- 50

Total Sum : 150

```
array.html
1 <!DOCTYPE html>
2 <html>
3 <head>
4   <title>JavaScript</title>
5   <script>
6     var ary = [10,"Harry","Sarah",true,null];
7     var sum = 0;
8     document.write("<ul>");
9     for(var a = 0; a <= 4; a++){
10       document.write("<li>" + ary[a] + "</li>")
11     }
12     document.write("</ul>");
13
14   </script>
15 </head>
16 <body>
17
18 </body>
```



## Another way to Create Array :



```
var a = [10,20,30];
```



```
var a = new Array();
```

```
1  <!DOCTYPE html>
2  <html>
3  <head>
4      <title>JavaScript</title>
5  <script>
6      var ary = new Array(3);
7      ary[0] = 10;
8      ary[1] = "Harry";
9      ary[3] = true;
10     document.write("<ul>");
11     for(var a = 0; a < 5; a++){
12         document.write("<li>" + ary[a] + "</li>");
13     }
14     document.write("</ul>");
15
16     </script>
17 </head>
18 <body>
```

```
1<title>JavaScript</title>
2<script>
3    var ary = new Array(3);
4
5
6
7
8    for(var g = 0; g < 3; g++){
9        ary[g] = prompt("Enter the Value : ");
10    }
11
12
13    document.write("<ul>");
14    for(var a = 0; a < 3; a++){
15        document.write("<li>" + ary[a] + "</li>");
16    }
17    document.write("</ul>");
18
19</script>
20</head>
21<body>
```

# What is Multidimensional Array ?



Name	Age	Gender	Class
Harry	18	Male	B.Com
Sunny	19	Male	BCA
Sarah	18	Female	BCA
Tom	17	Male	B.A.

# Syntax of Multidimensional Array ?



```
var a = [  
    ["Harry", 18, "Male", "B.Com"],  
    ["Sunny", 19, "Male", "BCA"],  
    ["Sarah", 18, "Female", "BCA"],  
    ["Tom", 17, "Male", "B.A."]  
];
```

```
multidimensional-array.html
1 <!DOCTYPE HTML>
2
3 <html>
4   <head>
5     <title>JavaScript</title>
6     <script>
7       var ary = [
8         ["Harry",18,"Male","B.Com"],
9         ["Sunny",19,"Male","BCA"],
10        ["Sarah",18,"Male","BCA"],
11        ["Tom",17,"Male","B.A."]
12      ];
13      for(var a = 0; a < 4; a++){
14        for(var b=0; b < 4; b++){
15          document.write(ary[a][b]);
16        }
17        document.write("<br>");
18      }

```

127.0.0.1:3000/multidimensional-array.html

Paused

Harry18MaleB.Com  
Sunny19MaleBCA  
Sarah18MaleBCA  
Tom17MaleB.A.

```
1 <html>
2 <head>
3   <title>JavaScript</title>
4   <script>
5     var ary = [
6       ["Harry", 18, "Male", "B.Com"],
7       ["Sunny", 19, "Male", "BCA"],
8       ["Sarah", 18, "Male", "BCA"],
9       ["Tom", 17, "Male", "B.A."]
10      ];
11
12      document.write(ary[2][3]);
13      /*for(var a=0; a < 4; a++){
14        for(var b=0; b < 4; [b++){
15          document.write(ary[a][b] + " ");
16        }
17        document.write("<br>");
18      }*/
19    
```

```
multidimensional-array.html
6   =
7   ry",18,"Male","B.Com"],
8   ny",19,"Male","BCA"],
9   ah",18,"Male","BCA"],
10  ",17,"Male","B.A."]
11
12  ent.write(ary[2][0]);
13  t.write("<table border='1px' cellspacing='0'>");
14  a = 0; a < 4; a++){
15  ument.write("<tr>");
16  ar b=0; b < 4; b++){
17  ument.write("<td>" + ary[a][b] + "</td>");
18
19  ent.write("</tr>");
20
21  ent.write("</table>")
22
23
```

Paused

Harry	18	Male	B.Com
Sunny	19	Male	BCA
Sarah	18	Male	BCA
Tom	17	Male	B.A.

```
6 var ary = [
7     ["Harry", 18, "Male", "B.Com"],
8     ["Sunny", 19, "Male", "BCA"],
9     ["Sarah", 18, "Male", "BCA"],
10    ["Tom", 17, "Male", "B.A."],
11    ["Mac", 17, "Male", "B.A."]
12 ];
13
14 document.write(ary.length);
15 document.write("<table border='1px' cellspacing='1px' cellpadding='1px'>");
16 for(var a = 0; a < ary.length; a++){
17     document.write("<tr>");
18     for(var b=0; b < ary[a].length; b++){
19         document.write("<td>" + ary[a][b] + "</td>");
20     }
21     document.write("</tr>");
22 }
23 document.write("</table>")
</script>
```

```
1 <!DOCTYPE html>
2 <html>
3 <head>
4   <title>JavaScript</title>
5   <script>
6     var a = ["Harry", 18, "Male", "BCA"];
7     document.write(a + "<br>");
8     a[0] = "Sunny";
9     document.write(a + "<br>");
10    a[1] = 20;
11    document.write(a + "<br>");
12  </script>
13 </head>
14 <body>
15
16 </body>
17 </html>
```

Harry,18,Male,BCA  
Sunny,18,Male,BCA  
Sunny,20,Male,BCA

## Remove Array Element



```
var a = ["Harry", 18, "BCA"];
```

```
delete a[1];
```

```
1 <!DOCTYPE html>
2 <html>
3 <head>
4   <title>JavaScript</title>
5   <script>
6     var a = ["Harry", 18, "Male", "BCA"];
7     document.write(a + "<br>");
8     a[0] = "Sunny";
9     document.write(a + "<br>");
10    delete a[1];
11    document.write(a + "<br>");
12
13    document.write(a[1] + "<br>");
14  </script>
15 </head>
16 <body>
17
```

Harry,18,Male,BCA  
Sunny,18,Male,BCA  
Sunny,Male,BCA  
undefined

# JavaScript Array Methods :



- `sort()`
- `reverse()`
- `pop()`
- `push()`
- `shift()`
- `unshift()`
- `concat()`
- `join()`
- `slice()`
- `splice()`
- `isArray()`
- `indexOf()`
- `lastIndexOf()`
- `entries()`
- `every()`
- `filter()`
- `find()`
- `findIndex()`
- `includes()`
- `some()`
- `forEach()`
- `toString()`
- `valueOf()`
- `fill()`

## Array – Sort() Function :



```
var a = ["Sanjay","Aman","Rehman","Karan"];
```

Aman , Karan , Rehman , Sanjay

```
1 <!DOCTYPE html>
2 <html>
3 <head>
4   <title>JavaScript</title>
5   <script>
6     var a = ["Sanjay", "Aman", "Rehman", "Karan"];
7     document.write(a + "<br><br>");
8     a.sort();
9     document.write(a + "<br>");
10    </script>
11  </head>
12  <body>
13
14  </body>
15 </html>
16
```

JavaScript

Sanjay,Aman,Rehman,Karan

Aman,Karan,Rehman,**Sanjay**

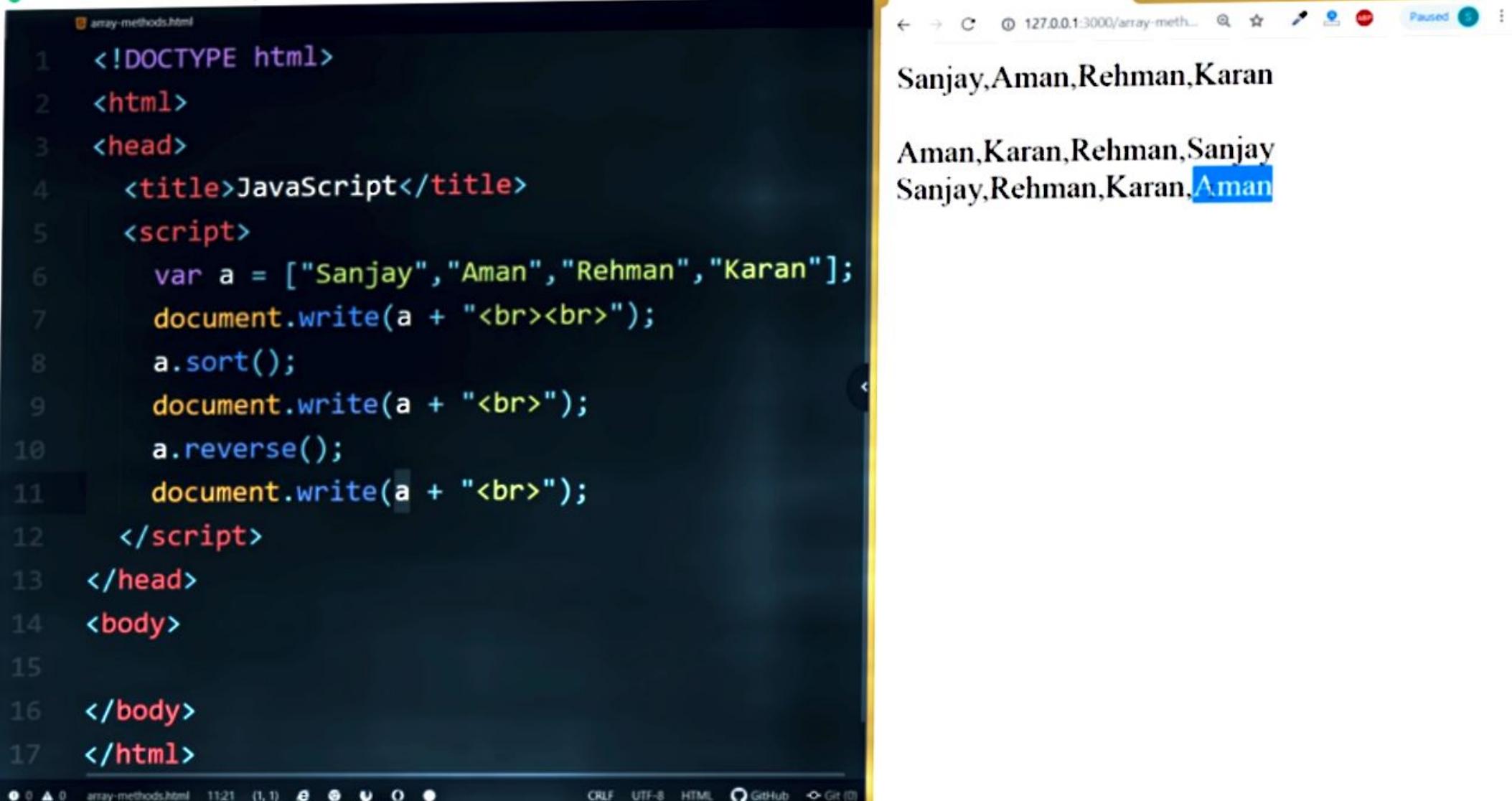
FILE LITE-B HTML GitHub Git (D) Paused

## Array – Reverse() Function :



```
var a = ["Sanjay","Aman","Rehman","Karan"];
```

Karan , Rehman , Aman , Sanjay



The screenshot shows a code editor on the left and a browser window on the right.

**Code Editor (Left):**

```
array-methods.html
1 <!DOCTYPE html>
2 <html>
3   <head>
4     <title>JavaScript</title>
5     <script>
6       var a = ["Sanjay", "Aman", "Rehman", "Karan"];
7       document.write(a + "<br><br>");
8       a.sort();
9       document.write(a + "<br>");
10      a.reverse();
11      document.write(a + "<br>");
12    </script>
13  </head>
14  <body>
15
16  </body>
17 </html>
```

**Browser Output (Right):**

127.0.0.1:3000/array-meth... Paused

Sanjay,Aman,Rehman,Karan  
Aman,Karan,Rehman,Sanjay  
Sanjay,Rehman,Karan,**Aman**

The browser displays four lines of text: "Sanjay,Aman,Rehman,Karan", "Aman,Karan,Rehman,Sanjay", "Sanjay,Rehman,Karan," followed by the word "Aman" which is highlighted with a blue rectangle. This demonstrates the effect of the array methods sort() and reverse() on the original array 'a'.

# Array – Pop() Function :



```
var a = ["Sanjay","Aman","Rehman","Karan";
```

pop()

# Array – Push() Function :



```
var a = ["Sanjay","Aman","Rehman"];
```

```
var a = ["Sanjay","Aman","Rehman", "Karan"];
```

push()

```
1 <!DOCTYPE html>
2 <html>
3 <head>
4   <title>JavaScript</title>
5   <script>
6     var a = ["Sanjay", "Aman", "Rehman", "Karan"];
7     document.write(a + "<br><br>");
8     a.pop();
9     document.write(a + "<br><br>");
10    a.push("Rahul");
11    document.write(a + "<br><br>");
12    a.push("Salman");
13    document.write(a + "<br><br>");
14  </script>
15 </head>
16 <body>
17
```

Sanjay,Aman,Rehman,Karan  
Sanjay,Aman,Rehman  
Sanjay,Aman,Rehman,Rahul  
Sanjay,Aman,Rehman,Rahul,Salman ➔

# Array – Shift() Function :



```
var a = ["Sanjay","Aman","Rehman","Karan"];
```



shift()

## Array – Unshift() Function :



```
var a = ["Aman", "Rehman", "Karan"];
```

```
var a = ["Sanjay", "Aman", "Rehman", "Karan"];
```

### unshift()



```
1 <!DOCTYPE html>
2 <html>
3 <head>
4   <title>JavaScript</title>
5   <script>
6     var a = ["Sanjay", "Aman", "Rehman", "Karan"];
7     document.write(a + "<br><br>");
8     a.shift();
9     document.write(a + "<br><br>");
10    a.unshift("Rahul");
11    document.write(a + "<br><br>");
12  </script>
13 </head>
14 <body>
15
16 </body>
17 </html>
```

Sanjay,Aman,Rehman,Karan

Aman,Rehman,Karan

Rahul,Aman,Rehman,Karan ➔

## Array – Concat() Function :



```
var a = ["Sanjay", "Aman", "Rehman"];
```

```
var b = ["Karan", "Rahul"];
```

concat()

```
1  <!DOCTYPE html>
2  <html>
3  <head>
4    <title>JavaScript</title>
5    <script>
6      var a = ["Sanjay", "Aman", "Rehman"];
7
8      var b = a.concat("Rahul", "Karan");
9
10     document.write(b);
11
12   </script>
13 </head>
14 <body>
15
16 </body>
17 </html>
```

Sanjay,Aman,Rehman,Rahul,Karan

```
array-methods.html
1 <!DOCTYPE html>
2 <html>
3 <head>
4   <title>JavaScript</title>
5   <script>
6     var a = ["Sanjay", "Aman", "Rehman"];
7     var b = ["Rahul", "Karan"];
8     var c = a.concat(b);
9     document.write(c);
10
11   </script>
12 </head>
13 <body>
14
15 </body>
16 </html>
17
```

JavaScript

127.0.0.1:3000/array-me... Paused

Sanjay,Aman,Rehman,Rahul,Karan

```
array-methods.html
1 <!DOCTYPE html>
2 <html>
3 <head>
4   <title>JavaScript</title>
5   <script>
6     var a = ["Sanjay", "Aman", "Rehman"];
7     var b = ["Rahul", "Karan"];
8     var d = ["Neha", "Mahima"];
9     var c = a.concat(b, d);
10    document.write(c);
11
12  </script>
13 </head>
14 <body>
15
16 </body>
17 </html>
```

JavaScript

127.0.0.1:3000/array-me... Paused

Sanjay,Aman,Rehman,Rahul,Karan,Neha,Mahima

# Array – Join() Function :



```
var a = ["Aman","Rehman","Karan"];
```

Aman – Rehman – Karan

join()



```
array-methods.html
1  <!DOCTYPE html>
2  <html>
3  <head>
4      <title>JavaScript</title>
5      <script>
6          var a = ["Sanjay", "Aman", "Rehman"];
7          var b = ["Rahul", "Karan"];
8          var c = a.concat(b);
9          document.write(c + "<br><br>");
10         var d = c.join(" / ");
11         document.write(d);
12     </script>
13 </head>
14 <body>
15
16 </body>
17 </html>
```

JavaScript

Sanjay,Aman,Rehman,Rahul,Karan

Sanjay / Aman / Rehman / Rahul / Karan

```
array-methods.html
1  <!DOCTYPE html>
2  <html>
3  <head>
4      <title>JavaScript</title>
5      <script>
6          var a = ["Sanjay", "Aman", "Rehman"];
7          var b = ["Rahul", "Karan"];
8          var c = a.concat(b);
9          document.write(c + "<br><br>");
10         var d = c.join(" ");
11         document.write(d);
12     </script>
13 </head>
14 <body>
15
16 </body>
17 </html>
```

JavaScript

127.0.0.1:3000/array-me... Paused

Sanjay,Aman,Rehman,Rahul,Karan

Sanjay - Aman - Rehman - Rahul - Karan

## Array – Slice() Function :



```
var a = ["Sanjay", "Aman", "Rehman", "Karan"];
```

```
["Aman", "Rehman"]
```

slice(start , end)

```
1  <!DOCTYPE html>
2  <html>
3  <head>
4      <title>JavaScript</title>
5      <script>
6          var a = ["Sanjay", "Aman", "Rehman",
7                      "Rahul", "Karan"];
8
9          document.write(a + "<br><br>");
10
11         var b = a.slice(1 , 4);
12         document.write(b + "<br><br>");
13     </script>
14 </head>
15 <body>
16
17 </body>
```

127.0.0.1:3000/array-met... Paused

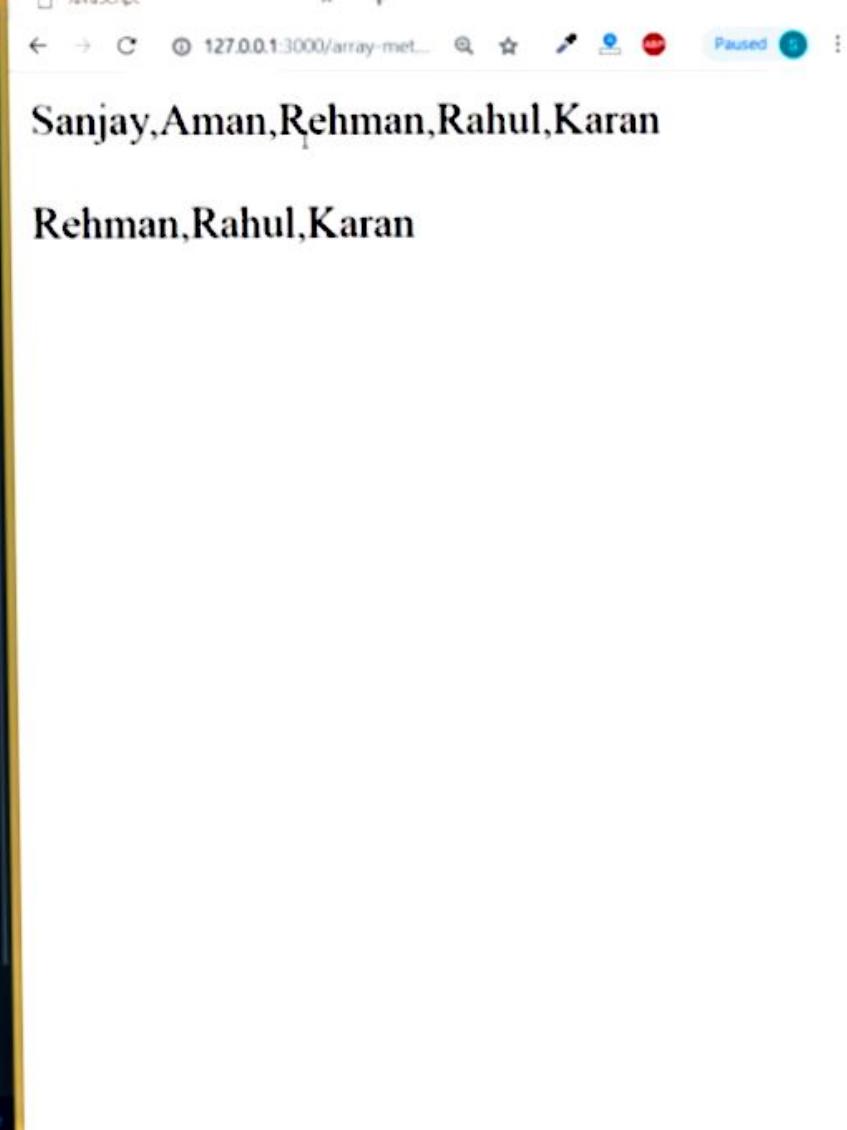
Sanjay,Aman,Rehman,Rahul,Karan  
Aman,Rehman,Rahul

```
1 <!DOCTYPE html>
2 <html>
3 <head>
4   <title>JavaScript</title>
5   <script>
6     var a = ["Sanjay", "Aman", "Rehman",
7               "Rahul", "Karan"];
8
9   document.write(a + "<br><br>");
10
11  var b = a.slice(1);
12  document.write(b + "<br><br>");
13 </script>
14 </head>
15 <body>
16
17 </body>
```

Sanjay,Aman,Rehman,Rahul,Karan

Aman,Rehman,Rahul,Karan

```
1  <!DOCTYPE html>
2  <html>
3  <head>
4      <title>JavaScript</title>
5      <script>
6          var a = ["Sanjay", "Aman", "Rehman",
7                      "Rahul", "Karan"];
8
9          document.write(a + "<br><br>");
10
11         var b = a.slice(2);
12         document.write(b + "<br><br>");
13     </script>
14 </head>
15 <body>
16
17 </body>
```



The screenshot shows a browser window with the URL 127.0.0.1:3000/array-met... at the top. The page content displays two lines of text: "Sanjay,Aman,Rehman,Rahul,Karan" and "Rehman,Rahul,Karan". This indicates that the script has successfully sliced the array 'a' starting from index 2.

Sanjay,Aman,Rehman,Rahul,Karan  
Rehman,Rahul,Karan

```
1 <!DOCTYPE html>
2 <html>
3 <head>
4   <title>JavaScript</title>
5   <script>
6     var a = ["Sanjay", "Aman", "Rehman",
7               "Rahul", "Karan"];
8
9   document.write(a + "<br><br>");
10
11  var b = a.slice(-3);
12  document.write(b + "<br><br>");
13  </script>
14 </head>
15 <body>
16
17 </body>
```



## Array – Splice() Function :



0                  1                  2

```
var a = ["Aman","Rehman","Karan"];
```

“Rahul”, “Sanjay”

splice(index , howmany , “new value”)  
Delete

```

1  DOCTYPE html>
2  html>
3  head>
4  <title>JavaScript</title>
5  <script>
6      var a = ["Sanjay","Aman","Rehman","Rahul"];
7
8      document.write(a + "<br><br>");
9
10     a.splice(2,0,"Neha","Karan");
11     document.write(a + "<br><br>");
12
13 </script>
14 <head>
15 <body>
16 </body>
17 </html>
```

Sanjay,Aman,Rehman,Rahul

Sanjay,Aman,Neha,Karan,Rehman,Rahul

```
1  DOCTYPE html>
2  html>
3  head>
4  <title>JavaScript</title>
5  <script>
6    var a = ["Sanjay","Aman","Rehman","Rahul"];
7
8    document.write(a + "<br><br>");
9
10   a.splice(2,1,"Neha","Karan");
11   document.write(a + "<br><br>");
12 </script>
13 head>
14 body>
15
16 body>
17 html>
```

## Array – isArray() Function :



```
var a = ["Sanjay","Aman","Rehman"];
```

```
var b = 20;
```

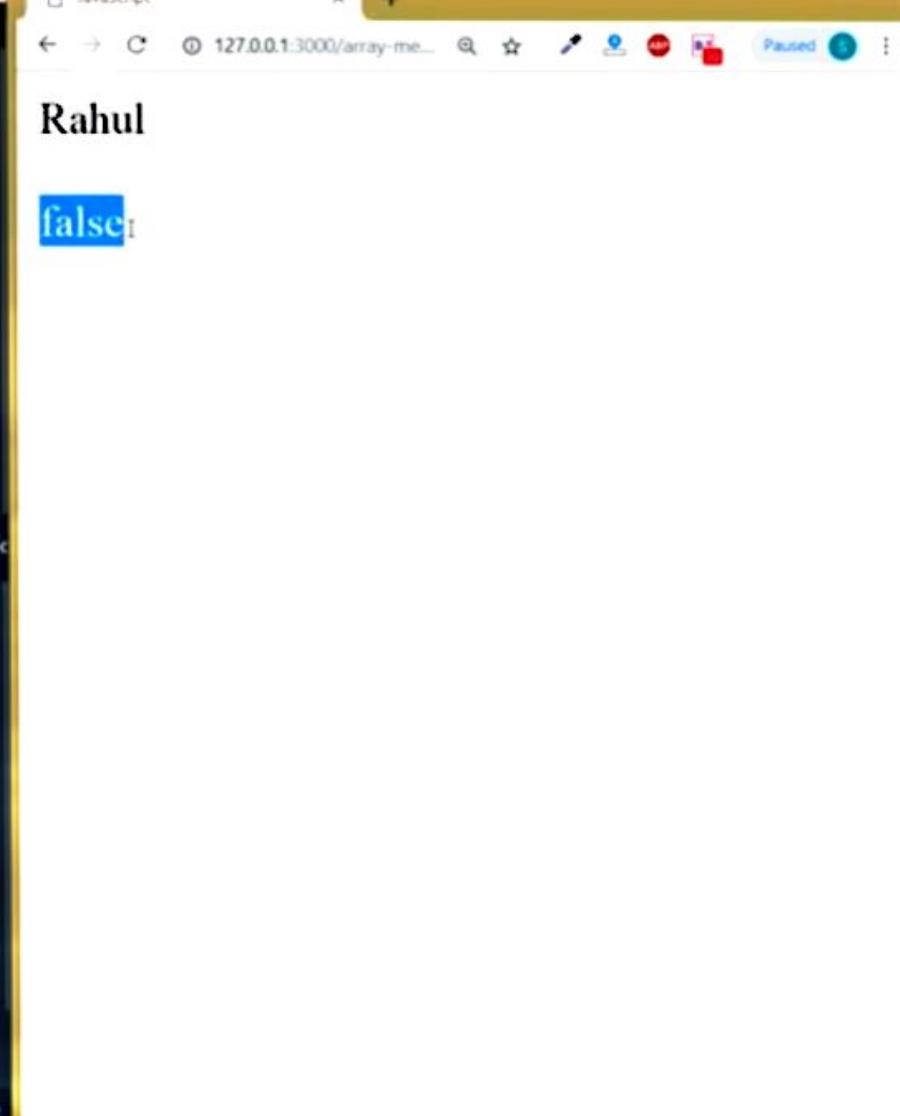
```
var c = "Rahul";
```

isArray()

```
1  <!DOCTYPE html>
2  <html>
3  <head>
4      <title>JavaScript</title>
5      <script>
6          var a = ["Sanjay", "Aman", "Rehman"];
7          document.write(a + "<br><br>");
8
9          var b = Array.isArray(a);
10         document.write(b + "<br><br>");
11     </script>
12 </head>
13 <body>
14
15 </body>
16 </html>
17
```

```
1  <!DOCTYPE html>
2  <html>
3  <head>
4      <title>JavaScript</title>
5      <script>
6          //var a = ["Sanjay", "Aman", "Rehman"];
7          var a = 10;
8          document.write(a + "<br><br>");
9
10         var b = Array.isArray(a);
11         document.write(b + "<br><br>");
12     </script>
13     </head>
14     <body>
15
16     </body>
17     </html>
```

```
1  <!DOCTYPE html>
2  <html>
3  <head>
4      <title>JavaScript</title>
5      <script>
6          //var a = ["Sanjay","Aman","Rehman"];
7          var a = "Rahul";
8          document.write(a + "<br><br>");
9
10         var b = Array.isArray(a);
11         document.write(b + "<br><br>");
12     </script>
13 </head>
14 <body>
15
16 </body>
17 </html>
```



```
array-methods.html
1 <head>
2   <title>JavaScript</title>
3   <script>
4     //var a = ["Sanjay","Aman","Rehman"];
5     var a = "Rahul";
6     document.write(a + "<br><br>");
7
8
9
10    if(Array.isArray(a) == "true"){
11      document.write("This is an Array");
12    }else{
13      document.write("This is not an Array");
14    }
15
16  </script>
17 </head>
18 <body>
19
20
```



```
1 <head>
2   <title>JavaScript</title>
3   <script>
4     var a = ["Sanjay", "Aman", "Rehman"];
5     //var a = "Rahul";
6     document.write(a + "<br><br>");
7
8
9
10    if(Array.isArray(a)){
11      document.write("This is an Array");
12    }else{
13      document.write("This is not an Array");
14    }
15
16  </script>
17 </head>
18 <body>
19
20
```

Sanjay,Aman,Rehman

This is an Array

```
4 <head>
5   <title>JavaScript</title>
6   <script>
7     //var a = ["Sanjay", "Aman", "Rehman"];
8     var a = 20;
9     document.write(a + "<br><br>");
10    if(Array.isArray(a)){
11      document.write("This is an Array");
12    }else{
13      document.write("This is not an Array")
14    }
15
16  </script>
17 </head>
18 <body>
19
```

## Array – indexOf() Function :



```
var a = ["Sanjay", "Aman", "Rehman", "Aman"];
```

Aman

indexOf("Search item", Start)

```
1  <!DOCTYPE html>
2  <html>
3  <head>
4      <title>JavaScript</title>
5      <script>
6          var a = ["Sanjay", "Aman", "Rehman", "Aman", "Rahul"]
7          document.write(a + "<br><br>");
8
9          var b = a.indexOf("Aman", 2);
10         document.write(b);
11     </script>
12 </head>
13 <body>
14
15 </body>
16 </html>
17
```

```
1 <!DOCTYPE html>
2 <html>
3 <head>
4   <title>JavaScript</title>
5   <script>
6     var a = ["Sanjay", "Aman", "Rehman", "Aman", "Rahul"]
7     document.write(a + "<br><br>");
8
9     var b = a.indexOf("Rehman");
10    document.write(b);
11  </script>
12 </head>
13 <body>
14
15 </body>
16 </html>
```

## Array – lastIndexOf() Function :



0                  1                  2                  3

```
var a = ["Sanjay","Aman","Rehman","Aman"];
```

Aman → 3

indexOf("Search item", Start)

```
1 <!DOCTYPE html>
2 <html>
3 <head>
4   <title>JavaScript</title>
5   <script>
6     var a = ["Sanjay", "Aman", "Rehman", "Aman", "Rahul"];
7     document.write(a + "<br><br>");
8
9     var b = a.indexOf("Neha", 2);
10    document.write(b + "<br><br>");
11
12    var c = a.lastIndexOf("Amqan", 2);
13    document.write(c + "<br><br>");
14  </script>
15 </head>
16 <body>
17
```

## Array – includes() Function :



```
var a = ["Sanjay","Aman","Rahul","Karan"];
```

Rahul

includes("Search item")



```
1  <!DOCTYPE html>
2  <html>
3  <head>
4      <title>JavaScript</title>
5      <script>
6          var a = ["Sanjay", "Aman", "Rehman", "Rahul"];
7          document.write(a + "<br><br>");
8
9          var b = a.includes("Rahul");
10         document.write(b + "<br><br>");
11
12     </script>
13 </head>
14 <body>
15
16 </body>
17 </html>
```

```
1  <!DOCTYPE html>
2  <html>
3  <head>
4      <title>JavaScript</title>
5      <script>
6          var a = ["Sanjay", "Aman", "Rehman", "Rahul"];
7          document.write(a + "<br><br>");
8
9          var b = a.includes("aman");
10         document.write(b + "<br><br>");
11
12     </script>
13     </head>
14     <body>
15
16     </body>
17     </html>
```

```
1  <!DOCTYPE html>
2  <html>
3  <head>
4      <title>JavaScript</title>
5      <script>
6          var a = ["Sanjay", "Aman", "Rehman", "Rahul"];
7          document.write(a + "<br><br>");
8
9          var b = a.includes("Neha");
10         document.write(b + "<br><br>");
11
12     </script>
13 </head>
14 <body>
15
16 </body>
17 </html>
```

Sanjay,Aman,Rehman,Rahul

false

## Array – some() Function :



```
var ages = [10 , 13 , 18 , 20];
```

```
var adultAge = 18;
```

ages >= adultAge

some()

Checks if any of the elements in an array pass a test

```

1  <!DOCTYPE html>
2  <html>
3  <head>
4      <title>JavaScript</title>
5      <script>
6          var ages = [10,13,15,2];
7          document.write(ages + "<br><br>");
8
9          var b = ages.some(checkAdult);
10         document.write(b + "<br><br>");
11
12         function checkAdult(age){
13             return age >= 18;
14         }
15     </script>
16 </head>
17 <body>

```

10,13,15,2

false

```
array-methods.html
1 <!DOCTYPE html>
2 <html>
3 <head>
4   <title>JavaScript</title>
5   <script>
6     var ages = [10,13,15,20];
7     document.write(ages + "<br><br>");
8
9     var b = ages.some(checkAdult);
10    document.write(b + "<br><br>");
11
12    function checkAdult(age){
13      return age >= 18;
14    }
15  </script>
16 </head>
17 <body>
```

JavaScript

10,13,15,20

true

## Array – every() Function :



```
var ages = [10 , 13 , 18 , 20];
```

```
var adultAge = 18;
```

ages >= adultAge

every()

```
array-methods.html
1 <!DOCTYPE html>
2 <html>
3 <head>
4   <title>JavaScript</title>
5   <script>
6     var ages = [100,19,25,20];
7     document.write(ages + "<br><br>");
8
9     var b = ages.every(checkAdult);
10    document.write(b + "<br><br>");
11
12    function checkAdult(age){
13      return age >= 18;
14    }
15  </script>
16 </head>
17 <body>
```

100,19,25,20

true

## Array – find() Function :



```
var ages = [10 , 23 , 19 , 20];
```

```
var adultAge = 18;
```

```
ages >= adultAge
```

### find(Function Name)

find() method returns the value of the first element in an array that pass a test

## Array – findIndex() Function :



```
var ages = [10 , 23 , 19 , 20];
```

```
var adultAge = 18;
```

```
ages >= adultAge
```

### findIndex(Function Name)

findIndex() method returns the index of the first element in an array that pass a test



```
1<!DOCTYPE html>
2<html>
3<head>
4    <title>JavaScript</title>
5    <script>
6        var ages = [10, 23, 19, 20];
7        document.write(ages + "<br><br>");
8
9        var b = ages.find(checkAdult);
10       document.write(b + "<br><br>");
11
12      function checkAdult(age){
13          return age >= 18;
14      }
15      </script>
16  </head>
17  <body>
```

```
1  <!DOCTYPE html>
2  <html>
3  <head>
4      <title>JavaScript</title>
5      <script>
6          var ages = [10, 23, 19, 20];
7          document.write(ages + "<br><br>");
8
9          var b = ages.findIndex(checkAdult);
10         document.write(b + "<br><br>");
11
12         function checkAdult(age){
13             return age >= 18;
14         }
15     </script>
16 </head>
17 <body>
```

127.0.0.1:3000/array-m...

10,23,19,20  
0 1 2 3

1

CRLF UTF-8 HTML GitHub Git (0)

```
1  <!DOCTYPE html>
2  <html>
3  <head>
4      <title>JavaScript</title>
5      <script>
6          var ages = [10, 2, 19, 20];
7          document.write(ages + "<br><br>");
8
9
10         var b = ages.findIndex(checkAdult);
11         document.write(b + "<br><br>");
12
13
14         function checkAdult(age){
15             return age >= 18;
16         }
17     </script>
18 </head>
19 <body>
```

## Array – filter() Function :



```
var ages = [10 , 23 , 9 , 20];
```

```
var adultAge = 18;
```

```
ages >= adultAge
```

filter(Function Name)

filter() method creates an array filled with all array elements that pass a test

```
1  <!DOCTYPE html>
2  <html>
3  <head>
4      <title>JavaScript</title>
5      <script>
6          var ages = [10,12,19,20];
7          document.write(ages + "<br><br>");
8
9          var b = ages.filter(checkAdult);
10         document.write(b + "<br><br>");
11
12         function checkAdult(age){
13             return age >= 18;
14         }
15     </script>
16 </head>
17 <body>
```

10,12,19,20

19,20

```
1  <!DOCTYPE html>
2  <html>
3  <head>
4      <title>JavaScript</title>
5      <script>
6          var ages = [50,12,19,20];
7          document.write(ages + "<br><br>");
8
9
10         var b = ages.filter(checkAdult);
11         document.write(b + "<br><br>");
12
13         function checkAdult(age){
14             return age >= 18;
15         }
16     </script>
17 </head>
18 <body>
```

## Array – `toString()` Function :



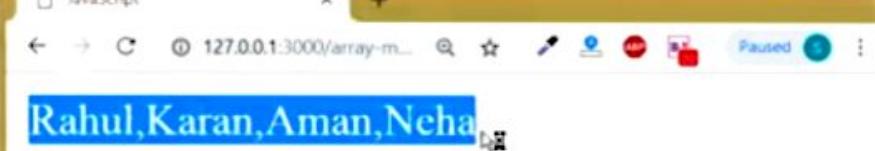
```
var a = ["Sanjay", "Aman", "Rehman"];
```

Sanjay, Aman, Rehman

### `toString()`

The `toString()` method converts an array into a String and returns the result.

```
1  <!DOCTYPE html>
2  <html>
3  <head>
4      <title>JavaScript</title>
5      <script>
6          var a = ["Rahul","Karan","Aman","Neha"];
7          a.toString();
8
9          document.write(a);
10     </script>
11     </head>
12     <body>
13
14     </body>
15     </html>
16
```



## Array – valueOf() Function :



```
var a = ["Aman","Rehman","Karan"];
```

Aman, Rehman, Karan

valueOf()

The **valueOf()** method returns the array.

# Array – fill() Function :



```
var a = ["Aman", "Rehman", "Karan"];
```

Ram

```
["Ram", "Ram", "Ram"]
```

fill()

The fill() method fills all the elements in an array with a static value.

```
1  <!DOCTYPE html>
2  <html>
3  <head>
4      <title>JavaScript</title>
5      <script>
6          var a = ["Rahul","Karan","Aman","Neha"];
7          a.fill("Ram");
8          document.write(a);
9      </script>
10     </head>
11     <body>
12
13     </body>
14     </html>
15
```

Ram,Ram,Ram,Ram

# Type of Loops in JavaScript :



- while loop
- do/while loop
- for loop
- forEach
- for/in loop

## Array – forEach() Function :



```
var a = ["Sanjay", "Aman", "Karan"];
```

```
a.forEach(function(){
    Statement
});
```

```
1 <!DOCTYPE html>
2 <html>
3 <head>
4   <title>JavaScript</title>
5   <script>
6     var a = ["Rahul", "Karan", "Aman", "Neha"];
7   |
8     a.forEach(function(value, index){
9       document.write(index + " : " + value +
10      });
11   </script>
12 </head>
13 <body>
14
15 </body>
16 </html>
17
```

```
1  <!DOCTYPE html>
2  <html>
3  <head>
4      <title>JavaScript</title>
5      <script>
6          var a = ["Rahul", "Karan", "Aman", "Neha"];
7
8          a.forEach(loop);
9
10         function loop(value, index){
11             document.write(index + ". " + value +
12             )
13         }
14     </script>
15 </head>
16 <body>
17 </body>
```

```
1 <!DOCTYPE html>
2 <html>
3 <head>
4   <title>JavaScript</title>
5   <script>
6
7     </script>
8   </head>
9   <body>
10
11  </body>
12 </html>
13
```

# What is Object ?



0              1              2              3

```
var a = ["Ram", "Kumar", 18 , "India"];
```

```
var a = {  
    firstName : "Ram" ,  
    Properties → lastName : "Kumar" ,  
    age : 18 ,  
    country : "India"  
};
```

```
1 <head>
2   <title>JavaScript</title>
3   <script>
4     var a = {
5       fname : 'Yahoo',
6       lname : 'Baba',
7       age : 25,
8       email : 'hello@yahoobaba.net',
9       favMovies : ['Dhoom','Sholay','Hum']
10      }
11
12      console.log(a);
13      document.write(a.favMovies[0]);
14    </script>
15  </head>
16  <body>
```

The screenshot shows a browser window with developer tools open. The address bar indicates the page is 127.0.0.1:3000/object.html. The title of the browser tab is "object.html". The developer tools interface has tabs for Elements, Console, Sources, and Network. The Console tab is active, showing the output of the JavaScript code. The output shows the variable 'a' defined as an object with properties fname, lname, age, email, and favMovies. The favMovies array contains three items: 'Dhoom', 'Sholay', and 'Hum'. A log message is present in the console. The status bar at the bottom of the browser shows various icons and the text "Paused".

```
object.html:14
▶ {fname: "Yahoo", lname: "Baba", age: 25, email: "hello@yahoobaba.net", favMovies: Array(3)}
Live reload enabled.
object.html:46
```

```
object.html
1 <!DOCTYPE html>
2 <html>
3 <head>
4     <title>JavaScript</title>
5     <script>
6         var student = [
7             {name : 'Ram', age : 15},
8             {name : 'Karan', age : 13},
9             {name : 'Rahul', age : 14},
10        ];
11
12         console.log(student);
13         for(var a= 0;a < student.length;a++){
14             document.write(student[a].name + "
15         }
16     </script>
17 </head>
```

JavaScript

RAM 15  
Karan 13  
Rahul 14

Elements    Console    Sources    Network    »    :: X

top    Filter    Default levels    5 hidden    ⚙

▶ (3) [{} , {} , {} ]    object.html:12

Live reload enabled.    object.html:46

>

The image shows a split-screen view of a browser developer tools interface. On the left is a code editor with the file 'const-array.html' containing a simple JavaScript script. On the right is the browser's JavaScript console.

**Code Editor (const-array.html):**

```
<!DOCTYPE html>
<html>
<head>
  <title>JavaScript</title>
  <script>
    const a = {
      name : "Ram",
      age : 25
    };
    a.name = "Yahoo Baba";
    a.age = 55;
    console.log(a);
  </script>
</head>
<body>
```

**Console Output:**

```
const-a...:13 {name: "Yahoo Baba", age: 55}
  name: "Yahoo Baba"
  age: 55
  __proto__: Object
Live reload enabled.
const-a...:44 >
```

The console shows the object 'a' with properties 'name' and 'age' updated to 'Yahoo Baba' and 55 respectively. It also indicates that live reload is enabled.

# How to Print Values of Object :



```
var a = {  
    firstName : "Ram" ,  
    lastName : "Kumar" ,  
    age : 18 ,  
    country : "India"  
};
```

```
console.log(a.firstName);  
console.log(a.lastName);  
console.log(a.age);  
console.log(a.country);
```



```
var a = {  
    firstName : "Ram",  
    lastName : "Kumar",  
    age : 18,  
    country : "India"  
};
```

```
for(var i in a){  
    Statement  
}
```

```
for-In-Loop.html
2 <html>
3   <head>
4     <title>JavaScript</title>
5     <script>
6       var obj = {
7         firstName : "Yahoo",
8         lastName : "Baba",
9         Age : 25,
10        email : "hello@yahoobaba.net"
11      };
12
13      for(var key in obj){
14        document.write(obj[key] + "<br>");
15      }
16    </script>
17  </head>
18  <body>
```

```
for-in-Loop.html
<html>
<head>
    <title>JavaScript</title>
    <script>
        var obj = {
            firstName : "Yahoo",
            lastName : "Baba",
            Age : 25,
            email : "hello@yahoobaba.net"
        };

        for(var key in obj){
            document.write(key + " : " + obj[key] + "<br>")
        }
    </script>
</head>
<body>
```

```
firstName : Yahoo
lastName : Baba
Age : 25
email : hello@yahoobaba.net
```

# Array – Map() Function :



```
var a = [1 , 3 , 5 , 8 , 10];  
a.map(function(){  
    Statement  
});
```

# Array – Map() Function :



```
var a = [1 , 3 , 5 , 8 , 10];
```

```
[10 , 30 , 50 , 80 , 100]
```

```
a.map();
```

```
1 <!DOCTYPE html>
2 <html>
3 <head>
4   <title>JavaScript</title>
5   <script>
6     var ary = [11,4,9,16];
7
8     var b = ary.map(test);
9     document.write(b);
10
11    function test(x){
12      return x * 10;
13    }
14  </script>
15 </head>
16 <body>
17
```

```
map.html
4 <title>JavaScript</title>
5 <script>
6   var ary = [
7     {fname : "Yahoo" , lname : "Baba"},
8     {fname : "Rahul" , lname : "Kumar"},
9     {fname : "Karan" , lname : "Sharma},
10    ];
11
12  var b = ary.map(test);
13  document.write(b);
14
15  function test(x){
16    return x.fname + " " + x.lname;
17  }
18 </script>
19 <head>
20   <!-->
```

javascript 127.0.0.1:3000/map.html Paused

Yahoo Baba,Rahul Kumar,Karan Sharma

# JavaScript String Methods :



- `length`
- `toLowerCase()`
- `toUpperCase()`
- `includes()`
- `startsWith()`
- `endsWith()`
- `search()`
- `match()`
- `indexOf()`
- `lastIndexOf()`
- `replace()`
- `trim()`
- `charAt()`
- `charCodeAt()`
- `fromCharCode()`
- `concat()`
- `split()`
- `repeat()`
- `slice()`
- `substr()`
- `substring()`
- `toString()`
- `valueOf()`

```

1 !DOCTYPE html>
2 <html>
3   <head>
4     <title>JavaScript</title>
5     <script>
6       var str = "JavaScript is a Great Language";
7       var a = str.length;
8
9       document.write(a);
10    </script>
11  </head>
12  <body>
13
14 </body>
15 </html>
16

```

30

```
1 !DOCTYPE html>
2 <html>
3 <head>
4   <title>JavaScript</title>
5   <script>
6     var str = "JavaScript is a GREAT Language";
7     var a = str.toLowerCase();
8
9     document.write(a);
10  </script>
11  </head>
12  <body>
13
14  </body>
15  </html>
16
```

javascript is a great language

```
1 <!DOCTYPE html>
2 
3 <html>
4 <head>
5   <title>JavaScript</title>
6   <script>
7     var str = "JavaScript is a GREAT Language";
8     var a = str.toUpperCase();
9 
10    document.write(a);
11  </script>
12 </head>
13 <body>
14 
15 </body>
16 </html>
```

JAVASCRIPT IS A GREAT LANGUAGE

```
1 <!DOCTYPE html>
2 <html>
3 <head>
4 <title>JavaScript</title>
5 <script>
6   var str = "JavaScript is a GREAT Language";
7   var a = str.includes("GREAT");
8
9   document.write(a);
10 </script>
11 </head>
12 <body>
13
14 </body>
15 </html>
16
```

true