# JS JavaScript Class

#JavaScript Notes

# Loops, Popup Boxes, Functions, Events, Page Redirection

JS

# JavaScript Loops

- Often when you write code, you want the same block of code to run over and over again in a row.

- Instead of adding several almost equal lines in a script we can use loops to perform a task like this.

In JavaScript, there are **three** different kind of **loops**:

- **for**
- **while**
- **do…while**

# The while Loop

- The while loop loops through a block of code while a specified condition is true.

**Syntax**

```
while (var<=endvalue)
{
        code to be executed
}
```

```html
<html>
<body>
    <script type="text/javascript">
        var i=0;
        while (i<=5)
        {
            document.write("The number is " + i);
            document.write("<br />");
            i++;
        }
    </script>
</body>

</html>
```

# The do while Loop

- The do while loop iterates the elements for the infinite number of times like while loop. But, code is executed at least once whether condition is true or false.

**Syntax**

```
do{
  code to be executed
}while (condition);
```

```
<html>
<body>
	<script type="text/javascript">
		var i=10;
		do
		{
			document.write("The number is " + i);
			document.write("<br />");
			i++;
		} while (i<=5);
	</script>
</body>

</html>
```

# The for Loop

- The for loop is used when you know in advance how many times the script should run.

## Syntax :-

```
for (var=startvalue;var<=endvalue;var=var+increment)
{
        code to be executed
}
```

```html
<html>
<body>
	<script type="text/javascript">
		var i=0;
		for (i=0;i<=5;i++)
		{
			document.write("The number is " + i);
			document.write("<br />");
		}
	</script>

</body>

</html>
```

# Break Statement

- The break statement is used to jump out of a loop.

- It can be used to "jump out" of a switch() statement.

- It breaks the loop and continues executing the code after the loop.

# Example

```
<html>
<body >
<script type="text/javascript">
        var i;
        for (i = 1; i <= 10; i++) {
                if (i === 5) {
                        break;
                }
        document.write("Hello "+ i +"<br>");
        }
</script>
</body>
</html>
```

# Continue Statement

- The continue statement "jumps over" one iteration in the loop.

- It breaks iteration in the loop and continues executing the next iteration in the loop.

# Example

```html
<html>
<body >
<script type="text/javascript">
        var i;
        for (i = 1; i <= 10; i++) {
                if (i === 5) {
                        continue;
                }
        document.write("Hello "+ i +"<br>");
        }
</script>
</body>
</html>
```

# JavaScript Popup Boxes

- JavaScript has three kind of popup boxes: Alert box, Confirm box, and Prompt box.

**Alert Box**

- An alert box is often 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.

**Syntax**

alert("sometext");

```html
<html>
  <head>
        <script type="text/javascript">
                function show_alert()
                {
                alert("I am an alert box!");
                }
        </script>
  </head>
<body>
  <input type="button" onclick="show_alert()" value="Show alert box" />
</body>
</html>
```

# Confirm Box

- A confirm box is often used if you want the user to verify or 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

**Syntax :-**
**confirm("sometext");**


```
<html>
 <head>
        <script type="text/javascript">
        function show_confirm(){
                var r=confirm("Press a button");
                if (r==true)
                {
                        document.write("You pressed OK!");
                }
```

```
            else{
            document.write("You pressed Cancel!");
            }
        }
    </script>
  </head>
<body>
  <input type="button" onclick="show_confirm()" value="Show confirm box" />
</body>
</html>
```

# Prompt Box

- A prompt box is often used if you want the user to input a value before entering a page.

- When a prompt box pops up, the user will have to click either "OK" or "Cancel" to proceed after entering an input value.

- If the user clicks "OK" the box returns the input value. If the user clicks "Cancel" the box returns null.

**Syntax**

**prompt("sometext","defaultvalue");**

```html
<html>
  <head>
  <script type="text/javascript">

  function show_prompt()

  {
                    var name=prompt("Please enter your name",“Devanshi");
                    if (name!=null && name!="")
                    {
                    document.write("Hello " + name + "! How are you today?");
                    }
  }
  </script>
</head>
  <body>
        <input type="button" onclick="show_prompt()" value="Show prompt box" />
  </body>
</html>
```

# All Box in One

- <html>
  <head>
  <script type="text/javascript">
  function confirmbox()
  {
  confirm("This is Confirm Box");
  }
  </script>
  <script type="text/javascript">
  function promptbox()
  {
          prompt("This is Prompt Box");
  }
  </script>

```html
<script type="text/javascript">
function alertbox()
{
    alert("This is Alert Box");
}
</script>
</head>
<body>
<input type="button" value="ConfirmBox" onClick=confirmbox()>
<input type="button" value="PromptBox" onClick=promptbox() >
<input type="button" value="AlertBox" onClick=alertbox() >
</body>
</html>
```

# JavaScript Functions

▪ To keep the browser from executing a script when the page loads, you can put your script into a function.

A function contains code that will be executed by an event or by a call to the function.

**Syntax (Define a Function)**

function *functionname*(*var1,var2,...,varX*)
{

        *some code*

}

The parameters var1, var2, etc. are variables or values passed into the function. The { and the } defines the start and end of the function.

**Note:** A function with no parameters must include the parentheses () after the function name.

# Parameterized Function Example

```html
<html>

<head>

<script type="text/javascript">

            function product(a,b) {

                        document.write(a*b);            }

</script>

</head>

<body>

<script type="text/javascript">

            product(4,3);

</script>

</body>

</html>
```

# The return Statement

- The return statement is used to specify the value that is returned from the function.

- So, functions that are going to return a value must use the return statement.

  The example below returns the product of two numbers (a and b):

```html
<html>
    <head>
        <script type="text/javascript">
            function product(a,b)
            {
                    return a*b;
            }
        </script>
    </head>
    <body>
        <script type="text/javascript">
        document.write(product(4,3));
        </script>
    </body>
</html>
```

# The Lifetime of JavaScript Variables

- If you declare a variable within a function, the variable can only be accessed within that function.

- When you exit the function, the variable is destroyed. These variables are called local variables.

- You can have local variables with the same name in different functions, because each is recognized only by the function in which it is declared.

- If you declare a variable outside a function, all the functions on your page can access it. The lifetime of these variables starts when they are declared, and ends when the page is closed.

# Sum of 2 numbers

```html
<html>
<body>
<form name="frm">
num1:<input type="text" name="n1"><br>
num2:<input type="text" name="n2"><br>
result:<input type="text" name="res"><br>
<input type="button" value="SUM" onclick="add()">
</form>
<script>
function add(){
        var num1,num2;
        if(frm.n1.value=="")        {
                alert("enter num1:");
                frm.n1.focus();
        }else if(frm.n2.value=="") {
                alert("enter num2:");
                frm.n2.focus();
        }else  {
                num1=parseInt(frm.n1.value);
                num2=parseInt(frm.n2.value);
                rs=num1+num2;
                frm.res.value=rs;
        }
}
</script>
</body>
</html>
```

num1: 10

num2: 11

result: 21

SUM

# JavaScript Events

- Mouse events

- Keyboard events

- Form events

- Window/Document events

# Mouse events

| Event Performed | Event Handler | Description |
| --- | --- | --- |
| click | onclick | When mouse click on an element |
| mouseover | onmouseover | When the cursor of the mouse comes over the element |
| mouseout | onmouseout | When the cursor of the mouse leaves an element |
| mousedown | onmousedown | When the mouse button is pressed over the element |
| mouseup | onmouseup | When the mouse button is released over the element |
| mousemove | onmousemove | When the mouse movement takes place. |

# onclick

```html
<!DOCTYPE html>
<html>
<head>
<script>
function demo() {
alert("Welcome to Akash Technolabs");
}
</script>
</head>
<body>

<button onclick = "demo()" value="Click Me!!!">Click me</button>
</body>
</html>
```

# Onmouseover & onmouseout

```html
<html>
<head>
<script type="text/javascript">
function bigimg(x)
{
      x.style.height="80px";
      x.style.width="80px";
}
function smallimg(x)
{
      x.style.height="30px";
      x.style.width="30px";
}

</script>
</head>
<body>
<img src="D:\\image\\dr.png" height="40px" width="40px"
onmouseover="bigimg(this)"
onmouseout="smallimg(this)">
</body>
</html>
```

# Onmousedown & onmouseup

```html
<html>
<head>
<script type="text/javascript">
function big(x)
{
        x.style.backgroundColor="red";
        x.style.fontSize="100px";
        x.innerHTML = "Release Me";
}
function small(x)
{
        x.style.backgroundColor="yellow";
        x.style.fontSize="50px";
        x.innerHTML = "click me";
}

</script>
</head>
<body>
<div onmousedown="big(this)" onmouseup="small(this)">Hello World</div>
</body>
</html>
```

# onmousemove

```html
<html>
<body>
<script type="text/javascript">
function big(x)
{
    x.style.backgroundColor="red";
    x.style.fontSize="100px";
    x.innerHTML = "Hiii…";
}
</script>
</head>
<body>
<div onmousemove="big(this)" >Hello World</div>
</body>
</html>
```

# Keyboard events

| Event Performed | Event Handler | Description |
| --- | --- | --- |
| Keydown & Keyup | onkeydown & onkeyup | When the user press and then release the key |

# onkeyUp

```html
<html>
<body>
<form name="frm">
Enter Name: <input type="text" name="nm" onkeyUp="upp()">
</form>
<script>
function upp()
{
    frm.nm.value=frm.nm.value.toUpperCase();
}
</script>
</body>
</html>
```

# onkeyDown

```
<html>
<body>
<form name="frm">
Enter Name: <input type="text" name="nm" onkeyDown="upp()">
</form>
<script>
function upp()
{
    frm.nm.value=frm.nm.value.toUpperCase();
}
</script>
</body>
</html>
```

# Form events

| Event Performed | Event Handler | Description |
| --- | --- | --- |
| focus | onfocus | When the user focuses on an element |
| submit | onsubmit | When the user submits the form |
| blur | onblur | When the focus is away from a form element |
| change | onchange | When the user modifies or changes the value of a form element |

# onfocus

```html
<html>
<head>
<script>
function myFunction() {
  frm.tid.style.backgroundColor="red";
  frm.tid.style.width="300px";
}
</script>
</head>
<body>
<form name="frm">
Enter your name: <input type="text" name="tid" onfocus="myFunction()">
</form>
</body>
</html>
```

# onsubmit

```
<html>
<head>
<script type="text/javascript">

function myFunction()
{
      alert("The form was submitted to server...");
}

</script>
</head>
<body>
<form onsubmit="myFunction()">
 Enter name: <input type="text" name="myName"><br>
<input type="submit" value="Submit Data" >
</form>
</body>
</html>
```

# onblur

```
<html>
<head>
<script type="text/javascript">

function myFunction()
{
        frm.nm.value=frm.nm.value.toUpperCase();
  frm.nm.style.backgroundColor="red";
   frm.nm.style.color="yellow";
}
 </script>
</head>
<body>
<form name="frm">
 Enter your name: <input type="text" id="fname" name="nm" onblur="myFunction()">
 <br><br>
<input type="submit" value="Submit Data" >
</form>
</body>
</html>
```

# onchange

```
<html>
<head>
<script type="text/javascript">

function myFunction()
{
    var x = frm.mySelect.value;
    document.write( "You selected: " + x);
}
</script>
</head>
<body>
<form name="frm">
 <select name="mySelect" onchange="myFunction()">
  <option value="C">C</option>
  <option value="C++">C++</option>
  <option value="Java">Java</option>
  <option value="HTML">HTML</option>
 </select>
</form>
</body>
</html>
```

# Window/Document events

| Event Performed | Event Handler | Description |
|---|---|---|
| load | onload | When the browser finishes the loading of the page |
| unload | onunload | When the visitor leaves the current webpage, the browser unloads it |
| resize | onresize | When the visitor resizes the window of the browser |

# onload

```
<html>
<head>
<script type="text/javascript">

function myFunction()
{
    alert("This is alert...");
}


</script>
</head>
<body onload="myFunction()">
<h1>Hello</h1>

</body>
</html>
```

# onunload

```
<html>
<head>
<script type="text/javascript">

function myFunction()
{
    alert("This is alert...");
}


</script>
</head>
<body onunload="myFunction()">
<p>Note: Due to different browser settings, this event may not always work as expected.</p>

</body>
</html>
```

# onresize

```
<html>
<head>
<script type="text/javascript">

function myFunction()
{
    alert("You have changed the size of the browser window!");
}
</script>
</head>
<body onresize="myFunction()">
<h1>Hello,change the size of the browser window.</h1>

</body>
</html>
```

# JavaScript - Page Redirection

```
<!--Page Redirection -->
<html>
<body>
<form>
<input type="button" value="Click Me!!!"
onclick="redirect()">
</form>

<script type="text/javascript">

function redirect()
{
        window.location = "https://www.akashsir.com/";
}
</script>
</body>
</html>
```

# JavaScript String

- There are 2 ways to create string in JavaScript
  - By string literal
  - By string object (using new keyword)

## 1) By string literal

- The string literal is created using double quotes. The syntax of creating string using string literal is given below:
- var stringname="string value";

```
<script>
var str="Hello World";
document.write(str);
</script>
```

# 2) By string object (using new keyword)

- The syntax of creating string object using new keyword is given below:

- var stringname=new String("string literal");

```
<script>
var stringname=new String("Hello World...);
document.write(stringname);
</script>
```

# String Methods

```html
<html>
<body>
<script type="text/javascript">
function display()
{
    var s="hello world";
    var s1="how are you";
    document.write(s+"<br>");
    document.write(s.toUpperCase()+"<br>");
    document.write(s1.toLowerCase()+"<br>");
    document.write(s.substr(3,6)+"<br>");
    document.write(s.charAt(1)+"<br>");
    document.write(s1.length+"<br>");
    document.write(s.indexOf('l')+"<br>");
    document.write(s.lastIndexOf('l')+"<br>");
    document.write(s.concat(s1)+"<br>");
    document.write(s.search("hello")+"<br>");

}
</script>
<input type="button" value="click" onclick="display()">
</body>
</html>
```

```
hello world
HELLO WORLD
how are you
lo wor
e
11
2
9
hello worldhow are you
0
```

# JavaScript Date Object

- The JavaScript date object can be used to get year, month and day. You can display a timer on the webpage by the help of JavaScript date object.

# Date Example

```html
<html>
<head>
<script type="text/javascript">
function disp_date()
{
     var d=new Date();
     var dd,mm,yy;
     dd=d.getDate();
     mm=d.getMonth()+1;
     yy=d.getFullYear();

     document.write(dd+"-"+mm+"-"+yy+"<br>");
     document.write(d);
}
</script>
</head>
<body onLoad="disp_date()">
</body>
</html>
```

# Time Example

```html
<html>
<head>
<script type="text/javascript">
function disp_time()
{
      var time=new Date();
      var h,m,s;
      h=time.getHours();
      m=time.getMinutes();
      s=time.getSeconds();
      document.write(h+":"+m+":"+s+"<br>");
      }
</script>
</head>
<body onLoad="disp_time()">
</body>
</html>
```

# JavaScript Math

- The JavaScript math object provides several methods to perform mathematical operation.

# Math Methods

```html
<html>
<body>
<input type="button" value="click me" onclick="display()">

<script type="text/javascript">
function display()
{
        document.write(Math.abs(-15)+"<br>");
        document.write(Math.ceil(15.7)+"<br>");
        document.write(Math.floor(15.7)+"<br>");
        document.write(Math.round(13.6)+"<br>");
        document.write(Math.random()+"<br>");
        document.write(Math.sqrt(15)+"<br>");
        document.write(Math.pow(2,3)+"<br>");
        document.writeln(Math.max(30,12,80)+"<br>");
        document.writeln(Math.min(30,12,80)+"<br>");
}
</script>
</body>
</html>
```

```
15
16
15
14
0.5332822388396452
3.872983346207417
8
80
12
```

# JavaScript Array

- JavaScript array is an object that represents a collection of similar type of elements.

# Array Example(By array literal)

```html
<html>

<body>
<script type="text/javascript">

var arr=[10,20,30];
for (i=0;i<arr.length;i++){
document.write(arr[i] + "<br/>");
}

</script>
</body>
</html>
```

# Array Example(By using an Array constructor (using new keyword))

```html
<html>
<body>
<script type="text/javascript">

	var arr=new Array("10","20","50","40");
	var i=0;
	for(i=0;i<4;i++)
	{
		document.write(arr[i],"<br>");
	}

</script>
</body>
</html>
```

# Array Methods

```html
<html>
<body>
<script type="text/javascript">

        var arr=new Array("10","20","50","40");
        var arr1=new Array("50","60");
        var arr2=new Array("50","60","70","50");

        document.write(arr.reverse()+"<br>");
        document.write(arr.sort().reverse()+"<br>");
        document.write(arr.sort()+"<br>");
        document.write(arr.concat(arr1)+"<br>");
        document.write(arr.indexOf("20")+"<br>");
        document.write(arr2.lastIndexOf("50")+"<br>");
        document.write(arr.join('-') +"<br>");
        document.write(arr1.push("html")+"<br>");
        document.write(arr1 +"<br>");
        document.write(arr1.pop("html")+"<br>");
        document.write(arr1 +"<br>");
        document.write(arr.fill("Hello")+"<br>");

</script>


</body>
</html>
```

```
10,20,40,50
50,40,20,10
10,20,40,50
10,20,40,50,50,60
1
3
10-20-40-50
3
50,60,html
html
50,60
Hello,Hello,Hello,Hello
```
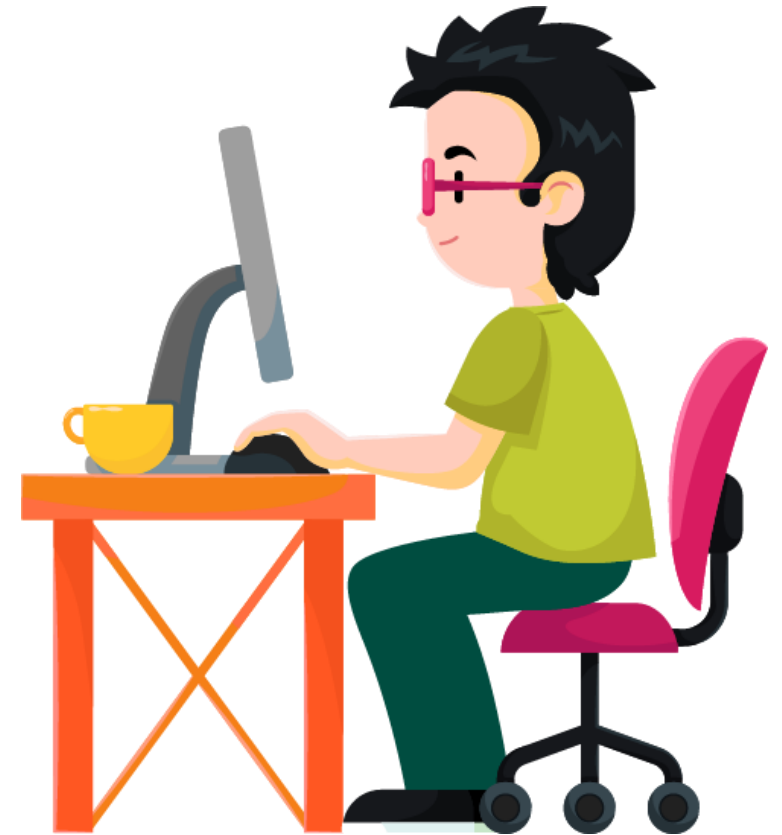
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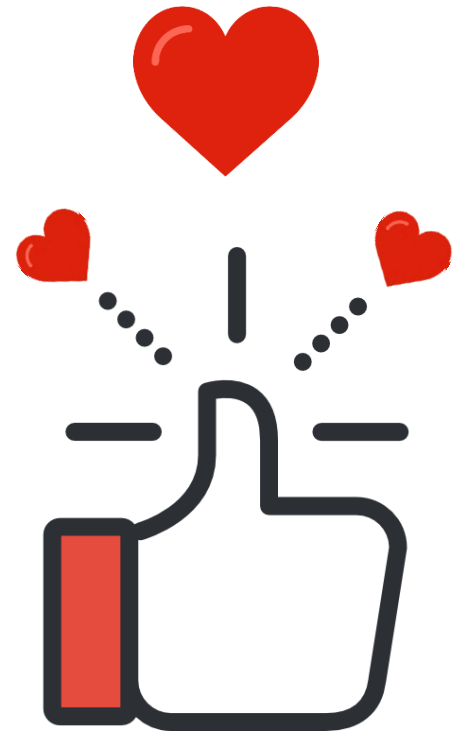# If You Liked It !
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