# JavaScript

JavaScript is a client side scripting language and also it's an interpreted language. It was released by Netscape and Sun Microsystems in 1995. JavaScript can be implemented using JavaScript statements that are placed within the **<script>... </script>**.

## The SCRIPT Tag

The <script> tag alerts a browser that JavaScript code follows. It is typically embedded in the HTML.

Example:

```
<script language = "JavaScript" type="text/Javascript">
    //code here...
</script>
```

Sample program

```
<html>
    <head>
        <script language = "JavaScript" type="text/Javascript">
```

```
            document.write("welcome to javascript");
        </script>
    </head>
</html>
```

# 1. Selectors in JavaScript

- Id selector
- Class selector
- Tag/Element selector
- Name selector

***ID selector**

```
document.getElementById("");            //For single variable
```

***CLASS selector**

```
document.getElementsByClassName("");       //For array variable
```

***TAG/ELEMENT selector**

```
document.getElementsByTagName("");  //For array variable
```

***Name selector**

```
document.getElementsByName("");       //For array variable
```

# 2.How to use javascript

1. Between the body tag of html.
2. Between the head tag of html.
3. In external javaScript method.

**1.Between the body tag of html**

```
<body>
    <script language = "JavaScript" type="text/Javascript">
        document.write("welcome to javascript");
    </script>
</body>
```

**2.Between the head tag of html**

```
<head>
    <script language = "JavaScript" type="text/Javascript">
        document.write("welcome to javascript");
    </script>
</head>
```

**3.In external javaScript method**

myscript.js

```
function msg(){
 alert("Hello friends good morning");
}
```

externaljs.html

```
<html>
	<head>
		<script type="text/javascript" src="myscript.js"></script>
	</head>
	<body>
		<p>Welcome to JavaScript</p>
		<input type="submit" value="click" onclick="msg()"/>
	</body>
</html>
```

# 3.JavaScript Comments

There are two types of comments in JavaScript.

1. Single-line Comment

   // It is single line comment

2. Multi-line Comment

/* It is multi line comment.

It will not be displayed */

# 4.JavaScript Variable

A **JavaScript variable** is simply a name of storage location. Before you use a variable in a JavaScript program, you must declare it. Variables are declared with the **var** keyword as follows

Example:

```
<script>

    var x = 15;
    var y = 20;
    var z=x+y;
    document.write(z);

</script>
```

# 5.JavaScript Operators

JavaScript operators are symbols that are used to perform operations on operands.

There are following types of operators in JavaScript.

1. Arithmetic Operators**[+ , - , * , / , % ]**

   Example:

```
<script type="text/javascript">
   var a = 33;
   var b = 10;
         var linebreak = "<br />";
         document.write("a + b = ");
         result = a + b;
         document.write(result);
         document.write(linebreak);
</script>
```

2. Comparison (Relational) Operators**[== , === , != , !== , > , < , <= , >=]**

   Example:

```
<script type="text/javascript">
   var a = 10;
   var b = 20;
   var linebreak = "<br />";
   document.write("(a == b) = ");
```

```
        result = (a > b);
        document.write(result);
        document.write(linebreak);
    </script>
```

3. Logical Operators**[&& , || , ! ]**

   Example:

```
<script type="text/javascript">
        var a = true;
        var b = false;
        var linebreak = "<br />";
            document.write("(a && b) = ");
            result = (a && b);
           document.write(result);
           document.write(linebreak);
</script>
```

4. Assignment Operators**[= , += , -= , *= , /= , %= ]**

   Example:

```
<script type="text/javascript">
  var a = 33;
  var b = 10;
  var linebreak = "<br />";
      document.write("Value of (a += b) = ");
      result = (a += b);
      document.write(result);
      document.write(linebreak);
</script>
```

5. Increment,Decrement Operators**[++ ,-- ]**

Example:

```
<script type="text/javascript">
    var a = 5;
    var linebreak = "<br />";
        document.write("++a = ");
      result = ++a;
      document.write(result);
```

```
        document.write(linebreak);

    </script>
```

# 6.Conditional statements

The **JavaScript Conditional statement** is used *to execute the code whether condition is true or false*. There are three forms of if statement in JavaScript.

1. If Statement.

   Syntax:

   ```
   if(expression){

           //content to be evaluated
       }
   ```

Example:

```
<script>
    var a=20;
    if(a >10){
        document.write("value of a is greater than 10");
    }
</script>
```

2. If else statement.

   Syntax:

   ```
   if(expression){

           //content to be evaluated
   ```

```
}
else{
        //content to be evaluated if condition is false
}
```

Example:

```
<script>
        var a=20;
        if(a % 2==0){
                document.write("a is even number");
        }
        else{
                document.write("a is odd number");
        }
</script>
```

3. if else if statement.

Syntax:

```
if(expression1){
                //content to be evaluated if expression1 is true
 }
else if(expression2){
                //content to be evaluated if expression2 is true
}
else if(expression3){
                //content to be evaluated if expression3 is true
}
else{
                //content to be evaluated if no expression is true
}
```

Example:

```
<script>
        var a=20;
        if(a==10){
                document.write("a is equal to 10");
        }
        else if(a==15){
                document.write("a is equal to 15");
        }
        else if(a==20){
                document.write("a is equal to 20");
        }
        else{
                document.write("a is not equal to 10, 15 or 20");
        }
</script>
```

## 7.Switch statements

The **JavaScript switch statement** is used *to execute one code from multiple expressions*.

Syntax:

```
switch(expression){

        case value1:
          //code to be executed;
        break;
```

```
        case value2:
         // code to be executed;
        break;
        ......
        default:
         // code to be executed if above values are not matched;
    }
```

Example:

```
<script>
    var grade='A';
    var result;
        switch(grade){
            case 'A':
            result="A Grade";
            break;
            case 'B':
            result="B Grade";
            break;
            case 'C':
            result="C Grade";
            break;
        default:
            result="No Grade";
      }
      document.write(result);
</script>
```

# 8.JavaScript Loops

The **JavaScript loops** are used *to iterate the piece of code* using for, while, do while. It makes the code compact.

There are following types of loops in JavaScript.

1. for loop

Syntax:

```
for (initialization; condition;  increment) {

    // code to be executed
}
```

Example:

```
<script>
        for (i=1; i<=5; i++)
        {
                document.write(i + "<br/>")
         }
</script>
```

2. while loop

Syntax

```
while (condition)
{
    //code to be executed
}
```

Example:

```
<script>

    var i=11;
    while (i<=15)
    {
        document.write(i + "<br/>");
        i++;
    }
</script>
```

3. do-while loop

Syntax

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

Example:

```
<script>
    var i=21;
    do{
        document.write(i + "<br/>");
        i++;
      }
    while (i<=25);
```

```
</script>
```

# 9.JavaScript Arrays

What is an Array?

An array is a special variable, which can hold more than one value at a time.

In JavaScript arrays are used to store multiple values in a single variable.

Syntax

```
var arrayname=[value1,value2.....valueN];
```

Example:

```
<p id="demo"></p>

<script>

var flowers = ["rose", "lily", "hibiscus"];
document.getElementById("demo").innerHTML = flowers;

</script>
```

Array Loop in Javascript

```
<p id="demo"></p>
```

```
<script>

var cars = ["audi", "Benz", "BMW"];
for (i=0; i<cars.length; i++)
{
        //document.write(cars[i] + "<br>");

        document.getElementById("demo").innerHTML += cars[i] +
"<br>";

}
</script>
```

## 10.JavaScript Regular Expressions

Regular expression is used to find patterns in text. In Javascript the match() method searches a string for a match against a regular expression, and returns the matches, as an Array object.

Some Rules in Regular expression

| RegExp | What it Does |
|---|---|
| [abc] | Matches any one of the characters a, b, or c. |
| [^abc] | Matches any one character other than a, b, or c. |
| [a-z] | Matches any one character from lowercase a to lowercase z. |

| | |
|---|---|
| [A-Z] | Matches any one character from uppercase a to uppercase z. |
| [a-Z] | Matches any one character from lowercase a to uppercase Z. |
| [0-9] | Matches a single digit between 0 and 9. |
| [a-z0-9] | Matches a single character between a and z or between 0 and 9. |

Example:

```
<form method="post" >
<input type="text" id="p" />
<input type="submit" onclick="myfunction()" />
</form>
<script>
function myfunction()
{
	var text=document.getElementById("p").value;
	var rule=/[abc]/;
	result=text.match(rule);

	if(!result)
	{
		alert("not match");
	}
	else
	{
		alert("match")
```

```
        }
}
</script>
```

Password complexity in JavaScript using regular expression

Rule

^(?=.*[!@#$%^&*-])(?=.*[0-9])(?=.*[A-Z]).{8,10}$

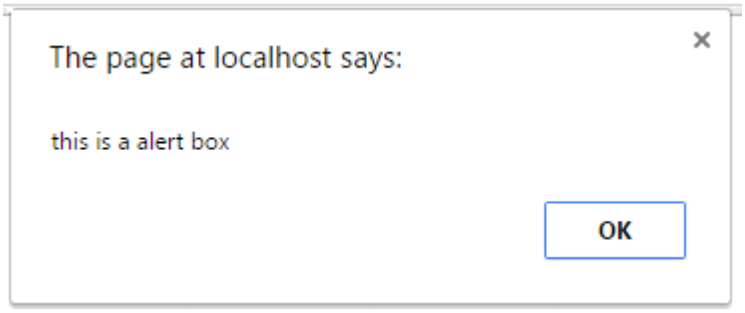
- minimum of 8 characters
- maximum of 10 charecters
- at least one uppercase letter
- at least one number (digit)
- at least one of the following special characters !@#$%^&*-

# 11.JavaScript Popup Windows

A window that suddenly appears (pops up) when you select an option with a mouse or press a special function key.JavaScript has three kind of popup boxes:

1.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

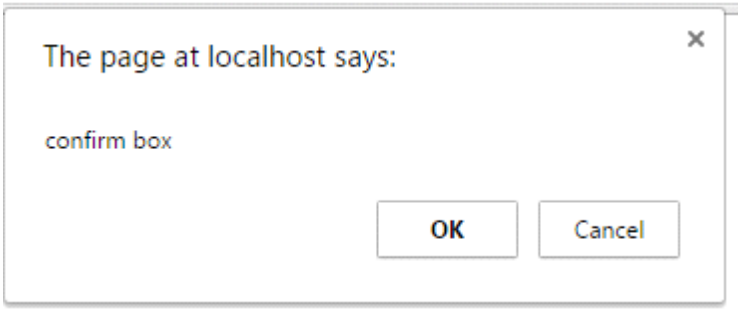
window.alert("sometext");

Example:

```
<script>
    window.alert("This is an alert box");
                Or
    alert("This is an alert box");
</script>
```

2.Confirm box

A confirm box is used for if you want to 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.




syntax

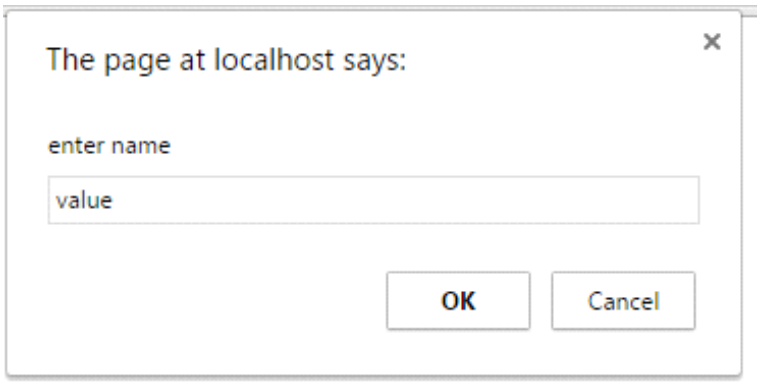
window.confirm("are you confirm then press OK button");

Example:

```
<script>
    var r=window.confirm("press OK buttion");
    if(r==true)
    {
        alert("You pressed Ok Button");
    }
    else
    {
        alert("You pressed Cancel Button");
    }
</script>
```

3.Prompt box.

A prompt box is used for if you want to 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

window.prompt("sometext","defaultText");

Example:

```
<html>
<head>
<title></title>
<script type="text/javascript">
function myfunction()
{
var person = prompt("Please enter your name", "Harry Potter");
```

```
            if (person != null)
            {
            document.getElementById("demo").innerHTML =
            "Hello " + person + "! How are you today?";
            }
        }
        </script>
    </head>
    <body>
<input  type="submit"  name="sub"  value="clickme"
onclick="myfunction()"/>

    </body>
    </html>
```

## 10.Print a Web Page

In javascript we can print the current webpage by using window.print function.

syntax

```
window.print();
```

Example:

```
<body>
    <input  type="submit"  name="sub"  value="Print this page"
    onclick="window.print()"/>
</body>
```

It looks like this as a form button: