CHAPTER 2
JAVA SCRIPT

1. Introduction:

JavaScript is a scripting language, created for making html-pages live. It turns the web into something more powerful than just interlinked html pages.
JavaScript is a object-based scripting language. It is light weighted. Using HTML we can only design a web page but you can not run any logic on web browser like addition of two numbers, check any condition, looping statements (for, while), decision making statement (if-else) at client side. All these are not possible using HTML So for perform all these task at client side you need to use JavaScript.

2. Born JavaScript:

It is first implemented by **Netscape** (with help from Sun Microsystems). Javascript was created by **Brendan Eich** at Netscape in 1995 for the purpose of allowing code in webpages.

3. Use of JavaScript:

It is used to create interactive websites. It is mainly used for:

- Client-side validation
- Dynamic drop-down menus
- Displaying data and time
- Build small but complete client side programs .
- Displaying popup windows and dialog boxes (like alert dialog box, confirm dialog box and prompt dialog box)
- Displaying clocks etc.

4. Programming With JavaScript:

JavaScript code write in <script> tag. We can put <script > tag in 3 location.

1. In <head> tag.
2. In <body> tag
3. can import externally.

5. JavaScript Functions and Events:

A JavaScript **function** is a block of JavaScript code, that can be executed when "asked" for.
For example, a function can be executed when an **event** occurs, like when the user clicks a button.

JavaScript

Variable Declaration:

Java script did not provide any data types for declaring variables and a variable in java script can store any type of value. Hence java script is loosely typed language. We can use a variable directly without declaring it.

Only var keyword are use before variable name to declare any variable.

```
Var x;
```

There are certain rules to declare a variable.

- Name must start with a letter (a to z or A to Z), underscore(_), or dollar($) sign.
- After first letter we can use digits (0 to 9), for example value1.
- Javascript variables are case sensitive, for example x and X are different variables.

Example:

```
<%@ page language="java" contentType="text/html; charset=UTF-8"
    pageEncoding="UTF-8"%>
<!DOCTYPE html PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN"
"http://www.w3.org/TR/html4/loose.dtd">
<html>
<head>
<meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
<title>Insert title here</title>
</head>
<body>
<script>
var a=10;
var b=20;
var c=a+b;
document.write(c);
</script>
</body>
</html>
```

6. DOM Methods:

DOM is Document Object Model. The HTML DOM document object is the owner of all other objects in your web page. It includes all the methods which are required to perform on document. There are 3 DOM Methods:

1. document.getElementById(id)
2. document.getElementByTagName(name)
3. document.getElementByClass(name)

JavaScript

The innerHTML Property:
The easiest way to get the content of an element is by using the **innerHTML** property.
The innerHTML property is useful for getting or replacing the content of HTML elements.

1. document.getElementById(id):
The most common way to access an HTML element is to use the id of the element.

Example:

```
<%@ page language="java" contentType="text/html; charset=UTF-8" pageEncoding="UTF-8"%>
<!DOCTYPE html PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN"
"http://www.w3.org/TR/html4/loose.dtd">
<html>
<head>
<meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
<title>Insert title here</title>
</head>
<body>
<h1>My First Page</h1>
<p id="demo"></p>
<script>
document.getElementById("demo").innerHTML = "Hello World!";
</script>
</body>
</html>
```

2. document.getElementByTagName(name):
This method finds the element by Tag Name.

Example:

```
<%@ page language="java" contentType="text/html; charset=UTF-8"
    pageEncoding="UTF-8"%>
<!DOCTYPE html PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN"
"http://www.w3.org/TR/html4/loose.dtd">
<html>
<head>
<meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
<title>Insert title here</title>
</head>
<body>
<p>Hello World!</p>
<div id="main">
```

```
<p>The DOM is very useful.</p>
<p>This example demonstrates the <b>getElementsByTagName</b> method</p>
</div>
<p id="demo"></p>
<script>
var x = document.getElementById("main");
var y = x.getElementsByTagName("p");
document.getElementById("demo").innerHTML =
'The first paragraph (index 0) inside "main" is: ' + y[0].innerHTML;
</script>
</body>
</html>
```

3. document.getElementByClassName:

This Method finds the value by class Name.

Example:

```
<%@ page language="java" contentType="text/html; charset=UTF-8"
    pageEncoding="UTF-8"%>
<!DOCTYPE html PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN"
"http://www.w3.org/TR/html4/loose.dtd">
<html>
<head>
<meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
<title>Insert title here</title>
</head>
<body>
<p>Hello World!</p>
<p class="intro">The DOM is very useful.</p>
<p class="intro">This example demonstrates the <b>getElementsByClassName</b> method.</p>
<p id="demo"></p>
<script>
var x = document.getElementsByClassName("intro");
document.getElementById("demo").innerHTML =
'The first paragraph (index 0) with class="intro": ' + x[0].innerHTML;
</script>
</body>
</html>
```

Example on validation:

```
<%@ page language="java" contentType="text/html; charset=UTF-8" pageEncoding="UTF-8"%>
<!DOCTYPE html PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN"
"http://www.w3.org/TR/html4/loose.dtd">
<html>
```

JavaScript

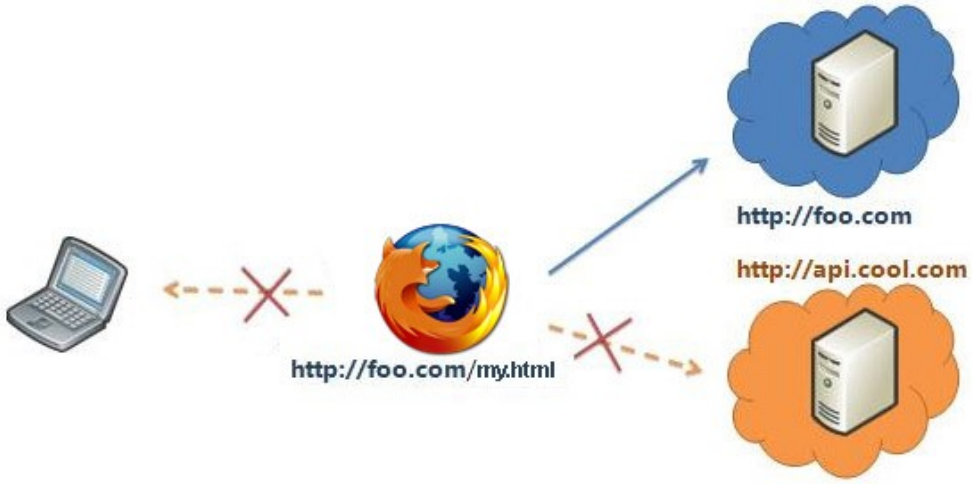
```
<head>
<meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
<title>Customer Validation</title>
<script>
function validate()
{
	var cname=document.getElementById("cname").value;
	var caddress=document.getElementById("caddress").value;
	var ccontact=document.getElementById("ccontact").value;
	var cuname=document.getElementById("cuname").value;
	var cpass=document.getElementById("cpass").value;
	var conpass=document.getElementById("conpass").value;

	if(cname=="")
		{
		document.getElementById("cnameError").innerHTML="Please Enter Name";
		return false;
		}

	if(caddress=="")
	{
	document.getElementById("caddressError").innerHTML="Please Enter Address";
	return false;
	}

	if(ccontact=="")
	{
	document.getElementById("ccontactError").innerHTML="Please Enter Contact Number";
	return false;
	}

	if(isNaN(ccontact))
	{
	document.getElementById("ccontactError").innerHTML="Please Enter Contact Number in
number";
	return false;
	}

	if(ccontact.length<10)
	{
	document.getElementById("ccontactError").innerHTML="Please Enter Contact Number
greater than 10 digit";
	return false;
	}

	if(cuname=="")
	{
	document.getElementById("cunameError").innerHTML="Please Enter User Name";
```

```
        return false;
        }

        if(cpass=="")
        {
        document.getElementById("cpassError").innerHTML="Please Enter Password";
        return false;
        }

        if(conpass=="")
        {
        document.getElementById("conpassError").innerHTML="Please Enter Confirm
password";
        return false;
        }

        if(conpass!=cpass)
        {
        document.getElementById("conpassError").innerHTML="Confirm password and
password must be same";
        return false;
        }
   return true;
        }
</script>
</head>
<body>
<center>
<h3>Customer Information</h3>
<form onsubmit="return validate()">
<table>
<tr><td>Enter Name:<td><input type="text" id="cname"></td>
<td><span id="cnameError" style="color:red"></span></td>
</tr>
<tr><td>Enter Address:</td><td><input type="text" id="caddress"></td>
<td><span id="caddressError" style="color:red"></span></td>
</tr>
<tr><td>Enter Contact No.:</td><td><input type="text" id="ccontact"></td>
<td><span id="ccontactError" style="color:red"></span></td>
</tr>
<tr><td>Enter Username:</td><td><input type="text" id="cuname"></td>
<td><span id="cunameError" style="color:red"></span></td>
</tr>
<tr><td>Enter Password:</td><td><input type="password" id="cpass"></td>
<td><span id="cpassError" style="color:red"></span></td>
</tr>
<tr><td>Confirm Password:</td><td><input type="password" id="conpass"></td>
<td><span id="conpassError" style="color:red"></span></td>
```

```
</tr>
<tr>
<td><input type="submit" value="Submit"></td>
<td><input type="reset" value="Clear"></td>
</tr>
</table>
</form>
</center>
</body>
</html>
```

7. Limitations of JavaScript:

JavaScript is a generic language, fast and powerful. But execution in browser context implies certain security limitations.That's because you surely don't want a web-page script to execute with your privileges: read/write on hard disk, install software etc. The script must have strict security limitation not to harm your system, so you can open the page and feel safe. There are non-standard mechanisms of "signing" JavaScript, but not widely supported yet.
Most JavaScript abilities are limited by browser window.

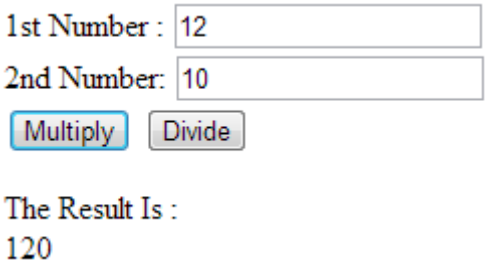


- JavaScript can't read/write to hard disk, copy files and call other programs. It doesn't have direct access to the OS. Newer browsers provide such abilities, but in a very limited and secure way.
- JavaScript in one tab can't affect other tabs/windows. There are exceptions, namely when two windows come from same domain.
- A page with JavaScript can do network requests on it's own domain without limitations. A request to another domain is also possible, but security measures apply.

JavaScript

ASSIGNMENT

1. Write a JavaScript program to display the current day and time in the following format.
2. Write a JavaScript program to find the area of a triangle where lengths of the three of its sides are 5, 6, 7.
3. Write a JavaScript program to validate and calculate multiplication and division of two numbers (input from user).
   Sample Form:



4. Write a JavaScript function to validate whether a given value type isNaN or not.
5. Write a JavaScript function to validate whether a given value type is null or not.
6. Write a JavaScript function to validate whether a given value is RegExp or not.
7. Write a JavaScript function to validate whether a given value type is char or not.
8. Write a JavaScript function to check whether given value types are same or not.
9. Write a JavaScript function to validate whether a given value is object or not.
10. Write a JavaScript function to validate whether a given value type is boolean or not.