Java Script
JavaScript

• JavaScript is used in millions of Web pages to improve the design, validate forms, detect browsers, create cookies, and much more.
• JavaScript is the most popular scripting language on the internet, and works in all major browsers, such as Internet Explorer, Mozilla, Firefox, Netscape, Opera.
What is Java Script?

• JavaScript is a scripting language.
• A JavaScript consists of lines of executable computer code.
• A JavaScript is usually embedded directly into HTML pages.
• JavaScript is an interpreted language (means that scripts execute without preliminary compilation).
• Statements in Java Script are terminated by semicolon.
• Java Script is case-sensitive.
• The web browser ignores java script comments. Java script supports two types of comments-single line and multi line.
Cont.

- JavaScripts in HTML must be inserted between `<script>` and `</script>` tags.
- JavaScripts can be put in the `<body>` and in the `<head>` section of an HTML page.
How to Put a JavaScript Into an HTML Page?

```html
<html>
  <body>
    <script type="text/javascript">
      document.write("Hello World!\")
    </script>
  </body>
</html>
```
Java Script Variables

• Variables are used to store data.
• A variable is a "container" for information you want to store. A variable's value can change during the script. You can refer to a variable by name to see its value or to change its value.
• Variables are declared using the var keyword.
• Rules for variable names:
  – Variable names are case sensitive
  – They must begin with a letter or the underscore character
    • strname – STRNAME (not same)
  – the remaining characters can be letters, numbers, or underscore characters
  – variable names cannot contain spaces.
Declaring a Variable

• Before you can use a variable in your program, you need to declare a variable using the var command or by assigning the variable a value.

• Any of the following commands is a legitimate way of creating a variable named “Month”:

```plaintext
var Month;
var Month = “December”;
Month = “December”;
```
JavaScript Popup Boxes

- **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.

```html
<script>
    alert("Hello World!")
</script>
```
JavaScript Popup Boxes - 2

- 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.
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.
Java Script Data Types

It supports three primitive data types.

- **Number**
  
  ```javascript
  var discount=22.4;
  var discount=20;
  ```

- **String**
  
  ```javascript
  var bird=“parrot”;
  ```

- **Boolean**
  
  ```javascript
  var reserved_status=false;
  ```
Conditional Statements

- Comparison Operator
- Logical Operator
- If-else Control structure
<script>
    x=3;
    if(x<0)
    {
        alert ("negative");
    }
    else
    {
        alert ("positive");
    }
</script>
Working with Loops

• While
• Do-while
• For

<script>
var i=0;
while(i<=3)
{
  alert("hello deepak!");
i++;
}
</script>
For Loop

```html
<table border>
<tr>
<script>
    for (num = 1; num <= 4; num++) {
        document.write("<td>"+num+"</td>");
    }
</script>
</tr>
</table>
```

For loop

resulting table

1 2 3 4
For Loop

```html
<table border>
  <script>
    for (rownum = 1; rownum <=3; rownum++) {
      document.write("<tr>");
      for (colnum = 1; colnum <=4; colnum++) {
        document.write("<td>" + rownum + "," + colnum + "</td>");
      }
      document.write("</tr>"); 
    }
  </script>
</table>
```

![Nested For Loop Example](image)
Creating JavaScript Functions

• function function_name(parameters)

    {
        JavaScript commands
    }

• Parameters are the values sent to the function (note: not all functions require parameters)

• { and } are used to mark the beginning and end of the commands in the function.
• Function names are case-sensitive.
• The function name must begin with a letter or underscore ( _ ) and cannot contain any spaces.
• There is no limit to the number of function parameters that a function may contain.
• The parameters must be placed within parentheses, following the function name, and the parameters must be separated by commas.
Performing an Action with a Function

• The following function displays a message with the current date:

```javascript
function ShowDate(date)
{
    document.write(“Today is” + date + “<br>”);
}
```

• There is one line in the function’s command block, which displays the current date along with a text string.
To call the ShowDate function, enter:

```javascript
var Today = "3/9/2013";
ShowDate(Today);
```

- the first command creates a variable named “Today” and assigns it the text string, “3/9/2013”
- the second command runs the ShowDate function, using the value of the Today variable as a parameter
- result is “Today is 3/9/2013”.
Returning a Value from a Function

• To use a function to calculate a value use the return command along with a variable or value.

    function Area(Width, Length)
    {
        var Size = Width*Length;
        return Size;
    }

• the Area function calculates the area of a rectangular region and places the value in a variable named “Size”

• the value of the Size variable is returned by the function
JavaScript Form Validation

- JavaScript can be used to validate data in HTML forms before sending off the content to a server.
- Form data that typically are checked by a JavaScript could be:
  - Has the user left required fields empty?
  - Has the user entered a valid e-mail address?
  - Has the user entered a valid date?
  - Has the user entered text in a numeric field?
Cont.

- JavaScript can change all the HTML elements in the page
- JavaScript can change all the HTML attributes in the page
- Often, with JavaScript, you want to manipulate HTML elements. To do so, you have to find the elements first. There are a couple of ways to do this:

  1. Finding HTML elements by id
  2. Finding HTML elements by tag name
  3. Finding HTML elements by class name (Don’t use)

  1. var x=document.getElementById("id");
  2. var x=document.getElementById("id");
     var y=x.getElementsByTagName("tagname");
Cont.

To change the content of an HTML element, use this syntax:

```javascript
document.getElementById(id).innerHTML = new HTML
```

To change the attribute of an HTML element, use this syntax:

```javascript
document.getElementById(id).attribute = new value
```