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| **[JavaScript]** |

* JavaScript is used to create client-side dynamic pages.
* JavaScript is *an object-based scripting language*.
* JavaScript is not a compiler based language.
* **How To Write JavaScript Code:**

<html>

<body>

<script type="text/javascript">

document.write("JavaScript is a scripting language");

</script>

</body>

</html>

* **3 Places to put JavaScript code** 
  + - * Between the body tag of html
      * Between the head tag of html
      * In .js file (external JavaScript)
* **JavaScript Variable:**
  + A **JavaScript variable** is a memory name of any type of data that can be store any type of values.
  + There are two types of variables in JavaScript.

o  **local variable and global variable.**

* + There are some rules while declaring a JavaScript variable (also known as identifiers).
    - * 1. Name must start with a letter (a to z or A to Z), underscore( \_ ), or dollar( $ ) sign.
        2. After first letter we can use digits (0 to 9), for example value1.
        3. JavaScript variables are case sensitive, for example x and X are different variables.
    - Example:

var x = 10; var \_value="sonoo";  **JavaScript Data Types:**

* + - JavaScript provides different **data types** to hold different types of values. There are two types of data types in JavaScript.

Primitive data type

Non-primitive (reference) data type

* + - JavaScript is a **dynamic type language**, means you don't need to specify type of the variable because it is dynamically used by JavaScript engine.
    - You need to use **var** here to specify the data type. It can hold any type of values such as numbers, strings etc.  For example:

**var a=10;//holding number var b="Naurachna";//holding string**

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| **Data Type** | **Description** |
|  |  |
| String | represents sequence of characters e.g. "hello" |
| Number | represents numeric values e.g. 100 |
| Boolean | represents boolean value either false or true |
| Undefined | represents undefined value |
| Null | represents null i.e. no value at all |

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| **Data Type** | **Description** |
| Object | represents instance through which we can access members |
| Array | represents group of similar values |

#  JavaScript primitive data types

There are five types of primitive data types in JavaScript. They are as follows:

##  JavaScript non-primitive data types

The non-primitive data types are as follows:

 **JavaScript If-else:**

 The **JavaScript if-else 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
2. If else statement
3. if else if statement

### 1. JavaScript If statement

 It evaluates the content only if expression is true. The signature of JavaScript if statement is given below.

if(expression)

{

//code

}

### 2. JavaScript If...else Statement

 It evaluates the content whether condition is true of false. The syntax of JavaScript if-else statement is given below.

if(expression){

//content to be evaluated if condition is true

} else{

//content to be evaluated if condition is false

}

## 3. JavaScript If...else if statement

 It evaluates the content only if expression is true from several expressions. The signature of JavaScript if else if statement is given below.

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

}

##  JavaScript Loops

 The **JavaScript loops** are used *to iterate the piece of code* using for, while, do while There are four types of loops in JavaScript.

1. for loop
2. while loop
3. do-while loop

### 1) JavaScript For loop

* The **JavaScript for loop** *iterates the elements for the fixed number of times*.
* It should be used if number of iteration is required.
* The syntax of for loop is given below.

**for (initialization; condition; increment)**

**{**

**code to be executed**

**}**

* Example:

**<script>**

for (i=1; i**<**=5; i++)

{

document.write(i + "**<br/>**")

}

**</script>**

### 2) JavaScript while loop

* The **JavaScript while loop** *iterates the elements for the infinite number of times*.
* It should be used if number of iteration is not known.
* **The syntax of while loop is given below.**

while (condition)

{

code to be executed

}

* **Example:**

**<script>** var i=11; while (i**<**=15)

{

document.write(i + "**<br/>**"); i++;

}

**</script>**

### 3) JavaScript do while loop

* The **JavaScript 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.
* The syntax of do while loop is given below.

**do{**

**code to be executed**

**}while (condition);**

###  JavaScript Functions

* **JavaScript functions** are used to perform operations. We can call JavaScript function many times to reuse the code.  ***Advantage of JavaScript function***

There are mainly two advantages of JavaScript functions.

* + 1. **Code reusability**: We can call a function several times so it save coding.
    2. **Less coding**: It makes our program compact. We don’t need to write many lines of code each time to perform a common task.
* **JavaScript Function Syntax** o The syntax of declaring function is given below.

function functionName([arg1, arg2, ...argN]){

//code to be executed

}

* + JavaScript Functions can have 0 or more arguments.
  + JavaScript Function Example

**<script>** function msg(){

alert("hello! this is message");

}

**</script>**

**<input** type="button" onclick="msg()" value="call function"**/>**

###  Document Object Model

* The **document object** represents the whole html document.
* When html document is loaded in the browser, it becomes a document object.
* It is the **root element** that represents the html document. It has properties and methods.
* By the help of document object, we can add dynamic content to our web page.
* Five document object model are available in JavaScript.

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| **document.getElementById()** | Getting values by id property |
| **document.getElementByClassName()** | Getting values by class  property |
| **document.getElementByName()** | Getting values by name  property |
| **document.getElementByTagName()** | Getting values by tag name |
| **InnerHTML Property** | To write the dynamic html on the html document. |
| **InnerText Property** | To write the dynamic text on the html document. |

 **JavaScript Dialog Box :**

 JavaScript Dialog Box have 3 types.

* + 1. Alert Dialog Box
    2. Confirm Dialog Box
    3. Prompt DialogBox

1. **Alert Dialog Box:** 
   * The **alert()** method in JavaScript is used to display a virtual alert box.o It is mostly used to give a warning message to the users.
   * It displays an alert dialog box that consists of some specified message (which is optional) and an OK button.o When the dialog box pops up, we have to click "OK" to proceed.
2. **Confirm Dialog 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.
3. **Prompt Dialog 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.