

Chapter 6

Client Side Scripting Using JavaScript



JavaScript



- JavaScript is the most commonly used Client Side Scripting Language
- It was developed by Brendan Eich
- It is supported by all browsers
- It follows the same syntax as C++



Sample JavaScript Program



```
<HTML>
```

```
<HEAD> <TITLE>Javascript - Welcome</TITLE>  
</HEAD>
```

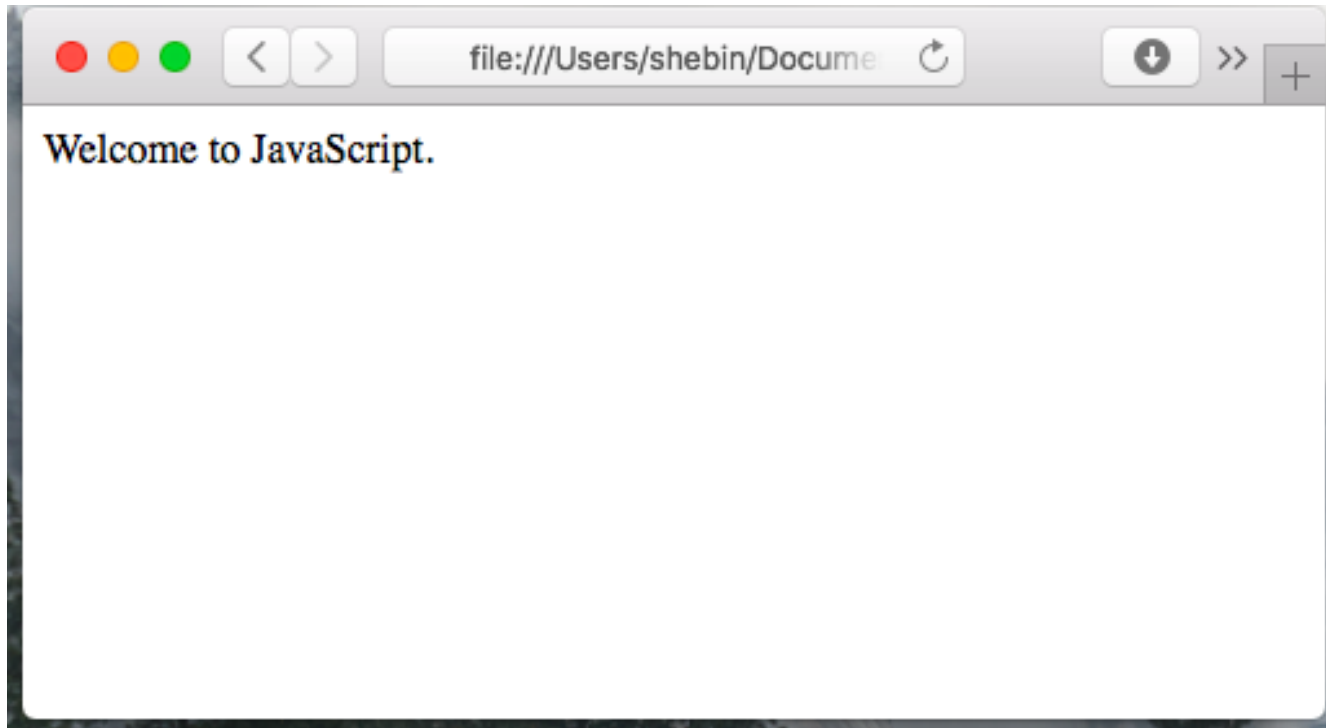
```
<BODY>
```

```
  <SCRIPT Language= "JavaScript">  
    document.write("Welcome to JavaScript.");  
  </SCRIPT>
```

```
</BODY>
```

```
</HTML>
```

Output



Which tag is used to include script in an HTML program? Explain its attribute?



- **<SCRIPT>** tag is used to include scripting code in an HTML page.
 - **Attributes:**
 - **Language:** used to specify the name of the scripting language used.
 - **Source:** specifies the location and file name of the external javascript file..
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What is the use of Javascript engine?



- Java script engine is a **virtual machine for executing javascript**.
- Every browser has a java script engine.
- If the html page contain a java script then browser passes it to the javascript engine.



What is a Functions in JavaScript ?



- A function is a group of instructions with a name.
- **There are two types of functions:**
 - 1) Built-In function
 - 2) User Defined function
- **Advantage of Function:** If we need to execute a piece of program code more than once in a web page, the code has to be written only once within the function

User defined functions



```
function function_name()
```

Function
Header

```
{
```

```
    statements;
```

```
}
```

Function
Body

What are the Data Types in JavaScript ?



- **Data types in Javascript are:**

- 1)Number:-**They include integers, floating point numbers and signed numbers.
- 2)Strings:-**A string is a combination of characters, numbers or symbols enclosed within double quotes.
- 3)Boolean:-**A boolean data can be either True or False(Without double quotes).

How to declare Variables in JavaScript ?



- A variable can be declared by using the keyword **var**. Eg. `var n;`
- Data type of the variable is decided only when a value is assigned to it.



Variable declaration Syntax



```
<SCRIPT Language= "JavaScript">
```

```
var a, b, c, d, e, f;
```

```
a = 25;
```

```
b = 18.5;
```

```
c = "INDIA";
```

```
d = true;
```

```
e = "true";
```

```
</SCRIPT >
```

END

What are the types of Operators used in JavaScript ?



- 1) Arithmetic operators**
- 2) Assignment operators**
- 3) Relational operators (Comparison operators)**
- 4) Logical operators**
- 5) String addition operator**



1) Arithmetic operators



Operator	Description	Example	Value of y	Result (x)
+	Addition	$x = y + 10$	15	25
-	Subtraction	$x = y - 10$	15	5
*	Multiplication	$x = y * 3$	15	45
/	Division	$x = y / 2$	15	7.5
%	Modulus (division remainder)	$x = y \% 2$	15	1
++	Increment	$x = ++y$	15	16
		$x = y++$	15	15
--	Decrement	$x = --y$	15	14
		$x = y--$	15	15

2) Assignment operators



Operator	Description	Example	Value of a	Value of b	Result (a)
=	Assignment	a = b	10	3	3
+=	Add and assignment	a+=b	10	3	13
-=	Minus and assignment	a-=b	10	3	7
=	Multiply and assignment	a=b	10	3	30
/=	Divide and assignment	a/=b	10	3	3.33
%=	Modulus and assignment	a%=b	10	3	1

3) Relational operators (Comparison operators)



Operator	Description	Example	Value of a	Value of b	Result
==	Equal to	a==b	10	3	false
!=	Not equal to	a!=b	10	3	true
<	Less than	a<b	10	3	false
<=	Less than or equal to	a<=b	10	3	false
>	Greater than	a>b	10	3	true
>=	Greater than or equal to	a>=b	10	3	true

4) Logical operators



Operator	Description	Example	Value of a	Value of b	Result
&&	AND	a && b	true	false	false
	OR	a b	true	false	true
!	NOT	!a	true		false

String addition operator in JavaScript



- The operator + is used to add two numbers.
- The same operator + is used to add two strings also.
- Adding two strings means concatenating two strings.

- Example

```
var x, y;  
x = "A good beginning ";  
y = "makes a good ending.";  
z = x + y;
```

Output z will have the value:

A good beginning makes a good ending

Control Structures in JavaScript



- Control structures are used to change the sequential flow of execution in a program.
- Frequently used control structures in JavaScript are:

1) if

2) switch

3) for

4) while



if



- It is used to execute a statement or a group of statements based on some condition.

Syntax of simple if	Syntax of if with else part
<pre>if (test_expression) { statements; }</pre>	<pre>if (test_expression) { statements; } else { statements; }</pre>

switch



- Switch is a multi-branching statement. Using this, different program codes can be selected for execution based on the value of an expression.

- Syntax:

```
switch (expression)
```

```
{
```

```
    case value1:  
        statements;  
        break;
```

```
    case value2:  
        statements;  
        break;
```

```
    default:  
        statements;
```

```
}
```

for



- for loop is used to execute a group of instructions repeatedly.
- The syntax of for loop is:

```
for (initialisation; test_expression; update_statement)
{
  Body of loop
}
```



while



- while loop is a simple loop that repeatedly execute a group of statements based on a condition.
- The syntax is:

```
while (test_expression)  
{  
  statements;  
}
```
- Here the test_expression is a condition. The statements inside the loop will be executed as long as the condition remains true.

Built in Functions in JavaScript



- The most commonly used functions:

1)alert()

2)isNaN()

3)toUpperCase()

4)toLowerCase()

5)charAt()

6)length property

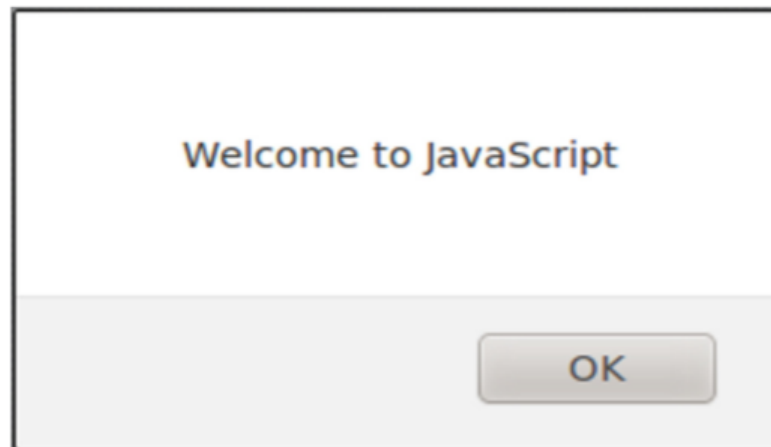


1) alert()



- It is used to display a message on the screen
- Eg:
`alert(" Welcome to JavaScript ")`

Output



2) isNaN()



- It is used to check whether a value is a number or not.
- NaN stands for not a number
- The function returns **true** if the given value is not a number

isNaN("welcome");	True
isNaN(123);	False
isNaN("13.5 ");	False
isNaN("A123 ");	True
isNaN("Score50 ");	True

3) toUpperCase()



- It returns the upper case form of the given string.

- Eg:

```
var x,y;  
x = "JavaScript";  
y = x.toUpperCase();  
alert(y)
```

Output



4) toLowerCase()

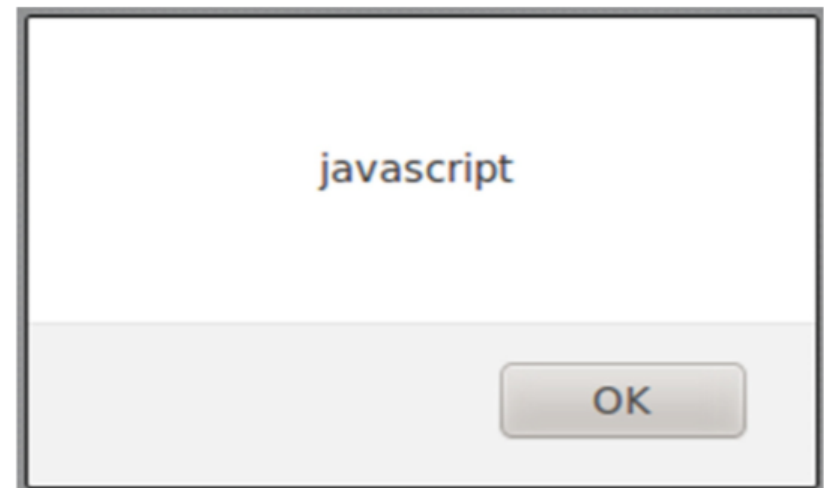


- It returns the lower case form of the given string.

- Eg:

```
var x,y;  
x = "JavaScript";  
y = x.toLowerCase();  
alert(y)
```

Output



5) charAt()

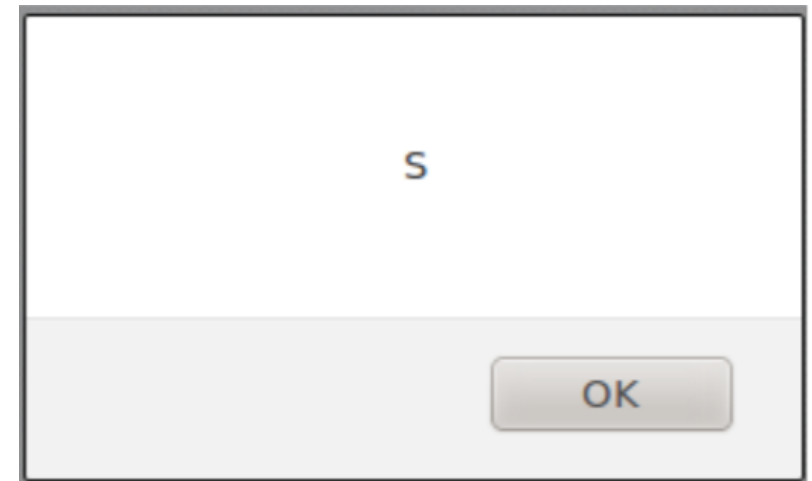


- This function returns the character at a particular position.
- charAt(0) returns the first character in the string.

- Eg:

```
var x,y;  
x = "JavaScript";  
y = x.charAt(4);  
alert(y)
```

Output



6) length property



- This function returns the length of a string
- Length means number of strings in a string
- Eg:

```
var x,n;  
x = "JavaScript";  
n = x.length;  
alert(n)
```

Output



What are the different methods for adding scripts in an html page?



- Scripts can be placed inside HTML code in three different ways:
 - a). **Inside the <Head >section of HTML.**
Advantage: execute scripts faster. **Disadvantage:** scripts that are to be executed while loading the page will not work.
 - b). **Inside <Body>** script will be executed while the content of the web page is being loaded.
 - c). **External JavaScript file:** Scripts can be placed into an external file ,saved with **'.js'** extension. load pages faster.
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Previous Questions



- 1. Write any three built-in functions in Javascript and explain its use
 - 2. Name the keyword used to declare variable in Javascript.
 - 3. What is the difference between isNaN() and length() functions in JavaScript ?
 - 4. Write the built in JavaScript functions used for the following situations
 - (i) Display warning message in the screen
 - (ii) Character at particular position
 - (iii) Convert upper case to lowercase
 - 5. In JavaScript :
 - (a) Explain any three types of operators used
 - (b) Describe any two data types used.
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