



JavaScript Functions

Learning Outcomes

The students will learn the following:

- How to implement the function in JavaScript
- How to use Pre-defined functions
- How to create and use user-defined functions
- To create an Online application



16.1 Introduction

A function is a block of JavaScript code that is defined once but may be executed or invoked any number of times. Functions are used to encapsulate code that performs a specific task. Sometimes functions are defined for commonly required tasks to avoid the repetition entailed in typing the same statements over and over. More generally, they are used to keep code that performs a particular job in one place in order to enhance reusability and program clarity.

JavaScript functions are parameterized or non-parameterized. A parameterized function definition may include a list of identifiers, known as parameters that work as local variables for the body of the function. Function invocations provide values or arguments for the function's parameters. Functions often use their argument values to compute a return value that becomes the value of the function invocation expression.

JavaScript supports two types functions. They are

- Pre-defined or Library Functions
- User-defined Functions

16.2 Some common pre-defined functions.

Pre-defined functions are already defined in the JavaScript library which are also called Library functions. For example `isNaN()`, `toUpperCase()`, `toLowerCase()`, `length()`, `alert()`, `prompt()`, `write()` etc., are pre-defined functions.



Table: 16.1 Predefined functions

Function	Description	Example	Result
toUpperCase()	Used to convert given string into uppercase	x="java" x.toUpperCase();	JAVA
toLowerCase()	Used to convert given string into lowercase	x="JAVA" x.toLowerCase();	java
length	Used to find length of the given string	x="JAVA" x.length();	4
parseInt()	Used to convert the given float value into an integer	parseInt(34.234);	34
parseFloat()	Used to convert the given string into a integer	parseFloat("34.23");	34.23

16.3 User defined functions

User-defined functions allow the programmer to modularize a program. Most computer programs that solve real-world problems are much large, occupy more space in the computer memory and takes more time to execute. Hence such large programs are divided into small programs are called **modules**.

Function Definition

The format of a function definition is

```
Function function-name(parameters list)
{
    Declaration of variable
    Executable statements;
}
```

Function Body

Note:

- The function-name is any valid identifier.
For Example: sum
- The parameter list contains one or more valid variable name.
- Parameter list contains more than one variable then comma must be there between the variable. For example: function sum(x,y)
- The function body must be enclosed by braces.

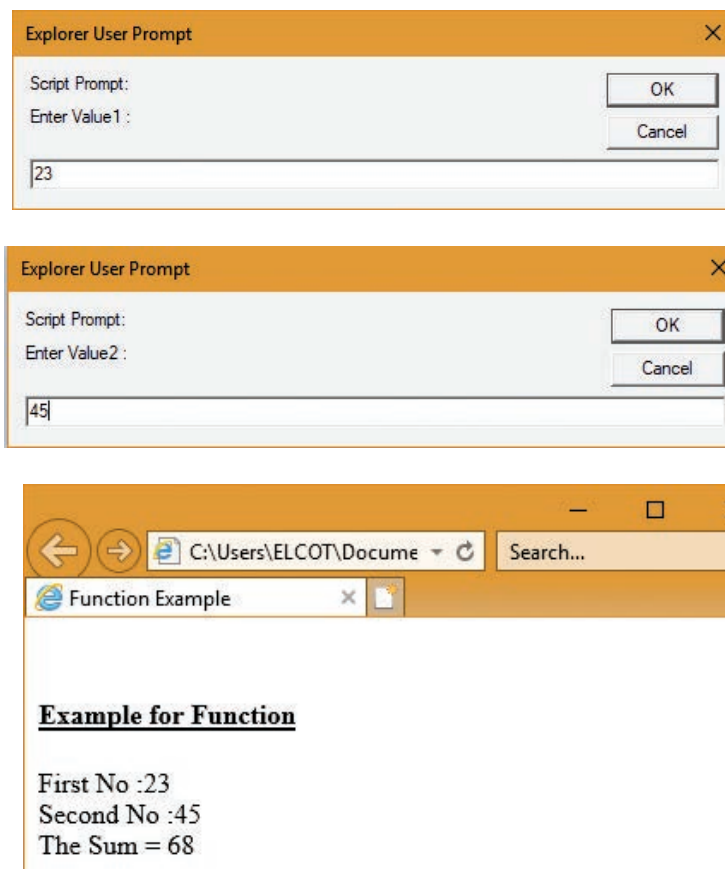
Example:

```
function sum(x,y)
{
    var m=x+y;
    return m;
}
```

Listing 16.1 Using Function

```
<html>
<head>
<title>Function Example</title>
<script type="text/JavaScript">
<!--
var input1=window.prompt("Enter Value1 :", "0");
var input2=window.prompt("Enter Value2 :", "0");
var v1=parseInt(input1);
var v2=parseInt(input2);
var s=sum(v1,v2);
document.writeln("<br><h4><u>Example for Function</u></h4>");
document.writeln("First No : " + v1 + " <br>Second No : " + v2 + "<br> The Sum = " + s);
function sum(x, y)
{
var s=x+y;
return s;
}
//-->
</script>    </head>    <body>    </body>    </html>
```

Output:

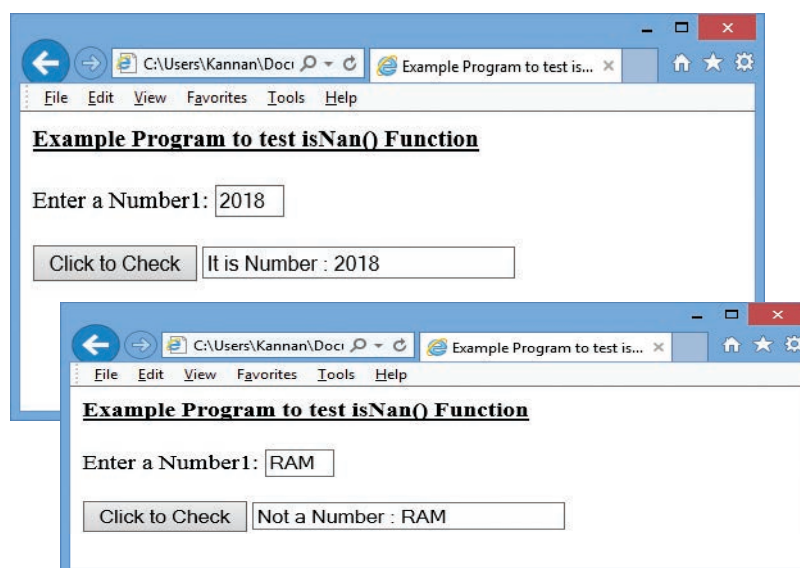


The isNaN() function is used to check whether the given value or variable is valid number. This function returns true if the given value is not a number. For example isNaN("12"), isNaN("A").

Listing 16.2 Using isNaN() Function

```
<html>
<title>Example Program to test isNaN() Function</title>
<head> </head>
<body>
<h4><u>Example Program to test isNaN() Function</u></h4>
<script language="JavaScript">
function checknum()
{
var n=document.form1.text1.value;
if(isNaN(n)==true)
{   document.form1.text2.value="Not a Number : "+n;   }
else
{   document.form1.text2.value="It is Number : "+n;   }
}
</script>
<form name="form1">
Enter a Number1:
<input type="text" name="text1" size=3>
<br><br>
<input type="button" value="Click to Check" onClick="checknum()">
<input type="text" name="text2" size=30>
<br>      </form>      </body>      </html>
```

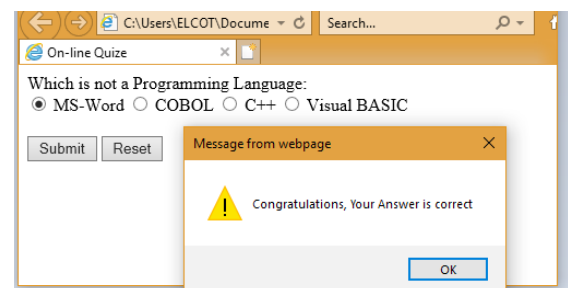
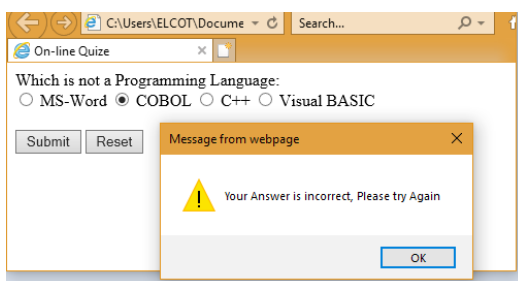
Output:



Listing 16.3 Using Function (on-line quiz)

```
<html>
<head>
<title>On-line Quiz</title>
<script type="text/JavaScript">
function checkAnswer()
{
    //var myQuiz=document.getElementById("myQuiz");
    if ( document.getElementById("myQuiz").elements[0].checked)
        alert("Congratulations, Your Answer is correct");
    else
        alert("Your Answer is incorrect, Please try Again");
}
</script>    </head>
<body>
<form id="myQuiz" action="JavaScript:checkAnswer()">
<p> Which is not a Programming Language: <br>
<input type="radio" name="radiobutton" value="Word" />
<label> MS-Word</label>
<input type="radio" name="radiobutton" value="Cobol" />
<label> COBOL</label>
<input type="radio" name="radiobutton" value="CPP" />
<label> C++</label>
<input type="radio" name="radiobutton" value="VB" />
<label> Visual BASIC</label><br><br>
<input type="submit" name="submit" value="Submit" />
<input type="reset" name="reset" value="Reset" />
</p> </form>    </body>    </html>
```

Output:



Note:

- The **getElementById()** method returns the element that has the ID attribute with the specified value. (In this example, ID is received from form tag).
- **elements[0]** indicates the first option given in the question (Ms-word)



Points to Remember:

- A function is a block of JavaScript code that is defined once but can be invoked for any number of times.
- There are 2 types of functions predefined and user defined functions
- Predefined functions are also called Library function
- User defined functions allow the programmer to modularize a program
- Larger programs divided into smaller are called modules.

Evaluation



Part-I

Choose the correct answer:

1. The parameters work as
 - A) Local variable
 - B) Global Variable
 - C) File variable
 - D) block variable
2. Predefined functions are also called as
 - A) Library functions
 - B) storage functions
 - C) instructions
 - D) commands
3. Larger programs are divided into smaller are called
 - A) modules
 - B) block
 - C) sets
 - D) Group
4. Which of the following is used to enhance reusability and program clarity.
 - A) functions
 - B) modules
 - C) sets
 - D) instructions
5. Which of the following allow the programmer to modularize a program
 - A) Library functions
 - B) user defined functions
 - C) Normal functions
 - D) Ordinary functions

Part – II

Very Short Answers

1. What is a function in JavaScript?
2. What is the use of function?
3. Write a note on Library functions.
4. Write a note on user defined functions.
5. Write the syntax of functions.

Part-III

Short Answers

1. Write a program in JavaScript to find the cube of a number using function
2. Write a program in JavaScript to find the sum of 10 numbers using function.

Case study

Display a menu as web page, Accept the choice as input and display the result using function.
The menu to be displayed is

1. Sum of numbers upto a given limit
2. Sum of numbers from a starting limit to ending limit.