

Basic JavaScript Exercises

JavaScript is a cross-platform, object-oriented scripting language. It is a small and lightweight language. Inside a host environment (a web browser), JavaScript can be connected to the objects of its environment to provide programmatic control over them.

JavaScript contains a standard library of objects, such as Array, Date, and Math, and a core set of language elements such as operators, control structures, and statements. Core JavaScript can be extended for a variety of purposes by supplementing it with additional objects.

Exercise 1. Write a JavaScript program to display the current day and time in the following format.

Today is : xxxx

Current time is : xxxx

HTML Code:

```
<html>
<head>
<meta charset="utf-8">
<title>JavaScript current day and time</title>
</head>
<body></body>
</html>
```

JavaScript Code

```
var today = new Date();

var day = today.getDay();

var daylist = ["Sunday", "Monday", "Tuesday", "Wednesday", "Thursday", "Friday", "Saturday"];

console.log("Today is : " + daylist[day] + ".");

var hour = today.getHours();

var minute = today.getMinutes();

var second = today.getSeconds();

var prepend = (hour >= 12)? " PM ":" AM ";

hour = (hour >= 12)? hour - 12: hour;

if (hour==0 && prepend==' PM '){

    if (minute==0 && second==0){

        hour=12;

        prepend=' Noon';

    }

    else{

        hour=12;

        prepend=' PM';

    }

}

if (hour==0 && prepend==' AM '){

    if (minute==0 && second==0){

        hour=12;

        prepend=' Midnight';

    }

    else{

        hour=12;

        prepend=' AM';

    }

}

console.log("Current Time : "+hour + prepend + " :" + minute + " :" + second);
```

Sample Output:

```
Today is : Tuesday,
Current Time : 5 PM : 11 : 20
```

Exercise 2: Write a JavaScript function to find the area of a triangle where lengths of the three of its sides are 5, 6, 7.

HTML Code:

```
<!DOCTYPE html>
<html>
<head>
<meta charset=utf-8 />
<title>The area of a triangle</title>
</head>
<body>
</body>
</html>
```

JavaScript Code:

```
var side1 = 5;
var side2 = 6;
var side3 = 7;
var perimeter = (side1 + side2 + side3)/2;
var area = Math.sqrt(perimeter*((perimeter-side1)*(perimeter-side2)*(perimeter-side3)));
console.log(area);
```

Sample Output:

14.696938456699069

Exercise 3. Write a JavaScript program where the program takes a random integer between 1 to 10, the user is then prompted to input a guess number. If the user input matches with guess number, the program will display a message "Good Work" otherwise display a message "Not matched".

HTML Code:

```
<!DOCTYPE html>
<html>
<head>
<meta charset=utf-8 />
<title>Guess a number</title>
</head>
<body>
</body>
</html>
```

JavaScript Code:

```
// Get a random integer from 1 to 10 inclusive
var num = Math.ceil(Math.random() * 10);

var gnum = prompt('Guess the number between 1 and 10 inclusive');

if (gnum == num)
    alert('Matched');
else
    alert('Not matched, the number was ' + num);
```

Sample Output:

Matched

Explanation:

The [Math.ceil\(\)](#) function is used to get the smallest integer greater than or equal to a given number.

The [Math.random\(\)](#) function is used to get a floating-point, pseudo-random number in the range [0, 1) that is, from 0 (inclusive) up to but not including 1 (exclusive), which you can then scale to your desired range.

Exercise 4. Write a JavaScript program to calculate multiplication and division of two numbers (input from user).

Sample Form:

1st Number:

2nd Number:

The Result Is :
120

HTML Code:

```
<!DOCTYPE html>
<html>
<head>
<meta charset="utf-8" />
<title>JavaScript program to calculate multiplication and division of two numbers </title>
<style type="text/css">
body {margin: 30px;}
</style>
</head>
<body>
<form>
1st Number : <input type="text" id="firstNumber" /><br>
2nd Number: <input type="text" id="secondNumber" /><br>
<input type="button" onClick="multiplyBy()" value="Multiply" />
<input type="button" onClick="divideBy()" value="Divide" />
</form>
<p>The Result is : <br>
<span id = "result"></span>
</p>
</body>
</html>
```

JavaScript Code:

```
function multiplyBy()
{
    num1 = document.getElementById("firstNumber").value;
    num2 = document.getElementById("secondNumber").value;
    document.getElementById("result").innerHTML = num1 * num2;
}

function divideBy()
{
    num1 = document.getElementById("firstNumber").value;
    num2 = document.getElementById("secondNumber").value;
    document.getElementById("result").innerHTML = num1 / num2;
}
```

Explanation:

`document.getElementById(id).value`: The value property sets or returns the value of the value attribute of a text field.

`document.getElementById("result").innerHTML` : The innerHTML property sets or returns the HTML content (inner HTML) of an element.

Exercise 5. Fahrenheit and Celsius Temperatures -

Fahrenheit and centigrade are two temperature scales in use today. The Fahrenheit scale was developed by the German physicist Daniel Gabriel Fahrenheit . In the Fahrenheit scale, water freezes at 32 degrees and boils at 212 degrees.

The centigrade scale, which is also called the Celsius scale, was developed by Swedish astronomer Andres Celsius. In the centigrade scale, water freezes at 0 degrees and boils at 100 degrees. The centigrade to Fahrenheit conversion formula is:

$$C = (5/9) * (F - 32)$$

where F is the Fahrenheit temperature. You can also use this Web page to convert Fahrenheit temperatures to centigrade. Just enter a Fahrenheit temperature in the text box below, then click on the Convert button.

HTML Code

```
<!DOCTYPE html>
<html>
<head>
<meta charset="utf-8">
<title>Write a JavaScript program to convert temperatures to and from celsius, fahrenheit</title>
</head>
<body>
</body>
</html>
```

JavaScript Code:

```
function cToF(celsius)
{
    var cTemp = celsius;
    var cToFahr = cTemp + 9 / 5 + 32;
    var message = cTemp+'\xB0C is '+ cToFahr + '\xB0F.';
    console.log(message);
}

function fToC(fahrenheit)
{
    var fTemp = fahrenheit;
    var fToCel = (fTemp - 32) * 5 / 9;
    var message = fTemp+'\xB0F is '+ fToCel + '\xB0C.';
    console.log(message);
}
```

```
cToF(60);  
fToC(45);
```

Sample Output:

```
60°C is 140 °F.  
45°F is 7.22222222222222°C.
```

Explanation:

For an exact conversion (Fahrenheit to Celsius / Celsius to Fahrenheit) the following formulas can be applied :

Fahrenheit to Celsius : $(^{\circ}\text{F} - 32) \div 1.8 = ^{\circ}\text{C}$

Celsius to Fahrenheit : $(^{\circ}\text{C} \times 1.8) + 32 = ^{\circ}\text{F}$

An approximate conversion between degrees Celsius and degrees Fahrenheit is as follows :

Fahrenheit to Celsius : Subtract 30 and halve the resulting number.

Celsius to Fahrenheit : Double the number and add 30.