**JAVASCRIPT ASSIGNMENT**

1. Write a program that asks the user for a number n and prints the sum of the numbers from 1 to n.

Code-

<!DOCTYPE html>

<html>

    <head>

        <meta charset="utf-8"/>

        <title>print</title>

    </head>

    <body>

        <script>

            const N= parseInt(prompt("enter a number"));

            let sum = 0, i=1;

            while(i<N) {

                sum+=i;

                i++;

            }

            document.write("sum:",sum);

        </script>

    </body>

</html>

1. Modify the previous program such that only multiples of three or five are considered in the sum.

Code-

<!DOCTYPE html>

<html>

    <head>

        <meta charset="utf-8"/>

        <title>multiples</title>

    </head>

    <body>

        <script>

            const N= parseInt(prompt("enter a number"));

            let sum = 0;

            for( let i=1;i<=N;i++) {

                if(i % 3 === 0 || i % 5 === 0) {

                    sum+=i;

                }

            }

            document.write("multiples of 3 and 5 are:",sum);

        </script>

    </body>

</html>

1. Make a function that returns “even” or “odd” depending on the number passed to it.

Code-

<!DOCTYPE html>

<html>

    <head>

        <meta charset="utf-8"/>

        <title>Even or Odd</title>

    </head>

    <body>

        <script>

            const N= parseInt(prompt("enter a number"));

            if(N%2==0) {

                document.write("even");

            } else {

                document.write("odd");

            }

        </script>

    </body>

</html>

1. Make a function that takes number of flips as parameter and returns the fraction that were heads.

Code-

<!DOCTYPE html>

<html>

    <head>

        <meta charset="utf-8"/>

        <title>Heads</title>

    </head>

    <body>

        <script>

            function coinFlip () {

                return(Math.random() <0.3) ? 'Heads':'Tails';

            }

            const numberofTimes=parseInt(prompt("enter number of flips"));

            var countHeads=0;

            for(var i=0;i<numberofTimes;i++) {

                if(coinFlip()==='Heads') {

                    countHeads++;

                }

            }

            document.write("Heads ratio "+ (numberofTimes)+ " --> "+(countHeads/numberofTimes));

        </script>

    </body>

</html>

1. Write the program that prints the next 20 leap years.

Code-

<!DOCTYPE html>

<html>

    <head>

        <meta charset="utf-8"/>

        <title>Leapyear</title>

    </head>

    <body>

        <script>

            const isLeap = year => {

                return year %400 ===0 ||(year%4===0 && year%100!==0);

            };

            const nextLeap = n => {

                const arr=[];

                let year=new Date().getFullYear()+1;

                while(arr.length<n) {

                    if(isLeap(year++)) {

                        arr.push(year-1);

                    };

                };

                return arr;

            }

            document.write(nextLeap(20));

        </script>

    </body>

</html>

Output-

2024,2028,2032,2036,2040,2044,2048,2052,2056,2060,2064,2068,2072,2076,2080,2084,2088,2092,2096,2104

1. Write a function that takes a list of strings and prints them, one per line, in a rectangular frame.

Code-

<!DOCTYPE html>

<html>

    <head>

        <meta charset="utf-8"/>

        <title>list of strings</title>

    </head>

    <body>

        <script language="JavaScript">

            function printFrame(arr) {

            function fill (str, length, char) {

             return (str.length < length) ? fill(str + char, length, char) : str;

            }

            let size = arr.map((str) =>

            { return str.length; }) .reduce((a, b) =>

            { return Math.max(a, b);

            });

            let line = fill('', size + 4, '\*');

            arr = arr.map((element) =>

            { return '\* '+ fill(element, size, ' ') + ' \*'; })

            arr.unshift(line);

            arr.push(line);

            return arr.join('\n');;

            }

            console.log(printFrame(["Hello", "World", "in", "a", "frame"]));

            </script>

    </body>

</html>

1. Create a simple page that lets users enters a currency value in dollars and convert the value in other currencies.

Code-

<!DOCTYPE html>

<html>

    <body>

        <script>

            currency();

            function currency() {

                var amt= prompt("enter value in dollars:");

                document.write((amt\*74.28)+"INR(Indian Rupees)<br>"+(amt\*109.14)+" Yen(Japanese Yen) <br>"+(amt\*0.84)+"Euro(Euro)<br>"+(amt\*0.72)+" Pound sterling(Pound- sterling)<br>");

            }

        </script>

    </body>

</html>

1. Write a function that concatenates two arrays.

Code-

<!DOCTYPE html>

<html>

    <head>

        <title>arrays</title>

    </head>

<body>

    <p id="concat"></p>

    <script>

        var arr1 = ["a", "b","c"];

        var arr2 = ["1", "2", "3"];

        var array = arr1.concat(arr2);

        document.getElementById("concat").innerHTML = array;

    </script>

</body>

</html>

1. Write a function that combines 2 lists alternatively taking elements.

Code-

<!DOCTYPE html>

<html>

<head>

    <title>Concate</title>

</head>

<body>

    <script>

        let a = [1,2,3];

        let b = ['a', 'b', 'c'];

        var newList = function(a,b)

        {

            let l = a.length+b.length;

            let r = [];

            let j=0,k=0;

            for(let i=0; i<l;i++) {

                if(i%2==0) {

                    r[i]=a[j++];

                } else {

                    r[i]=b[k++];

                }

            }

            return r;

        }

        document.write(newList(a,b));

    </script>

</body>

</html>

1. Write a function that computes the list of first 100 fibonacci numbers.

Code –

<!DOCTYPE html>

<html>

    <head>

        <title>fib</title>

    </head>

    <body>

        <script>

            const number = parseInt(prompt('Enter the number of terms: '));

            let n1 = 0, n2 = 1, nextTerm;

            document.write('Fibonacci Series:');

            for (let i = 1; i <= number; i++) {

                document.write(n1);

                nextTerm = n1 + n2;

                n1 = n2;

                n2 = nextTerm;

            }

        </script>

        </body>

</html>

Output- Fibonacci Series:01123581321345589144233377610987159725844181

1. Write a function that reverses an array of random values .

Code-

<!DOCTYPE html>

<html>

    <body>

        <script>

        var a = [1,2,3,4,5];

        a.reverse();

        document.write(a);

        </script>

        </body>

</html>

1. Write three functions that compute the sum of the numbers in an array: using
2. a for loop,
3. a while-loop,
4. a do-while-loop

code-

1. for loop
2. <!DOCTYPE html>
3. <html>
4. <head>
5. <meta charset="utf=8">
6. <title>loops</title>
7. </head>
8. <body>
9. <p id="demo"></p>
10. <script>
11. var myArray=[1,2,3,4,5,6];
12. var Total=0;
13. for(var i=0;i<myArray.length;i++) {
14. Total+=myArray[i];
15. }
16. document.write(Total);
17. </script>
18. </body>
19. </html>
20. Create an array containing 100 random numbers.
21. Print the largest number amongst the 100.
22. Print the smallest number amongst the 100.
23. Print which count is high even count or odd count.
24. Print the sum and average value.

Code-

<!DOCTYPE html>

<html>

    <head>

        <meta charset="utf-8">

    </head>

    <body>

        <script>

            random();

            function random() {

                var a=[10,48,31,11,6,7,330,28,111,54];

                var max=Math.max(...a);

                var min=Math.min(...a);

                var ev,od,avg,sum=0;

                for(i=0;i<a.length;i++) {

                    sum+=a[i];

                    if(a[i]%2==0)

                    ev++;

                    else

                    od++;

                }

                document.write("maximum="+max+"<br> minimum="+min+" <br>sum="+sum+"<br>average="+sum/a.length+"<br>");

                if(ev>od)

                document.write("even");

                else

                document.write("odd");

            }

        </script>

    </body>

</html>

15.Given an array of size 20 filled with random positive values. Implement the following sorts.

a. bubble sort

code-

<!DOCTYPE html>

<html>

    <head>

        <meta charset="utf-8">

        <title>bubble sort</title>

    </head>

    <body>

        <script>

            function bblSort(arr){

                    for(var i = 0; i < arr.length; i++){

                        for(var j = 0; j < ( arr.length - i -1 ); j++){

                            if(arr[j] > arr[j+1]){

                                var temp = arr[j]

                                arr[j] = arr[j + 1]

                                arr[j+1] = temp

                            }

                        }

                    }

                    document.write(arr);

                }

                var arr = [18,13,6,2,76,92,3,11,61,20,14,17,26,1,12,34,23,7,88,50];

                bblSort(arr);

        </script>

    </body>

</html>

Output- 1,2,3,6,7,11,12,13,14,17,18,20,23,26,34,50,61,76,88,92

16.Create an html page that will prompt the user.

It should take input for the number of rows and the number of columns.

Code-

<!DOCTYPE html>

<html>

    <head>

        <meta charset="utf-8">

        <style type="text/css">

        body {margin: 40px}

        </style>

    </head>

    <body>

        <table id="myTable" border="1"></table>

        <form>

            <input type="button" onclick="createTable()" value="create the table">

        </form>

        <script>

            function createTable() {

                rn=window.prompt("Input number of rows",1);

                cn=window.prompt("Input number of columns",1);

                for(var r=0;r<parseInt(rn,10);r++) {

                    var x=document.getElementById('myTable').insertRow(r);

                    for(var c=0;c<parseInt(cn,10);c++) {

                        var y=x.insertCell(c);

                        y.innerHTML="Row-"+r+","+"Column-"+c;

                    }

                }

            }

        </script>

    </body>

</html>

17. Write a function that rotates a list by k elements.

Code-

<!DOCTYPE html>

<html>

    <head>

        <meta charset="utf-8">

        <title>Array rotation</title>

    </head>

    <body>

        <script>

            const Array=[1,2,3,4,5,6];

            var a=Array.shift();

            Array.push(a);

            document.write(Array);

        </script>

    </body>

</html>

19. Design a simple calculator with a text field and buttons for values 0,1,2….9. and symbols +, -, \*, /, =.

Code-

<!DOCTYPE html>

<html lang = "en">

    <head>

        <title> JavaScript Calculator </title>

        <style>

            h1 {

                text-align: center;

                padding: 23px;

                background-color: rgb(62, 185, 233);

                color: white;

            }

            #clear{

                width: 270px;

                border: 3px solid rgb(17, 17, 17);

                border-radius: 3px;

                padding: 20px;

                background-color: red;

            }

            .formstyle {

                width: 300px;

                height: 530px;

                margin: auto;

                border: 3px solid rgb(35, 121, 155);

                border-radius: 5px;

                padding: 20px;

            }

            input {

                width: 20px;

                background-color:mistyrose;

                color:black;

                border: 3px solid rgb(10, 10, 10);

                border-radius: 5px;

                padding: 26px;

                margin: 5px;

                font-size: 15px;

            }

            #calc{

                width: 250px;

                border: 5px solid black;

                border-radius: 3px;

                padding: 20px;

                margin: auto;

                }

        </style>

    </head>

<body>

    <h1> Calculator Program in JavaScript </h1>

    <div class= "formstyle">

        <form name = "form1">

            <input id = "calc" type ="text" name = "answer"> <br><br>

            <input type = "button" value = "1" onclick = "form1.answer.value += '1' ">

            <input type = "button" value = "2" onclick = "form1.answer.value += '2' ">

            <input type = "button" value = "3" onclick = "form1.answer.value += '3' ">

            <input type = "button" value = "+" onclick = "form1.answer.value += '+' ">

            <br> <br>

            <input type = "button" value = "4" onclick = "form1.answer.value += '4' ">

            <input type = "button" value = "5" onclick = "form1.answer.value += '5' ">

            <input type = "button" value = "6" onclick = "form1.answer.value += '6' ">

            <input type = "button" value = "-" onclick = "form1.answer.value += '-' ">

            <br> <br>

            <input type = "button" value = "7" onclick = "form1.answer.value += '7' ">

            <input type = "button" value = "8" onclick = "form1.answer.value += '8' ">

            <input type = "button" value = "9" onclick = "form1.answer.value += '9' ">

            <input type = "button" value = "\*" onclick = "form1.answer.value += '\*' ">

            <br> <br>

            <input type = "button" value = "/" onclick = "form1.answer.value += '/' ">

            <input type = "button" value = "0" onclick = "form1.answer.value += '0' ">

            <input type = "button" value = "." onclick = "form1.answer.value += '.' ">

            <input type = "button" value = "=" onclick = "form1.answer.value = eval(form1.answer.value)">

            <br>

            <input type = "button" value = "Clear All" onclick = "form1.answer.value = ' ' " id= "clear" >

            <br>

        </form>

    </div>

</body>

</html>