Experiment No 1

onst prompt=require('prompt-sync') ();

function calculateTriangleArea(base, height) {

    return 0.5 \* base \* height;

  }

  function calculateRectangleArea(length, width) {

    return length \* width;

  }

  function calculateCircleArea(radius) {

    return Math.PI \* radius \* radius;

  }

  const triangleBase = parseFloat(prompt("Enter the base of the triangle: "));

  const triangleHeight = parseFloat(prompt("Enter the height of the triangle: "));

  const triangleArea = calculateTriangleArea(triangleBase, triangleHeight);

  console.log("Area of the triangle: "+triangleArea);

  const rectangleLength = parseFloat(prompt("Enter the length of the rectangle: "));

  const rectangleWidth = parseFloat(prompt("Enter the width of the rectangle: "));

  const rectangleArea = calculateRectangleArea(rectangleLength, rectangleWidth);

  console.log("Area of the Rectangle: "+rectangleArea);

  const circleRadius = parseFloat(prompt("Enter the radius of the circle: "));

  const circleArea = calculateCircleArea(circleRadius);

  console.log("Area of the Circle: "+circleArea);

Experiment No 2

const prompt=require('prompt-sync')();

function multTable(num) {

    for (let i = 1; i <= 10; i++) {

      const res = num \* i;

      console.log(`${num} x ${i} = ${res}`);

    }

  }

  let n = prompt("Enter a Number");

  multTable(n);

Experiment No 3

3.1] Reverse A String

const prompt = require('prompt-sync')();

function revStr(input) {

    return input.split('').reverse().join('');

}

let str = prompt("Enter A String To Reverse")

let reversedStr = revStr(strToReverse);

console.log("Original String:", str);

console.log("Reversed String:", reversedStr);

3.2]Replace A Character

function replaceChars(input, search, replace) {

    return input.split(search).join(replace);

}

const str = "Programming is fun!";

const searchChar = 'm';

const replaceChar = 'X';

const replacedStr = replaceChars(str, searchChar, replaceChar);

console.log("Original String:", str);

console.log("Replaced String:", replacedStr);

3.3]Checking Palindrome String

const prompt = require('prompt-sync')();

function revStr(input) {

    return input.split('').reverse().join('');

}

function isPalin(input) {

    let original = input.toLowerCase();

    console.log("Original String is : "+original);

    let reversed = revStr(original).toLowerCase();

    console.log("Reversed String is : "+reversed);

    if (original===reversed) {

        console.log("String Is Palindrome");

    } else {

        console.log("String Is Not Palindrome");

    }

}

let str = prompt("Enter A String : ")

isPalin(str);

Experiment No 4

Method 1: Using toUpperCase()

const string1 = 'JavaScript Program';

const string2 = 'javascript program';

const result = string1.toUpperCase() === string2.toUpperCase();

if(result) {

    console.log('The strings are similar.');

} else {

    console.log('The strings are not similar.');

}

Method 2: JS String Comparison Using RegEx

const string1 = 'JavaScript Program';

const string2 = 'javascript program';

const pattern = new RegExp(string1, "gi");

const result = pattern.test(string2)

if(result) {

    console.log('The strings are similar.');

} else {

    console.log('The strings are not similar.');

}

Method 3: Using localeCompare()

const string1 = 'JavaScript Program';

const string2 = 'javascript program';

const result = string1.localeCompare(string2, undefined, { sensitivity: 'base' });

if(result == 0) {

    console.log('The strings are similar.');

} else {

    console.log('The strings are not similar.');

}

Exp 5

<!DOCTYPE html>

<html>

<head>

<title>Countdown Timer</title>

</head>

<body>

<div id="timer"></div>

<script>

let countDownDate = new Date().getTime() + 24 \* 60 \* 60 \* 1000;

let x = setInterval(function () {

let now = new Date().getTime();

let timeLeft = countDownDate - now;

//const days = Math.floor(timeLeft / (1000 \* 60 \* 60 \* 24));

//const hours = Math.floor((timeLeft / (1000 \* 60 \* 60)) % 24);

//const minutes = Math.floor((timeLeft / 1000 / 60) % 60);

const seconds = Math.floor((timeLeft / 1000) % 60);

var a=document.getElementById("timer");

a.innerHTML=seconds + "s ";

// If the count down is finished, write some text

if (distance < 0) {

clearInterval(x);

document.getElementById("demo").innerHTML = "EXPIRED";

}

}, 1000);

</script>

</body>

</html>

Exp6

<!DOCTYPE html>

<html>

<head>

<title>Array Operations</title>

<script>

// Create an array

let arr = [1, 2, 3, 4, 5];

// Remove specific element from the array

function removeElement() {

let element = parseInt(document.getElementById("removeElement").value);

let index = arr.indexOf(element);

if (index > -1) {

arr.splice(index, 1);

document.write("Element Removed ", element);

document.write("Now the Array is: ", arr);

} else {

document.write("Number not found in Array")

}

}

// Check if an array contains a specified value

function checkValue() {

let value = parseInt(document.getElementById("checkValue").value);

document.write(arr);

if (arr.includes(value)) {

document.write("Array contains the value: ", value);

} else {

document.write("Array does not contain the value: ", value);

}

}

// Empty an array

function emptyArray() {

arr = [];

document.write("Array is Empty");

}

</script>

</head>

<body>

<h1>Array Operations</h1>

<p>Array: [1, 2, 3, 4, 5]</p>

<h2>Remove Specific Element from Array</h2>

<label for="removeElement">Enter element to remove:</label>

<input type="number" id="removeElement">

<button onclick="removeElement()">Remove</button>

<h2>Check if Array Contains Specified Value</h2>

<label for="checkValue">Enter value to check:</label>

<input type="number" id="checkValue">

<button onclick="checkValue()">Check</button>

<h2>Empty Array</h2>

<button onclick="emptyArray()">Empty</button>

</body>

</html>

Exp 7

<!DOCTYPE html>

<html lang="en">

<head>

<title>Array Objects</title>

</head>

<body>

<br>

<h1>Array Objects</h1>

<label for="fields">Enter the object fields separated by space: </label>

<input type="text" name="fields" id="fields"/>

<br><br>

<button type="button" onclick="addArrayFields()">Submit</button>

<h4 style="color: red" id="arrFields">Array Object: ? </h4>

<br>

<h2>Enter Values in Array Object</h2>

<br>

<label for="arrval">Enter the values sequentially in array object separated by space : </label>

<input type="text" name="arrval" id="arrval"/>

<br><br>

<button type="button" onclick="addArrayValues()">Add</button>

<h4 style="color: red" id="arrObj">Array Object ?</h4>

<br>

<h2>Check if Object is an Array</h2>

<br>

<button type="button" onclick="checkArrayObject()">Check</button>

<h4 style="color: red" id="arrChk">Object? </h4>

<br>

<script type="text/javascript">

var arrobj = [];

function addArrayFields(){

var af = document.getElementById('fields').value;

var arr = af.split(' ');

var obj = {};

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

obj[arr[i]] = "";

}

arrobj.push(obj);

let str = JSON.stringify(arrobj);

document.getElementById('arrFields').innerHTML="Array Object: "+ str;

}

function addArrayValues(){

var af = document.getElementById('fields').value;

var av = document.getElementById('arrval').value;

var arrf = af.split(' ');

var arrv = av.split(' ');

var obj = {};

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

obj[arrf[i]] = arrv[i];

}

arrobj.push(obj);

let str = JSON.stringify(arrobj);

document.getElementById('arrObj').innerHTML="Array Object: "+str;

}

function checkArrayObject(){

if (Array.isArray(arrobj)){

document.getElementById('arrChk').innerHTML = "Array Object: " + JSON.stringify(arrobj);

}

else{

document.getElementById('arrChk').innerHTML="Given Object is not an Array";

}

}

</script>

</body>

</html>

Exp 8

<html>

<head>

<script type="text/javascript">

let set1 = new Set([1, 2, 3, 4, 5]);

let set2 = new Set([4, 5, 6, 7, 8]);

let unionSet = new Set([...set1, ...set2]);

console.log("Union of set1 and set2: ", unionSet);

// Intersection of two sets

let intersectionSet = new Set([...set1].filter(x => set2.has(x)));

console.log("Intersection of set1 and set2: ", intersectionSet);

// Difference of two sets

let differenceSet = new Set([...set1].filter(x => !set2.has(x)));

console.log("Difference of set1 and set2: ", differenceSet);

// Set difference of two sets

let setDifference1 = new Set([...set1].filter(x => !set2.has(x)));

let setDifference2 = new Set([...set2].filter(x => !set1.has(x)));

let setDifference = new Set([...setDifference1, ...setDifference2]);

console.log("Set difference of set1 and set2: ", setDifference)

</script>

</head>

</html>

Exp 9

<!DOCTYPE html>

<html>

<head>

<title>Home Page</title>

<style>

body {

background-color: white;

}

button {

background-color: blue;

color: white;

padding: 10px;

border: none;

cursor: pointer;

}

button:hover, button:focus {

background-color: rgb(69, 10, 10);

}

</style>

</head>

<body>

<h1>Welcome to my website!</h1>

<p>Here you will find all sorts of interesting things.</p>

<button>Change background color</button>

<script>

const button = document.querySelector('button');

button.addEventListener('mouseover', () => {

document.body.style.backgroundColor = 'pink';

});

button.addEventListener('focus', () => {

document.body.style.backgroundColor = 'blue';

});

</script>

</body>

</html