

Note- build html code by yourself.

1.addition of two number in message box

```
<!DOCTYPE html>

<html lang="en">

<head>

  <meta charset="UTF-8">

  <meta name="viewport" content="width=device-width, initial-scale=1.0">

  <title>Addition in Message Box</title>

</head>

<body>


  <button onclick="addNumbers()">Add Numbers</button>


  <script>

    function addNumbers() {

      // Taking two numbers as input

      const num1 = parseFloat(prompt("Enter the first number:"));

      const num2 = parseFloat(prompt("Enter the second number:"));


      // Calculating the sum

      const sum = num1 + num2;


      // Displaying the result in an alert box

      alert("The sum of " + num1 + " and " + num2 + " is: " + sum);

    }

  </script>


</body>

</html>
```

program replacing the one string to another string

```
function replaceString(originalString, target, replacement) {  
    // Create a regular expression to find all occurrences of the target string  
    const regex = new RegExp(target, 'g');  
    return originalString.replace(regex, replacement);  
}  
  
// Example usage:  
const text = "Hello, world! Welcome to the world of JavaScript.";  
const target = "world";  
const replacement = "universe";  
  
const result = replaceString(text, target, replacement);  
console.log(result);  
// Output: "Hello, universe! Welcome to the universe of JavaScript."
```

Find Consecutive Repeated Words

Problem Statement: Find and return all consecutive repeated words in a string.

```
function findRepeatedWords(text) {  
    const regex = /\b(\w+)\s+\1\b/gi;  
    return text.match(regex);  
}  
  
console.log(findRepeatedWords("This is is a test test example.")); // ['is is', 'test test']
```

Remove Non-Alphanumeric Characters

Problem Statement: Remove all characters except letters and numbers from a string.

```
function removeNonAlphanumeric(str) {  
    const regex = /^[a-zA-Z0-9]/g;  
    return str.replace(regex, '');  
}  
  
console.log(removeNonAlphanumeric("Hello@World!123")); // 'HelloWorld123'
```

Validate Date Format (DD/MM/YYYY)

Problem Statement: Validate if a date is in the format

```
function validateDate(date) {  
    const regex = /^(0[1-9] | [12][0-9] | 3[01])\/(0[1-9] | 1[0-2])\d{4}$/;  
    return regex.test(date);  
}  
  
console.log(validateDate("25/12/2024")); // true  
console.log(validateDate("2024-12-25")); // false
```

Replace Multiple Spaces with Single Space

Problem Statement: Replace multiple consecutive spaces in a string with a single space.

```
function normalizeSpaces(str) {  
  const regex = /\s+/g;  
  return str.replace(regex, ' ');  
}  
  
console.log(normalizeSpaces("Hello  World! How are  you?")); // "Hello World! How are you?"
```

Extract All Numbers from a String

Problem Statement: Extract all numbers from a string

```
function extractNumbers(str) {  
  const regex = /\d+/g;  
  return str.match(regex);  
}  
  
console.log(extractNumbers("The price is 123 dollars and 45 cents.")); // ['123', '45']
```

Validate Password Strength

Problem Statement: Validate if a password meets the criteria: at least 8 characters, one uppercase, one number, and one special character.

```
function validatePassword(password) {  
  const regex = /^(?=.*[A-Z])(?=.*\d)(?=.*[@$!%*?&])[A-Za-z\d@$!%*?&]{8,}$/;  
  return regex.test(password);  
}  
  
console.log(validatePassword("P@ssw0rd")); // true  
  
console.log(validatePassword("weak")); // false
```

Count Vowels in a String

Problem Statement: Count the number of vowels in a string using Regex.

```
function countVowels(str) {  
  const regex = /[aeiou]/gi;  
  const matches = str.match(regex);  
  return matches ? matches.length : 0;  
}  
console.log(countVowels("Hello World")); // 3
```

Extract Domain from Email

Problem Statement: Extract the domain name from an email address.

```
function extractDomain(email) {  
  const regex = /@([a-zA-Z0-9.-]+\.)\./;  
  const match = email.match(regex);  
  return match ? match[1] : null;  
}  
console.log(extractDomain("user@example.com")); // 'example'
```

Check for Palindrome Words

Problem Statement: Check if a word is a palindrome ignoring case and special characters.

```
function isPalindrome(word) {  
    const cleanWord = word.toLowerCase().replace(/[^a-z]/g, "");  
    return cleanWord === cleanWord.split("").reverse().join("");  
}  
  
console.log(isPalindrome("Madam")); // true  
console.log(isPalindrome("Hello")); // false
```

Find All Words Starting with a Capital Letter

Problem Statement: Extract all words that start with a capital letter from a given string.

```
function extractCapitalWords(sentence) {  
    const regex = /\b[A-Z][a-z]*\b/g;  
    return sentence.match(regex);  
}  
  
console.log(extractCapitalWords("Hello World from JavaScript")); // ['Hello', 'World', 'JavaScript']
```

Validate Phone Number

Problem Statement: Validate a phone number format (e.g., (123) 456-7890 or 123-456-7890).

```
function validatePhoneNumber(phone) {  
    const regex = /^(\(\d{3}\)|\d{3})[- ]?\d{3}[- ]?\d{4}$/;  
    return regex.test(phone);  
}  
  
console.log(validatePhoneNumber("(123) 456-7890")); // true  
console.log(validatePhoneNumber("1234567890"));    // false
```

Validate Email Address

Problem Statement: Write a program to validate an email address using a regular expression.

```
function validateEmail(email) {  
    const regex = /^[a-zA-Z0-9._%+-]+@[a-zA-Z0-9.-]+\.[a-zA-Z]{2,}$/;  
    return regex.test(email);  
}  
  
console.log(validateEmail("test@example.com")); // true  
console.log(validateEmail("invalid-email"));    // false
```

Program to Find the Largest Number

Problem Statement: Write a program to find the largest number from a set of numbers.

```
function findLargestNumber(numbers) {  
    return Math.max(...numbers);  
}  
  
// Example usage:  
const numbers = [12, 34, 56, 23, 78];  
console.log("The largest number is:", findLargestNumber(numbers));
```

Program to Reverse a String

Problem Statement: Write a program to reverse a string

```
function reverseString(str) {  
    return str.split("").reverse().join("");  
}  
  
// Example usage:  
const str = "Hello, World!";  
console.log("Reversed string:", reverseString(str));
```

Program to Check If a Number Is Even or Odd

Problem Statement: Write a program to check if a number is even or odd.

```
function checkEvenOdd(number) {  
    return number % 2 === 0 ? "Even" : "Odd";  
}
```



```
}

// Example usage:
const number = 7;
console.log(number + " is " + checkEvenOdd(number));
```

Program to Calculate Factorial of a Number

Problem Statement: Write a program to calculate the factorial of a number.

```
function factorial(n) {
  if (n === 0 || n === 1) {
    return 1;
  }
  return n * factorial(n - 1);
}
```

```
// Example usage:
const num = 5;
console.log("Factorial of " + num + " is:", factorial(num));
```

Program to Count Occurrences of a Character in a String

Problem Statement: Write a program to count how many times a specific character appears in a string.

```
function countCharacter(str, char) {  
    return str.split(char).length - 1;  
}  
  
// Example usage:  
const sentence = "JavaScript is awesome!";  
const character = 'a';  
console.log("The character '" + character + "' appears " + countCharacter(sentence, character) + " times.");
```

Program to Sum Numbers in an Array

```
function sumArray(numbers) {  
    return numbers.reduce((acc, num) => acc + num, 0);  
}  
  
// Example usage:  
const numbers = [1, 2, 3, 4, 5];  
console.log("Sum of numbers:", sumArray(numbers));
```

Program to Check Prime Number

Problem Statement: Write a program to check if a number is prime.

```
function isPrime(num) {
```

```
if (num <= 1) return false;

for (let i = 2; i <= Math.sqrt(num); i++) {
    if (num % i === 0) return false;
}

return true;
}

// Example usage:
const num = 29;
console.log(num + " is prime:", isPrime(num));
```

Program to Convert Celsius to Fahrenheit

Problem Statement: Write a program to convert Celsius to Fahrenheit.

```
function celsiusToFahrenheit(celsius) {
    return (celsius * 9/5) + 32;
}

// Example usage:
const celsius = 30;
console.log(celsius + "°C is " + celsiusToFahrenheit(celsius) + "°F.");
```

Program to Change Background Color on Button Click

Problem Statement: Write a program that changes the background color of the page to a random color each time a button is clicked.

```
<!DOCTYPE html>
```

```
<html lang="en">

<head>

  <meta charset="UTF-8">

  <meta name="viewport" content="width=device-width, initial-scale=1.0">

  <title>Change Background Color</title>

</head>

<body>


  <button onclick="changeBackgroundColor()">Change Background Color</button>


  <script>

    // Function to generate a random hex color code

    function getRandomColor() {

      const letters = '0123456789ABCDEF';

      let color = '#';

      for (let i = 0; i < 6; i++) {

        color += letters[Math.floor(Math.random() * 16)];

      }

      return color;

    }

    // Function to change the background color

    function changeBackgroundColor() {

      document.body.style.backgroundColor = getRandomColor();

    }

  </script>


</body>

</html>
```

Change Text Color on Button Click

Problem Statement: Change the text color of a paragraph when a button is clicked.

```
<!DOCTYPE html>

<html lang="en">

<head>

  <meta charset="UTF-8">

  <meta name="viewport" content="width=device-width, initial-scale=1.0">

  <title>Change Text Color</title>

</head>

<body>


  <p id="text">Click the button to change my color!</p>

  <button onclick="changeTextColor()">Change Text Color</button>


  <script>

    function changeTextColor() {

      document.getElementById("text").style.color = "#" + Math.floor(Math.random()*16777215).toString(16);

    }

  </script>


</body>

</html>
```

Increase Font Size on Button Click

Problem Statement: Increase the font size of a paragraph when a button is clicked.

```
<!DOCTYPE html>

<html lang="en">

<head>

  <meta charset="UTF-8">

  <meta name="viewport" content="width=device-width, initial-scale=1.0">

  <title>Increase Font Size</title>

</head>

<body>


  <p id="text">Click the button to increase my font size!</p>

  <button onclick="increaseFontSize()">Increase Font Size</button>


  <script>

    function increaseFontSize() {

      let text = document.getElementById("text");

      let currentSize = window.getComputedStyle(text).fontSize;

      currentSize = parseInt(currentSize);

      text.style.fontSize = (currentSize + 2) + "px";

    }

  </script>


</body>

</html>
```

Create a Countdown Timer

Problem Statement: Create a countdown timer that updates every second and displays the remaining time.

```
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <title>Countdown Timer</title>
</head>
<body>
  <h1>Countdown Timer</h1>
  <p id="timer">10</p>

  <script>
    let timeLeft = 10;

    function updateTimer() {
      document.getElementById("timer").innerText = timeLeft;
      timeLeft--;
      if (timeLeft < 0) {
        clearInterval(timerInterval);
        document.getElementById("timer").innerText = "Time's up!";
      }
    }

    // Call updateTimer every second
    let timerInterval = setInterval(updateTimer, 1000);
  </script>
</body>
</html>
```