



JS

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## JavaScript Challenges (strings, arrays, and date/time)

1. Check for Anagrams: Write a function that takes two strings as input and returns true if the two strings are anagrams (meaning they contain the same letters in a different order).
2. Slice an Array: Write a function that takes an array and two indices as input and returns a new array that contains the elements between the two indices.
3. Split a String into Words: Write a function that takes a string as input and returns an array of the words in that string.
4. Calculate the Age Based on a Date of Birth: Write a function that takes a date of birth as input and returns the age of the person as of today.
5. Check if a String is a Valid Email Address: Write a function that takes a string as input and returns true if the string is a valid email address.
6. Replace All Occurrences of a Substring in a String: Write a function that takes a string, a substring, and a replacement string as input, and returns the same string with all occurrences of the substring replaced with the replacement string.
7. Find the Second Smallest Value in an Array: Write a function that takes an array of numbers as input and returns the second smallest value in that array.
8. Find the Difference Between Two Arrays: Write a function that takes two arrays as input and returns an array that contains the elements that are in the first array but not in the second array.
9. Format a Time Duration: Write a function that takes a time duration (in seconds) as input and returns a formatted string in the format of "X hours, Y minutes, Z seconds".
10. Convert a String to CamelCase: Write a function that takes a string as input and returns the same string in CamelCase (meaning each word is capitalized except for the first word).

Answer :

## 1. Check for Anagrams

```
<body>
  <label >Enter string 1:</label>
  <input type="text" id="string1" name="string1"><br><br>

  <label >Enter string 2:</label>
  <input type="text" id="string2" name="string2"><br><br>

  <button onclick="check()">Check string</button><br><br>

  <p id="result"></p>

  <script>
    function check() {
      let string1 = document.getElementById("string1").value;
      let string2 = document.getElementById("string2").value;

      if (checkAnagram(string1, string2)) {
        document.getElementById("result").innerHTML = "The two strings are anagrams.";
      } else {
        document.getElementById("result").innerHTML = "The two strings are not anagrams.";
      }
    }

    function checkAnagram(str1, str2) {
      // remove any non-alphabetic characters and convert to lowercase
      str1 = str1.replace(/[^a-zA-Z]/g, '').toLowerCase();
      str2 = str2.replace(/[^a-zA-Z]/g, '').toLowerCase();

      // check if the two strings have the same length
      if (str1.length !== str2.length) {
        return false;
      }

      // sort the characters of the two strings and compare them
      return str1.split('').sort().join('') === str2.split('').sort().join('');
    }
  </script>
</body>
```

## 2. Slice an Array:

```
<head>
|   <title>Slice an Array</title>
</head>

<body>
|   <h1>Slice an Array</h1>

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

|   <p>Result: <span id="result"></span></p>

|   <script>
|       function sliceArray(arr, startIndex, endIndex) {
|           return arr.slice(startIndex, endIndex + 1);
|       }

|       let arr = [1, 2, 3, 4, 5];
|       let result = sliceArray(arr, 1, 3);

|       document.getElementById("result").innerHTML = result;
|   </script>
```

### 3. Split a String into Words

```
<!DOCTYPE html>
<html>

<head>
  <title>Split a String into Words</title>
  <meta charset="utf-8">
  <meta name="viewport" content="width=device-width, initial-scale=1">
  <script>
    function splitStringIntoWords(str) {
      return str.split(" ");
    }

    function splitString() {
      let inputString = document.getElementById("inputString").value;
      let wordsArray = splitStringIntoWords(inputString);
      document.getElementById("outputWords").innerHTML = wordsArray.join(", ");
    }
  </script>
</head>

<body>
  <h2>Split a String into Words</h2>
  <p>Enter a string:</p>
  <input type="text" id="inputString" placeholder="Type your string here...">
  <button onclick="splitString()">Split</button>
  <p>The words in the string are:</p>
  <p id="outputWords"></p>
</body>

</html>
```

## 4. Calculate the Age Based on a Date of Birth:

```
<!DOCTYPE html>
<html>

<head>
  <meta charset="utf-8">
  <title>Calculate Age</title>
</head>

<body>
  <h1>Calculate Age</h1>
  <label for="dob">Enter your date of birth:</label>
  <input type="date" id="dob">
  <button onclick="calculateAge()">Calculate</button>
  <div id="result"></div>

  <script>
    function calculateAge() {
      // Get today's date
      let today = new Date();

      // Get the date of birth from the input field
      let dob = new Date(document.getElementById("dob").value);

      // Calculate the age based on the difference between today and the date of birth
      let age = today.getFullYear() - dob.getFullYear();

      // If the birthday hasn't happened yet this year, subtract one from the age
      let month = today.getMonth() - dob.getMonth();
      if (month < 0 || (month === 0 && today.getDate() < dob.getDate())) {
        age--;
      }

      // Display the age on the page
      document.getElementById("result").innerHTML = "Your age is " + age;
    }
  </script>
</body>
```

## 5. Check if a String is a Valid Email Address:

```
<head>
|   <title>Validate Email Address</title>
</head>

<body>
|   <label for="email">Enter Email Address:</label>
|   <input type="text" id="email" name="email">
|   <button onclick="validateEmail()">Submit</button>
|   <p id="result"></p>

|   <script>
|       function validateEmail() {
|           const email = document.getElementById("email").value;
|           const regex = /\S+@\S+\.\S+\/;
|
|           if (regex.test(email)) {
|               document.getElementById("result").innerHTML = "Valid Email Address";
|           } else {
|               document.getElementById("result").innerHTML = "Invalid Email Address";
|           }
|       }
|   </script>
</body>
```

## 6. Replace All Occurrences of a Substring in a String:

```
<!DOCTYPE html>
<html>
  <head>
    <meta charset="UTF-8">
    <title>Replace Substring Example</title>
  </head>
  <body>
    <script>
      function replaceSubstring(string, substring, replacement) {
        return string.split(substring).join(replacement);
      }

      // Example usage
      let originalString = "This is a test string";
      let newString = replaceSubstring(originalString, "test", "replacement");

      console.log(originalString); // Output: "This is a test string"
      console.log(newString); // Output: "This is a replacement string"
    </script>
  </body>
</html>
```



## 7. Find the Second Smallest Value in an Array:

```
<!DOCTYPE html>
<html>

<head>
  <meta charset="UTF-8">
  <title>Second Smallest Value in an Array</title>
</head>

<body>
  <h1>Second Smallest Value in an Array</h1>

  <script>
    function secondSmallest(numbers) {
      numbers.sort(function (a, b) {
        return a - b;
      });

      return numbers[1];
    }

    var myArray = [4, 7, 2, 1, 5];
    var secondSmallestValue = secondSmallest(myArray);

    document.write("The second smallest value in the array is: " + secondSmallestValue);
  </script>
</body>
```

## 8. Find the Difference Between Two Arrays:

```
<head>
  <title>Find Difference Between Two Arrays</title>
</head>

<body>
  <h1>Find Difference Between Two Arrays</h1>
  <script>
    function findDifference(arr1, arr2) {
      // Create an empty array to store the difference
      var diff = [];

      // Loop through the first array
      for (var i = 0; i < arr1.length; i++) {
        // Check if the current element is not in the second array
        if (arr2.indexOf(arr1[i]) === -1) {
          // Add the current element to the difference array
          diff.push(arr1[i]);
        }
      }

      // Return the difference array
      return diff;
    }

    // Example usage
    var array1 = [1, 2, 3, 4, 5];
    var array2 = [3, 5, 7, 9];
    var difference = findDifference(array1, array2);
    console.log(difference); // [1, 2, 4]

    // Display the result on the web page
    document.write("<p>The difference between [" + array1 + "] and [" + array2 + "] is: [" + difference + "]</p>");
  </script>
```

## 9. Format a Time Duration:

```
<!DOCTYPE html>
<html>

<head>
  <title>Time Duration Formatter</title>
</head>

<body>
  <h1>Time Duration Formatter</h1>
  <p>Enter time duration in seconds:</p>
  <input type="number" id="duration">
  <button onclick="formatDuration()">Format</button>
  <p id="result"></p>

  <script>
    function formatDuration() {
      // Get input value
      const duration = document.getElementById('duration').value;

      // Call the function to format duration
      const formattedDuration = formatTimeDuration(duration);

      // Display the formatted duration in the result paragraph
      document.getElementById('result').innerHTML = formattedDuration;
    }

    function formatTimeDuration(duration) {
      // Function code here
    }
  </script>
</body>

</html>
```

## 10. Convert a String to CamelCase:

```
<!DOCTYPE html>
<html>

<head>
  <title>Convert String to CamelCase</title>
  <script>
    function toCamelCase(str) {
      let words = str.split(/[_-]/);
      let capitalizedWords = words.map(function (word, index) {
        if (index === 0) {
          return word;
        }
        return word.charAt(0).toUpperCase() + word.slice(1);
      });
      return capitalizedWords.join("");
    }

    function convert() {
      let input = document.getElementById("input").value;
      let output = toCamelCase(input);
      document.getElementById("output").innerHTML = output;
    }
  </script>
</head>

<body>
  <h1>Convert String to CamelCase</h1>
  <label for="input">Enter a string:</label>
  <input type="text" id="input">
  <button onclick="convert()">Convert</button>
  <br>
  <label for="output">Output:</label>
  <span id="output"></span>
</body>
```