Web business activity

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Activity 1

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

Web II Lab | SE & IT Dept. – Level 3

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)

1- Check for Anagram:

code

```javascript
function checkAnagram(str1, str2) {

  if (str1.length !== str2.length) {
    return false;
  }

  const freqCounter1 = {};
  const freqCounter2 = {};

  for (let char of str1) {
    freqCounter1[char] = (freqCounter1[char] || 0) + 1;
  }

  for (let char of str2) {
    freqCounter2[char] = (freqCounter2[char] || 0) + 1;
  }

  for (let key in freqCounter1) {
    if (!(key in freqCounter2)) {
      return false;
    }

    if (freqCounter1[key] !== freqCounter2[key]) {
      return false;
    }
  }

  return true;
}
```

2-Slice an Array

```javascript
code function sliceArray(arr, start, end) {

  return arr.slice(start, end + 1);
}
```

3-Split a String into Words

```
code function splitStringIntoWords(str) {

    return str.split(" ");
  }
```

4-Calculate the Age Based on a Date of Birth

```
code function calculateAge(dateOfBirth) {

    const today = new Date();
    const birthDate = new Date(dateOfBirth);

    let age = today.getFullYear() - birthDate.getFullYear();
    const monthDiff = today.getMonth() - birthDate.getMonth();

    if (monthDiff < 0 || (monthDiff === 0 && today.getDate() <
birthDate.getDate())) {
      age--;
    }

    return age;
  }
```

5-Check if a String is a Valid Email Address

```
//code

function isValidEmail(email) {

    const emailRegex = /^[^\s@]+@[^\s@]+\.[^\s@]+$/;
    return emailRegex.test(email);
  }
```

6-Replace All Occurrences of a Substring in a String

```
code

function replaceAllOccurrences(str, substring, replacement) {

    return str.split(substring).join(replacement);
  }
```

7-Find the Second Smallest Value in an Array

Code

```javascript
function findSecondSmallest(arr) {
    if (arr.length < 2) {
      return null;
    }

    let smallest = arr[0];
    let secondSmallest = null;

    for (let i = 1; i < arr.length; i++) {
      if (arr[i] < smallest) {
        secondSmallest = smallest;
        smallest = arr[i];
      } else if (arr[i] < secondSmallest || secondSmallest === null) {
        secondSmallest = arr[i];
      }
    }

    return secondSmallest;
}
```

8-Find the Difference Between Two Arrays

Code

```javascript
function findArrayDifference(arr1, arr2) {
    const difference = [];

    for (let elem of arr1) {
      if (!arr2.includes(elem)) {
        difference.push(elem);
      }
    }

    return difference;
}
```

9-Format a Time Duration

code

```javascript
function formatDuration(duration) {
    var hours = Math.floor(duration / 3600);
    var minutes = Math.floor((duration % 3600) / 60);
    var seconds = duration % 60;

    var result = '';
    if (hours > 0) {
      result += hours + ' hour' + (hours > 1 ? 's' : '') + ', ';
    }
    if (minutes > 0) {
      result += minutes + ' minute' + (minutes > 1 ? 's' : '') + ', ';
    }
    result += seconds + ' second' + (seconds > 1 ? 's' : '');

    return result;
  }
```

10-Convert a String to CamelCase

code

```javascript
function toCamelCase(str) {
    var words = str.split(' ');
    var camelCase = words[0].toLowerCase();

    for (var i = 1; i < words.length; i++) {
      var word = words[i];
      camelCase += word.charAt(0).toUpperCase() +
word.slice(1).toLowerCase();
    }

    return camelCase;
  }
```

Activity 2

You are required to make a to-do list of html (you use a checkbox). GetElementsByClassName, because with you more than one element, the click event. The checkbox brings you two values. True and false. CSS

```html
<!DOCTYPE html>
  <html>
    <head>
      <title>Checkbox Lists Example</title>
      <style>
        .list li {
          text-decoration: none;
        }

        .list li.checked {
          text-decoration: line-through;
        }
      </style>
    </head>
    <body>
      <ul class="list">
        <li><input type="checkbox">Item 1</li>
        <li><input type="checkbox">Item 2</li>
        <li><input type="checkbox">Item 3</li>
        <li><input type="checkbox">Item 4</li>
      </ul>

      <script>
        // Get all list items with class "list"
        var lists = document.getElementsByClassName("list");

        // Loop through each list
        for (var i = 0; i < lists.length; i++) {
          // Get all checkboxes in the list
          var checkboxes = lists[i].getElementsByTagName("input");

          // Loop through each checkbox
          for (var j = 0; j < checkboxes.length; j++) {
            // Add a click event listener to the checkbox
            checkboxes[j].addEventListener("click", function() {
              // Get the parent list item
```

```
          var listItem = this.parentNode;

          // Toggle the "checked" class on the list item
          if (this.checked) {
            listItem.classList.add("checked");
          } else {
            listItem.classList.remove("checked");
          }
        });
      }
    }
  </script>
 </body>
</html>
```