**Task 1: Fibonacci Numbers**

Write a program that outputs the first 15 numbers of the Fibonacci sequence. The Fibonacci sequence starts with the numbers 0 and 1, and each subsequent number is the sum of the previous two.

**Hint:** Use a for loop and two variables to store the last two numbers in the sequence.

**Example output:**

// Expected output: 0, 1, 1, 2, 3, 5, 8, 13, 21, 34, 55, 89, 144, 233, 377

**Task 2: Sum of Digits**

Write a program that takes a number and calculates the sum of its digits. For example, for the number 12345, the sum would be 1 + 2 + 3 + 4 + 5 = 15.

**Hint:** Use a while loop to extract each digit from the number and add it to the sum.

**Example function call:**

console.log(sumOfDigits(12345)); // Expected output: 15

**Arrays**

**Task 3: Unique Array Elements**

Write a function that takes an array of numbers and returns a new array containing only the unique elements (no duplicates) from the original array.

**Hint:** Use an array to store unique values and check if an element already exists in the array.

**Example function call:**

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

console.log(uniqueElements(numbers)); // Expected output: [1, 2, 3, 4, 5]

**Task 4: Reverse Subarrays (continued)**

Write a function that takes a two-dimensional array (an array of arrays) and reverses each of the subarrays. For example, for the array [[1, 2, 3], [4, 5, 6], [7, 8, 9]], the result should be [[3, 2, 1], [6, 5, 4], [9, 8, 7]].

**Hint:** Use nested loops to work with each subarray.

**Example function call:**

let array = [[1, 2, 3], [4, 5, 6], [7, 8, 9]];

console.log(reverseSubArrays(array)); // Expected output: [[3, 2, 1], [6, 5, 4], [9, 8, 7]]

**Task 5: Word Count**

Write a function that takes a string and returns an object where the keys are the words from the string, and the values are the number of times each word appears.

**Hint:** Use the .split() method to split the string into words, and a loop to count occurrences of each word.

**Example function call:**

let text = "hello world hello";

console.log(wordCount(text)); // Expected output: { hello: 2, world: 1 }

**Task 6: Find the Top Scoring Student**

Write a function that takes an object where the keys are names and the values are students' scores. The function should return the name of the student with the highest score.

**Hint:** Use a loop to iterate over the object’s properties and track the highest score.

**Example function call:**

let scores = { Alice: 85, Bob: 92, Charlie: 88 };

console.log(findTopStudent(scores)); // Expected output: Bob

**Task 1: Prime Numbers**

Write a program that prints all prime numbers between 1 and 100. A prime number is a number greater than 1 that has no divisors other than 1 and itself.

**Hint:** Use nested loops; an outer loop to go through each number from 1 to 100, and an inner loop to check if the number has any divisors.

**Example output:**

// Expected output: 2, 3, 5, 7, 11, 13, 17, 19, ..., 97

**Task 2: Multiplication Table**

Write a program that prints the multiplication table from 1 to 10. Each line should show the result of multiplying a number from 1 to 10 by each number from 1 to 10.

**Hint:** Use nested for loops.

**Example output:**

// Expected output:

// 1 x 1 = 1

// 1 x 2 = 2

// ...

// 10 x 9 = 90

// 10 x 10 = 100

**Arrays**

**Task 3: Flatten an Array**

Write a function that takes a two-dimensional array (an array of arrays) and returns a flattened one-dimensional array. For example, if the input is [[1, 2, 3], [4, 5], [6]], the result should be [1, 2, 3, 4, 5, 6].

**Hint:** Use nested loops or the reduce method with concat.

**Example function call:**

let array = [[1, 2, 3], [4, 5], [6]];

console.log(flattenArray(array)); // Expected output: [1, 2, 3, 4, 5, 6]

**Task 4: Remove Falsy Values**

Write a function that takes an array and returns a new array with all falsy values removed. Falsy values in JavaScript are false, 0, "", null, undefined, and NaN.

**Hint:** Use the filter method.

**Example function call:**

let values = [0, 1, false, 2, '', 3, 'a', 'e'\*23, NaN, 's', 34];

console.log(removeFalsyValues(values)); // Expected output: [1, 2, 3, 'a', 's', 34]

**Objects**

**Task 5: Merge Objects with Deep Copy**

Write a function that deeply merges two objects. If a property is an object in both source objects, their properties should be recursively merged.

**Hint:** Use recursion to merge nested objects.

**Example function call:**

let obj1 = { a: 1, b: { x: 10, y: 20 } };

let obj2 = { b: { y: 30, z: 40 }, c: 3 };

console.log(deepMerge(obj1, obj2));

// Expected output: { a: 1, b: { x: 10, y: 30, z: 40 }, c: 3 }

**Task 6: Count Character Frequencies**

Write a function that takes a string and returns an object where the keys are characters and the values are the number of times each character appears in the string.

**Hint:** Use a loop to iterate over the string and an object to track character counts.

**Example function call:**

let text = "hello world";

console.log(countCharFrequencies(text));

// Expected output: { h: 1, e: 1, l: 3, o: 2, w: 1, r: 1, d: 1 }