🚀 Level Up Your JavaScript Skills with These Coding Exercises 🚀

Let's dive into some coding exercises that will strengthen your problem-solving abilities and JavaScript skills. Here are five challenges to tackle:

1. Calculate the Factorial: Write a function to calculate the factorial of a given number. 🧮
2. Find the Largest Element: Create a function that finds the largest element in an array of numbers. 📊
3. Reverse a String: Challenge yourself to reverse a string effectively. 🔄
4. Check for Palindrome: Build a function to check if a string is a palindrome, ignoring spaces and punctuation. 🌟
5. Find the Missing Number: Write a function to find the missing number in an array of consecutive integers. 🔍

These exercises cover a range of problem-solving scenarios and are excellent for honing your JavaScript skills. Whether you're a beginner or an experienced coder, these challenges provide valuable practice. So, roll up your sleeves, give them a try, and watch your JavaScript expertise grow! 💻🔥

Exercise 1: Calculate the Factorial

Description: Write a JavaScript function to calculate the factorial of a given number.

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

// Example usage:
const result = calculateFactorial(5); // Returns 120
```

Summary: This function calculates the factorial of a number using recursion. It checks if the input is 0 or 1, in which case it returns 1. Otherwise, it recursively calls itself with a decreased value until it reaches 1.

Exercise 2: Find the Largest Element

Description: Write a JavaScript function to find the largest element in an array of numbers.

```
function findLargestElement(arr) {
  let largest = arr[0];
  for (let i = 1; i < arr.length; i++) {
    if (arr[i] > largest) {
      largest = arr[i];
    }
  }
  return largest;
}

// Example usage:
const numbers = [10, 5, 8, 20, 3];
const largestNumber = findLargestElement(numbers); //
Returns 20
```

Summary: This function iterates through an array of numbers, comparing each element to the current largest element found so far. It returns the largest element.

Exercise 3: Reverse a String

Description: Write a JavaScript function to reverse a given string.

```
function reverseString(str) {
  return str.split('').reverse().join('');
}

// Example usage:
const originalString = 'Hello, World!';
const reversedString = reverseString(originalString);
// Returns '!dlroW ,olleH'
```

Summary: This function splits the input string into an array of characters, reverses the order of elements in the array, and then joins them back into a string, effectively reversing the original string.

Exercise 4: Check for Palindrome

Description: Write a JavaScript function to check if a given string is a palindrome.

```
function isPalindrome(str) {
  const cleanedStr =
str.toLowerCase().replace(/[^a-zA-Z0-9]/g, '');
  const reversedStr =
cleanedStr.split('').reverse().join('');
  return cleanedStr === reversedStr;
}
```

```
// Example usage:
const testString = 'A man, a plan, a canal, Panama';
const isPalindromeResult = isPalindrome(testString); //
Returns true
```

Summary: This function removes non-alphanumeric characters, converts the input string to lowercase, and checks if it reads the same forwards and backwards by comparing it to its reverse.

Exercise 5: Find the Missing Number

Description: Write a JavaScript function to find the missing number in an array of consecutive integers.

```
function findMissingNumber(arr) {
  const n = arr.length + 1;
  const expectedSum = (n * (n + 1)) / 2;
  const actualSum = arr.reduce((acc, num) => acc + num,
0);
  return expectedSum - actualSum;
}

// Example usage:
const numbers = [1, 2, 3, 5, 6, 7];
const missingNumber = findMissingNumber(numbers); //
Returns 4
```

Summary: This function calculates the expected sum of consecutive integers up to the length of the array and subtracts the actual sum of the array elements to find the missing number.

These JavaScript coding exercises cover a range of common programming tasks and can help you practice your problem-solving and coding skills.