

1. Check Whether a String is a Palindrome

```
function isPalindrome(str) {  
    const reversed = str.split("").reverse().join("");  
    return str === reversed;  
}
```

// Example usage:

```
console.log(isPalindrome("madam")); // true
```

```
console.log(isPalindrome("hello")); // false
```

2. Program to Find the Longest Word in a Given Sentence

```
function findLongestWord(sentence) {  
    const words = sentence.split(" ");  
    let longestWord = "";  
    for (const word of words) {  
        if (word.length > longestWord.length) {  
            longestWord = word;  
        }  
    }  
    return longestWord;  
}
```

// Example usage

```
console.log(findLongestWord("The quick brown fox jumps over the lazy dog"));
```

// Output: "jumps"

3. Remove Duplicates from an Array

```
function removeDuplicates(arr) {  
    return [...new Set(arr)];  
} // Example usage
```

```
console.log(removeDuplicates([1, 2, 3, 2, 4, 3, 5, 1])); // Output: [1, 2, 3, 4, 5]
```

4. Reverse a String Without Using Built-In Method

```
function reverseString(str) {  
  let reversed = "";  
  for (let i = str.length - 1; i >= 0; i--) {  
    reversed += str[i];  
  }  
  return reversed;  
}
```

// Example:

```
console.log(reverseString("hello")); // Output: "olleh"
```

5. Find the Max Count of Consecutive 1's in an Array

```
function maxConsecutiveOnes(arr) {  
  let maxCount = 0;  
  let currentCount = 0;  
  for (const num of arr) {  
    if (num === 1) {  
      currentCount++;  
      maxCount = Math.max(maxCount, currentCount);  
    } else {  
      currentCount = 0;  
    }  
  }  
  return maxCount;  
}
```

// Example:

```
console.log(maxConsecutiveOnes([1, 1, 0, 1, 1, 1])); // Output: 3
```

6. Find the Factorial of a Given Number

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

// Example:

```
console.log(factorial(5)); // Output: 120
```

7. Merge and Sort Two Sorted Arrays

```
function mergeAndSortArrays(arr1, arr2) {  
  return [...arr1, ...arr2].sort((a, b) => a - b);  
}
```

// Example:

```
console.log(mergeAndSortArrays([0, 3, 4, 31], [4, 6, 30]));
```

// Output: [0, 3, 4, 4, 6, 30, 31]

8. Check if Every Value in arr1 Has Its Corresponding Squared Value in arr2

```
function hasCorrespondingSquares(arr1, arr2) {  
  const arr1Map = arr1.reduce((map, num) => {  
    map[num] = (map[num] || 0) + 1;  
    return map;  
  }, {});  
  const arr2Map = arr2.reduce((map, num) => {  
    map[num] = (map[num] || 0) + 1;
```

```

    return map;
  }, {});
  for (const num in arr1Map) {
    const square = num ** 2;
    if (arr1Map[num] !== arr2Map[square]) {
      return false;
    }
  }
  return true;
}

// Example:
console.log(hasCorrespondingSquares([1, 2, 3], [1, 4, 9])); // Output: true
console.log(hasCorrespondingSquares([1, 2, 3], [1, 4, 8])); // Output: false

```

9. Check if One String Can Be Formed by Rearranging Letters of Another

```

function isAnagram(str1, str2) {
  const normalize = str => str.split('').sort().join('');
  return normalize(str1) === normalize(str2);
}

// Example:
console.log(isAnagram("listen", "silent")); // Output: true
console.log(isAnagram("hello", "world")); // Output: false

```

10. Get Unique Objects from an Array of Objects

```

function getUniqueObjects(arr) {
  const uniqueMap = new Map();

  arr.forEach(obj => {

```

```
    uniqueMap.set(obj.name, obj);
  });
  return Array.from(uniqueMap.values());
}
// Example:
const input = [{name: "sai"}, {name: "Nang"}, {name: "sai"}, {name: "Nang"}, {name: "111111"}];
console.log(getUniqueObjects(input));
// Output: [{name: "sai"}, {name: "Nang"}, {name: "111111"}]
```

11. Find the Maximum Number in an Array

```
function findMax(arr) {
  return Math.max(...arr);
}
// Example:
console.log(findMax([1, 2, 3, 4, 5])); // Output: 5
```

12. Filter an Array for Only Even Numbers

```
function filterEvenNumbers(arr) {
  return arr.filter(num => num % 2 === 0);
}
// Example:
console.log(filterEvenNumbers([1, 2, 3, 4, 5, 6])); // Output: [2, 4, 6]
```

13. Prime Number Checker

```
function isPrime(number) {
  if (number <= 1) return false;
  for (let i = 2; i <= Math.sqrt(number); i++) {
```

```
    if (number % i === 0) return false;
  }
  return true;
}
// Example
console.log(isPrime(7)); // true
console.log(isPrime(10)); // false
```

14. Find the Largest Element in a Nested Array

```
function findLargestElement(arr) {
  let flatArray = arr.flat(Infinity);
  return Math.max(...flatArray);
}
// Example
console.log(findLargestElement([[3, 4, 58], [709, 8, 9, [10, 11]], [111, 2]])); // 709
```

15. Fibonacci Sequence up to a Given Number of Terms

```
function fibonacci(n) {
  let sequence = [0, 1];
  for (let i = 2; i < n; i++) {
    sequence.push(sequence[i - 1] + sequence[i - 2]);
  }
  return sequence.slice(0, n);
}

// Example
console.log(fibonacci(10)); // [0, 1, 1, 2, 3, 5, 8, 13, 21, 34]
```

16. Count Character Occurrences in a String

```
function countCharacters(str) {  
  let charCount = {};  
  for (let char of str) {  
    charCount[char] = charCount[char] ? charCount[char] + 1 : 1;  
  }  
  return charCount;  
}  
  
// Example  
  
console.log(countCharacters("hello world")); // { h: 1, e: 1, l: 3, o: 2, w: 1, r: 1, d: 1 }
```

17. Sort an Array in Ascending Order

```
function sortAscending(arr) {  
  return arr.sort((a, b) => a - b);  
}  
  
// Example  
  
console.log(sortAscending([5, 3, 8, 1])); // [1, 3, 5, 8]
```

18. Sort an Array in Descending Order

```
function sortDescending(arr) {  
  return arr.sort((a, b) => b - a);  
}  
  
// Example  
  
console.log(sortDescending([5, 3, 8, 1])); // [8, 5, 3, 1]
```

19. Reverse Order of Words in a Sentence Without Using reverse()

```
function reverseWords(sentence) {  
  let words = sentence.split(" ");
```

```
let reversedWords = [];  
for (let i = words.length - 1; i >= 0; i--) {  
  reversedWords.push(words[i]);  
}  
return reversedWords.join(" ");  
}  
  
// Example  
  
console.log(reverseWords("Hello world from JavaScript")); // "JavaScript from world  
Hello"
```

20. Flatten a Nested Array

```
function flattenArray(arr) {  
  return arr.flat(Infinity);  
}  
  
// Example  
  
console.log(flattenArray([[3, 4, 58], [709, 8, 9, [10, 11]], [111, 2]])); // [3, 4, 58, 709, 8, 9,  
10, 11, 111, 2]
```

21. Convert String Input into an Object

```
function stringToObject(str, value) {  
  return str.split('.').reduceRight((acc, key) => ({ [key]: acc }), value);  
}  
  
// Example  
  
console.log(stringToObject("a.b.c", "someValue")); // { a: { b: { c: "someValue" } } }
```