# Basic DSA Questions and Solutions in JavaScript

### 1. Reverse a String

```
function reverseString(str) {
    return str.split('').reverse().join('');
}
// Example: reverseString("hello") -> "olleh"
```

### 2. Check if a String is a Palindrome

```
function isPalindrome(str) {
    const reversed = str.split('').reverse().join('');
    return str === reversed;
}
// Example: isPalindrome("madam") -> true
```

### 3. Find the Maximum Sum of a Subarray (Kadane's Algorithm)

```
function maxSubarraySum(arr) {
    let maxSum = arr[0];
    let currentSum = arr[0];
    for (let i = 1; i < arr.length; i++) {
        currentSum = Math.max(arr[i], currentSum + arr[i]);
        maxSum = Math.max(maxSum, currentSum);
    }
    return maxSum;
}
// Example: maxSubarraySum([-2, 1, -3, 4, -1, 2, 1, -5, 4]) -> 6
```

### 4. Find the First Non-Repeating Character in a String

```
function firstNonRepeatingChar(str) {
    const charCount = {};
    for (let char of str) {
        charCount[char] = (charCount[char] || 0) + 1;
    }
    for (let i = 0; i < str.length; i++) {
        if (charCount[str[i]] === 1) {
            return str[i];
        }
    }
    return null;
}
// Example: firstNonRepeatingChar("swiss") -> "w"
```

### 5. Rotate an Array to the Right by K Steps

```
function rotateArray(arr, k) {
    k = k % arr.length;
    return [...arr.slice(-k), ...arr.slice(0, -k)];
}
// Example: rotateArray([1, 2, 3, 4, 5], 2) -> [4, 5, 1, 2, 3]
```

### 6. Check if Two Strings are Anagrams

```
function areAnagrams(str1, str2) {
    const sorted1 = str1.split('').sort().join('');
    const sorted2 = str2.split('').sort().join('');
    return sorted1 === sorted2;
}
// Example: areAnagrams("listen", "silent") -> true
```

### 7. Find Duplicates in an Array

```
function findDuplicates(arr) {
    const seen = new Set();
    const duplicates = new Set();
    for (let num of arr) {
        if (seen.has(num)) {
            duplicates.add(num);
        } else {
            seen.add(num);
        }
    }
    return [...duplicates];
}
// Example: findDuplicates([1, 2, 3, 2, 4, 3]) -> [2, 3]
```

### 8. Merge Two Sorted Arrays

```
function mergeSortedArrays(arr1, arr2) {
    let i = 0, j = 0, merged = [];
    while (i < arr1.length && j < arr2.length) {
        if (arr1[i] < arr2[j]) {
            merged.push(arr1[i++]);
        } else {
            merged.push(arr2[j++]);
        }
    }
    return merged.concat(arr1.slice(i)).concat(arr2.slice(j));
}
```

```
// Example: mergeSortedArrays([1, 3, 5], [2, 4, 6]) -> [1, 2, 3, 4, 5, 6]
```

### 9. Find the Longest Common Prefix

```
function longestCommonPrefix(strs) {
    if (!strs.length) return "";
    let prefix = strs[0];
    for (let i = 1; i < strs.length; i++) {
        while (strs[i].indexOf(prefix) !== 0) {
            prefix = prefix.slice(0, -1);
            if (!prefix) return "";
        }
    }
    return prefix;
}
// Example: longestCommonPrefix(["flower", "flow", "flight"]) -> "fl"
```

### 10. Move Zeroes to End of Array

```
function moveZeroes(arr) {
    let index = 0;
    for (let i = 0; i < arr.length; i++) {
        if (arr[i] !== 0) {
            [arr[index], arr[i]] = [arr[i], arr[index]];
            index++;
        }
    }
    return arr;
}
// Example: moveZeroes([0, 1, 0, 3, 12]) -> [1, 3, 12, 0, 0]
```