**SET - 1**

1. Write a program to find the second largest element in an array of integers.

Sample Input: const arr = [5, 2, 8, 10, 3];

Sample Output: 8

2. Given an array and an integer k, write a program to rotate the array k times to the right.

Sample Input: const arr = [1, 2, 3, 4, 5];

const k = 2;

Sample Output: [4, 5, 1, 2, 3]

3.Write a program to split an array into chunks of a given size and return a new array of

Sample Input: const arr = [1, 2, 3, 4, 5, 6, 7, 8];

const chunkSize = 3;

Sample Output: [[1, 2, 3], [4, 5, 6], [7, 8]]

4.Write a program to find all Pythagorean triplets (a, b, c) in an array of positive integers, where a^2 + b^2 = c^2.

Sample Input: const arr = [3, 5, 12, 13, 9, 4, 7, 15];

Sample Output: [[3, 4, 5], [5, 12, 13]]

5.Write a program that takes a sorted array of numbers and a lower and upper bound, and returns the missing ranges within the bound.

Sample Input: const arr = [0, 1, 3, 50, 75];

const lower = 0;

const upper = 99;

Sample Output: ["2", "4->49", "51->74", "76->99"]

6.Write a program that takes an array and returns an array where each element is replaced with the next greater element. If there is no greater element, replace it with -1.

Sample Input: const arr = [4, 5, 2, 25, 8];

Sample Output: [5, 25, 25, -1, -1]

7.Write a program that takes a date as input and returns the day of the week (e.g., Monday, Tuesday, etc.).

Sample Input: const date = new Date('2023-07-25');

Sample Output: Monday

8.Write a program that takes a time in 12-hour format (e.g., "03:45 PM") as input and converts it to 24-hour format (e.g., "15:45").

Sample Input: const time12Hour = "03:45 PM";

Sample Output: "15:45"

9.Write a program that takes a string and finds the longest palindromic substring within it.

Sample Input: const str = "babad";

Sample Output: "bab" or "aba"

10.Write a program that takes an encoded string and returns the decoded string based on the following rules:

The encoding pattern is **count[encoded\_string]**.

You may assume that the input string is always valid.

Sample Input: const encodedStr = "3[a2[c]]";

Sample Output: "accaccacc"

**SET - 2**

11. Write a program that takes an array of integers and returns an array where each element is the product of all elements in the original array except the current one.

Sample Input: const arr = [1, 2, 3, 4];

Sample Output: [24, 12, 8, 6]

12. Write a program that takes a start word, an end word, and a list of words, and returns the length of the shortest transformation sequence from start to end using only one letter changes at a time.

Sample Input: const beginWord = "hit";

const endWord = "cog";

const wordList = ["hot", "dot", "dog", "lot", "log", "cog"];

Sample Output: 5

13. Write a program that takes a string and finds the longest palindromic substring within it.

Sample Input: const str = "babad";

Sample Output: "bab" or "aba"

14. Write a program that takes a birth date as input and returns the age in days.

Sample Input: const birthDate = new Date('1995-10-15');

Sample Output: 9853 days

15. Write a program that takes two times (in 24-hour format) as input and returns the time difference in hours and minutes.

Sample Input: const time1 = "08:30";

const time2 = "13:45";

Sample Output: 5 hours and 15 minutes

16. Write a program that takes a date and a number of days as input and returns a new date after adding the specified number of days.

Sample Input: const date = new Date('2023-07-10');

const daysToAdd = 5;

Sample Output: "2023-07-15"

17. Write a program that takes an object and converts it into a query string.

Sample Input: const obj = { name: "John", age: 30, city: "New York" };

Sample Output: "name=John&age=30&city=New%20York"

18. Write a program that takes a nested object containing numeric values and returns the sum of all values.

Sample Input: const obj = {

a: 1,

b: 2,

c: { d: 3, e: { f: 4 } }

};

Sample Output: 10

19. Write a program that takes a string and finds the length of the longest substring without repeating characters.

Sample Input: const str = "abcabcbb";

Sample Output: 3

20. Write a program that takes an array of strings and groups anagrams together.

Sample Input: const arr = ["eat", "tea", "tan", "ate", "nat", "bat"];

Sample Output: [["eat", "tea", "ate"], ["tan", "nat"], ["bat"]]