Hands-on No. : **4**

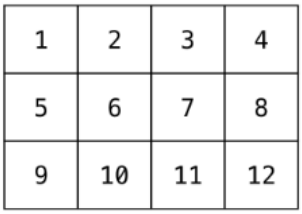
Topic : **Arrays and Functions**

Date : **06-05-2024**

Solve the following problems

Question No.	Question Detail	Level
1	Take 20 integer inputs from user and print the following: a) number of positive numbers b) number of negative numbers c) number of odd numbers d) number of even numbers e) number of 0s. Sample Input: 1 -3 6 9 8 -13 -5 7 0 12 0 -4 4 0 17 21 6 16 11 19 Sample Output: 13 4 10 10 3	Easy
2	There is long queue in the billing counter of a supermarket. Tell the position of the specific customer if the names are the input. If not found, print -1. Sample Input: 5, [Smith Tim Eve John Dora], Eve Sample Output: 3 Sample Input: 5, [Smith Tim Eve John Dora], Mike Sample Output: -1	Easy
3	Given an array of size N-1 such that it only contains distinct integers in the range of 1 to N. Find the missing element. Assume that integer range is correctly given. Sample Input: 5, [1,2,3,5] Sample Output: 4 Sample Input: 10, [6,1,2,8,3,4,7,10,5] Sample Output: 9	Easy
4	Write a program to find & remove duplicate elements in the array and reprint. Sample Input: 1 2 8 3 4 5 5 6 7 8 Sample Output: 1 2 8 3 4 5 6 7	Easy
5	Mike enters randomly twenty-five numbers from the keyboard and stores it into an array. He wants to search if the number is present	Easy

It is going to be hard but, hard does not mean impossible.

	in the array and if it is present, he needs to display the number of times it appears in the array. Help him with your program. Sample Input: [1, 2, 8, 3, 4, 5, 5, 6, 7, 8, 1, 2, 8, 3, 4, 5, 5, 6, 7, 8, 1, 2, 8, 3, 4], 8 Sample Output: 5 Sample Output: 13 4 10 10 3	
6	Write a program to find pair of elements in the array having sum of 10. If not found any, return -1. Sample Input: 1 2 8 3 Sample Output: (2,8) Sample Input: 1 2 3 4 5 Sample Output: -1	Easy
7	Write a program to accept and print elements in 2D array. Get the row and column size from the user. Sample Input: 3,4, [1 2 3 4 5 6 7 8 9 10 11 12] Sample Output: 	Easy
8	Write a Java program to replace each element of the array with product of all other elements in a given array of integers. Sample Input: 4,[1 2 3 4] Sample Output: 24 12 8 6	Easy
9	Get the values for an array of size 10. Write the logic to find whether the array elements are in Arithmetic Progression or Geometric Progression. If the array is in neither order display 'Random order'. Sample Input: 1 4 7 10 13 16 19 22 25 28 Sample Output: Arithmetic Progression Sample Input: 1 2 4 8 16 32 64 128 256 512 Sample Output: Geometric Progression Sample Input: 2 4 7 11 16 22 29 37 46 56 Sample Output: Random Order	Easy

10	In a lucky draw, XYZ finance company selects two sets of its customers for a promotion. If the customer's coupon is in first set, then the customer gets Rs.10000/- as cash prize. If it is in second set, then the customer gets tour tickets for two days. Otherwise, customer gets a batch 'Better luck next time'. Two sets of coupon numbers and a randomly picked customer coupon are the inputs. Help the company to say the result. Note: Consider each set has 10 distinctive customer coupons and no common coupons. Sample Input: [2 4 7 11 16 22 29 37 46 56], [1 5 9 10 13 18 19 22 25 28], 16 Sample Output: Rs.10000 Cash Prize Sample Input: [2 4 7 11 16 22 29 37 46 56], [1 5 9 10 13 18 19 22 25 28], 13 Sample Output: Tour Tickets for two days	Easy
11	XYZ College asked their students to register for NSS and NCC if they are willing. Some of the students registered for both. Identify them if student ids(numeric) for each group is the input. Sample Input: 10, 10, [2 4 7 11 16 22 29 37 46 56], [1 4 7 10 13 16 19 22 25 28] Sample Output: 4 7 16 22	Easy
12	Split an array in to two arrays such that one array contains the elements lesser than the average of the given array and the other contains the greater numbers. Skip the element if it is equal to the average. Sample Input: 5, [10 20 50 30 45] Sample Output: [10 20 30], [50 45]	Easy
13	Heena and Reena bet for a chocolate with the number game. If Heena fails to say a group of numbers in the order which is same even it is read backward, then Reena wins. Write a program to check if the given array of numbers is palindromic or not. Sample Input: 5, [1 2 3 2 1] Sample Output: true	Easy
14	Write a Java program to accept N numbers from console and print the sum of the elements of the array with the following condition. Condition: If the array has elements 'a' and 'b' in succeeding	Easy

	order, ignore the numbers between 'a' and 'b' inclusive for the calculation. Sample Input: [10,3,6,1,2,7,9], 6, 7 Sample Output: 22 Sample Input: [7,1,2,3,6], 6, 7 Sample Output: 19 Sample Input: [1,6,7,9], 6, 7 Sample Output: 10	
15	There are N friends in a group. Each of them has X_i chocolates. Write a Java Program to check whether they can share all these chocolates among themselves such that each one of them has equal number of chocolates. Input: First line contains of a single line of input, an integer N denoting no. of friends in the group. Next line contains N space separated integers X_i denoting the no. chocolates i^{th} friend has. Output "Yes" if it is possible to share equally else "No" (without " "). Sample Input: 3 1 2 3 Sample Output: Yes	Easy
16	Write a program to find the minimum and maximum element of each row and column in the given two-dimensional arrays. Sample Input: Enter row size: 3 Enter column size: 3 Enter 3 * 3 array elements are: 4 1 2 5 3 6 3 7 8 Sample Output: Given Array is: 4 1 2	Medium

	5 3 6 3 7 8 The minimum and maximum element of 1st row is: 1, 4 The minimum and maximum element of 2nd row is: 3, 6 The minimum and maximum element of 3rd row is: 3, 8 The minimum and maximum element of 1st column is: 3, 5 The minimum and maximum element of 2nd column is: 1, 7 The minimum and maximum element of 3rd column is: 2, 8	
17	Write a Java program to accept n numbers from console. Store all input numbers in the array. When the negative number is entered, the negative number is ignored and input stops. a. Replace the numbers in array as per following rules: b. Replace a number in array with 0 if it is even. c. Replace a number in array with 1 if it is odd. d. Replace a number in array with 2 if it is divisible by 8. e. Replace a number in array with 3 if it ends with 3. f. Replace a number in array with 4 if it is divisible by 9. g. If multiple rules apply to a number, use the rule that replaces with highest number h. Print the array before and after replacing Sample Input: 5 2 8 9 16 27 6 1 18 -12 Sample Output: [5 2 8 9 16 27 6 1 18], [1 0 2 4 2 4 3 1 4]	Medium
18	Consider an integer array, the number of elements in which is determined by the user. The elements are also taken as input from the user. Write a program to find those pair of elements that has the maximum and minimum difference among all element pairs.	Medium
19	Develop a Java program that constructs a jagged array for recording basketball tournament scores per player. The program initiates by requesting the user to input the count of teams along with the number of players within each team. Following this, it	Medium

	enables the user to input the scores for every player across each team. Lastly, the program computes and exhibits the average score for every team.	
20	You're developing a student grading system where each student has various assignments, each with its own weightage. Create a program that first asks the user to input the total number of students and the number of assignments. Then, enable the user to input grades for each assignment for every student. Finally, compute and present the weighted average grade for each student, factoring in the assignment weights.	Medium