Week 6 | Time and Space + Arrays + Matrix | Assignment -1

Total Questions : 5 Total Marks:

Question 1 :

Given a Square Matrix of Dimension NXM , find all Non-Diagonal Elements which are prime Numbers .

Input : [[1,2,3] , [4,5,6] , [7,8,9]]
Output: - 2 , 3 , 7

Explanation:
The Non-diagonal elements are: 2, 3 ,4 ,6 ,7,8
So the prime numbers among them are : - [2,3,7]
Answer: - 2,3,7.

Sample :
Def func(Matrix):

Questions:2

Given a integer array , find all the numbers which are palindrome:
Note : -Palindromes are numbers when reversed will get the same as the original number.

121 - >palindrome , 123 → not a palindrome

Input: [1 , 2 , 256 , 252 , 1441 , 969 ,2331]
Output: [1 , 2 , 252 , 1441 , 969]

Question : 3 -

Given an integer array , find all the numbers whose digit sum is even.

Input : - [1 , 2 , 1111,56 ,22 ,89 ,100]
Output: - [2 , 22 , 1111]

Example : 2 -> digit sum = 2
22 -> digit sum = 4
1111 -> digit sum = 4

Questions : 4 -

Given an array of size n and a number k, find all elements that appear more than n/k times

Input : k = 4 ,n=9 , A = [3 ,1, 2, 2, 2, 1, 4, 3, 3]
Output: - [3 , 2]

Explanation : - val = n/k = (9/4) = 2 (integer part)
Now , take count of each element , we get
Count of element 3 -> 3
Count of element 1 -> 2
Count of element 2 -> 3
Count of element 4 -> 1
Since 3 and 2 are only elements which are having count greater than 2 .

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Question 5 :

Given an array arr[], find the maximum j – i such that arr[j] > arr[i] .

Input :- arr = [34, 8, 10, 3, 2, 80, 30, 33, 1]
Output : - 6 (j = 7, i = 1)

Explanation : -
Since at index (j = 6 and i = 1) , we get maximum (j - i) where arr[j] > arr[i]

Sample :

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Def find_max ( arr ):
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Note : -
Find Time and Space Complexity of each Question given - (1 - 5)