

# Rajalakshmi Engineering College

Name: Aswin Balaji P  
Email: 240701062@rajalakshmi.edu.in  
Roll no: 240701062  
Phone: 6381413039  
Branch: REC  
Department: CSE - Section 6  
Batch: 2028  
Degree: B.E - CSE

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## 2024\_28\_III\_OOPS Using Java Lab

### 2028\_REC\_OOPS using Java\_Week 3\_Q2

Attempt : 1  
Total Mark : 10  
Marks Obtained : 10

#### Section 1 : Coding

##### 1. Problem Statement

Monica is interested in finding a treasure but the key to opening is to get the sum of the main diagonal elements and secondary diagonal elements.

Write a program to help Monica find the diagonal sum of a square 2D array.

Note: The main diagonal of the array consists of the elements traversing from the top-left corner to the bottom-right corner. The secondary diagonal includes elements from the top-right corner to the bottom-left corner.

##### ***Input Format***

The first line of input consists of an integer N, representing the number of rows and columns.

The following N lines consist of N space-separated integers, representing the 2D array elements.

### **Output Format**

The first line of output prints "Sum of the main diagonal: " followed by an integer, representing the sum of the main diagonal.

The second line prints "Sum of the secondary diagonal: " followed by an integer, representing the sum of the secondary diagonal.

Refer to the sample output for formatting specifications.

### **Sample Test Case**

Input: 3

1 2 3

4 5 6

7 8 9

Output: Sum of the main diagonal: 15

Sum of the secondary diagonal: 15

### **Answer**

```
import java.util.Scanner;
class Main{
    public static void main(String args[]){
        int n,i,j,md=0,sd=0;
        Scanner s = new Scanner(System.in);
        n = s.nextInt();
        int [][] a = new int[n][n];
        for(i=0;i<n;i++){
            for(j=0;j<n;j++){
                a[i][j] = s.nextInt();
            }
        }
        i=0;j=0;
        while(i<n){
            md += a[i][j];
            i++;j++;
        }
        i=0;j=n-1;
```

```
        while(j>=0){  
            sd += a[i][j];  
            i++;j--;  
        }  
        System.out.println("Sum of the main diagonal: "+md);  
        System.out.println("Sum of the secondary diagonal: "+sd);  
    }  
}
```

**Status :** Correct

**Marks : 10/10**