

# Rajalakshmi Engineering College

Name: Aswin Siddharth A  
Email: 240701064@rajalakshmi.edu.in  
Roll no: 240701064  
Phone: 9489304331  
Branch: REC  
Department: CSE - Section 9  
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;

public class Main {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        int n = sc.nextInt();
        int[][] arr = new int[n][n];
        int msum = 0, ssum = 0;
        for(int i = 0; i < n; i++) {
            for(int j = 0; j < n; j++) {
                arr[i][j] = sc.nextInt();
            }
        }
        for(int i = 0; i < n; i++) {
            for(int j = 0; j < n; j++) {
                if(i == j) msum += arr[i][j];
            }
        }
    }
}
```

```
        for(int i = 0; i < n; i++) {  
            ssum += arr[i][n - 1 - i];  
        }  
        System.out.println("Sum of the main diagonal: " + msum);  
        System.out.println("Sum of the secondary diagonal: " + ssum);  
    }  
}
```

**Status : Correct**

**Marks : 10/10**