

# Rajalakshmi Engineering College

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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 scanner = new Scanner(System.in);

        int N = scanner.nextInt();
        int[][] matrix = new int[N][N];

        for (int i = 0; i < N; i++) {
            for (int j = 0; j < N; j++) {
                matrix[i][j] = scanner.nextInt();
            }
        }

        int mainDiagonalSum = 0;
        int secondaryDiagonalSum = 0;
```

```
        for (int i = 0; i < N; i++) {  
            mainDiagonalSum += matrix[i][i];  
            secondaryDiagonalSum += matrix[i][N - 1 - i];  
        }  
  
        System.out.println("Sum of the main diagonal: " + mainDiagonalSum);  
        System.out.println("Sum of the secondary diagonal: " +  
secondaryDiagonalSum);  
  
        scanner.close();  
    }  
}
```

**Status :** Correct

**Marks :** 10/10