

# Rajalakshmi Engineering College

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Batch: 2028

Degree: B.E - CSE (CS)

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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.*;  
  
public class Main {  
    public static void main(String[] args) {  
        Scanner sc = new Scanner(System.in);  
  
        int n = sc.nextInt();  
        int[][] matrix = new int[n][n];  
  
        // Read matrix  
        for (int i = 0; i < n; i++) {  
            for (int j = 0; j < n; j++) {  
                matrix[i][j] = sc.nextInt();  
            }  
        }  
  
        int mainDiagonalSum = 0, secondaryDiagonalSum = 0;
```

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

**Status :** Correct

**Marks :** 10/10