

# 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***

// You are using Java

import java.util.\*;

```
class Main {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);

        int n = sc.nextInt();
        int[][] arr = new int[n][n];

        for (int i = 0; i < n; i++) {
            for (int j = 0; j < n; j++) {
                arr[i][j] = sc.nextInt();
            }
        }

        int mainDiagSum = 0, secDiagSum = 0;
```

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

**Status :** Correct

**Marks :** 10/10