

# 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.*;
```

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

```
int ssd=0;

for(int i=0;i<N;i++)
{
    smd+=matrix[i][i];
    ssd+=matrix[i][N-1-i];
}

System.out.printf("Sum of the main diagonal: %d%n",smd);
System.out.printf("Sum of the secondary diagonal: %d%n",ssd);
}
```

**Status :** Correct

**Marks :** 10/10