

# 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;
```

```
class main
```

```
{
```

```
    public static void main(String[] args)
```

```
    {
```

```
        Scanner sc = new Scanner(System.in);
```

```
        int a = sc.nextInt();
```

```
        int [][] arr = new int[a][a];
```

```
        for(int i = 0; i < a; i++)
```

```
        {
```

```
            for(int j = 0; j < a; j++)
```

```
            {
```

```
                arr[i][j] = sc.nextInt();
```

```
            }
```

```
        }
```

```
        int md = 0;
```

```
int sd = 0;
for(int i = 0; i < a; i++)
{
    md += arr[i][i];
    sd += arr[i][a - 1 - i];
}
```

```
System.out.println("Sum of the main diagonal: " + md);
System.out.print("Sum of the secondary diagonal: " + sd);
}
}
```

**Status :** Correct

**Marks :** 10/10