

# 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.*;
```

```
class Sum_diagonal{  
    public static void main(String[] args){  
        Scanner sc = new Scanner(System.in);  
        int n = sc.nextInt();  
        int[][] arr = new int[n][n];
```

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

```
  
                if(i == j)  
                    Main_diagonal += arr[i][j];
```

```
  
                if(i+j == n-1)
```

```
        Secondary_diagonal += arr[i][j];
    }
}
System.out.println("Sum of the main diagonal: " + Main_diagonal);
System.out.println("Sum of the Secondary diagonal: " +
Secondary_diagonal);
sc.close();
}
}
```

**Status :** Correct

**Marks : 10/10**