

# Rajalakshmi Engineering College

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Department: AI & DS - Section 4

Batch: 2028

Degree: B.E - AI & DS

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

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

}
```

**Status :** Correct

**Marks :** 10/10