

# Rajalakshmi Engineering College

Name: janane jaipratha

Email: 241501072@rajalakshmi.edu.in

Roll no: 241501072

Phone: 7548851756

Branch: REC

Department: AI & ML - Section 2

Batch: 2028

Degree: B.E - AI & ML

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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 main{
    public static void main(String[] args){
        Scanner scan=new Scanner(System.in);
        int N=scan.nextInt();
        int[][] matrix=new int[N][N];
        for(int i=0;i<N;i++){
            for(int j=0;j<N;j++){
                matrix[i][j]=scan.nextInt();
            }
        }
        int sumofmaindiagonal=0;
        int sumofseconddiagonal=0;
        for(int i=0;i<N;i++){
            sumofmaindiagonal+=matrix[i][i];
            sumofseconddiagonal+=matrix[i][N-1-i];
        }
        System.out.println("Sum of the main diagonal: "+sumofmaindiagonal);
```

```
        System.out.print("Sum of the secondary diagonal: "+sumofseconddiagonal);  
    }  
}
```

**Status : Correct**

**Marks : 10/10**