

# 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 Main{
    public static void main(String[] args){
        Scanner scan = new Scanner(System.in);
        int n = scan.nextInt();
        int[][] mat=new int[n][n];
        int M=0,S=0;
        for(int i=0;i<n;i++){
            for(int j=0;j<n;j++){
                mat[i][j]=scan.nextInt();
            }
        }
        for(int i=0;i<n;i++){
            for(int j=0;j<n;j++){
                if(i==j){
                    M+=mat[i][j];
                }
            }
        }
    }
}
```

```
}  
for(int i=0;i<n;i++){  
    for(int j=0;j<n;j++){  
        if(i+j==n-1){  
            S+=mat[i][j];  
        }  
    }  
}  
System.out.println("Sum of the main diagonal:"+M);  
System.out.println("Sum of the secondary diagonal:"+S);  
}  
}
```

**Status :** Correct

**Marks : 10/10**