

Rajalakshmi Engineering College

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Branch: REC

Department: AI & DS - Section 3

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.*;
public class Main{
    public static void main (String [] args){
        Scanner read = new Scanner(System.in);
        int a = read.nextInt();
        int sum = 0;
        int sec = 0;
        int [][] arr = new int [a][a];
        for (int i = 0;i < a; i++){
            for (int j = 0;j < a; j++){
                arr[i][j]=read.nextInt();
            }
        }
        for (int i = 0;i < a; i++){
            for (int j = 0;j < a; j++){
                if (i==j){
                    sum += arr[i][j];
                }
            }
        }
    }
}
```

```
        }
    }
}

for (int i = 0;i < a; i++){
    for (int j = 0;j < a; j++){
        if (i+j==a-1){
            sec += arr[i][j];
        }
    }
}

System.out.printf("Sum of the main diagonal: %d\n",sum);
System.out.printf("Sum of the secondary diagonal: %d\n",sec);
}
```

Status : Correct

Marks : 10/10