

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

// You are using Java

```
import java.io.*;
```

```
import java.util.Scanner;
```

```
public class Main{
```

```
    public static void main(String[] args){
```

```
        Scanner scanner=new Scanner(System.in);
```

```
        int n=scanner.nextInt();
```

```
        int[][] arr=new int[n][n];
```

```
        for(int i=0;i<n;i++){
```

```
            for(int j=0;j<n;j++){
```

```
                arr[i][j]=scanner.nextInt();
```

```
            }
```

```
        }
```

```
        int main_sum=0;
```

```
        for(int i=0;i<n;i++){
```

```
        main_sum+=arr[i][i]; //since the main diagonal elements is always [0][0],  
        [1][1],[2][2]...  
    }
```

```
    System.out.println("Sum of the main diagonal: "+main_sum);
```

```
    int secondary_sum=0;  
    for(int i=0;i<n;i++){  
        secondary_sum+=arr[i][n-1-i]; //for a 3*3 matrix, the secondary diagonals  
        are [0][2],[1][1],[2][0]  
    }
```

```
    System.out.println("Sum of the secondary diagonal: "+secondary_sum);
```

```
    }  
}
```

Status : Correct

Marks : 10/10