

Rajalakshmi Engineering College

Name: Hemaprakash KL
Email: 241901036@rajalakshmi.edu.in
Roll no: 241901036
Phone: 7010799637
Branch: REC
Department: CSE (CS) - Section 1
Batch: 2028
Degree: B.E - CSE (CS)

Scan to verify results



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.Scanner;
```

```
public class Main {  
    public static void main(String[] args) {  
        Scanner sc = new Scanner(System.in);
```

```
  
        // Read the size of the square matrix  
        int N = sc.nextInt();  
        int[][] matrix = new int[N][N];
```

```
  
        // Read the matrix elements  
        for (int i = 0; i < N; i++) {  
            for (int j = 0; j < N; j++) {  
                matrix[i][j] = sc.nextInt();  
            }  
        }  
    }  
}
```

```
int mainDiagonalSum = 0;
int secondaryDiagonalSum = 0;

// Calculate the diagonal sums
for (int i = 0; i < N; i++) {
    mainDiagonalSum += matrix[i][i];           // Top-left to bottom-right
    secondaryDiagonalSum += matrix[i][N - 1 - i]; // Top-right to bottom-left
}

// Print the results
System.out.println("Sum of the main diagonal: " + mainDiagonalSum);
System.out.println("Sum of the secondary diagonal: " +
secondaryDiagonalSum);
}
```

Status : Correct

Marks : 10/10