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.*;

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

        // Read size of square matrix
        int n = sc.nextInt();

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

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

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

        // Calculate diagonal sums
        for (int i = 0; i < n; i++) {
            mainDiagonalSum += arr[i][i];          // main diagonal
            secondaryDiagonalSum += arr[i][n - 1 - i]; // secondary diagonal
        }

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

        sc.close();
    }
}
// You are using Java
```

Status : Correct **Marks : 10/10**