Rajalakshmi Engineering College

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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 scanner = new Scanner(System.in);

        // Read the size of the matrix
        int n = scanner.nextInt();

        // Create and read the matrix
        int[][] matrix = new int[n][n];
        for (int i = 0; i < n; i++) {
            for (int j = 0; j < n; j++) {
                matrix[i][j] = scanner.nextInt();
            }
        }
```

```
        // Calculate main diagonal sum (top-left to bottom-right)
        int mainDiagonalSum = 0;
        for (int i = 0; i < n; i++) {
            mainDiagonalSum += matrix[i][i];
        }

        // Calculate secondary diagonal sum (top-right to bottom-left)
        int secondaryDiagonalSum = 0;
        for (int i = 0; i < n; i++) {
            secondaryDiagonalSum += matrix[i][n - 1 - i];
        }

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

        scanner.close();
    }
}
```

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

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2024_28_III_OOPS Using Java Lab

2028_REC_OOPS using Java_Week 3_Q3

Attempt : 1
Total Mark : 10
Marks Obtained : 10

Section 1 : Coding

1. Problem Statement

You are developing a warehouse management system for a shipping company. The system uses an integer array to represent the weights of packages in a specific order. To verify that the weight capacity is not exceeded, the program needs to calculate the sum of the weights of the first and last packages in the list.

Task:

Write a code to calculate the sum of the weights of the first and last packages in the list. The program should take an integer array as input and return the total weight of the first and last packages.

Input Format

The first line of the input is an integer N representing the size of the array.

The second line of the input is N space-separated integer values.

Output Format

The output is displayed in the following format:

"Sum of the first and last elements: <<Sum>>"

Refer to the sample output for formatting specifications.

Sample Test Case

Input: 5
10 20 30 40 50
Output: Sum of the first and last elements: 60

Answer

```
// You are using Java
import java.util.Scanner;

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

        // Read the size of the array
        int n = scanner.nextInt();

        // Create array to store package weights
        int[] weights = new int[n];

        // Read the package weights
        for (int i = 0; i < n; i++) {
            weights[i] = scanner.nextInt();
        }

        // Calculate sum of first and last elements
        int sum = weights[0] + weights[n - 1];

        // Print the result in the required format
        System.out.println("Sum of the first and last elements: " + sum);
```

```
        scanner.close();
    }
}
```

Status : Correct *Marks : 10/10*

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Scan to verify results

2024_28_III_OOPS Using Java Lab

2028_REC_OOPS using Java_Week 3_Q4

Attempt : 1
Total Mark : 10
Marks Obtained : 10

Section 1 : Coding

1. Problem Statement

Sesha is developing a weather monitoring system for a region with multiple weather stations. Each weather station collects temperature data hourly and stores it in a 2D array.

Write a program that can add the temperature data from two different weather stations to create a combined temperature record for the region.

Input Format

The first line of input consists of two space-separated integers N and M, representing the number of rows and columns of the matrices, respectively.

The next N lines consist of M space-separated integers, representing the values of the first matrix.

The following N lines consist of M space-separated integers, representing the values of the second matrix.

Output Format

The output prints the addition of the two matrices in N rows and M columns, representing the combined temperature record.

Refer to the sample output for formatting specifications.

Sample Test Case

```
Input: 3 3
1 2 3
4 5 6
7 8 9
1 1 1
2 2 2
3 3 3
Output: 2 3 4
6 7 8
10 11 12
```

Answer

```
// You are using Java
import java.util.Scanner;

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

        // Read dimensions of the matrices
        int n = scanner.nextInt(); // number of rows
        int m = scanner.nextInt(); // number of columns

        // Create matrices for two weather stations
        int[][] station1 = new int[n][m];
        int[][] station2 = new int[n][m];
        int[][] combined = new int[n][m];

        // Read temperature data from first weather station
```

```
        for (int i = 0; i < n; i++) {
            for (int j = 0; j < m; j++) {
                station1[i][j] = scanner.nextInt();
            }
        }

        // Read temperature data from second weather station
        for (int i = 0; i < n; i++) {
            for (int j = 0; j < m; j++) {
                station2[i][j] = scanner.nextInt();
            }
        }

        // Add corresponding elements from both stations
        for (int i = 0; i < n; i++) {
            for (int j = 0; j < m; j++) {
                combined[i][j] = station1[i][j] + station2[i][j];
            }
        }

        // Print the combined temperature record
        for (int i = 0; i < n; i++) {
            for (int j = 0; j < m; j++) {
                System.out.print(combined[i][j] + " ");
            }
            System.out.println();
        }

        scanner.close();
    }
}
```

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