

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.io.BufferedReader;
import java.io.InputStreamReader;
import java.util.StringTokenizer;
```

```
public class Main {
    public static void main(String[] args) throws Exception {
        BufferedReader br = new BufferedReader(new
        InputStreamReader(System.in));
```

```
        int N = Integer.parseInt(br.readLine().trim());
        long mainSum = 0, secondarySum = 0;
```

```
        for (int i = 0; i < N; i++) {
            String line = br.readLine();
            while (line != null && line.trim().isEmpty()) line = br.readLine();
            StringTokenizer st = new StringTokenizer(line);
```

```
for (int j = 0; j < N; j++) {  
    int val = Integer.parseInt(st.nextToken());  
    if (i == j) mainSum += val;  
    if (j == N - 1 - i) secondarySum += val;  
}  
}  
  
System.out.println("Sum of the main diagonal: " + mainSum);  
System.out.println("Sum of the secondary diagonal: " + secondarySum);  
}  
}
```

Status : Correct

Marks : 10/10