

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.Scanner;
class main{
    public static void main(String[] args){
        Scanner s=new Scanner(System.in);
        int n=s.nextInt();
        int s1=0;
        int s2=0;
        int[][] arr=new int[n][n];
        for(int i=0;i<n;i++){
            for(int j=0;j<n;j++){
                arr[i][j]=s.nextInt();
            }
        }
        for(int i=0;i<n;i++){
            for(int j=0;j<n;j++){
                if(i==j){
                    s1=s1+arr[i][j];
                }
            }
        }
        for(int i=0;i<n;i++){
            for(int j=n-1-i;j<0;j++){
                s2=s2+arr[i][j];
            }
        }
    }
}
```

```
    }  
    }  
    System.out.println("Sum of the main diagonal: "+s1);  
    for(int i=0;i<n;i++){  
        for(int j=0;j<n;j++){  
            if(i+j==n-1){  
                s2=s2+arr[i][j];  
            }  
        }  
    }  
    System.out.println("Sum of the secondary diagonal: "+s2);  
}  
}
```

Status : Correct

Marks : 10/10