Sum of Both Diagonals in a Matrix!!

HackerRank

Problem Statement

In a square matrix, there are two main diagonals:

- **Primary Diagonal**: Elements where the row index equals the column index (e.g., A[i][i]).
- **Secondary Diagonal**: Elements where the sum of the row and column indexes equals N - 1 (e.g., A[i][N - i - 1]).

Your task is to write a program that:

1. Reads a **square matrix** of size N × N.
2. Calculates the **sum of primary diagonal elements**, the **sum of secondary diagonal elements**, and the total sum of both diagonals.
3. If the matrix size is odd, the **center element** (which lies on both diagonals) must be **counted only once**.

Input Format

- The first line contains an integer N, representing the size of the square matrix.
- The next N lines each contain N space-separated integers, representing the matrix elements.

Constraints

- 1 <= N <= 100
- -10^5 <= Array Element <= 10^5

Output Format

Print three lines:

Sum of Primary Diagonal: X

Sum of Secondary Diagonal: Y

Total Sum of Both Diagonals: Z

Sample Input 0

```
3
1 2 3
4 5 6
7 8 9
```

Sample Output 0

```
Sum of Primary Diagonal: 15
Sum of Secondary Diagonal: 15
Total Sum of Both Diagonals: 25
```

Explanation 0

Primary diagonal = (1, 5, 9) → 15

Secondary diagonal = (3, 5, 7) → 15

Total = 15 + 15 − 5 (center element counted once) = 25