

T. Matrix

time limit per test: 1 second

memory limit per test: 256 megabytes

Given a number N and a 2D array A of size $N \times N$. Print the absolute difference between the summation of its two diagonals (primary diagonal and secondary diagonal).

Input

First line contains a number N ($1 \leq N \leq 100$) described above. `int n; cin >> n;`

Each of the next N lines will contain N numbers ($-100 \leq A_i \leq 100$). `int a[n][n];`

Output

Print the absolute difference between the summation of the matrix main diagonals. `primary & secondary diagonal`

Example

Σ of Secondary diagonal = $1+6+8+3=18$

Σ of Primary diagonal = $1+-4+5+-6=-4$

absolute difference: $|\Sigma \text{ sec.} - \Sigma \text{ pri.}| = |18 - (-4)| = |22| = 22$

output

شرح برمجي :

عدد الصفوف = عدد الأعمدة $(N \times N)$

نموز للصنف ب i والأعمدة ب j

$i=0$ $j=0$ $j=1$ $j=2$ $j=3$

$i=1$ $i=2$ $i=3$

Secondary diagonal start with $i=0, j=3=n-1$

then, $i++$, $j--$

$i+j=n-1$

مثلا:

- $i=0, j=3 \rightarrow 0+3=4-1 \checkmark$
- $i=1, j=2 \rightarrow 1+2=4-1 \checkmark$
- $i=2, j=1 \rightarrow 2+1=4-1 \checkmark$
- $i=3, j=0 \rightarrow 3+0=4-1 \checkmark$

main (primary) diagonal $j=i$

مهم جداً :

علاقة عناصر القطر الرئيسي : $i=j$

علاقة عناصر القطر الثانوي : $i+j=n-1$

for Matrix of $N \times N$ Size

Solution :

By Juman.Salahat, contest: Sheet #3 (Arrays), problem: (T) Matrix , Accepted, #, Copy

```
#include <bits/stdc++.h>
using namespace std;
int main()
{
    int n; cin >> n;
    int a[n][n];

    int SumPri=0;
    int SumSec=0;

    // إدخال عناصر المصفوفة
    // وإيجاد مجموع عناصر القطر الرئيسي ، ومجموع عناصر القطر الثانوي
    for(int i=0; i<n; i++)
    {
        for(int j=0; j<n; j++)
        {
            cin >> a[i][j];
            if(i==j) SumPri+=a[i][j];
            if(i+j==n-1) SumSec+=a[i][j];
        }
    }

    // إيجاد المطلوب :
    // -> the absolute difference between the summation of the matrix main diagonals
    int result=abs(SumPri-SumSec);
    cout << result;
    return 0;
}
```