

## Problem 2

### Magic Square Solver

In recreational mathematics, a magic square of order  $n$  is an arrangement of  $n^2$  numbers, usually distinct integers, in a square, such that the  $n$  numbers in all rows, all columns, and both diagonals sum to the same constant. Normal magic squares exist for all orders  $n \geq 1$  except  $n = 2$ , although the case  $n = 1$  is trivial—it consists of a single cell containing the number 1. The smallest nontrivial case, shown below, is of order 3.

2	7	6	→15
9	5	1	→15
4	3	8	→15
↙15	↓15	↓15	↘15

Your task is to determine if the input is a magic square. You must determine if each row, column and diagonal (only the two that cross opposite corners of the square) all sum to the same value.

#### Input

Input will consist of a series of values. The first value will be the size of the square, and the rest will be the values of each cell in the square. The values of each cell in a row will be given in order, with spaces between them, and there will be one row on each line.

#### Output

Output should consist of the word "Yes" or "No", depending on whether or not the input is indeed a magic square.

#### Sample input

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

#### Sample output

```
Yes
```

### Sample input (2)

```
5
1 4 6 9 4
3 6 2 8 2
9 0 8 1 8
3 3 3 3 6
6 7 8 9 1
```

### Sample output (2)

```
No
```