22 Magic squares
10 points

Introduction

A magic square, is a n x n square grid filled with distinct positive integers in the range 1, 2, …, n^2 such that each cell contains a different integer and the sum of the integers in each row, column and main diagonal is equal. This sum is called the magic constant of the magic square.

Even though magic square do not have a known application, and they belong to the recreational mathematics space, they have a long history, dating back to at least 650 BC in China. Many times, this squares have acquired magical or mythical significance, and have appeared as symbols in works of art. In Europe, one of the most famous magic squares is the Albert Dürer order-4 magic square, immortalized in his 1514 engraving Melencolia I:

16	3	2	13
5	10	11	8
9	6	7	12
4	15	14	1

As you can see in the grid above, the magic constant 34 can be found in the rows, columns, and main diagonals. The two numbers in the middle of the bottom row give the date of the engraving: 1514. The numbers 1 and 4 at either side of the date correspond respectively to the letters "A" and "D", which are the initials of the artist.

We have another famous magic square here, in Barcelona. The Passion façade of the Sagrada Familia features a 4x4 magic square.

The magic constant of the square is 33, the age of Jesus at the time of the Passion. 33 is also the number of the traditional degrees of Masonry, group with which Antonio Gaudi is usually related to.

As all we love mathematics, and we are now amazed about all this symbology represented by magic squares…

Write a program to check if a given square is magic or not.

Input

A series of rows with the corresponding columns of the magic square. As the order of the square might be variable the finish of the input will be marked with the character '#'.

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

Example 2
```
8 13 2 11
1 12 7 14
15 6 16 4
10 3 9 5
#
```

Output

A string reporting whether the input is or is not a magic square.

Example 1
```
This is a magic square
```

Example 2
```
This is not a magic square
```