## Problem 3 – Patterns

### You are given a matrix of numbers. By given the pattern below, find the pattern with maximal sum:

### The pattern consists of neighbor cells in the matrix. The numbers in the cells must be consecutive, i.e. the following rules must be always valid:

### A = B -1, B = C – 1, C = D – 1, D = F – 1, F = E – 1, E = G - 1

The size of the pattern is constant and always has the given form.

### Example:

### The patterns here are marks with green, blue and yellow colors:

* The green pattern has a sum of its numbers **33**
* The blue pattern has a sum of its numbers **56**
* The yellow patternhas a sum of its numbers **-14**

**The winning pattern is the blue with maximal sum of 56**

### Input

On the first line of the console you will find the number N – the number of rows and columns of the matrix

On the next N lines you will find exactly N numbers, separated by a space. This are the numbers of the matrix.

The input data will always be valid and in the described format. There is no need to check it explicitly.

### Output

The output data consists of a single line. It should start with either “YES” or “NO”:

* If at least one pattern is found in the matrix – print “**YES {sum}**”, where sum is the sum of the numbers in the maximal pattern
* If no patterns are to be found in the matrix – print “**NO {sum}**”, where sum is the sum of the numbers, that are on the main diagonal of the matrix

### Constraints

* **N** will always be **greater or equal to 5** and **less or equal to 1000**
* The numbers in the matrix will always be **between -2147483648 and 2147483647**
* Allowed working time for your program: 0.1 seconds.
* Allowed memory: 16 MB.

### Examples

|  |  |  |
| --- | --- | --- |
| **Input** | **Output** | **Explanation** |
| 5  1 2 3 4 5  2 3 4 5 6  3 4 5 6 7  4 5 6 7 8  5 6 7 8 9 | YES 42 | The found patterns are:  ,  and  The last one has the biggest sum, equal to 3+4+5+6+7+8+9 = **42** |

|  |  |  |
| --- | --- | --- |
| **Input** | **Output** | **Explanation** |
| 7  1 2 3 4 5 6 7  7 6 5 4 3 2 1  1 2 3 4 5 6 7  7 6 5 4 3 2 1  1 2 3 4 5 6 7  7 6 5 4 3 2 1  1 2 3 4 5 6 7 | NO 28 | There are no patterns in this matrix  The sum of the main diagonal is printed:  1+6+3+4+5+2+7 = **28** |

|  |  |  |
| --- | --- | --- |
| **Input** | **Output** | **Explanation** |
| 8  1 2 4 5 5 4 100 5  5 4 5 1 2 4 3 -2  1 5 6 7 8 6 1 8  -9999 2 3 8 5 6 7 8  2 1 4 9 10 11 -4 6  -5 -4 -3 3 4 5 6 77777  5 -111 -2 2 1 3 7 4  6 7 -1 0 1 2 8 9 | YES 56 | This is explained in the example above |