F003A. Pentadiagonal matrices   P55168_en

A square matrix is called *pentadiagonal* if all the elements out of the main diagonal and of the two diagonals over and under the main diagonal are 0.

For instance, the matrix on the left is pentadiagonal, but, the matrix on the right is not (it would be pentadiagonal if the 9 on the second and the sixth row were 0).

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

Using the definition

> **typedef** *vector<vector<int> > Matrix*;

Implement the function

> **bool** *is_pentadiagonal* (**const** *Matrix& mat*);

that prints whether `mat` is pentadiagonal or it is not.

Also, using the definition

> **struct** *Info* {
>   **int** *sum*;
>   **int** *max*;
> };

Implement the procedure

> **void** *calculate* (**const** *Matrix& mat*, *Info& inf*);

that stores in the fields `sum` and `max` of the output parameter `inf` the sum and the maximum of *all* the `mat` elements, under the precondition that `mat` is pentadiagonal.

The main program is already done; do not modify it. It reads square matrices of integers, and for each one, if the matrix is pentadiagonal, writes the sum and the maximum of its elements; Otherwise, it prints that the matrix is not pentadiagonal.

Precondition

The matrices `mat` are $n \times n$ with $n \geq 6$.

Sample input

```
10
2 0 1 0 0 0 0 0 0 0
9 4 1 1 0 0 0 0 0 0
1 1 5 1 5 0 0 0 0 0
0 6 3 2 5 1 0 0 0 0
0 0 2 1 5 1 1 0 0 0
0 0 0 1 9 0 9 9 0 0
0 0 0 0 5 1 1 1 8 0
0 0 0 0 0 5 1 5 2 4
0 0 0 0 0 0 4 5 4 4
0 0 0 0 0 0 0 5 5 7

10
5 6 7 0 0 0 0 0 0 0
1 7 3 6 0 0 0 9 0 0
1 7 0 7 3 0 0 0 0 0
0 8 7 8 1 4 0 0 0 0
0 0 8 2 1 4 1 0 0 0
0 0 9 5 1 4 1 1 0 0
0 0 0 0 1 4 4 5 6 0
0 0 0 0 0 6 8 7 7 2
0 0 0 0 0 0 8 4 0 0
0 0 0 0 0 0 0 7 5 5

6
-1   0   1   0   0   0
 0  -1   0   1   0   0
 1   0  -1   0   1   0
 0   1   0  -1   0   1
 0   0   1   0  -1   0
 0   0   0   1   0  -1

6
-17 -17 -17   0   0   0
-17 -17 -17 -17   0   0
-17 -17 -17 -17 -17   0
  0 -17 -17 -17 -17 -17
  0   0 -17 -17 -17 -17
  0   0   0 -17 -17 -17
```

Sample output

```
153 9
no es pentadiagonal
2 1
-408 0
```

Problem information

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