Sawtooth sequences X76165_en

A sequence of integers $x_1, \ldots, x_n$ is said to be a *sawtooth sequence* if and only if it alternates between ups and downs, more formally, if and only if for all i in $\{2, \ldots, n-1\}$, either x_i is larger than its predecessor and its successor, or x_i is smaller than its predecessor and its successor. In symbols, it is a sawtooth sequence if and only if for all i in $\{2, \ldots, n-1\}$, either $x_i > x_{i-1}$ and $x_i > x_{i+1}$, or $x_i < x_{i-1}$ and $x_i < x_{i+1}$. By convention, a sequence of length ≤ 2 is a sawtooth sequence.
Write a program that reads a sequence of integers from the standard input channel (`cin`) and tells whether the sequence is a sawtooth sequence or not. To this end, your program must define and use a Boolean function

```
bool is_sawtooth();
```

which reads elements from `cin` and returns true if and only if they form a sawtooth sequence.
Note: A function reading as few elements from the input as possible will be scored better, as it has less execution time.
Note: Recall that at this point of the course using vectors or any other method to store massive data is not allowed.
Exam score: 2.5 **Automatic part:** 40%

Input

A sequence of $n \geq 0$ integers.

Output

The program outputs "yes" if the given sequence is a sawtooth sequence, and "no" otherwise.

Sample input 1

```
2 4 3 7 2 5 3
```

Sample output 1

```
yes
```

Sample input 2

```
2 4 5
```

Sample output 2

```
no
```

Sample input 3

Sample output 3

```
yes
```

Sample input 4

```
-1
```

Sample output 4

```
yes
```

Sample input 5

```
2 6 1 3 2 10 4 7 8
```

Sample output 5

```
no
```

Sample input 6

```
1 2
```

Sample output 6

```
yes
```

Problem information

Author : PRO1
Generation : 2015-11-02 12:57:57