Search in a unimodal vector X82938_en

In this problem, we say that a vector with n integer numbers v [0.. $n-1$] is *unimodal* if $n \geq 1$, and there exists an index j such that $0 \leq j \leq n-1$ and satisfying:

- $v[0] < \ldots < v[j-1] < v[j]$, and
- $v[j] > v[j+1] > v[j+2] > \ldots > v[n-1]$.

For instance, the vector [0, 2, 5, 7, 6, 5, 4, 3, 1] is unimodal (with $j = 3$).

Note that vectors with $n \leq 2$ different elements are unimodal. In general, note that any strictly increasing vector is also unimodal (and in all cases $j = n-1$), and analogously, any strictly decreasing vector is also unimodal (and then $j = 0$).

Implement an *efficient* function

bool *search*(**int** x, **const** *vector*<**int**>& v);

such that, given an integer number x and a unimodal vector v, returns true if x appears in v, and false otherwise. You can use and implement auxiliary functions if you need them.

Precondition

The vector v is unimodal.

Observation

You only need to submit the required procedure; your main program will be ignored.

Problem information

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