Select from two sorted arrays P72545_en

Write an efficient function

Interface

C++ **int** *select* (**int** *k*, **const vector**<**int**>& *v1*, **const vector**<**int**>& *v2*);
Python **def** *select* (*k*: *int*, *v1*: *list* [*int*], *v2*: *list* [*int*]) → *int*:
that returns the *k*-th largest of all the elements contained in *v1* and *v2*, taking into account repeated elements. For instance, if *v1* contains a 5 and a 7, and *v2* only contains a 5, then a call to *select* (1, *v1*, *v2*) should return 5, a call to *select* (2, *v1*, *v2*) should also return 5, and a call to *select* (3, *v1*, *v2*) should return 7.

Precondition

The vectors *v1* and *v2* are sorted in nondecreasing order. The index *k* is correct, that is, it is between 1 and $v1.size() + v2.size()$. Therefore, at least one of the vectors is not empty.

Observation

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

Problem information

Author : Salvador Roura
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