Practice Arena

Practice problems aimed to improve your coding skills.

- PRACTICE-02_SCAN-PRINT
- PRACTICE-03_TYPES
- LAB-PRAC-02_SCAN-PRINT
- LAB-PRAC-01
- PRACTICE-04_COND
- BONUS-PRAC-02
- LAB-PRAC-03_TYPES
- PRACTICE-05_COND-LOOPS
- LAB-PRAC-04_COND
- LAB-PRAC-05_CONDLOOPS
- PRACTICE-07_LOOPS-ARR
- LAB-PRAC-06_LOOPS
- LAB-PRAC-07_LOOPS-ARR
- LABEXAM-PRAC-01_MIDSEM
- PRACTICE-09_PTR-MAT
- LAB-PRAC-08_ARR-STR
- PRACTICE-10_MAT-FUN
- LAB-PRAC-09_PTR-MAT
- LAB-PRAC-10_MAT-FUN
- PRACTICE-11_FUN-PTR
- LAB-PRAC-11_FUN-PTR
- LAB-PRAC-12_FUN-STRUC
- LABEXAM-PRAC-02_ENDSEM
- LAB-PRAC-13_STRUC-NUM
- LAB-PRAC-14_SORT-MISC
  - Predecessor and Successor
  - Insertion Sort
  - Link a List
  - The United Sums of Arrays
  - Bubble Sort
  - Pretty Queues Revisited
  - Just About Sorted
  - Brick Sort
  - All My Descendants
  - Mr C likes a Majority
  - Cocktail Sort
  - All My Descendants - Part II

Predecessor and Successor

LAB-PRAC-14_SORT-MISC

Predecessor and Successor [20 marks]

Problem Statement
The first line of the input will give you two integers n and q, separated by a space. n will be strictly positive but q may be negative or zero or positive. The second line will give you a list of n integers, separated by a space. The integers will be given in non-decreasing order.

In your output, you have to print, in two separate lines, the largest number in the list that is strictly smaller than q (if such a number does not exist, print -1), and the smallest number in the list that is strictly larger than q (if such a number does not exist, print -1).

Caution

1. Pay close attention to the problem statement, especially on the significance of the word "strictly".
2. The numbers in the list may repeat and the number q may itself appear in the list one or more times.
3. Try to use the binary search method to avoid searching all the elements of the list. Try to search for the two numbers you have to print, in O(log n) time rather than O(n) time.
4. Be careful about extra/missing lines and extra/missing spaces in your output.

EXAMPLE 1:
INPUT
4 6
3 4 9 11

OUTPUT:
4
9

Explanation: The query number is 6, the largest number smaller than 6 in the array is 4, while the smallest number greater than 6 in the array is 9.

EXAMPLE 2:
INPUT
5 12
3 4 9 11 12

OUTPUT:
11
-1

Explanation: There are no numbers strictly greater than 12 in the list. 11 is the largest of the numbers strictly smaller than 12.

Grading Scheme:
Total marks: **[20 Points]**

There will be partial grading in this question. There are two lines in your output. Printing each line correctly, in the correct order, carries 50% weightage. Each visible test case is worth 2 points and each hidden test case is worth 4 points. There are 2 visible and 4 hidden test cases.

Please remember, however, that when you press Submit/Evaluate, you will get a green bar only if all parts of your answer are correct. Thus, if your answer is only partly correct, Prutor will say that you have not passed that test case completely, but when we do autograding afterwards, you will get partial marks.

Start Solving! (/editor/practice/6285)