Practice Arena

Practice problems aimed to improve your coding skills.

- PRACTICE-02_SCAN-PRINT
- PRACTICE-03_TYPES
- LAB-PRAC-02_SCAN-PRINT
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- PRACTICE-07_LOOPS-ARR
- LAB-PRAC-06_LOOPS
- LAB-PRAC-07_LOOPS-ARR
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  - Arrangements with Arrays
  - Overlapping Patterns
  - Lucky Draw
  - Diamond Array
  - Linear Leap
  - Candy Crush
  - Nested Safes
  - Heros Arc
  - Linear Loopy Maze
  - Histogram Heights
  - Changing Times
- LABEXAM-PRAC-01_MIDSEM
- PRACTICE-09_PTR-MAT
- LAB-PRAC-08_ARR-STR
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- LABEXAM-PRAC-02_ENDSEM
- LAB-PRAC-13_STRUC-NUM
- LAB-PRAC-14_SORT-MISC

Heros Arc

LAB-PRAC-07_LOOPS-ARR

Hero's Arc [20 marks]

Problem Statement
Mr C is a big fan of movies. He is especially obsessed with the cinematic notion of the hero's arc, in which the hero's happiness keeps decreasing until the movie reaches a turning point. From this point onwards, the hero's happiness keeps increasing. In every movie that Mr C watches, he makes a note of the hero's happiness at every point of time. He then gives you his notes and asks you to determine if the movie contains a hero's arc or not.

You will be given a sequence of strictly positive numbers such that no two consecutive numbers will be equal (non-consecutive numbers may be equal). The sequence will end with a -1 which is not a part of the sequence. The numbers (excluding the last -1) indicate the hero's happiness at various successive points in the movie. Thus, happiness levels never remain the same, they either go up or down throughout the movie (to make the movie plot interesting).

You have to output "YES" (without the quotes) if the sequence (excluding the last -1) consists of a strictly decreasing sequence followed by a strictly increasing sequence such that the last element of the decreasing sequence is the same as the first element of the subsequent increasing sequence and "NO" otherwise (without the quotes).

In the second line of the output, in case your answer in the first line is YES, output the turning point of the movie, i.e. the last element of the decreasing sequence (which will also happen to be the first element of the subsequent increasing sequence). If your answer in the first line is NO, then print the last element of the sequence (i.e. the one just before the -1) in the second line.

Caution

1. Be careful about extra/missing lines and extra/missing spaces.
2. A strictly increasing sequence is considered a hero's sequence with the first element of the sequence being the turning point.
3. A strictly decreasing sequence is also considered a hero's sequence with the last element of the sequence (not including the -1) as the turning point.
4. A singleton sequence (a sequence with only one element before the -1) can be interpreted as an increasing or a decreasing sequence. It will not change the correct answers to this question.

HINT: You may require the use of flags in this question.

EXAMPLE 1:
INPUT
7 6 5 4 10 11 12 -1

OUTPUT:
YES
4
Explanation: The strictly decreasing sequence is 7 6 5 4 and the strictly increasing sequence is 4

10 11 12. The element 4 is in common to them.

EXAMPLE 2:
INPUT
4 8 1 3 -1

OUTPUT:
NO
3
Explanation: The sequence first increases 4 8 then decreases 8 1 then increases again 1 3. 3 is output in the second line since it is the last element of the list (excluding the final -1).

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

There will be no partial grading in this question. An exact match will receive full marks whereas an incomplete match will receive 0 points. Please be careful of missing/extra spaces and missing/lines (take help of visible test cases). Each visible test case is worth 1 point and each hidden test case is worth 2 points. There are 2 visible and 4 hidden test cases.

Start Solving! (/editor/practice/6145)