Finding a closest pair of points

Given a set of points {p1, . . ., pn} find the pair of points {pi , pj } that are closest together. With the distance calculated using the formula:

$$Distance = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

1 Input

-The first line contains an integer N is the number of points.
-The next N line is each line has 2 integers x and y indicating that there is a point at coordinates x and y

2 Ouput:

The distance of the closest pair.

3 Example:

Input
5
1 1
2 2
3 3
4 4
5 5
Output:
1.414

Maximum Subarray

Maximum Subarray Given an array consisting of both positive and negative integers, the task is to find the contiguous subarray within the given array that has the largest sum. The subarray must contain at least one element and the goal is to determine the sum of this maximum subarray.

1 Input

-The first line contains an integer N is the number of elements in the array

- The second line contains N integers of the array

2 Output

-The sum of the maximum subarray

3 Example

Input:

9

-2 1 -3 4 -1 2 1 -5 4

Output:

6

Explanation: The subarray [4,-1,2,1] has the largest sum 6.

Equivalent Strings

Two strings *a* and *b* of equal length are called *equivalent* in one of the two cases:

1. They are equal

2. If we split string a into two halves of the same size a1 and a2, and string b into two halves of the same size b1 and b2, then one of the following is correct:

    a. a1 is equivalent to b1, and a2 is equivalent to b2

    b. a1 is equivalent to b2, and a2 is equivalent to b1

Given two strings a, b and asked to determine if they are equivalent.

1 Input

The first two lines of the input contain two strings given. The strings have the same length.

2 Output:

Print "YES" (without the quotes), if these two strings are equivalent, and "NO" (without the quotes) otherwise.

3 Example:

Input:

aaba

abaa

output:

YES

Input:

aabb

abab

Output:

NO

Explanation

In the first sample you should split the first string into strings "aa" and "ba", the second one — into strings "ab" and "aa". "aa" is equivalent to "aa"; "ab" is equivalent to "ba" as "ab" = "a" + "b", "ba" = "b" + "a".

In the second sample the first string can be splitted into strings "aa" and "bb", that are equivalent only to themselves. That's why string "aabb" is equivalent only to itself and to string "bbaa".