# Paper Strips

Tito has been given a paper strip with a string of letters written on it. He would like to rearrange the letters. He does this by making some number of cuts between letters and then rearranging the strips of paper.

Tito likes order, so he would like the resulting strip of paper to be *bitonic*. That is, there should be some character position in the resulting string where the characters up to and including that position are alphabetically non-decreasing and all characters after and including that position are alphabetically non-increasing. Consider this example:
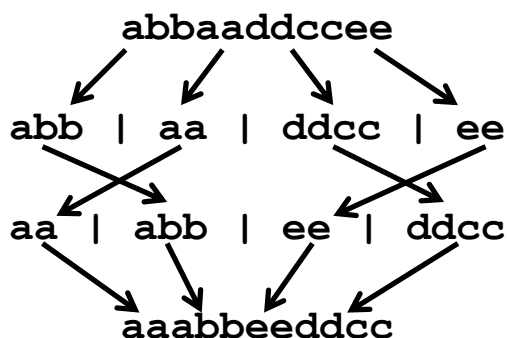
The resulting string in the above example is *bitonic*. Consider the first **e**. The string **aaabbe** is non-decreasing, and the string **eeddcc** is non-increasing. Tito achieved this with three cuts. Note that any string which is *monotonic* (uniformly nondecreasing or nonincreasing) is also *bitonic*.

Determine the minimum number of cuts that Tito needs in order to make his string *bitonic*.

Input

Each input will consist of a single test case. Note that your program may be run multiple times on different inputs.

Each test case will consist of a single line containing a string s ($1 \le |s| \le 50$) which consists only of lower-case letters. This is the original string on the strip of paper given to Tito.

Output

Output a single integer, which is the minimum number of required cuts.

Sample Input	Sample Output
abbaaddccee	3