

# Problem 443: String Compression

## Problem Information

**Difficulty:** Medium

**Acceptance Rate:** 59.07%

**Paid Only:** No

**Tags:** Two Pointers, String

## Problem Description

Given an array of characters `chars`, compress it using the following algorithm:

Begin with an empty string `s`. For each group of **consecutive repeating characters** in `chars`:

\* If the group's length is `1`, append the character to `s`. \* Otherwise, append the character followed by the group's length.

The compressed string `s` **should not be returned separately**, but instead, be stored **in** the input character array `chars`. Note that group lengths that are `10` or longer will be split into multiple characters in `chars`.

After you are done **modifying the input array**, **return \_the new length of the array\_**.

You must write an algorithm that uses only constant extra space.

**Note:** The characters in the array beyond the returned length do not matter and should be ignored.

**Example 1:**

**Input:** chars = ["a", "a", "b", "b", "c", "c", "c"] **Output:** Return 6, and the first 6 characters of the input array should be: ["a", "2", "b", "2", "c", "3"] **Explanation:** The groups are "aa", "bb", and "ccc". This compresses to "a2b2c3".

**Example 2:**

**\*\*Input:\*\*** chars = ["a"] **\*\*Output:\*\*** Return 1, and the first character of the input array should be: ["a"] **\*\*Explanation:\*\*** The only group is "a", which remains uncompressed since it's a single character.

**\*\*Example 3:\*\***

**\*\*Input:\*\*** chars = ["a", "b", "b"] **\*\*Output:\*\*** Return 4, and the first 4 characters of the input array should be: ["a", "b", "1", "2"]. **\*\*Explanation:\*\*** The groups are "a" and "bbbbbbbbbbb". This compresses to "ab12".

**\*\*Constraints:\*\***

\* `1 <= chars.length <= 2000` \* `chars[i]` is a lowercase English letter, uppercase English letter, digit, or symbol.

## Code Snippets

### C++:

```
class Solution {
public:
    int compress(vector<char>& chars) {
        }
    };
}
```

### Java:

```
class Solution {
    public int compress(char[] chars) {
        }
    };
}
```

### Python3:

```
class Solution:
    def compress(self, chars: List[str]) -> int:
```