

January 2023 CSE 106

Online Assignment on Arrays

Runlength Compression

Time: 30 minutes

Subsections A1 & A2

Consider a string `aaabbcccdffffaaa`. The same letter appears many times consecutively. To save space, we can save this string as `a3b2c3d1f4a3`. You have to write a program that does this run-length encoding of the given string.

Input

Take a non-empty string of lowercase letters as input from console.

Output

Task 1 (70%) Print the run-length encoded version of the string.

Task 2 (30%) If the encoded string is larger than the original string, print the original string too.

Sample I/O

Input

`aaaaabb`

Output

`a5b2`

Input

`aaabbccccccddddddeaaaabccc`

Output

`a3b2c5d6e1a4b1c3`

Input

`aabc`

Output

`a2b1c1`
`aabc`

Hints

Run a loop over the string and try to increase the count as long as same character continues to appear.

Please note that any usage of the internet is strictly prohibited during the assignment. Usage of any unfair means will be duly punished.