

American Computer Science League

2020-2021 • Contest 2: Lex Strings • Junior Division

PROBLEM: Given an inputted string, create a new string as follows:

1. Change uppercase letters to lowercase and eliminate all non-letters.
2. Find all first occurrences of each distinct letter and arrange them in sorted order.
3. Append these sorted letters to the end of a new string and remove those distinct letters from the original string.
4. Repeat steps 2 and 3 until the original string is empty.
5. Before outputting the new string, remove adjacent duplicate letters (e.g. "bboooo" becomes "bo").

For example, the string "A good sorting algorithm." would arrange as follows:

1st pass:	New string: adghilmnorst	Rest of string: oogagorit
2nd pass:	New string: adghilmnorstagiort	Rest of string: ogo
3rd pass:	New string: adghilmnorstagiortgo	Rest of string: o
4th pass:	New string: adghilmnorstagiortgoo	Rest of string:
Output:	adghilmnorstagiortgo	

INPUT: Your program will receive a single line of data, each containing a single string that is fewer than 100 characters in length.

OUTPUT: The new string as specified above.

SAMPLE INPUT:

A good sorting algorithm.
Tennessee is the volunteer state.
Einstein was a genius.
Tom Sawyer & the Mississippi River
She sells seashells by the seashore.

EXPECTED OUTPUT:

adghilmnorstagiortgo
aehilnorstuvstenstestete
aeginstuwaeinseins
aehimoprstvwyeimprsteirsisis
abehlorstyaeahlsehlsehlseheses

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TEST INPUT:

Peter Piper picked a peck of pickled peppers.
Computer Science Teachers Association had a virtual Conference in
2020.
HackerRank.com was used for the ACSL Finals this past year.
Programming languages include Java, Python, C++, BASIC, and Scratch.
COVID-19 is a global pandemic and a virus that changed everything.

EXPECTED OUTPUT:

```
acdefikloprstcdeikprceikprepepepepep  
acdefhilmnoprstuvacehinorstuaceinorstaceinorstaceinacece  
acdefhiklmnoprstuwyaefhiklnorstacehrstaersasasa  
abcdeghijklmnoprstuvyacdghilmnoprstuacginrsacgnacna  
abcdeghilmnoprstuvyacdghilnorstvacdeghintvadeinaia
```

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问题: 给定一个输入字符串，按照如下要求输出一个新的字符串：

1. 将大写字母改为小写字母，并删去所有非字母字符。
2. 找出所有首次出现的字母，并按照字母顺序进行排列。
3. 将排列好的字母加到新字符串的末尾，并从原字符串中删除这些字母。
4. 重复步骤 2 和步骤 3，直至将原字符串全部清空。
5. 删除相邻的重复字母，然后输出新字符串。(比如 "bboooo" 变为 "bo").

例如，字符串“A good sorting algorithm.”按照如下方式进行排列：

第 1 步:	新字符串: adghilmnorst	剩余字符串: oogagorit
第 2 步:	新字符串: adghilmnorstagiort	剩余字符串: ogo
第 3 步:	新字符串: adghilmnorstagiortgo	剩余字符串: o
第 4 步:	新字符串: adghilmnorstagiortgoo	剩余字符串:
输出:	adghilmnorstagiortgo	

输入: 你将会接收到一行数据，每行数据包含一个单独的字符串，长度小于 100 个字符。

输出: 如上所示的新字符串。

示例输入:

```
A good sorting algorithm.  
Tennessee is the volunteer state.  
Einstein was a genius.  
Tom Sawyer & the Mississippi River  
She sells seashells by the seashore.
```

预期输出:

```
adghilmnorstagiortgo  
aehilmnorstuvnstestete  
aeginstuwaeinseins  
aehimoprstvwyeimprsteirsisis  
abehlorstyahlsehlsehseses
```

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测试输入:

Peter Piper picked a peck of pickled peppers.
Computer Science Teachers Association had a virtual Conference in
2020.
HackerRank.com was used for the ACSL Finals this past year.
Programming languages include Java, Python, C++, BASIC, and Scratch.
COVID-19 is a global pandemic and a virus that changed everything.

测试输出:

```
acdefikloprstcdeikprceikprepepepepep  
acdefhilmnoprstuvacehinorstuaceinorstaceinorstaceinacece  
acdefhiklmnoprstuwyaefhiklnorstacehrstaersasasa  
abcdeghijklmnoprstuvyacdghilmnoprstuacginrsacgnacna  
abcdeghilmnoprstuvyacdghilnorstvacdeghintvadeinaia
```