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# Encryption

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## Problem Statement

An English text needs to be encrypted using the following encryption scheme.

First, the spaces are removed from the text. Let  $L$  be the length of this text.

Then, characters are written into a grid, whose rows and columns have the following constraints:

- $\lfloor \sqrt{L} \rfloor \leq rows \leq column \leq \lceil \sqrt{L} \rceil$ , where  $\lfloor x \rfloor$  is floor function and  $\lceil x \rceil$  is ceil function

For example, the sentence **if man was meant to stay on the ground god would have given us roots** after removing spaces is 54 characters long, so it is written in the form of a grid with 7 rows and 8 columns.

```
ifmanwas
meanttos
tayonthe
groundgo
dwouldha
vegivenu
sroots
```

- Ensure that  $rows \times columns \geq L$
- If multiple grids satisfy the above conditions, choose the one with the minimum area, i.e.  $rows \times columns$ .

The encoded message is obtained by displaying the characters in a column, inserting a space, and then displaying the next column and inserting a space, and so on. For example, the encoded message for the above rectangle is:

**imtgdvs fearwer mayoogo anouuio ntnnlvt wttddes aohghn sseoau**

You will be given a message in English with no spaces between the words. The maximum message length can be 81 characters. Print the encoded message.

Here are some more examples:

### Sample Input:

haveaniceday

### Sample Output:

hae and via ecy

### Sample Input:

feedthedog

**Sample Output:**

```
fto ehg ee dd
```

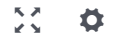
**Sample Input:**

```
chillout
```

**Sample Output:**

```
clu hlt io
```

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**Submissions:** 12591**Max Score:** 30**Difficulty:** Moderate[More](#)Current Buffer (saved locally, editable)  Java 8 

```
1 import java.io.*;
2 import java.util.*;
3
4 public class Solution {
5
6     public static void main(String[] args) {
7         /* Enter your code here. Read input from STDIN. Print output to STDOUT. Your class should be named
8         Solution. */
9     }
10 }
```

Line: 1 Col: 1

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