# Encryption

by HackerRank

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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:

- $\lfloor\sqrt{L}\rfloor \leq row \leq column \leq \lceil\sqrt{L}\rceil$, 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
```

Submissions:36494

Max Score:30

Difficulty: Medium

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Current Buffer (saved locally, editable) Java 7

```
1  import java.io.*;
2  import java.util.*;
3  import java.text.*;
4  import java.math.*;
5  import java.util.regex.*;
6
7  public class Solution {
8
9      public static void main(String[] args) {
10         Scanner in = new Scanner(System.in);
11         String s = in.next();
12     }
13 }
14
```

Line: 1 Col: 1

Upload Code as File  Test against custom input  Run Code  Submit Code