Practice › Algorithms › Implementation › Encryption

Encryption ☆

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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:

$$\lfloor \sqrt{L} \rfloor \le row \le column \le \lceil \sqrt{L} \rceil, \text{ where } \lfloor x \rfloor \text{ is floor function and } \lceil x \rceil \text{ is ceil function}$$

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. $\sqrt{54}$ is between 7 and 8, 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 $rows \times columns \ge L$

- 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 to encode and print.

Input Format

One line of text, the string s

Constraints

$1 \le |s| \le 81$

s is comprised only of characteres in the range ascii[a-z].

Output Format

Print the encoded message on one line as described.

Sample Input

```
haveaniceday
```

Sample Output:

```
hae and via ecy
```

Author	HackerRank
Difficulty	Medium
Max Score	30
Submitted By	41926

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$L = 12$, $\sqrt{12}$ is between 3 and 4 Rewritten with 3 rows and 4 columns:

```
have
anic
eday
```

Sample Input 1:

```
feedthedog
```

Sample Output 1:

```
fto ehg ee dd
```

Sample Input 2:

```
chillout
```

Sample Output 2:

```
clu hlt io
```

Current Buffer (saved locally, editable)   Java 7

```java
 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       static String encryption(String s) {
10           // Complete this function
11       }
12
13       public static void main(String[] args) {
14           Scanner in = new Scanner(System.in);
15           String s = in.next();
16           String result = encryption(s);
17           System.out.println(result);
18           in.close();
19       }
20   }
21
```

Line: 1 Col: 1

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