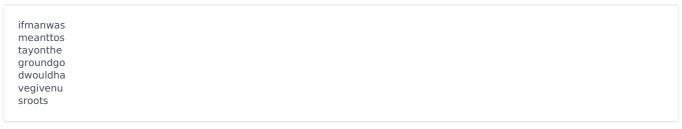
Encryption



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:

• $|\sqrt{L}| \le row \le column \le \lceil \sqrt{L} \rceil$, 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.



- ullet Ensure that $rows imes columns \geq L$
- 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:**

Sample Output:

chillout