

# Task: PRO

## Design a Board

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UFAM Workshop, contest #2. Source file pro.\* Available memory: 256 MB.

The board consists of  $m \cdot n$  fields arranged in  $m$  rows and  $n$  columns. The fields are colored white and black, and the condition is that between each two black fields there is a path composed only of black fields, where each two adjacent fields have a common edge.

Byteasar is interested in the number of rectangles with sides parallel to the axes containing only black fields. He believes that boards with exactly  $K$  of such rectangles are of particular interest. Design a board with dimensions of no more than  $1000 \times 1000$  that meets all of Byteasar's conditions.

### Input

The first and only line of the input contains one integer  $K$  ( $1 \leq K \leq 10^9$ ) denoting the required number of rectangles.

### Output

If there is no board that meets all the conditions, write  $-1$  in the first and only line of the output. Otherwise, the first line should contain the numbers  $m, n$  ( $1 \leq m, n \leq 1000$ ) that denote the dimensions of the board. In the following  $m$  lines there should be written words of length  $n$  composed of the characters  $.$  and  $\#$  describing the subsequent rows of the board. The character  $.$  specifies a white field and the character  $\#$  specifies a black field.

### Example

For the input data:  
17

the correct result could be:  
2 5  
#.###  
###.#