Word wrapping **P59168_en**

Dinovè Concurs de Programació de la UPC - Final (2021-09-22)

Word wrapping is breaking a text into lines so that they fit into the width w of a page. For simplicity, suppose that the text has only n words $[t_0, \ldots, t_{n-1}]$ without punctuation marks. If we decide to include the words $[t_i, \ldots, t_j]$ separated with spaces in the k-th line, and the sum of lengths of those words is ℓ, then we will use $\ell + j - i$ characters. Hence, we will have exactly $s_k = w - \ell - j + i$ unused spaces at the end of the k-th line.

Let us fix an integer constant $c \geq 1$. We can define the uglyness of each line k as $u_k = (s_k)^c$. A way of choosing where to break the lines is to minimize the resulting $\sum_k u_k$, where the sum is over the indices k of all lines except the last one (we do not care if it has unused space).

Given a text, can you wrap it according to this method?

Input

Input consists of several cases, each one with w, c and n, followed by n words made up of between 1 and w lowercase letters. You can assume $1 \leq w \leq 80$, $1 \leq c \leq 2$, and $1 \leq n \leq 10^4$.

Output

For every case, print the result of wrapping the text according to the method above. If there are several solutions with minimum total uglyness, choose the one that maximizes the number of words of the first line; in case of a tie, maximize the number of words of the second line, and so on. Print a line with w dashes at the end of each case.

Sample input

```
6 1 4
aaa bb cc ddddd

6 2 4
aaa bb cc ddddd

6 2 4
aa bbb cc ddddd

10 2 3
xxxxx yyyy z

2 1 2
a a

3 1 2
a a
```

Sample output

```
aaa bb
cc
ddddd
------
aaa
bb cc
ddddd
------
aa bbb
cc
ddddd
------
xxxxx yyyy
z
----------
a
a
--
a a
---
```

Problem information

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