Problem C
Explorer's Diary

Marico, an eccentric explorer of the orient, wrote an extensive diary of his trips. He did not mean to encrypt them, but that is what people thought due to his unusual writing style. Marico's writings proceeded from left to right but wrote each word vertically, and used the 26 letters of the alphabet (upper case) only. For example, he wrote the following:

```
THIS IS MY FIRST TRIP TO THE ORIENT I FOUND
THEIR WRITING SO BEAUTIFUL THAT I ADOPTED INTO
MY OWN
```

as

T	I	M	F	T	T	T
H	S	Y	I	R	O	H
I			R	I		E
S	I	F	S	P	S	
		O	T		O	B
O	I	U		W		E
R		N	T	R	O	A
I		D	H	I	W	U
E			E	T	N	T
N		A	I	I		I
T		D	R	N		F
		O		G		U
T		P	I			L
H		T	N	M		
A		E	T	Y		
T		D	O			

Marico's diary has been digitized for the sake of preserving it, but its content remained a mystery until his unique writing style was understood. The process of converting a large number of pages back was found to be tedious and risky for error-prone human volunteers, and the decision was taken to develop a software tool to perform the task instead.

Your task is to write a program for the purpose of converting pages of Marico's diary into the familiar way of writing such that:

1. words on the same line are separated by *exactly* one blank space,
2. width of the output text does not exceed a specified value,
3. words are not to be broken between output lines.

For example, your program should convert the page of Marico's diary shown on the left to the text shown on the right when the width is bounded by 10 places.

```
TIMFTTT
HSYIROH
I  RI E
SIFSPS
  OT OB
OIU W E
R NTROA
I DHIWU
E  ETNT
N AII I
T DRN F
  O G U
T PI  L
H TNM
A ETY
T DO
```

converts into

```
THIS IS MY
FIRST TRIP
TO THE
ORIENT I
FOUND
THEIR
WRITING SO
BEAUTIFUL
THAT I
ADOPTED
INTO MY
OWN
```

INPUT Format:

The first line of the input consists of the two positive integers L and W, separated by a single space. L is the maximum possible number of lines on each page of Marico's diary, and W is the desired width of the output text. $40 \geq L > 0$ and $40 \geq W > 0$. The rest of the input consists of a series of one or more page descriptions.

The first line in each page description consists of a positive integer, N, $1 \leq N \leq 20$, which represents the number of columns. Each of the following lines, if any, contains exactly N characters. None of the pages completely consists of blank characters, and none of the pages end with a blank line; that is, the last line contains at least one character that is not blank. The page description is terminated with a line that contains only a single '#' character, and should not be formatted.

The input is terminated with a line that contains only the string "##" (that is, two '#' characters), and should not be processed.

OUTPUT Format:

For each page the output consists of number of lines. The first line contains the page number starting with the value of one (1), as shown in the "Example output C" below, and then followed by

1. the lines of the formatted text, or
2. the sentence "`This page is empty.`" on the next line.

Input-Output Examples:

Example Input C:	Example Output C:

40 10
7
TIMFTTT
HSYIROH
I RI E
SIFSPS
  OT OB
OIU W E
R NTROA
I DHIWU
E ETNT
N AII I
T DRN F
  O G U
T PI L
H TNM
A ETY
T DO
#
8
#
2
AL
FU
TN
EC
RH
 	
WL
EE
 F
 T
#
##
	Page number 1
	THIS IS MY
	FIRST TRIP
	TO THE
	ORIENT I
	FOUND
	THEIR
	WRITING SO
	BEAUTIFUL
	THAT I
	ADOPTED
	INTO MY
	OWN
	Page number 2
	This page is empty.
	Page number 3
	AFTER
	LUNCH WE
	LEFT