Problem E. Tobby and the LED display

Input:	Standard
Output:	Standard
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Tobby got his first job! Being a lazy puppy, the work that he has found is not very demanding and it consists of observing a LED display during T minutes and reporting the status of the LED display once this time runs out. The LED display is capable of displaying N characters and the text can move in two directions, Left or Right. In every minute the character that occupies the i_{th} position moves to the $(i-1)_{th}$ or $(i+1)_{th}$ position, depending on the direction in which the text moves in the LED display.

The LED display works in a circular way, therefore, if the character that occupies the $i = 1$ position moves to the left its new position will be $i = N$, moreover, if the character that occupies the $i = N$ position moves to the right its new position will be $i = 1$.

i.e. if Tobby got the board shown below where $N = 10$, $T = 3$ and the direction in which the text moves is Right, the following will happen:

```
Minute 0
+------------------+
| | | |T|o|b|b|y|!|!|
+------------------+

Minute 1
+------------------+
|!| | | |T|o|b|b|y|!|
+------------------+

Minute 2
+------------------+
|!|!| | | |T|o|b|b|y|
+------------------+
```

After 3 minutes, Tobby should report the board shown below.

```
+------------------+
|y|!|!| | | |T|o|b|b|
+------------------+
```

As it has been said, Tobby is very lazy and wont spends his time on this boring task, that's why he is willing to give you a bone from his first payment as reward **:)**.

Input

The input consists of several test cases and must be read until EOF.

The first line of each test case contains two integers N, T ($1 \leq N \leq 50000, \quad 1 \leq T \leq 10^{14}$), and one character D ($D =$ 'L' or $D =$ 'R'), here N indicates the number of characters that the LED display can show, T shows the number of minutes that Tobby must wait to report the LED display state and D is the direction in which the LED display will work $L = Left$ and $R = Right$.

Then, there will be 3 lines and each one has $(2 * N) + 1$ characters. The first and third line are the upper edge and the lower edge respectively of the LED display, The second line shows the initial content of the LED display.

Output

For each test case the output must consist of 3 lines each one will have $(2 * N) + 1$ characters. The first and third line are the upper edge and the lower edge respectively of the LED display and the second one will show the LED display state after T minutes.

Example

Input	Output
10 3 R +------------------+ | | | |T|o|b|b|y|!|!| +------------------+	+------------------+ |y|!|!| | | |T|o|b|b| +------------------+

Use fast I/O methods