

Problem A

Pyramid

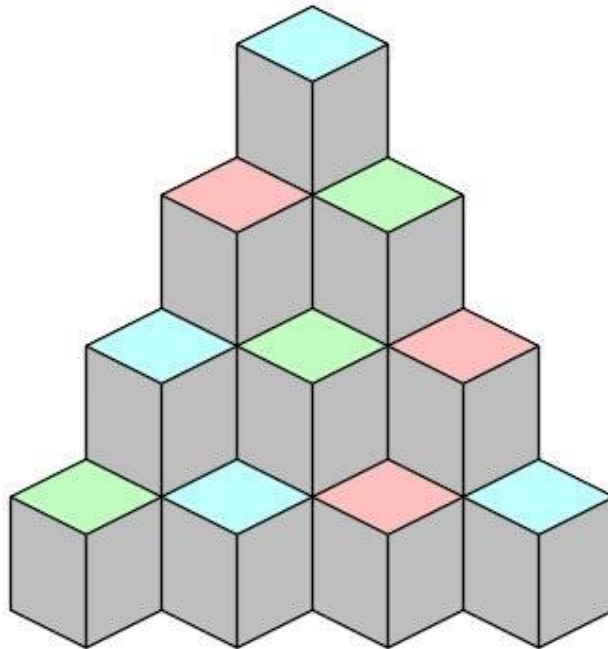
Input: Standard Input

Output: Standard Output

Time Limit: 2 Seconds

In a classical computer game, a creature jumps around on the cells in a pyramid much like the one in the picture below. The creature can jump to the cells directly above him or below him. Jumping outside the pyramid is of course not allowed.

When the creature lands on a cell, it changes color: from red to green, green to blue or blue to red. Given how the cells are initially colored, determine a jumping sequence containing no more than **5000** jumps that turns all the cells into blue. You are allowed to start from any cell in the pyramid you want (this guarantees that there will always be a solution). The first cell to change color is the one reached after jumping from the start cell.



Input

The input consists of several test cases (at most **50**). Each test case begins with a line containing a single integer n ($2 \leq n \leq 40$), the height of the pyramid. The next n lines describe the start configuration of the pyramid using the upper case letters 'R', 'G' and 'B'. The pyramid is described in row major order, each row from left to right; see the sample input for the exact format (the first sample input corresponds to the pyramid in the picture). At least one cell in the pyramid is not blue in the start configuration.

The input ends with a case where n is 0, which should not be processed.

Output

For each test case, output two lines. The first line should contain two integers, the creatures start position in the pyramid. The first integer is the row (**1** being the top row) and the second integer is the cell in that row (**1** being the leftmost cell). The next line should contain a string describing the jumps. The length of this string should be at most **5000** characters. Each character should either be a **'7'** (jumping up-left), a **'9'** (up-right), a **'1'** (down-left) or a **'3'** (down-right). Any solution that has no more than **5000** jumps and which turns all cells into blue will be accepted.

Sample Input

Output for Sample Input

4	3 1
B	193919193919373737717191991919373737
RG	2 1
BGR	919
GBRB	
2	
R	
GB	
0	

Problemsetter: Jimmy Mårdell, Member of Elite Problemsetters' Panel

I majored in music composition at Florida State University in the late 1960s. I minored in watching demonstrations, dodging bayonets, eating buttered spaghetti, gorging on week-end buffets, and pursuing women. Despite objections including a visit to the dean, I was forced to take a mathematics course where I first encountered reason. Though painful, it was refreshing.

-Bill Poucher