Your task is to graph the price of a stock over time. In one unit of time, the stock can either **R**ise, **F**all or stay **C**onstant. The stock's price will be given to you as a string of R's, F's and C's. You need to graph it using the characters '/' (slash), '\' (backslash) and '_' (underscore).

Input

The first line of input gives the number of cases, N. N test cases follow. Each one contains a string of at least 1 and at most 50 upper case characters (R, F or C).

Output

For each test case, output the line 'Case #x:', where x is the number of the test case. Then print the graph, as shown in the sample output, including the x- and y-axes. The x-axis should be one character longer than the graph, and there should be one space between the y-axis and the start of the graph. There should be no trailing spaces on any line. Do not print unnecessary lines. The x-axis should always appear directly below the graph. Finally, print an empty line after each test case.

Sample Input

```
1
RCRFCRFFCCRRC
```

Sample Output

```
Case #1:
|            _
|  _/\_/\   /
| /     \__/
+--------------
```