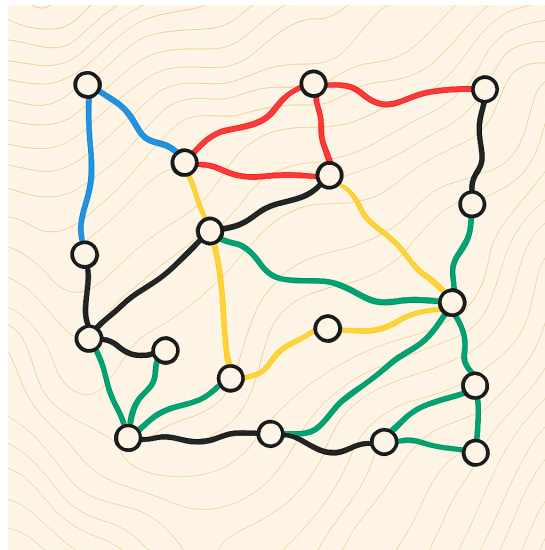


[G] Training Plans

Time limit: 1 second
Memory limit: 65535 kBytes

Description

On orienteering maps, the junctions are connected by sections marked with blue, red, yellow, and green colors. The colors indicate the difficulty of each section.



On the map, countless acyclic routes can be designated, each of which can be described with the sequence of colors of the successive sections that form them. In the description of a route, each section has its own color. No section of the route is left out of the description, even if the route contains several sections of the same difficulty in direct succession. You can use one given color sequence to describe multiple such routes.

Your daily training plan is described by another sequence of colors. The description of a training plan never includes two identical colors in a row. At the same time, one letter in your training plan represents the longest possible contiguous sequence of sections of the given difficulty on the route. For example, if you are at an X in your training plan, you will complete this part of the plan when you start from your current position on the route and go through all the consecutive sections of difficulty X .

Your Task

When you choose a route for your daily training, you endeavor to complete your daily training plan as many times as possible on the chosen route. Your

task is to determine the maximum number of times you can do this for a given route.

Input

The input begins with a positive integer N on a line by itself, representing the number of test cases ($1 \leq N \leq 100$).

The first line of each test case is a string of up to 10000 characters, which contains exclusively the letters B (blue), R (red), Y (yellow), and G (green). This string describes a route on an orienteering map.

The next line consists of an integer M , representing the number of your training plans.

Each of the following M lines describes a training plan. The training plans also contain exclusively the letters B (blue), R (red), Y (yellow), and G (green). The total number of letters in all training plans for one test case does not exceed 32.

Output

For each test case, write the text “Test #*number*:” in the first line of the standard output, where *number* should be the sequence number of the test case. Start the numbering of the test cases from 1.

In the following lines, print the color sequence describing each training plan and the number of times that training plan can be completed on the route given in the test case. Use the exact format given in the sample output.

The output lines for two consecutive test cases should be separated from each other by a blank line.

Example

Input

```
5
BYGRBYGRBYGR
3
YG
GBR
GRBYGRBYG
GBRRRRYYYYGGBBRRY
3
GBRY
RY
YG
YAYAYAYAY
2
AYA
Y
```

BBBBBB
1
B
ABBAAABBBBAAAAA
1
ABA

Output

Test #1:
YG: 3
GBR: 0
GRBYGRBYG: 1

Test #2:
GBRY: 2
RY: 2
YG: 1

Test #3:
AYA: 2
Y: 5

Test #4:
B: 1

Test #5:
ABA: 1