Source

https://code.google.com/codejam/contest/dashboard?c=351101#s=p2

Problem

The Latin alphabet contains 26 characters and telephones only have ten digits on the keypad. We would like to make it easier to write a message to your friend using a sequence of keypresses to indicate the desired characters. The letters are mapped onto the digits as shown below. To insert the character 'B' for instance, the program would press 22. In order to insert two characters in sequence from the same key, the user must pause before pressing the key a second time. The space character ' ' should be printed to indicate a pause. For example, 2 2 indicates AA whereas 2 2 indicates B.



Input

The first line of input gives the number of cases, **N**. **N** test cases follow. Each case is a line of text formatted as

desired\_message

Each message will consist of only lowercase characters a-z and space characters ' '. Pressing zero emits a space.

Output

For each test case, output one line containing "Case #**x**: " followed by the message translated into the sequence of keypresses.

Limits

1 ≤ **N** ≤ 100.

Small dataset

1 ≤ length of message in characters ≤ 15.

Large dataset

1 ≤ length of message in characters ≤ 1000.

Sample

|  |  |
| --- | --- |
| Input | Output |
| 4 hi yes foo bar hello world | Case #1: 44 444 Case #2: 999337777 Case #3: 333666 6660 022 2777 Case #4: 4433555 555666096667775553 |