T9 Spelling

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 `22` 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                    Case #1: 44 444
hi                   Case #2: 999337777
yes                  Case #3: 333666 6660 022 2777
foo  bar             Case #4: 4433555 555666096667775553
hello world
```