10234   Frequent Substrings

You are working for the R&D department of **International Embedded Equipments Enterprise (IEEE)**. One day, your boss calls you up and tells this:

> *"Yes, I think we should use the N-Gram Analysis for the project. What do you think??"*

> *"Ye...s, I also thought so..."*, you replied.

After the conversation, having no clue about what he said, you start searching the internet and find the following sentences.

> N-**Grams** *are substrings of length* N. N-**Gram Analysis** *is a method of matching text, based on the statistical similarity of occurrences of* N-**Grams**. N-**Gram Analysis** *is used in research areas such as speech recognition, database interfacing, network communication etc.*

After going through the topic a few times and reading several articles, you figure out the main parts of the project you have to accomplish. One of the parts required you to do this: Given a string S, you have to find the most frequently occurring N-**Gram** in S. Since you found this part interesting, you decide to complete it soon. Note that the occurrences can partially overlap. That is, the string 'bcbcbc' has two occurrences of the substring 'cbc'.

Input

Input consists of several test cases. Each test case begins with a line specifying the string S. S will contain no more than $1,000$ characters. S can contain any of the printable ASCII characters. Capitalization should be ignored while finding the N-**Grams**. The next line specifies an integer T. Next T lines give the values for N, $0 < N \le Length(S)$.

Output

For each test case, output T lines specifying the number of occurrences of the N-**Gram** followed by the N-**Gram** itself separated by exactly one space. If there are several such N-**Grams**, output the **least lexicographical** one, compared in terms of ASCII values.

Note: Given two strings $a = a_0a_1a_2\ldots a_m$ and $b = b_0b_1b_2\ldots b_m$ over the same alphabet V, we say that a is ***lexicographically less*** than b if there exist an integer j, $0 \le j \le m$, so that $a_i = b_i$ *for all* $i = 0, 1\ldots j-1$ *and* $a_j < b_j$.

Sample Input

```
In theory, there is no difference between theory and practice, but in practice, there is.
2
4
9
```

Sample Output

```
4  the
2  practice
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