In the decimal system an *autobiographical number* is a natural number with no more than 10 digits,

$$N = d_0 d_1 \dots d_{r-1} \quad (1 \le r \le 10)$$

such that $d_0$ is the number of `0`'s in $N$, $d_1$ is the number of `1`'s in $N$, $d_2$ is the number of `2`'s in $N$, and so on.

The notion of autobiographical number can be generalized to any base $b \ge 2$.

Let $A = [s_0, s_1, \dots, s_{b-1}]$ be an *alphabet*, whose symbols $s_0, s_1, \dots, s_{b-1}$ correspond to the values $0, 1, \dots, b-1$, respectively: that is, value $(s_i) = i$. Then, an *autobiographical number in base b (under the alphabet A)* is a natural number with no more than $b$ symbols,

$$N = d_0 d_1 \dots d_{r-1} \quad (1 \le r \le b)$$

such that value$(d_0)$ is the number of $s_0$'s in $N$, value$(d_1)$ is the number of $s_1$'s in $N$, …, and value$(d_{r-1})$ is the number of $s_{r-1}$'s in $N$.

For example:

- `42101000` is an autobiographical number in base 10, under the alphabet [`0`, `1`, `2`, `3`, `4`, `5`, `6`, `7`, `8`,`9`], because it has four `0`'s, two `1`'s, one `2`, zero `3`'s, one `4`, zero `5`'s, zero `6`'s, and zero `7`'s;
- `A2100000001000` is an autobiographical number in base 16, under the alphabet [`0`, `1`, `2`, `3`, `4`, `5`, `6`, `7`, `8`, `9`, `A`, `B`, `C`, `D`, `E`, `F`]. There are value(`A`)=10 `0`'s, two `1`'s, etc.

Given an alphabet $A$, with $b$ symbols, determine all autobiographical numbers in base $b$ under $A$.

## Input

The first line contains a positive integer $L$ $(1 \le L \le 50)$, which is the number of subsequent lines.

Each of the following $L$ lines contains an alphabet.

An alphabet is a contiguous sequence of $b$ distinct symbols, where $2 \le b \le 100$.

A symbol is a printable character.

## Output

For each input alphabet, the output is the sequence of all autobiographical numbers in increasing order. Each number is written on a different line.

The outputs of two consecutive alphabets are separated by a blank line.

## Sample Input

```
2
0123
abcdefg
```

## Sample Output

```
1210
2020

bcba
caca
cbcaa
dcbbaaa
```