Hash Without Collisions X10103_en

We could consider the predefined function `hash()` from Python but, in order to ensure replicability, we define instead the following very simple hash function on strings. Given a positive integer `MOD` that we call, of course, the *modulus*,
`h = lambda s, MOD: sum(ord(c) for c in s) % MOD`
How many strings, among a given set of them, can we pick up without incurring in collisions under `h`? Which strings form the maximal set(s) with this property?
You must write a program that receives the value of `MOD` and a sequence of strings and finds sets of strings from the sequence within which the strings do not have any collision. These sets must be as large as possible. For instance, for `MOD` = 7, the words "No" and "seguinte" both hash to zero, so at most one of them can be chosen; likewise "dia" and "morreu" both hash to 1 whereas "ninguem" hashes to 6.

Input

First comes the positive integer `MOD`, then a sequence of words separated by spaces or newlines and distributed among lines in an unpredictable manner. There may be word repetitions in the input: these are to be *ignored* as we work with *sets* of words as we said.

Output

All the sets of the maximum possible size, made of words taken from the sequence, where the hash function `h` does not generate collisions at all inside each set.

Sample input 1

```
7
No dia seguinte ninguem morreu
```

Sample output 1

```
dia ninguem seguinte
dia ninguem No
ninguem seguinte morreu
ninguem No morreu
```

Sample input 2

```
10
It was a QUEER sultry summer
the summer they electrocuted the Rosenbergs
```

Sample output 2

```
electrocuted It QUEER summer a they sultry Rosenbergs
electrocuted It QUEER summer a they Rosenbergs the
electrocuted It QUEER summer a they Rosenbergs was
```

Sample input 3

```
20
shall I compare thee to a summers day
thou art more lovely and more temperate
```

Sample output 3

```
I thou and compare summers shall thee day more a
I thou compare to summers shall thee day more a
I thou compare art summers shall thee day more a
I thou compare summers temperate shall thee day more a
I thou compare summers shall thee day more lovely a
```

Observation

The sets can be printed in any order and the elements inside them can be printed in any order too. Separate the set elements by a space and print each set in a line as in the examples.

Problem information

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