Toponyms

A toponym is the name given to a city, village, river, mountain etc. Very often, in the Republic of Moldova, one can find toponyms which are very similar. For example, Orhei and Orheiul Vechi; Jora de Sus, Jora de Mijloc and Jora de Jos.

As a rule, every toponym represents a sequence consisting of the characters A, B, C, ..., Z, a, b, c, ..., z and blank character. In toponyms there can not appear sequences of two or more consecutive blanks. Toponyms have no leading or trailing blanks. The subsequences consisting of the first m characters of the toponym is called a prefix of length m. For example, the subsequence Jora, is a prefix of length $m = 4$ of the toponym Jora de Mijloc.

Level of similarity $Ls(T)$ of a set T of toponyms is defined as the length of the longest common prefix of the toponyms from T. For example, for the set of toponyms $T = \{$Jora de Sus, Jora de Mijloc, Jora de Jos$\}$, the level of similarity $Ls(T) = 8$.

Level of complexity $Lc(T)$ of a set T of toponyms is defined as

$$Lc(T) = Ls(T) \times k,$$

where k is the number of toponyms in T.

For example, for the set of toponyms $T = \{$Jora de Sus, Jora de Mijloc, Jora de Jos$\}$, the level of complexity $Lc(T) = 24$.

Write a program which, for a given set of toponyms S, find the subset T, $T \subseteq S$, with the maximal level of complexity.

Input. The text file `toponyms.in` contains on the first line an integer n – number of toponyms in S. Each of the next n lines of the input file contains a toponym. Each toponym is a string of characters A, B, C, …, Z, a, b, c, …, z and the blank.

Output. The text file `toponyms.out` must contain a single line with an integer representing the maximal level of complexity $Lc(T)$.

Example.

toponyms.in

```
7
Jora de Sus
Orhei
Jora de Mijloc
Joreni
Jora de Jos
Japca
Orheiul Vechi
```

toponyms.out

```
24
```

Restrictions. $2 \le n \le 1\,000\,000$. The length of any of the toponyms will not exceed 20000 characters. The size of the input file will not exceed 10 Megabytes.