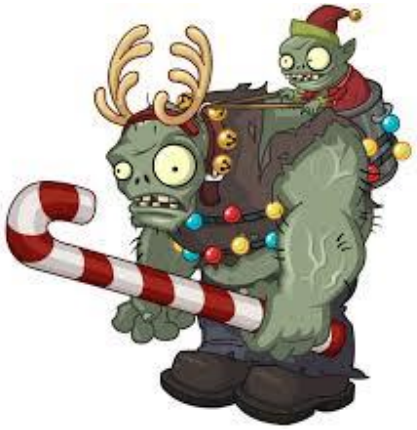
Problem E
WalkingZ
Time Limit: 1 second



During the months and years of Zombie Apocalypse, a lot of zombies wander along the roads in the state of Genesis. The special thing happens in Genesis state is that:

- The cities in Genesis state forms a complete graph.
- The name of each city is a string consists of lowercase alphabetic letters only.
- The zombies only walk on the roads connecting the cities of the state without entering the city itself. They do not walk to other roads either.
- The number of zombies on the road is the length of largest common substring of the names of the two connected cities.

A group of survivals was assigned a task to setup a set of roads, namely ***Secure Backbone***, which allows people travel safely to any city from an arbitrary city in Genesis state. According to the plan, they will need to select the ***minimum set of roads*** while preserving the connectivity between all cities. If there are multiple solutions, you choose the optimum one to kill ***as many zombies as possible***. Knowing that they can travel to any city by helicopter initially to start their journey, please help them plan the optimal route to fulfill their task.

Input

The first line contains a positive integer n - the number of cities in Genesis state.
In each of the following n lines, there is a non-empty string which is the name of a city. The city's name consists of lowercase alphabet letters only.
The total length of all strings does not exceed 500,000 characters.

Output

Print the maximum number of zombies that the group of survivals can kill during their journey.

Sample Input	Sample Output
2 xaby abuv	2