Problem L. Looping RPS

Time limit:	4 seconds
Memory limit:	1024 megabytes

In this task: `K` is rock, `P` is paper, and `N` is scissors (from Polish words *kamie* , *papier*, *noyce*).

In a rock-paper-scissors duel two players simultaneously show one of the three signs. When two players show different signs, the duel ends with a victory according to the rule: paper beats rock, rock beats scissors, scissors beats paper. If both players show the same sign, they try again. A duel may last indefinitely, resulting in a draw.

Today is the day of AMPPKN[3]. At such a high level no one draws conclusions from the opponent's moves, afraid of cunning strategies that might exploit that. Randomizing moves is also difficult, so instead each competitor has written a strategy on their arm before starting – a word s consisting of the letters `K`, `P`, and `N`. In each duel a competitor repeats their strategy from the first sign in an infinite loop, for example `KPP` means playing in sequence: rock, paper, paper, rock, paper, paper, and so on.

There are n competitors in AMPPKN, with the i-th competitor using a strategy described by the word s_i. The organizers are interested in finding triples of competitors that behave like rock-paper-scissors, meaning each competitor would win against one of the other two.

Formally, count unordered triples of competitors such that these three competitors, in some order (A, B, C), satisfy that A would win against B, B would win against C, and C would win against A.

Input

The first line contains an integer n ($3 \le n \le 10^5$).

Each of the next n lines contains a non-empty word s_i consisting of the letters `P`, `K`, `N`. The total length of all words does not exceed 10^6.

Output

Output a single integer – the number of such triples of competitors.

Example

standard input	standard output
6 P PN KK N PKK PN	6

Note

There are 6 such triples:

`(P, KK, N)`, `(P, PKK, PN)`, `(P, PKK, PN')`, `(PN, KK, N)`, `(KK, N, PKK)`, `(KK, N, PN')`,

where `PN'` denotes the second occurrence of the word `PN`.

For example, in the second triple: `P` would win against `PKK` (repeated paper beats rock in the second move), `PKK` would win against `PN`, and `PN` would win against `P`.

[3]Akademickie Mistrzostwa Polski w Papier-Kamie -Noyce