CODEFORCES β
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HOME CONTESTS GYM PROBLEMSET GROUPS RATING API VK CUP SECTIONS

PROBLEMS SUBMIT STATUS STANDINGS CUSTOM TEST

B. A Lot of Games

time limit per test: 1 second
memory limit per test: 256 megabytes
input: standard input
output: standard output

Andrew, Fedor and Alex are inventive guys. Now they invent the game with strings for two players.

Given a group of n non-empty strings. During the game two players build the word together, initially the word is empty. The players move in turns. On his step player must add a single letter in the end of the word, the resulting word must be prefix of at least one string from the group. A player loses if he cannot move.

Andrew and Alex decided to play this game k times. The player who is the loser of the i-th game makes the first move in the $(i + 1)$-th game. Guys decided that the winner of all games is the player who wins the last (k-th) game. Andrew and Alex already started the game. Fedor wants to know who wins the game if both players will play optimally. Help him.

Input

The first line contains two integers, n and k ($1 \le n \le 10^5$; $1 \le k \le 10^9$).

Each of the next n lines contains a single non-empty string from the given group. The total length of all strings from the group doesn't exceed 10^5. Each string of the group consists only of lowercase English letters.

Output

If the player who moves first wins, print "`First`", otherwise print "`Second`" (without the quotes).

Examples

input
2 3 a b
output
First

input
3 1 a b c
output
First

input
1 2 ab
output
Second

Codeforces Round #260 (Div. 1)

Finished

Practice

→ **Virtual participation**

Virtual contest is a way to take part in past contest, as close as possible to participation on time. It is supported only ACM-ICPC mode for virtual contests. If you've seen these problems, a virtual contest is not for you - solve these problems in the archive. If you just want to solve some problem from a contest, a virtual contest is not for you - solve this problem in the archive. Never use someone else's code, read the tutorials or communicate with other person during a virtual contest.

Start virtual contest

→ **Submit?**

Language: GNU G++ 5.1.0

Choose file: Choose File No file chosen

Be careful: there is 50 points penalty for submission which fails the pretests or resubmission (except failure on the first test, denial of judgement or similar verdicts). "Passed pretests" submission verdict doesn't guarantee that the solution is absolutely correct and it will pass system tests.

Submit

→ **Problem tags**

dfs and similar dp games implementation strings trees

No tag edit access

→ **Contest materials**

- Announcement
- Tutorial

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The only programming contests Web 2.0 platform
Server time: Aug/10/2016 15:45:03UTC+6 (c3).
Desktop version, switch to mobile version.