

# Problem C

## How Many Meanings?

Input file: *testdata.in*

Time limit: 1 second

### Problem Description

Professor Q teaches an ancient language composed of words. A phrase is a sequence of words, and a sentence is a sequence of words and phrases. The phrases are recorded in a dictionary. There could be multiple ways to partition a sentence into words and phrases. For example, if we have phrases “a b c d”, “a b c”, and “b c”, then the sentence “a b c d e” could be partitioned into (a)(b)(c)(d)(e), (a)(b c)(d)(e), (a b c)(d)(e), or (a b c d)(e).

In addition to the number of ways to partition a sentence, we are also interested in the number of meanings of a sentence. Each word has exactly one meaning but a phrase may have more than one meaning, which is also recorded in the dictionary. For example, if the phrase “a b c d” has two meanings, “a b c” has one meaning, and “b c” has three meanings, then sentence “a b c d e” has *seven* meanings because it could be (a)(b)(c)(d)(e), (a)(b c)(d)(e), (a b c)(d)(e), or (a b c d)(e), each has one, three, one, and two meanings respectively.

Given a dictionary and a sentence please compute the number of possible meanings of the input sentence. Since the answer may be very large please output the answer mod 65535.

### Technical Specification

- $1 \leq d, s \leq 1000$
- $1 \leq m_i \leq 10$
- $2 \leq n_i \leq 10$

- $1 \leq \text{the length of words} \leq 10$
- Words only contain lower case letters.
- Some words in the input sentence may not appear in the dictionary.
- If a phrase appears multiple times in the dictionary, it is regarded as one phrase with the number of meanings equal to the sum of the numbers of meanings of individual appearances.

## Input Format

There are multiple test cases. Each test case begins with two integers - the number of phrases in the dictionary  $d$  and the number of words in the input sentence  $s$ . The  $i$ -th line of the following  $d$  lines has the number of meanings of the  $i$ -th phrase  $m_i$ , the number of the words in the phrase  $n_i$ , and the phrase  $p_i$  itself. The last line of a test case contains the input sentence.

## Output Format

For each test case output the number of the meanings of the input sentence mod 65535 in a line.

## Sample Input

```
3 5
2 4 a b c d
1 3 a b c
3 2 b c
a b c d e
```

## Sample Output

```
7
```