Binary Language

2 Seconds, 128 Megabytes

You have been tasked with the decoding of an extraterrestrial transmission. The transmission you intercepted was in form of a binary string of length L. Your heuristics have reported N possible "words" which are unique binary string not longer than 20 characters. The string you received is a combination of these words. You must determine the number of possible combinations modulo 1,000,000,007. Failing to do so may result in interplanetary diplomatic crisis. Good Luck!

NyxF4ll

Input:

Line 1	: Number of words
Line 2 to N+1	: A binary string describing word i-1
Line N+2	: The string you received

Output

A single integer : the number of combinations modulo 1,000,000,007

Bounds:

Subtask	Weight	Description
I	10%	1<=L<=100000,All words are of Length 1
II	10%	1<=N<=3000,1<=L<=3000
III	80%	1<=N<=2^{21}-1,1<=L<=100,000

Sample Test Case:

Input	Output
3 1 0 10 10	2
6 101 110 01 1 0 10 110101000110	120

Problem by : Pakorn Ueareeworakul