Problem A. Multi-stage Marathon

Input file:	`standard input`
Output file:	`standard output`
Time limit:	3 seconds
Memory limit:	512 megabytes

Bobo is organizing a marathon contest. The contest contains n checkpoints which are conveniently labeled with $1, 2, \ldots, n$. You are given a binary matrix G. In this matrix, $G_{u,v} = 1$ indicates that there is a directed road from checkpoint u to checkpoint v, and $G_{u,v} = 0$ means there is no such road.

There are m players. The i-th player starts at checkpoint v_i at moment t_i. As the road system is complicated, players behave quite randomly. More precisely, if at moment t a player is at checkpoint u, at moment $(t + 1)$ this player will appear at any checkpoint v such that $G_{u,v} = 1$ with equal probability.

Let $E_t = P \cdot Q^{-1} \bmod (10^9 + 7)$ where $\frac{P}{Q}$ is the expected number of players at checkpoint n at moment t, and $Q \cdot Q^{-1} \equiv 1 \pmod{10^9 + 7}$. Bobo would like to know $E_1 \oplus E_2 \oplus \cdots \oplus E_T$. Note that "$\oplus$" denotes bitwise exclusive-or.

Input

The first line contains three integers n, m and T ($1 \le n \le 70$, $1 \le m \le 10^4$, $1 \le T \le 2 \cdot 10^6$).

The i-th of the following n lines contains a binary string $G_{i,1}, G_{i,2}, \ldots, G_{i,n}$ of length n. It is guaranteed that $G_{i,i} = 1$ is always true.

The i-th of the last m lines contains two integers t_i and v_i ($1 \le t_1 < t_2 < \cdots < t_m \le T$, $1 \le v_i \le n$).

Output

Output an integer which denotes the result.

Examples

standard input	standard output
2 2 2 11 11 1 1 2 2	500000005
3 1 6 110 011 101 1 1	191901811