Problem G
Through the Grapevine

Problem ID: grapevine
CPU Time limit: 4 secor
Memory limit: 1024 ME

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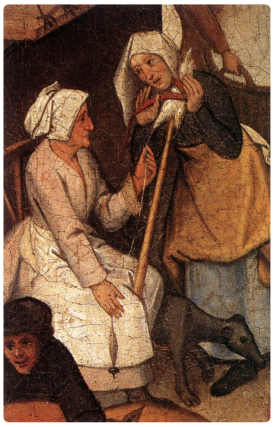
Source: 2017 Virginia Te
School Programming Co

According to Wikipedia, to hear something "through the grapevine" is to learn of something informally and unofficially by means of gossip or rumor. In this problem, you are tasked with determining how many people will hear about a particular rumor "through the grapevine" after a certain number of days.



Pieter Brueghel the Younger, Web Gallery of Art

Rumors are always started by a single person. On any given day, a person who knows the rumor can spread it by telling the people that they know. Upon hearing of the rumor, that person must wait until the following day before they can begin to spread it themselves. Furthermore, some people are skeptical and will only spread the rumor once they've heard it from a number of distinct sources. However once a person has heard the rumor from enough people, they will always try to spread the rumor to as many people as possible.

Input

The first line will contain three integers: *[Math Processing Error]*, *[Math Processing Error]*, and *[Math Processing Error]*, where *[Math Processing Error]* is the number of people, *[Math Processing Error]* is the number of connections, and *[Math Processing Error]* is the number of days that elapse.

The next *[Math Processing Error]* lines will each consist of a unique string *[Math Processing Error]* and an integer *[Math Processing Error]* where *[Math Processing Error]* is the name of a person and *[Math Processing Error]* is their level of skepticism. In other words, person *[Math Processing Error]* must hear the rumor from *[Math Processing Error]* distinct other people before *[Math Processing Error]* will begin spreading the rumor.

This is followed by *[Math Processing Error]* lines each consisting of two strings *[Math Processing Error]* and *[Math Processing Error]* which indicates that person *[Math Processing Error]* and person *[Math Processing Error]* know each other. Each of these lines represents a unique pair of persons.

The final line will contain a single string *[Math Processing Error]*, the name of the person that the rumor originates from. Note that *[Math Processing Error]* is the only person with skepticism *[Math Processing Error]*. All strings are between *[Math Processing Error]* and *[Math Processing Error]* characters long and consists only of English lowercase or uppercase letters and digits.

Output

Output a single integer: the number of people (not including person *[Math Processing Error]*) that have heard the rumor after *[Math Processing Error]* days.

Sample Input 1

```
3 2 1
Alice 0
Bob 1
Carol 1
Alice Bob
Bob Carol
Alice
```

Sample Output 1

```
1
```

Sample Input 2

```
5 5 3
Alice 0
Bob 1
Carol 1
Dan 3
Erin 1
Alice Bob
Alice Carol
Bob Dan
Carol Dan
Dan Erin
Alice
```

Sample Output 2

```
3
```