Web Network

A person **Raju** wanted to publicise his website. To do so, he decided to create a post on a social networking site and share it. Every share costed $1 and **Raju** had only $1 remaining. When **Raju** shared the post on a friend **Somu's** profile, the post could be viewed by **Somu** and all **Somu's** friends (**except Raju himself**), friends of his friends, friends of friends of friends, and so on. **Raju** wanted maximum number of people to view the post. With which friend should he share the post?

Input

1. First line contains the name of the person.
2. Second line contains an integer **K**, which denotes the total number of lines which follow **K** lines follow, each of the **K** lines contain the input in the format:
3. **A B**, which denotes that **A** and **B** are friends.

Note that **A** and **B** are numbers (ie. Integers).
Name of each person will be unique.
A person can have multiple friends.
If A is a friend of B, then B is a friend of A.

Output
Output **two** lines :

- First line should contain the name of the friend with whom **X** should share the post for maximum people to view.
- The second line should contain the number of people who will then see the post.

If there are multiple answers possible, print the smallest friend.

Example
Input:
0
4
0 1
0 2
2 3
2 4

Output:
2
3

Explanation:
```
   0
 /   \
1     2
    /   \
   3    4
```

If **0** shares the post with **1**, only **1** will view the post.
If **0** shares the post with **2**, the post will be viewed by **2**, **3** and **4**.
Hence, **0** should share the post with **2**.