E Ernest's Endeavour

Time limit: 8s

Jack Worthing lives a dangerous double life. In the countryside, he is known as Jack. Meanwhile, in London, he is known as Ernest. He is terrified that his two identities will be discovered. To analyze this, he maps the residents of London and its surroundings as a graph of n people.

Jack, Being Earnest. CC BY-SA 2.0 by Otterbein University Theatre & Dance on Flickr

Each person in the network either knows him as "Jack", knows him as "Ernest", or does not know him. Additionally, the residents of London are known to be quite social: we know there are a total of m friendships between them.

Because rumours travel fast in 19th-century England, Jack will be exposed if a person who knows him as "Jack" can communicate with a person who knows him as "Ernest". Two people can communicate if they know each other directly, or if they are connected by a sequence of mutual friendships (that is, there is a path between them in the graph).

Help Jack figure out if he is safe, or if he needs to flee to Paris immediately.

Input

The input consists of:

- One line with two integers n and m ($1 \leq n \leq 3 \cdot 10^5$, $0 \leq m \leq 6 \cdot 10^5$), the number of people and the number of friendships.
- One line with n integers $t_1, \ldots, t_n$ ($t_i \in \{0, 1, 2\}$ for each i).
  - If $t_i = 0$, person i does not know him.
  - If $t_i = 1$, person i knows him as "Jack".
  - If $t_i = 2$, person i knows him as "Ernest".
- m lines, each with two integers u and v ($1 \leq u < v \leq n$), indicating that person u and person v know each other directly. Each friendship is given at most once.

Output

If Jack is safe, output "`safe`". If Jack is in danger, output the indices of two people that know Jack by different names and can communicate.

If there are multiple valid solutions, you may output any one of them.

Sample Input 1

```
6 3
1 1 0 0 2 2
1 2
3 4
5 6
```

Sample Output 1

```
safe
```

Sample Input 2

```
4 3
1 1 2 2
1 2
2 3
3 4
```

Sample Output 2

```
3 2
```

Sample Input 3

```
5 4
1 1 0 2 2
1 2
2 3
3 4
4 5
```

Sample Output 3

```
2 4
```