# Police Stations

time limit per test

2 seconds

memory limit per test

256 megabytes

Inzane finally found Zane with a lot of money to spare, so they together decided to establish a country of their own.

Ruling a country is not an easy job. Thieves and terrorists are always ready to ruin the country's peace. To fight back, Zane and Inzane have enacted a very effective law: from each city it must be possible to reach a police station by traveling at most *d* kilometers along the roads.



There are *n* cities in the country, numbered from 1 to *n*, connected only by exactly *n* - 1 roads. All roads are 1 kilometer long. It is initially possible to travel from a city to any other city using these roads. The country also has *k* police stations located in some cities. In particular, the city's structure satisfies the requirement enforced by the previously mentioned law. Also note that there can be multiple police stations in one city.

However, Zane feels like having as many as *n* - 1 roads is unnecessary. The country is having financial issues, so it wants to minimize the road maintenance cost by shutting down as many roads as possible.

Help Zane find the maximum number of roads that can be shut down without breaking the law. Also, help him determine such roads.

**Input**

The first line contains three integers *n*, *k*, and *d* (2 ≤ *n* ≤ 3·105, 1 ≤ *k* ≤ 3·105, 0 ≤ *d* ≤ *n* - 1) — the number of cities, the number of police stations, and the distance limitation in kilometers, respectively.

The second line contains *k* integers *p*1, *p*2, ..., *pk* (1 ≤ *pi* ≤ *n*) — each denoting the city each police station is located in.

The *i*-th of the following *n* - 1 lines contains two integers *ui* and *vi* (1 ≤ *ui*, *vi* ≤ *n*, *ui* ≠ *vi*) — the cities directly connected by the road with index *i*.

It is guaranteed that it is possible to travel from one city to any other city using only the roads. Also, it is possible from any city to reach a police station within *d* kilometers.

**Output**

In the first line, print one integer *s* that denotes the maximum number of roads that can be shut down.

In the second line, print *s* distinct integers, the indices of such roads, in any order.

If there are multiple answers, print any of them.

**Examples**

**input**

**Copy**

6 2 4  
1 6  
1 2  
2 3  
3 4  
4 5  
5 6

**output**

**Copy**

1  
5

**input**

**Copy**

6 3 2  
1 5 6  
1 2  
1 3  
1 4  
1 5  
5 6

**output**

**Copy**

2  
4 5

**Note**

In the first sample, if you shut down road 5, all cities can still reach a police station within *k* = 4 kilometers.

In the second sample, although this is the only largest valid set of roads that can be shut down, you can print either 4 5 or 5 4 in the second line.

题意： n个城市构成一棵树，其中k个城市为设有警察站，要求任意城市距离d内都有警察站。问在满足要求的前提下，最多能删除多少条边，使得剩下的森林仍然满足要求，要求输出删除的边的编号。

# Fire in the Country

time limit per test

1.0 s

memory limit per test

256 MB

This summer's heat wave and drought unleashed devastating wildfires all across the Earth. Of course, a tiny country on the island "Yars and Eva" is also affected by this ecological disaster. Thanks to the well-organized actions of rescuers, all the citizens were evacuated to the nearby planets on a spaceship.

To save the country, a small fire robot was left on its territory. He managed to extinguish fire in all cities except the capital before running out of liquid. The robot can't extinguish fire anymore, so the country is still in danger at the moment.

There are *n* cities in the country connected by *m* two-way roads. Each road connects a pair of cities. There is at most one road between any pair of cities. The cities are numbered from 1 to *n*, with capital having the number 1.

The fire spreads very quickly. On the very first day only the capital is on fire. But with every subsequent day, the fire devours all the cities connected by a road with the cities that are already on fire. Once the fire gets to a certain city, this city will continue to stay on fire till the very end.

The robot can't extinguish the fire anymore and there are no other means of firefighting left in the country, so obviously the country is going to be burned down to the ground. And you don't have to be a hero and save it. The key thing is that the robot is going to be destroyed by fire as well, and you need to figure out who will actually pay for the loss of government property.

Two pilots, Nikolay and Vladimir, are on Earth's natural satellite. They alternately take turns controlling the robot. The pilots alternate each day. Robot's speed is equal to the speed of fire, so the robot can get to the neighboring city in a day. Each pilot does not want the robot to be destroyed on his turn. For such a valuable loss they will have to pay a huge fee to the government.

On the first day the robot is located in the capital. Nikolay controls the robot on the first day. Thus, Nikolay controls the robot on the days with odd numbers, and Vladimir controls it on the days with even numbers. Taking turn, a pilot has to move the robot from the current city to any city connected by a road with the current one. If a pilot moves the robot to a city which is on fire, the robot is destroyed.

You task is to figure out who will pay the fine for the destroyed robot, assuming both pilots act optimally.

**Input**

The first line of input contains the amount of cities *n* and the amount of roads *m* in the country (2 ≤ *n* ≤ 1000, *n* - 1 ≤ *m* ≤ 1000). The following *m* lines contain description of the roads: *a*, *b* — indices of the cities connected by roads (1 ≤ *a* ≤ *n*, 1 ≤ *b* ≤ *n*, *a* ≠ *b*). The roads are bidirectional. No pair of cities will be connected by more than one road. There will be a path between any two cities.

**Output**

Output the name of the pilot who will pay the fine, assuming both pilots act optimally ("Nikolay" — if it is Nikolay, "Vladimir" — if it is Vladimir).

**Examples**

**input**

**Copy**

4 3  
1 2  
1 3  
2 4

**output**

**Copy**

Vladimir

**input**

**Copy**

4 4  
1 2  
1 3  
2 4  
3 4

**output**

**Copy**

Nikolay

**input**

**Copy**

4 5  
1 2  
1 3  
2 4  
3 4  
2 3

**output**

**Copy**

Nikolay

**Note**

In the first sample test, an optimal strategy for Nicolay is to send the robot to the city 3 on the first day. Vladimir then will be forced to send the robot back to the capital, so the robot will be destroyed and Vladimir will have to pay.

题意：给定一个由n个点，m条边构成的图，顶点的编号为1~n，有一个机器人， 初始位置在1号点， 两个人每天轮流控制机器人， 每天可以让机器人走到一个相邻的点， 第一天大火一号点开始蔓延， 第二天所有着火点相邻的点都会被点着， 最终谁让机器人走到着火点（或无路可走）谁就输，输出输着的姓名。