# Fennec VS. Snuke

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Time limit : 2sec / Memory limit : 256MB

Problem Statement

Fennec and Snuke are playing a board game.

On the board, there are N cells numbered 1 through N, and N−1 roads, each connecting two cells. Cell ai is adjacent to Cell bi through the i-th road. Every cell can be reached from every other cell by repeatedly traveling to an adjacent cell. In terms of graph theory, the graph formed by the cells and the roads is a tree.

Initially, Cell 1 is painted black, and Cell N is painted white. The other cells are not yet colored. Fennec (who goes first) and Snuke (who goes second) alternately paint an uncolored cell. More specifically, each player performs the following action in her/his turn:

• Fennec: selects an uncolored cell that is adjacent to a black cell, and paints it black.

• Snuke: selects an uncolored cell that is adjacent to a white cell, and paints it white.

A player loses when she/he cannot paint a cell. Determine the winner of the game when Fennec and Snuke play optimally.

Constraints

• 2≤N≤105

• 1≤ai,bi≤N

• The given graph is a tree.

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Input

Input is given from Standard Input in the following format:

N

a1 b1

:

aN−1 bN−1

Output

If Fennec wins, print Fennec; if Snuke wins, print Snuke.

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Sample Input 1

7

3 6

1 2

3 1

7 4

5 7

1 4

Sample Output 1

Fennec

For example, if Fennec first paints Cell 2 black, she will win regardless of Snuke's moves.

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Sample Input 2

4

1 4

4 2

2 3

Sample Output 2

Snuke

题目大意：

有一颗编号从1~N的树，其中第一个结点为黑色，第N个结点为白色，其他结点为无色。

Fennec和Snuke轮流在该树上无色的结点上涂色，Fennec先涂色，且按照如下规则：

 Fennec：选择没有着色且与黑色相邻的结点涂色，且涂黑色

 Snuke：选择没有着色且与白色相邻的结点涂色，且涂白色

给定一颗树，求谁涂色的点较多。

# Connecting Universities

Treeland is a country in which there are *n* towns connected by *n* - 1 two-way road such that it's possible to get from any town to any other town.

In Treeland there are 2*k* universities which are located in different towns.

Recently, the president signed the decree to connect universities by high-speed network.The Ministry of Education understood the decree in its own way and decided that it was enough to connect each university with another one by using a cable. Formally, the decree will be done!

To have the maximum sum in the budget, the Ministry decided to divide universities into pairs so that the total length of the required cable will be maximum. In other words, the total distance between universities in *k* pairs should be as large as possible.

Help the Ministry to find the maximum total distance. Of course, each university should be present in only one pair. Consider that all roads have the same length which is equal to 1.

**Input**

The first line of the input contains two integers *n* and *k* (2 ≤ *n* ≤ 200 000, 1 ≤ *k* ≤ *n* / 2) — the number of towns in Treeland and the number of university pairs. Consider that towns are numbered from 1 to *n*.

The second line contains 2*k* distinct integers *u*1, *u*2, ..., *u*2*k* (1 ≤ *ui* ≤ *n*) — indices of towns in which universities are located.

The next *n* - 1 line contains the description of roads. Each line contains the pair of integers *xj* and *yj* (1 ≤ *xj*, *yj* ≤ *n*), which means that the *j*-th road connects towns *xj* and *yj*. All of them are two-way roads. You can move from any town to any other using only these roads.

**Output**

Print the maximum possible sum of distances in the division of universities into *k* pairs.

**Examples**

**input**

**Copy**

7 2  
1 5 6 2  
1 3  
3 2  
4 5  
3 7  
4 3  
4 6

**output**

**Copy**

6

**input**

**Copy**

9 3  
3 2 1 6 5 9  
8 9  
3 2  
2 7  
3 4  
7 6  
4 5  
2 1  
2 8

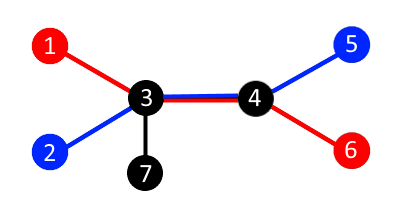
**output**

**Copy**

9

**Note**

The figure below shows one of possible division into pairs in the first test. If you connect universities number 1 and 6 (marked in red) and universities number 2 and 5 (marked in blue) by using the cable, the total distance will equal 6 which will be the maximum sum in this example.



题意：有一颗树，树的边权为1，树上的有些节点有大学，现在要把这些大学配对，每对大学之间都要链接线缆，问最多要链接多长的线缆。