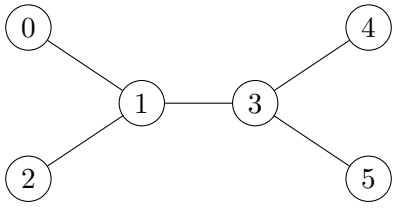
2 Flowery graphs

In your preparation for the IOI, you are introduced to the wonderful subject of graph theory. You notice how some graph theoretic terminology is derived from plant life (trees, leaves, nodes, and so on) and wonder why there aren't any buds or flowers.

You are studying trees, that is, undirected connected graphs with no cycles. You define a k-flower (or a flower with k stems) as follows: A k-flower consists of a distinguished vertex called a *bud*, along with k nonempty edge-disjoint paths called *stems* emerging from the bud. Given a tree and an integer $K \geq 2$, you would like to find a flower with at most K stems that has as many vertices as possible and output this maximum number of vertices.

For example, consider this tree. With $K = 2$, the answer is 4, which can be obtained by selecting $\{0, 1, 3, 5\}$ (for example) with bud 1 or 3. With $K = 3$, the answer is 5, which can be obtained by choosing 1 or 3 as the bud. Note that for $K > 3$, the answer is still 5.



Input format

- Line 1 : Two integers, N and K. The tree has N vertices, numbered 0 to $N-1$.
- Lines 2 to N : Each line has two integers, specifying the endpoints of an edge in the tree.

The input is guaranteed to represent a tree.

Output format

The output consists of a single line with a single integer, the maximum number of vertices in any flower with at most K stems.

Test data

- Subtask 1 (15 marks) : $1 \leq N \leq 50000$ and $K = 2$.
- Subtask 2 (25 marks) : $1 \leq N \leq 1000$ and $2 \leq K \leq 50000$.
- Subtask 3 (25 marks) : $1 \leq N \leq 50000$ and $2 \leq K \leq 100$.
- Subtask 4 (35 marks) : $1 \leq N \leq 50000$ and $2 \leq K \leq 50000$.

Sample input

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

Sample output

```
5
```

Limits

- *Memory limit* : 128 MB
- *Time limit* : 2 s