

## 2016 SCOOP! (PART 1)

Read All About It! Something very exciting is about to happen amongst that small knot of villages known as *The Endians*. Do not tell anyone. It's a secret.

A very important package needs to be examined by every village in *The Endians*. A dedicated messenger has been assigned to bring this package to each village and some of the local roads have been reserved for the messenger's exclusive use. To minimise disruption to the local inhabitants, the messenger's roads have been selected so that there is a unique path between any two villages.

Whilst the messenger is trusted enough to carry the package there is a suspicion that they might look inside it. Each village (numbered from 1 to  $v$ ) possesses an ancestral padlock ( $p_1$  to  $p_v$ ) and a corresponding ceremonial key which remains in the village at all times, so only village  $i$  is able to add (or remove) padlock  $p_i$ . The package can be locked by up to two padlocks at any time and must always be secured by at least one padlock when it travels between villages. A village cannot examine a package locked with another village's padlock. The package is not secured by any padlocks initially.

It is important that the package is examined by every village as soon as possible. The number of journeys taken by the messenger must be minimised.

For example, suppose that the package originates at village 1 and that 1 and 2 are connected.  $p_1$  is attached before the package travels from 1 to 2.  $p_2$  is now attached and the package travels from 2 to 1.  $p_1$  is now removed and the package (still secured by  $p_2$ ) is sent back to 2.  $p_2$  can now be removed and village 2 can see the contents of the package. This is three journeys.

### SAMPLE INPUT

```
2 1
1 2
```

The first line of the input will consist of two integers, the number of villages  $v$  ( $1 \leq v \leq 50,000$ ) followed by the package's starting village  $i$  ( $1 \leq i \leq v$ ). Each of the next  $v-1$  lines will consist of a pair of integers, indicating two villages directly connected by a road. Each pair will be given once and it will be possible to get between any two villages by a sequence of roads.

### SAMPLE OUTPUT

```
3
```

You should output a single integer indicating the minimum number of journeys that need to be taken by the messenger.