2016 SCOOP! (PART 2)

Breaking News! The important package that has recently been making its way throughout *The Endians* has been revealed to contain samples of a new flavour of ice-cream: honey-dew made from the milk of Paradise.

Another package has been put together and, once again, a dedicated messenger needs to take the package to each village. The package is to be secured using the existing system of padlocks so that none of the samples are 'accidentally' eaten by the ice-cream loving messenger.

It is important that the ice-cream samples are received by the villages as soon as possible, before they melt. The village where the ice-cream is to be produced and the package starts, needs to be chosen. The number of journeys taken by the messenger must be minimised.

For example, suppose that village 1 is directly connected to 2 and to 3. If the package starts at 1 the minimum number of journeys required will be 9, whereas if the package starts at 2 (or 3) the minimum number of journeys required will be 6.

SAMPLE INPUT

```
3
1 2
1 3
```

SAMPLE OUTPUT

```
6
```

The first line of the input will consist of a single integer v ($1 \leq v \leq 50{,}000$) indicating the number of villages. 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.

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