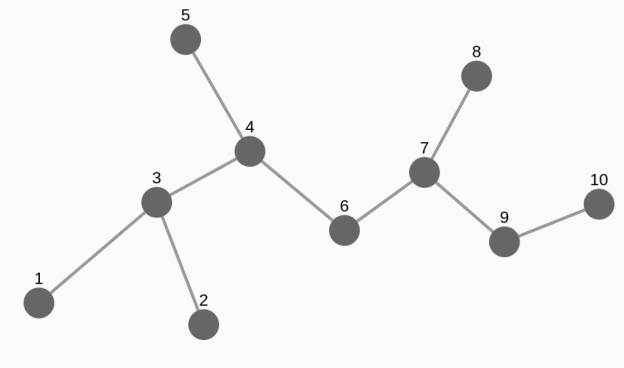
Lokami Temple

Problem ID: lokamitemple

Time limit: 2 seconds

Koko is a popular adventurer in the world of Kumanshiman. In the quest of searching for the sacred diamond to stolen by the Black Jonji tribe, he finds himself stuck in front of the mysterious temple of Lokami.

He finds a drawing (figure), along with a clue.



Clue: "Take the furthest door-to-door path for the door you choose. Be sure that it is the shortest for all doors. Take the wrong path, you'll be stuck with us laughing forever."

Koko then noticed that the door number of the Lokami temple, keeps on changing and repeating, the number that appeared, seems to correspond to the numbers on the drawing (1, 2, ..., 9).

In order to leave Lokami temple, Koko must find out which door to enter and leave, and he must take the longest path possible for that door, yet the path length being the minimum for all doors.

Which door should Koko take? Which exits can he take?

Can you help Koko? The land of Kumanshiman needs you!

Assumptions

- All N doors are connected, and there are $N - 1$ links.
- The doors will **NOT** be connected to form a loop.
- For any 2 doors that are connected, there is only **ONE** path connecting the two doors

Inputs

The first line of the input specifies the number of doors, N, where $(2 \leq N \leq 50)$.

Then, followed by $N - 1$ lines, each containing 2 integers a, b forming a connection from door a to door b where $(1 \leq a, b \leq N)$

Outputs

For your output, you should list out the possible entrance(s) and exit(s) together with the path length. If there is more than one possible entrance/exit, you should display them in ascending order.

Sample Input 1	Sample Output 1
10 1 3 2 3 3 4 4 5 4 6 6 7 7 8 7 9 9 10	Entrance(s): 6 Exit(s): 1 2 10 Path Length: 3