

DescriptionHintsSubmissionsDiscussionsNotes

Tree Diameter - I

1 sec256000KB100

DifficultyTime LimitMemoryScore

80/80 XP

30/30

Description

You are given a tree consisting of n nodes. The diameter of a tree is the maximum distance between two nodes. Your task is to determine the diameter of the tree.

Input Format

The first input line contains an integer n : the number of nodes. The nodes are numbered 1, 2, ..., n . Then there are $n - 1$ lines describing the edges. Each line contains two integers a and b : there is an edge between nodes a and b .

Output Format

Print the diameter of the tree.

Constraints

$1 \leq n \leq 2 \times 10^5$
 $1 \leq a, b \leq n$

Sample Input 1

5
1 2
1 3
3 4
3 5

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Sample Output 1

Copy

C++1400:00:0012 px

```
20 ios_base::sync_with_stdio(0);
21 cin.tie(0);
22 cout.tie(0);
23 cin>>n;
24 g.resize(n+1);
25 depth.resize(n+1);
26 parent.resize(n+1);
27 for(int i=1;i<n;i++){
28     int a,b;
29     cin>>a>>b;
30     g[a].emplace_back(b);
31     g[b].emplace_back(a);
32 }
33 dfs(1,0,0);
34 int dis=INT_MIN;
35 int idx=0;
36 for(int i=1;i<=n;i++){
37     if(dis<depth[i]){
38         idx=i;
39         dis=depth[i];
40     }
41 }
42 dfs(idx,0,0);
43 int ans=INT_MIN;
44 for(int i=1;i<=n;i++){
45     ans=max(ans,depth[i]);
46 }
47 cout<<ans<<endl;
48 return 0;
49 }
```

Sample Tests

Manual Tests

Console

Run on Sample