```cpp
#include <bits/stdc++.h>
using namespace std;
#define ll long long
#define inf (int)1e9

/// center of the tree is : The node in the middle of the largest path in the tree.
/// centroid of the tree is : equivalent to its center of mass.

Centroid of tree:
vector<int> adj[100100] , subtree(100100);
int n;

int dfs(int u, int p) {
    for (auto v : adj[u]){
        if (v ≠ p)
            subtree[u] += dfs(v, u);
    }

    return subtree[u] + 1;
}

int centroid(int u, int p) {
    for (auto v : adj[u]){
        if (v ≠ p && subtree[v] > n/2)
            return centroid(v, u);
    }

    return u;
}
```