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**Problem 1:**

#include<iostream>

#include<bits/stdc++.h>

#include<unordered\_set>

#include<unordered\_map>

using namespace std;

#define ll long long int

#define llmin -1e18

#define ff first

#define ss second

#define pb push\_back

#define vi vector<int>

#define take(a,n) vector <int> a; for(int i=0;i<n;i++){int aa; cin>>aa; a.pb(aa);}

#define vll vector<ll>

#define full(a) (a.begin(),a.end())

#define vc vector<char>

#define iz(n) int n; cin>>n;

#define iz2(n,m) int n,m; cin>>n>>m;

#define mii map<int,int>

#define setbits(x) \_\_builtin\_popcountll(x)

#define zerobits(x) \_\_builtin\_ctzll(x) //zeros before first 1

#define com int t; cin>>t; while(t--)

#define forn(n) for(int i=0;i<n;i++)

#define fo(x,y) for(int i=x;i<y;i++)

#define pq priority\_queue <int, vector<int>, greater<int> >

int main(){

ios\_base::sync\_with\_stdio(false);

cin.tie(NULL);

#ifndef ONLINE\_JUDGE

freopen("input.txt", "r", stdin);

freopen("output.txt", "w", stdout);

#endif

int n;

cin>>n;

take(a,n)

unordered\_map<int,int>m;

int level=0;

int size=1;

int counter=0;

for(int i = 0; i < n; i++)

{

if(counter==size){

counter=0;

size\*=2;

level++;

}

m[a[i]]=level;

counter++;

}

int query;

cin>>query;

if(m.count(query)==0){

cout<<-1;

}

else

cout<<m[query];

return 0;

}

**Problem 2:**

#include<iostream>

#include<bits/stdc++.h>

#include<unordered\_set>

#include<unordered\_map>

using namespace std;

#define ll long long int

#define llmin -1e18

#define ff first

#define ss second

#define pb push\_back

#define vi vector<int>

#define take(a,n) vector <int> a; for(int i=0;i<n;i++){int aa; cin>>aa; a.pb(aa);}

#define vll vector<ll>

#define full(a) (a.begin(),a.end())

#define vc vector<char>

#define iz(n) int n; cin>>n;

#define iz2(n,m) int n,m; cin>>n>>m;

#define mii map<int,int>

#define setbits(x) \_\_builtin\_popcountll(x)

#define zerobits(x) \_\_builtin\_ctzll(x) //zeros before first 1

#define com int t; cin>>t; while(t--)

#define forn(n) for(int i=0;i<n;i++)

#define fo(x,y) for(int i=x;i<y;i++)

#define pq priority\_queue <int, vector<int>, greater<int> >

void DFS(int i, vector <int> adj[],vector<bool> &vis, set<int> &s)

{

if (vis[i]) return;

vis[i] = true;

s.insert(i);

for (auto j:adj[i])

{

if (!vis[j]) DFS(j, adj, vis, s);

}

}

int main(){

ios\_base::sync\_with\_stdio(false);

cin.tie(NULL);

// cout<<" a";

#ifndef ONLINE\_JUDGE

freopen("input.txt", "r", stdin);

freopen("output.txt", "w", stdout);

#endif

int n,m;

cin>>n>>m;

vector<int> adj[n+1];

// cout<<"P";

for (int i = 0; i < m; i++)

{

int a,b;

cin>>a>>b;

// insertNode(a,b,adj);

adj[a].push\_back(b);

adj[b].push\_back(a);

}

int k;

cin>>k;

set<int> s;

vector<bool>visited(n,false);

// cout<<"aaaa";

for (int i = 0; i <= n; i++)

{

if(!visited[i]){

DFS(i,adj,visited,s);

}

// cout<<s.size()<<endl;

if((int)(s.size())==k){

for (auto it = s.begin(); it!=s.end(); ++it){

cout<<\*it<<" ";

}

cout<<endl;

s.clear();

}

s.clear();

}

return 0;

}