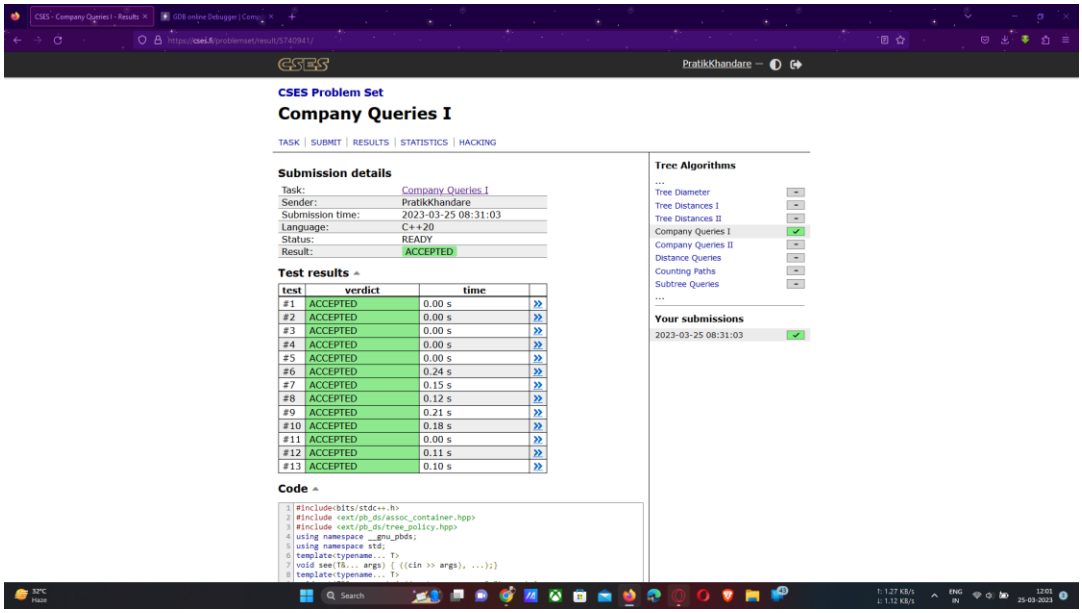
Code –

```
#include<bits/stdc++.h>
#include <ext/pb_ds/assoc_container.hpp>
#include <ext/pb_ds/tree_policy.hpp>
using namespace __gnu_pbds;
using namespace std;
template<typename... T>
void see(T&... args) { ((cin >> args), ...);}
template<typename... T>
void put(T&&... args) { ((cout << args << " "), ...);}
template<typename... T>
void putl(T&&... args) { ((cout << args << " "), ...); cout<<'\n';}
#define error(args...) { string _s = #args; replace(_s.begin(), _s.end(),
',', ' '); stringstream _ss(_s); istream_iterator<string> _it(_ss);
err(_it, args); }
void err(istream_iterator<string> it) {}
template<typename T, typename... Args>
void err(istream_iterator<string> it, T a, Args... args) {cerr << *it <<
"=" << a << ", "; err(++it, args...);}
#define int long long
#define pb push_back
#define F first
#define S second
#define ll long long
#define ull unsigned long long
#define ld long double
#define pii pair<int,int>
#define tiii tuple<int,int,int>
#define vi vector<int>
#define vii vector<pii>
#define vc vector
#define L cout<<'\n';
#define E cerr<<'\n';
#define all(x) x.begin(),x.end()
#define rep(i,a,b) for (int i=a; i<b; ++i)
#define rev(i,a,b) for (int i=a; i>b; --i)
#define IOS ios_base::sync_with_stdio(false);cin.tie(0);cout.tie(0);
#define setpr(x) cout<<setprecision(x)<<fixed
#define sz size()
#define seea(a,x,y) for(int i=x;i<y;i++){cin>>a[i];}
#define seev(v,n) for(int i=0;i<n;i++){int x; cin>>x; v.push_back(x);}
#define sees(s,n) for(int i=0;i<n;i++){int x; cin>>x; s.insert(x);}
#define ordered_set tree<int, null_type,less<int>,
rb_tree_tag,tree_order_statistics_node_update>

const ll inf = 1LL<<62;
const ld ep = 0.0000001;
const ld pi = acos(-1.0);
const ll md = 1000000007;

int p[21][200005];
void solve(){
    int n,q; see(n,q);
    rep(i,2,n+1){
        int x;
        see(x);
        p[0][i] = x;
    }
```

```
    rep(i,1,21) {
        rep(j,1,n+1){
            p[i][j] = p[i-1][p[i-1][j]];
        }
    }
    while(q--){
        int x,y; see(x,y);
        int z=0;
        while(y>0) {
            if (y&1) x = p[z][x];
            z++; y>>=1;
        }
        if (x) putl(x);
        else putl(-1);
    }
}
signed main(){
    IOS;
    #ifdef LOCAL
    freopen("input.txt", "r" , stdin);
    freopen("output.txt", "w", stdout);
    #endif
    int t=1;
    //cin>>t;
    rep(i,1,t+1){
        solve();
        cout<<'\n';
    }
    #ifdef LOCAL
    clock_t tStart = clock();
    cerr<<fixed<<setprecision(10)<<"\nTime Taken: "<<(double)(clock()-
tStart)/CLOCKS_PER_SEC<<endl;
    #endif
}
```

Time complexity –O(N^2)

Space complexity –O(N)



CSES Problem Set

Company Queries I

TASK | SUBMIT | RESULTS | STATISTICS | HACKING

Submission details

Task:	Company Queries I
Sender:	PratikKhandare
Submission time:	2023-03-25 08:31:03
Language:	C++20
Status:	READY
Result:	ACCEPTED

Test results

test	verdict	time	
#1	ACCEPTED	0.00 s	»
#2	ACCEPTED	0.00 s	»
#3	ACCEPTED	0.00 s	»
#4	ACCEPTED	0.00 s	»
#5	ACCEPTED	0.00 s	»
#6	ACCEPTED	0.24 s	»
#7	ACCEPTED	0.15 s	»
#8	ACCEPTED	0.12 s	»
#9	ACCEPTED	0.21 s	»
#10	ACCEPTED	0.18 s	»
#11	ACCEPTED	0.00 s	»
#12	ACCEPTED	0.11 s	»
#13	ACCEPTED	0.10 s	»

Code

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template<typename T>
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Tree Algorithms

...

- Tree Diameter
- Tree Distances I
- Tree Distances II
- Company Queries I
- Company Queries II
- Distance Queries
- Counting Paths
- Subtree Queries

...

Your submissions

- 2023-03-25 08:31:03