

# 2017-2018 ACM-ICPC, NEERC, Northern Subregional Contest

## 比赛情况

题号	A	B	C	D	E	F	G	H	I	J	K	L
状态	O	O	O	-	O	-	-	O	O	-	O	O

O 在比赛中通过 Ø 赛后通过! 尝试了但是失败了- 没有尝试

## 比赛时间

2020-06-24 13:00-18:00

## 提交记录

## 题解

### A. Auxiliary Project

恰好用点亮 \$n\$ 根数码管能构成的数字的和最大是多少。

\$\text{dp}\$一下就可以了。

```
#include<bits/stdc++.h>
#define ll long long
#define pii_ pair<int,int>
#define mp_ make_pair
#define pb push_back
#define fi first
#define se second
#define rep(i,a,b) for(int i=(a);i<=(b);i++)
#define per(i,a,b) for(int i=(a);i>=(b);i--)
#define show1(a) cout<<"#a<<" = "<<a<<endl
#define show2(a,b) cout<<"#a<<" = "<<a<<"; " <<"#b<<" = "<<b<<endl
using namespace std;
const ll INF = 1LL<<60;
const int inf = 1<<30;
const int maxn = 1e6+5;
inline void fastio() {ios::sync_with_stdio(false);cin.tie(0);cout.tie(0);}

int dig[10] = {6,2,5,5,4,5,6,3,7,6};
ll f[maxn];
int main()
{
    fastio();
    int n;
    cin >> n;
    f[0] = 1;
    for(int i=1;i<=n;i++) {
        f[i] = f[i-1];
        for(int j=0;j<10;j++) {
            if(dig[j]<=i) f[i] += f[i-dig[j]];
        }
    }
    cout << f[n] << endl;
}
```

```
freopen("auxiliary.in", "r", stdin);
freopen("auxiliary.out", "w", stdout);
int n; cin >> n;
rep(i, 1, n) {
    rep(j, 0, 9) {
        if (i >= dig[j] && (f[i - dig[j]] || i == dig[j])) f[i] = max(f[i], f[i - dig[j]] + j);
    }
}
cout << f[n] << endl;
return 0;
}
```

## H. Hidden Supervisors

一个森林合并成一棵树，且求最大的匹配数，匹配是指取一个父亲和它的一个儿子。一个节点不能匹配多次。

先处理每棵树，猜一个贪心的结论，从叶子开始往上，能和自己的父亲匹配就立刻匹配。合并树的时候，每次合并最多有\$1\$的贡献，贪心地让每个没有被匹配过的树根去连接另一棵树没有匹配过的节点。但注意最后要形成一棵树，比赛的时候写了好多次才过(而且写得很复杂)。。。

```
#include<bits/stdc++.h>
#define ll long long
#define pii_ pair<int,int>
#define mp_ make_pair
#define pb push_back
#define fi first
#define se second
#define TIMES 10
#define rep(i,a,b) for(int i=(a);i<=(b);i++)
#define per(i,a,b) for(int i=(a);i>=(b);i--)
#define show1(a) cout<<"#a<<" = "<<a<<endl"
#define show2(a,b) cout<<"#a<<" = "<<a<<" ; "<<"#b<<" = "<<b<<endl"
using namespace std;
const ll INF = 1LL<<60;
const int inf = 1<<30;
const int maxn = 1e5+5;
inline void fastio() {ios::sync_with_stdio(false);cin.tie(0);cout.tie(0);}

int n,p[maxn],has[maxn],ans,belong[maxn];
vector<int> g[maxn],no[maxn];
void dfs(int u,int f,int rt)
{
    belong[u] = rt;
    for(int v:g[u]){
        dfs(v,u,rt);
    }
}
```

```
    }
    if(!has[u] && (f!=0&&!has[f])) has[u]=has[f]=1,ans++;
    if(!has[u]) no[rt].pb(u);
}
struct node
{
    int id;
    bool operator < (node e) const
    {
        return no[id].size()>no[e.id].size();
    }
};
#define LOCAL
int main()
{
    fastio();

#ifndef LOCAL
    freopen("hidden.in","r",stdin);
    freopen("hidden.out","w",stdout);
#endif

    cin>>n;
    vector<int> root;
    rep(i,2,n){
        cin>>p[i];
        if(!p[i]) root.pb(i);
        else g[p[i]].pb(i);
    }
    vector<int> tot,rest;
    dfs(1,0,1); for(int x:no[1]) tot.pb(x);
    int cnt = 0;
    for(int x:root){
        dfs(x,0,x);
        if(has[x]){
            for(int y:no[x]) tot.pb(y);
            p[x] = 1;
        }else rest.pb(x);
    }
    auto cmp = [&] (int x,int y) {return no[x].size()>no[y].size();};
    sort(rest.begin(),rest.end(),cmp);
    for(int x:rest){
        if(tot.size()){
            p[x] = tot.back(); tot.pop_back(); ans++;
        }else{
            p[x] = 1; tot.pb(x);
        }
        for(int y:no[x]){
            if(y!=x) tot.pb(y);
        }
    }
}
```

```
cout<<ans<<endl;
rep(i,2,n) cout<<p[i]<<" \n"[i==n];
return 0;
}
/*
7
0 0 0 0 0 0
*/
```

## replay

## 比赛总结

From:  
<https://wiki.cvbbacm.com/> - CVBB ACM Team

Permanent link:  
[https://wiki.cvbbacm.com/doku.php?id=2020-2021:teams:wangzai\\_milk:20200624%E6%AF%94%E8%B5%9B%E8%AE%B0%E5%BD%95&rev=1593091227](https://wiki.cvbbacm.com/doku.php?id=2020-2021:teams:wangzai_milk:20200624%E6%AF%94%E8%B5%9B%E8%AE%B0%E5%BD%95&rev=1593091227)

Last update: 2020/06/25 21:20