

Codeforces Round #643 (Div. 2)

A. Sequence with Digits

大致题意 $a_{n+1} = a_n + \min\{D_{a_n}\} + \max\{D_{a_n}\}$ D_n 是 n 的各位数字组成的集合。
求 a_n

盲猜多求几个就会带有数字0

代码:

```
#include <stdio.h>
#include <iostream>
#include <vector>
#include <algorithm>
using namespace std;
int main()
{
    int T;
    scanf("%d",&T);
    auto f=[](long long now){
        vector<long long> vec;
        while (now!=0)
        {
            vec.push_back(now%10);
            now/=10;
        }
        return vec;
    };
    auto minn=[&](long long now)
    {
        auto &vec=f(now);
        return *min_element(vec.begin(),vec.end());
    };
    auto maxn=[&](long long now)
    {
        auto &vec=f(now);
        return *max_element(vec.begin(),vec.end());
    };
    while (T--)
    {
        long long a1,k;
        scanf("%lld%lld",&a1,&k);
        long long ans=a1;
        for (int i=2;i<=k&&minn(ans);i++)
            ans=ans+minn(ans)*maxn(ans);
        printf("%lld\n",ans);
    }
}
```

```
}  
    return 0;  
}
```

B. Young Explorers

排序，贪心即可

代码:

```
#include <stdio.h>  
#include <algorithm>  
#include <iostream>  
#include <vector>  
#include <stack>  
int a[200001];  
using namespace std;  
int main()  
{  
    int T;  
    scanf("%d",&T);  
    while (T--)  
    {  
        int n;  
        scanf("%d",&n);  
        for (int i=1;i<=n;i++)  
            scanf("%d",&a[i]);  
        sort(a+1,a+n+1,[](int a,int b){  
            return a>b;  
        });  
        stack<int> s;  
        for (int i=1;i<=n;i++)  
            s.push(a[i]);  
        int ans=0;  
        while (s.size()>0)  
        {  
            int top=s.top();  
            int i;  
            for (i=1;i<=top&& s.size()>0;i++)  
            {  
                s.pop();  
                if (i!=top&& s.size()>0)  
                    top=max(top,s.top());  
            }  
            if (i==top+1)  
                ans++;  
        }  
        printf("%d\n",ans);  
    }  
}
```

}

C. Count Triangles

题意：求集合 $\{(x,y,z) | a \leq x \leq b \leq y \leq c \leq z \leq d \text{ 且 } x+y < z\}$ 中元素的个数

枚举 x ，然后计算即可

```
#include <stdio.h>
#include <iostream>
#include <algorithm>
using namespace std;
int main()
{
    long long a,b,c,d;
    long long ans=0;
    scanf("%lld%lld%lld%lld",&a,&b,&c,&d);
    for (long long i=a;i<=b;i++)
    {
        long long mid=c;
        if (d-i+1<=c)
        {
            mid=d-i;
            ans+=(long long)(c-max((d-i+1),b)+1)*(d-c+1);
            if (d-i<b)
                continue;
        }
        long long l=max(b,c-i+1);
        ans+=(mid-l+1)*(i-c)+(mid+l)*(mid-l+1)/2;
    }
    printf("%lld",ans);
}
```

D. Game With Array

构造题，前面 $n-1$ 个全是1

代码：

```
#include <stdio.h>
int n,m;
int main()
{
    scanf("%d%d",&n,&m);
    if (m<2*n)
    {
        printf("no");
    }
}
```

```
return 0;
}
printf("yes\n");
for (int i=1;i<n;i++)
printf("1 ");
printf("%d\n%d",m-n+1,n);
}
```

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