

Bai 2

```
#include <bits/stdc++.h>
using namespace std;

int cnt[1000002];
int main(){
    int TC; cin>> TC;
    while(TC--){
        int n; cin>>n;
        memset(cnt,0 ,sizeof(cnt));
        for(int i=0;i<n;i++){
            int x; cin>>x;
            if(x>0) cnt[x]=1;
        }
        for(int i=1;i<=1000001;i++){
            if(cnt[i]==0){
                cout<<i<<endl;
                break;
            }
        }
        cout<<endl;
    }
    return 0;
}
```

Bai 3

```
#include <bits/stdc++.h>
using namespace std;

int cnt[1000002];
int main(){
    int TC; cin>> TC;
    while(TC--){
        int n; cin>>n;
        int a[n];
        for(int i=0;i<n;i++){
            cin>>a[i];
        }
        sort(a,a+n);
        int res = INT_MAX;
        for(int i=1;i<n;i++){
            int tmp = a[i]-a[i-1];
            res= min(tmp,res);
        }
    }
}
```

```

        cout << res << endl;
    }
    return 0;
}

```

Bai4;

```

#include <bits/stdc++.h>
using namespace std;

```

```

int cnt[1000002];
int main(){
    int TC; cin>> TC;
    while(TC--){
        int n,k; cin>>n>>k;
        int a[n];
        for(int i=0;i<n;i++){
            cin >>a[i];
        }
        sort(a,a+n,greater<int>());
        for(int i=0;i<k;i++){
            cout<<a[i]<<" ";
        }
        cout<< endl;

    }
    return 0;
}

```

Bai5:

```

#include <bits/stdc++.h>
using namespace std;

```

```

int cnt[1000002];
int main(){
    int TC; cin>> TC;
    while(TC--){
        int n; cin>>n;
        int a[n];
        memset(cnt,0,sizeof(cnt));
        for(int i=0;i<n;i++){
            cin >> a[i];
            cnt[a[i]]++;
        }
    }
}

```

```

    }
    int ans=0;
    for(int i=0;i<n;i++){
        if(cnt[a[i]]>1) ans+=cnt[a[i]]/2; //ans++
    }
    cout << ans << endl;
}

return 0;
}

```

Bai6:

```

#include <bits/stdc++.h>
using namespace std;

const long long MOD = 1000000007;
int cnt[1000002];
int main(){
    int TC; cin>> TC;
    while(TC--){
        int n,x; cin>>n>>x;
        int a[n];
        for(int i=0;i<n;i++){
            cin >> a[i];
        }
        int res=0;int lt=1;

        for(int i=n-1;i>=0;i--){
            res+= a[i]*lt;
            res %= MOD;
            lt*=x;
            lt%=MOD;
        }
        cout << res << endl;
    }

    return 0;
}

```

Bai7:

```

#include <bits/stdc++.h>
using namespace std;

```

```

const long long MOD = 1000000007;
int cnt[1000002];
int f[1001];

void ktao(){

    int fibo[20];
    fibo[0]=0;
    fibo[1]=1;
    for(int i=2;i<=19;i++){
        fibo[i]=fibo[i-1]+fibo[i-2];
    }
    for(int i=0;fibo[i]<=1000;i++){
        f[fibo[i]]=1;
    }
}

int main(){
    ktao();
    int TC; cin>> TC;
    while(TC--){
        int n; cin>>n;
        int a[n];
        for(int i=0;i<n;i++){
            cin >> a[i];
        }
        for(int i=0;i<n;i++){
            if(f[a[i]]) cout << a[i] << " ";
        }
        cout<<endl;
    }
    return 0;
}

```

Bai8:

```

#include <bits/stdc++.h>
using namespace std;

```

```

const long long MOD = 1000000007;
int cnt[1000002];
int f[1001];

```

```

void ktao(){

    int fibo[20];

```

```

        fibo[0]=0;
        fibo[1]=1;
        for(int i=2;i<=19;i++){
            fibo[i]=fibo[i-1]+fibo[i-2];
        }
        for(int i=0;fibo[i]<=1000;i++){
            f[fibo[i]]=1;
        }
    }

int main(){
    int TC; cin>> TC;
    while(TC--){
        int n; cin>>n;
        int a[n];
        for(int i=0;i<n;i++){
            cin >> a[i];
        }
        int min_val =a[0];
        int res= -1e9;
        for(int i=1;i<n;i++){
            if(a[i]>a[i-1]){
                int tmp = a[i]-min_val;
                res = max(res,tmp);
                min_val = min(min_val,a[i]);
            }
            else
                min_val=a[i];
        }
        if(res == -1e9) cout<<"-1\n";
        else cout << res << endl;
    }
    return 0;
}

```

Bai 9:

```

#include <bits/stdc++.h>
using namespace std;

```

```

const long long MOD = 1000000007;
int cnt[1000002];

```

```

int main(){
    int TC; cin>> TC;

```

```

while(TC--){
    int n,k; cin>>n>>k;
    int a[n];
    for(int i=0;i<n;i++){
        cin >> a[i];
    }
    int sum=0;
    for(int i=0;i<k;i++) sum+=a[i];
    int res =sum;
    int index=0;
    for(int i=k;i<n;i++){
        sum =sum -a[i-k]+a[i];
        if(sum>res){
            res=sum;
            index= i-k+1;
        }
    }
    for(int i=0;i<k;i++){
        cout<<a[index+i]<<" ";
    }
    cout<< endl;
}
return 0;
}

```

```

#include <bits/stdc++.h>

```

```

using namespace std;

```

```

const long long MOD = 1000000007;

```

```

int cnt[1000002];

```

```

int main(){

```

```

    int TC; cin>> TC;

```

```

    while(TC--){

```

```

        int n; cin>>n;

```

```

        int a[n];

```

```

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

```

```

            cin >> a[i];

```

```

        }

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        vector<int> v(a,a+n);

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        sort(v.begin(),v.end());

```

```

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

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```

            auto it = upper_bound(v.begin(),v.end(),a[i]);

```

```
        if(it==v.end()) cout << "_ ";
        else cout<< (*it) <<" ";
    }
    cout<< endl;

}
return 0;

}
```