2020.06.01-2020.06.07 周报

团队训练

本周暂无

_wzx27

补了一下之前比赛的题

HDU6589 Sequence

把数列 a_i 写成其生成函数的形式 $f(x)=\sum a_ix^i$，每个操作 k 相当于 $f(x)\cdot \sum x^{ik}$，由交换律知顺序不重要，所以可以统计每种操作的次数 m_i，最后有

$$f(x)\cdot (\sum x^{i})^{m_1} \cdot (\sum x^{2i})^{m_2} \cdot (\sum x^{3i})^{m_3}$$

其中$(\sum x^{ki})^m = \sum {n+i-1 \choose i}x^{ik}$

另外模数刚好是998244353，做三次NTT即可

```
#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 = 2e6+5;
const ll M = 998244353;
inline void fastio() {ios::sync_with_stdio(false);cin.tie(0);cout.tie(0);}
ll qpow(ll a,ll b) {ll
s=1;while(b){if(b&1)s=(s*a)%M;a=(a*a)%M;b>>=1;}return s; }
int n,m,lim,l,r[maxn],cnt[maxn];
ll A[maxn],B[maxn],fac[maxn],inv[maxn];
int c[5];
void NTT(ll a[],int type)
{
    rep(i,1,lim-1) if(i<r[i]) swap(a[i],a[r[i]]);
    for(int mid=1;mid<lim;mid<<=1){
```

```
        ll wn = qpow(3,(M-1)/mid/2);
        if(type==-1) wn = qpow(wn,M-2);
        for(int R=mid<<1,j=0;j<lim;j+=R){
            ll w = 1;
            for(int k=0;k<mid;k++,w=w*wn%M){
                ll x=a[j+k],y=w*a[j+mid+k]%M;
                a[j+k] = (x+y)%M;
                a[j+mid+k] = (x-y+M)%M;
            }
        }
    }
    if(type==-1){
        ll INV = qpow(lim,M-2);
        rep(i,0,lim) a[i] = a[i]*INV%M;
    }
}
ll Comb(ll a,ll b) {return a<b?0:fac[a]*inv[b]%M*inv[a-b]%M;}
void init()
{
    fac[0] = 1;
    rep(i,1,2000000) fac[i]=fac[i-1]*i%M;
    inv[2000000] = qpow(fac[2000000],M-2);
    per(i,2000000-1,0) inv[i]=inv[i+1]*(i+1)%M;
}
int main()
{
    fastio();
    int _;
    init();
    for(cin>>_;_;_--){
        cin>>n>>m;
        memset(A,0,sizeof(A));
        memset(B,0,sizeof(B));
        rep(i,0,n-1) cin>>A[i];
        lim=1,l=0;
        while(lim<=2*n) lim<<=1,l++;
        rep(i,0,lim-1) r[i] = (r[i>>1]>>1) | ((i&1)<<(l-1));
        cnt[1]=cnt[2]=cnt[3]=0;
        while(m--) {int x;cin>>x;cnt[x]++;}
        rep(i,1,3)if(cnt[i]){
            memset(B,0,sizeof(B));
            for(int j=0;j*i<n;j++) B[i*j] = Comb(cnt[i]+j-1,j);
            NTT(A,1);NTT(B,1);
            rep(i,0,lim) A[i] = A[i]*B[i]%M;
            NTT(A,-1);
            rep(i,n+1,lim) A[i]=0;
        }
        ll ans = 0;
        rep(i,0,n-1) ans ^= ((i+1)*A[i]);
```

```
        cout<<ans<<endl;
    }
    return 0;
}

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```

Infinity37

在搞期末考试，完全摸了

Zars19

本周推荐