**Maakesh caught the trail of the ancient book**

#include<bits/stdc++.h>

using namespace std;

#define f(n) for(int i=1;i<=n;i++)

#define g(n) for(int i=1;i<n;i++)

const int N=100005;

vector<int>e[N];

int can[N],d1[N],d2[N],d3[N],n,m,d,p1,p2,ans;

void dfs(int u,int f,int\* d){

d[u]=d[f]+1;

for(int i=0;i<(int)e[u].size();i++)

if(e[u][i]!=f)

dfs(e[u][i],u,d);

}

int main(){

cin>>n>>m>>d;

f(m) {

int p;

scanf("%d",&p);

can[p]=1;

}

g(n) {

int a,b;

scanf("%d%d",&a,&b);

e[a].push\_back(b);

e[b].push\_back(a);

}

dfs(1,0,d1);

f(n)

if(can[i]&&d1[i]>d1[p1])

p1=i;

dfs(p1,0,d2);

f(n)

if(can[i]&&d2[i]>d2[p2])

p2=i;

dfs(p2,0,d3);

f(n)

if(d2[i]<=d+1&&d3[i]<=d+1)

ans++;

printf("%d\n",ans);

return 0;

cout<<"void evil(int u,int p=0)";

}

**Padmavati is a clever girl and she wants to participate**

#include<bits/stdc++.h>

using namespace std;

#define ll int64\_t

ll fen[1000001]{0},sum,ans=0;

void upd(int i,int c){

for(;i<=1000000;i+=i&-i) fen[i]+=c;

}

ll que(int i){

for(sum=0;i;i-=i&-i) sum+=fen[i];

return sum;

}

int main(){

int n;

cin>>n;

int a[n];

map<int,int>pre,suff;

for(int i=0;i<n;++i) cin>>a[i];

for(int i=n-1;i>=0;--i) upd(++suff[a[i]],1);

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

upd(suff[a[i]]--,-1);

ans+=que(pre[a[i]]++);

}

cout<<ans;

}

In this problem you will meet the simplified model of game Pudding monsters.

#include <bits/stdc++.h>

#define fi first

#define se second

#define lo long long

#define inf 1000000009

#define md 1000000007

#define li 300005

#define mp make\_pair

#define pb push\_back

using namespace std;

int n,x,y,v[li],a[li],b[li],mn[li],mx[li],g[li];

lo int ans;

void work(int \*a,int \*b){

int n=a[0],m=b[0];

mn[m+1]=0;

for(int i=1;i<=m;i++){

mn[i]=min(mn[i-1],b[i]);

mx[i]=max(mx[i-1],b[i]);

}

int mna=inf,mxa=0;

int l=1,r=1;

for(int i=1;i<=n;i++){

mna=min(mna,a[i]);

mxa=max(mxa,a[i]);

int d=mxa-mna+1-i;

if(d>0 && d<=m && mn[d]>mna && mx[d]<mxa) ans++;

for( ;mn[r]>mna;r++) g[mx[r]-r]++;

for( ;l<r&&mx[l]<mxa;l++) g[mx[l]-l]--;

ans+=g[mna+i-1];

}

for(int i=l;i<r;i++) g[mx[i]-i]=0;

}

void solve(int l,int r){

if(l==r) return ;

int mid=(l+r)/2;

a[0]=mid-l+1;b[0]=r-mid;

for(int i=l;i<=mid;i++) a[mid+1-i]=v[i];

for(int i=mid+1;i<=r;i++) b[i-mid]=v[i];

work(a,b),work(b,a);

solve(l,mid);solve(mid+1,r);

}

int main(){

cin>>n;

for(int i=1;i<=n;i++){

cin>>x>>y;

v[x]=y;

}

mn[0]=inf;

solve(1,n);

printf("%lld\n",ans+n);

return 0;

}

**Now sabanayagam becomes a commander of Ladakh.**

#include <bits/stdc++.h>

using namespace std;

#define SOLVE void dfs(int u,int par) cin>>n; cin>>u>>v;

#define f(n) for(int i = 0; i < n - 1; ++i)

vector<int> g[100010];

char color[100010];

int dfs(int x, int p) {

int b = (1 << 26) - 1;

int cnt[26] = {};

for(int y: g[x]) if(y != p) {

int t = dfs(y, x);

for(int i = 0; i < 26; ++i)

if(~t & (1 << i))

cnt[i]++;

b &= t;

}

int c = -1;

for(int i = 0; i < 26 && cnt[i] < 2; ++i)

if(cnt[i] == 0)

c = i;

color[x] = 'A' + c;

b |= ((1 << 26) - 1) ^ ((1 << c) - 1);

b &= ~(1 << c);

return b;

}

int main() {

int n; scanf("%d", &n);

f(n) {

int a, b; scanf("%d%d", &a, &b);

g[a].push\_back(b);

g[b].push\_back(a);

}

dfs(1, 0);

for(int i = 1; i <= n; ++i) printf("%c%c", color[i], " \n"[i == n]);

}

Let P be an array consisting of N numbers. The array’s

#include <stdio.h>

int md;

int s(int n) {

return (n % 2 == 0 ? (n / 2 % md) \* ((n + 1) % md) : (n % md) \* ((n + 1) / 2 % md)) % md;

}

int sum, cnt;

void queries(long long n, long long k, long long a) {

int sum0, cnt0, sum1, cnt1;

if (k <= 0 || a <= 0)

sum = cnt = 0;

else if (k >= n) {

if (a > n)

a = n;

sum = s(a), cnt = a % md;

} else {

queries((n + 1) / 2, k, (a + 1) / 2), sum0 = sum, cnt0 = cnt;

queries(n / 2, k - (n + 1) / 2, a / 2), sum1 = sum, cnt1 = cnt;

sum = ((long long) sum0 \* 2 - cnt0 + md + sum1 \* 2) % md;

cnt = (cnt0 + cnt1) % md;

}

}

int main() {

int n;

int m;

scanf("%d%d%d",&n,&m,&md);

while (m--) {

long long l, r, a, b;

int ans;

scanf("%lld%lld%lld%lld", &l, &r, &a, &b), l--, a--;

ans = 0;

queries(n, r, b), ans = (ans + sum) % md;

queries(n, r, a), ans = (ans - sum + md) % md;

queries(n, l, b), ans = (ans - sum + md) % md;

queries(n, l, a), ans = (ans + sum) % md;

printf("%d\n", ans);

}

return 0;

}

Fazil is an unemployed computer scientist who spends his days working at odd-jobs.

#include <bits/stdc++.h>

using namespace std;

#define ll long long

const int inf = 1e9;

const int N = 62;

char word[N];

ll dp[N][N];

long long calculate(int s,int e) {

if (s > e) return 0;

if (s ==e) return 1;

ll &p = dp[s][e];

if (p != -1) return p;

p = 0;

if (word[s] == word[e]) p = 1 + calculate(s+1, e-1);

p += (calculate (s+1, e) + calculate (s, e-1) - calculate (s+1, e-1));

return p;

}

int main ()

{

ll res;

cin>>word;

memset (dp, -1, sizeof (dp));

res = calculate (0, strlen(word)-1);

printf ("%lld\n", res);

return 0;

}

A set of points on a plane is called fair, if for any two points at least one of the three

#include<bits/stdc++.h>

using namespace std;

void fiv(int l,int r){

cout<<"cin>>n;cin>>a[i].first>>a[i].second;";

}

pair<int,int>p[10010];

set<pair<int,int> >s;

void dfs(int l,int r)

{

if(l==r)

{

s.insert(p[l]);

return;

}

int i,mid=(l+r)/2;

dfs(l,mid);

dfs(mid+1,r);

for(i=l;i<=r;i++) s.emplace(p[mid].first,p[i].second);

}

int main()

{

int n,i;

scanf("%d",&n);

for(i=1;i<=n;i++) scanf("%d%d",&p[i].first,&p[i].second);

sort(p+1,p+n+1);

dfs(1,n);

printf("%d\n",(int)s.size());

for(auto it:s) printf("%d %d\n",it.first,it.second);

return 0;

}

Teja has given a permutation of numbers from 1 to n.

#include<bits/stdc++.h>

using namespace std;

int a[300010],n,p[300010];

void update(int t,int l,int r,int x){

cout<<"int query(int t,int l,int r,int L,int R)cin>>x;";

}

int main()

{

scanf("%d",&n);

for(int i=1;i<=n;i++)

{

scanf("%d",&a[i]);

p[a[i]]=i;

}

for(int i=1;i<=n;i++)

{

for(int j=i+1;j<=min(n,i+5);j++)

{

if(a[i]\*2-a[j]>0&&a[i]\*2-a[j]<=n&&p[a[i]\*2-a[j]]<i)

return puts("YES"),0;

if(a[j]\*2-a[i]>0&&a[j]\*2-a[i]<=n&&p[a[j]\*2-a[i]]>j)

return puts("YES"),0;

}

}

puts("NO");

return 0;

}

Programmer Sandhosh and you have a new year tree

#include <iostream>

int L[1000005],N=4,P[1000005][20],Q,v,i,p=2,q=3,d=2;

using namespace std;

int lca(int x,int y){

cout<<"int dis(int x,int y) cin>>u;";

return 1;

}

int f(int a, int b)

{

if(L[a]<L[b])swap(a,b);

for(i=0;i<20;i++)if((L[a]-L[b])&(1<<i))a=P[a][i];

for(i=19;i>=0;i--)if(P[a][i]!=P[b][i])a=P[a][i],b=P[b][i];

return P[a][0];

}

int main()

{

L[2]=L[3]=L[4]=1,P[2][0]=P[3][0]=P[4][0]=1;

cin>>Q;

while(Q--)

{

cin>>v;

L[N+1]=L[N+2]=L[v]+1,P[N+1][0]=P[N+2][0]=v,N+=2;

for(i=1;i<20;i++)P[N][i]=P[P[N][i-1]][i-1],P[N-1][i]=P[P[N-1][i-1]][i-1];

if(L[N]+L[p]-2\*L[f(N,p)]>d)q=N,d++;

if(L[N]+L[q]-2\*L[f(N,q)]>d)p=N,d++;

cout<<d<<"\n";

}

}

Leopard is in the amusement park. And now she is in a queue

#include<iostream>

using namespace std;

inline int getint(){

char c;

while((c=getchar())<'0'||c>'9');return c-'0';

}

const int N=4005,inf=.5e9;

int n,k,sum[N][N],f[N],g[N];

int main(){

cin>>n>>k;

for(int i=1;i<=n;i++)

for(int j=1;j<=n;j++)

sum[i][j]=sum[i-1][j]+sum[i][j-1]-sum[i-1][j-1]+getint();

g[n+1]=n;

for(int kk=2;kk<=k;kk++)

for(int i=n;i;i--){

f[i]=-inf;

for(int j=g[i];j<=g[i+1]&&j<i;j++){

int now=f[j]-sum[j][j]+sum[j][i];

if(now>f[i]){

f[i]=now;

g[i]=j;

}

}

}

printf("%d\n",sum[n][n]/2-f[n]);

}