

7-1

一血代码: 202204231 河南工程学院_皇甫启新

```
#include<bits/stdc++.h>
using namespace std;
int b[100010],f[100010];
int main()
{
    int T;
    cin>>T;
    while(T--)
    {
        int n,k;
        cin>>n>>k;
        memset(b,0,sizeof(b));
        memset(f,0,sizeof(f));
        for(int i=1;i<=k;i++)
        {
            int x;
            cin>>x;
            b[x]=1;
        }
        f[0]=1;
        for(int i=1;i<=n;i++)
        {
            if(b[i]>0)
                continue;
            f[i]=(f[i-1]+f[i-2])%1000000007;
        }
        cout<<f[n]<<endl;
    }
    return 0;
}
```

标程:

```
#include <bits/stdc++.h>
using namespace std;
typedef long long ll;
typedef pair<int,int> P;
const int maxn=100000+10;

ll x[maxn],ans[maxn];
ll mod=1000000007;

int main()
{
    //freopen("test0.in","r",stdin);
    //freopen("test0.out","w",stdout);
    int t; cin>>t;
    while(t--)
    {
        int n,k; cin>>n>>k;
        memset(x,0,sizeof(x));
        memset(ans,0,sizeof(ans));
```

```

    for(int i=0;i<k;i++)
    {
        int num; cin>>num;
        x[num]=1;
    }
    ans[0]=1;
    for(int i=1;i<=n;i++)
    {
        if(x[i]) continue;
        if(i==1) ans[i]=ans[i-1];
        else ans[i]=ans[i-1]+ans[i-2];
        ans[i]%=mod;
    }
    cout<<ans[n]<<"\n";
}
return 0;
}

```

7-2

一血代码: 202204235 河南工程学院_张毅

```

#include<iostream>
#include<algorithm>
#include<cstring>
#include<cmath>
#include<stdio.h>
using namespace std;
struct
{
    double x;
    double y;
}N[1000010];

int main()
{
    int combo=0;
    double n,r;
    cin>>n>>r;
    for(int i=0;i<n;i++)
    {
        scanf("%lf %lf",&N[i].x,&N[i].y);
    }
    long long int ans=0;
    for(int i=0;i<n;i++)
    {
        double a,b;
        scanf("%lf %lf",&a,&b);
        double te;
        double bei=0;

        te=sqrt(fabs(a-N[i].x)*fabs(a-N[i].x)+fabs(b-N[i].y)*fabs(b-N[i].y));
        if(te<=r)
            combo++;
        else
            combo=0;

        if(combo>=0&&combo<100)

```

```

        bei=0;
        else if(combo>=100&&combo<200)
            bei=0.01;
        else if(combo>=200&&combo<300)
            bei=0.02;
        else if(combo>=300&&combo<400)
            bei=0.03;
        else if(combo>=400)
            bei=0.04;

        if(te<0.2*r)
        {
            ans+=(bei+1)*300;
        }
        else if(te>=0.2*r&&te<0.5*r)
        {
            ans+=(bei+1)*200;
        }
        else if(te>=0.5*r&&te<r)
        {
            ans+=(bei+1)*100;
        }
    }
    cout<<ans;
}

```

标程:

```

#include <bits/stdc++.h>
using namespace std;
typedef long long ll;
typedef pair<double,double> P;
const int maxn=1000000+10;

P c[maxn];
double eps=1e-8;

double dis(P p1,P p2)
{
    double dx,dy;
    dx=p1.first-p2.first;
    dy=p1.second-p2.second;
    return sqrt(dx*dx+dy*dy);
}
int check(P p1,P p2,double r)
{
    double d=dis(p1,p2);
    if(d<0.2*r) return 0;
    else if(d<0.5*r) return 1;
    else if(d<r) return 2;
    else return 3;
}
ll getscore(ll a,ll combo)
{
    if(combo>=400) return a*1.04+eps;
    else if(combo>=300) return a*1.03+eps;
    else if(combo>=200) return a*1.02+eps;
    else if(combo>=100) return a*1.01+eps;
}

```

```

        else return a+eps;
    }

int main()
{
    ios::sync_with_stdio(0);
    int n,r; cin>>n>>r;
    for(int i=0;i<n;i++) cin>>c[i].first>>c[i].second;
    ll ans=0,combo=0;
    for(int i=0;i<n;i++)
    {
        double x,y; cin>>x>>y;
        int s=check(c[i],P(x,y),r);
        if(s==3) combo=0;
        else combo++;
        if(s==0) ans+=getscore(300,combo);
        else if(s==1) ans+=getscore(200,combo);
        else if(s==2) ans+=getscore(100,combo);
    }
    cout<<ans<<"\n";
    return 0;
}

```

7-3

一血代码： 313102042 嵌入式软件2104_赵永斌

```

#include <bits/stdc++.h>
#define endl '\n'
typedef long long ll;
using namespace std;
int main()
{
    ios::sync_with_stdio(false);cin.tie(0),cout.tie(0);
    int t;
    cin>>t;
    while(t--) {
        double p;
        cin>>p;
        double l=0,r=1000000000000.0;
        double res;
        while(l+0.0000001<r) {
            double mid=(l+r)/2;
            double x=0.5*pow(mid,1.5)+sin(mid);
            if(x>p) r=mid;
            else {
                l=mid;
                res=mid;
            }
        }
        printf("%.6lf\n",res);
    }
    return 0;
}

```

标程：

```

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

double cal(double t) { return sqrt(t * t * t) / 2.0 + sin(t); }
double solve(double p)
{
    int cnt = 1000;
    double l = 0, r = 1e18;
    while (cnt--)
    {
        double mid = (l + r) / 2.0;
        if (cal(mid) < p)
            l = mid;
        else
            r = mid;
    }
    return l;
}

int main()
{
    int t;
    cin >> t;
    while (t--)
    {
        double p;
        cin >> p;
        double ans = solve(p);
        cout << fixed << setprecision(10) << ans<<"\n";
    }
    return 0;
}

```

7-4

一血代码：202204053 河南大学软件许壮

```

#include <iostream>
#include <cstring>
#include <cstdio>
#include <algorithm>
#include <string>
#include <cmath>
#include <map>
#include <iomanip>
using namespace std;
#define cqwq cout<<"qwq";
#define bl setiosflags(ios::fixed) << setprecision
#define mod 1000000007
#define inf 0x3f3f3f3f
#define gg "\n"
#define us unordered_set
#define um unordered_map
#define pq priority_queue
// #define x first
// #define y second
typedef long long ll;

```

```

typedef pair<int, int> pii;
map<string, int> m;
int idx;
int find(string s)
{
    if (m[s] == 0) m[s] = ++idx;
    return m[s];
}
int main()
{
    ios::sync_with_stdio(0), cin.tie(0), cout.tie(0);
    int n; cin >> n;
    string s; cin >> s;
    for (int i = 0; i < s.size(); i += 3)
    {
        string t = s.substr(i, 3);
        int qwq = find(t)-1;
        char q = 'a' + qwq;
        cout << q;
    }

    return 0;
}

```

标程:

```

#include <bits/stdc++.h>
using namespace std;
typedef long long ll;
typedef pair<int,int> P;
const int maxn=100000+10;

char ans[10];

int getnum(string s)
{
    int res=0;
    for(int i=2;i>=0;i--) res=res*2+(s[i]-'0');
    return res;
}

int main()
{
    //freopen("test0.in","r",stdin);
    //freopen("test0.out","w",stdout);
    for(int i=0;i<10;i++) ans[i]='#';
    int n; cin>>n;
    n*=3;
    string s; cin>>s;
    int alpha=0;
    for(int i=0;i<n;i+=3)
    {
        string ss;
        ss+=s[i],ss+=s[i+1],ss+=s[i+2];
        int num=getnum(ss);
        if(ans[num]=='#')
        {

```

```

        ans[num]='a'+alpha;
        alpha++;
    }
    cout<<ans[num];
}
cout<<"\n";
return 0;
}

```

7-5

一血代码：202204051 河南大学软件张浩东

```

#include <bits/stdc++.h>
using namespace std;
#define LL long long
#define endl "\n"

const int N=505,mod=1e9+7;

int n,m;
LL res;
int g[N][N];
bool st[14];

int main()
{
    cin >> n >> m;
    for(int i=1; i<=n; i++)
        for(int j=1; j<=m; j++)
            cin >> g[i][j];

    for(int len1=1; len1<=min(n,10); len1++)
        for(int len2=1; len2<=min(m,10); len2++){
            if(len1*len2>10) continue;
            for(int x1=1; x1+len1-1<=n; x1++){
                int x2=x1+len1-1;
                for(int y1=1; y1+len2-1<=m; y1++){
                    int y2=y1+len2-1;
                    bool ok = true;
                    memset(st,0,sizeof st);
                    for(int i=x1; i<=x2; i++)
                        for(int j=y1; j<=y2; j++){
                            if(st[g[i][j]]) ok=false;
                            st[g[i][j]] = true;
                        }
                    if(ok) res++;
                }
            }
        }
    cout << res;

    return 0;
}

```

标程：

```

#include <bits/stdc++.h>
using namespace std;
typedef long long ll;
typedef pair<int,int> P;
const int maxn=500+10;

int a[maxn][maxn];
int cnt[10];

int main()
{
    int n,m; cin>>n>>m;
    for(int i=1;i<=n;i++)
    {
        for(int j=1;j<=m;j++)
        {
            scanf("%d",&a[i][j]);
        }
    }
    int ans=0,x[15];
    for(int i=1;i<=10;i++)
    {
        for(int j=1;j<=10;j++)
        {
            if(i*j>10) break;
            for(int ii=1;ii<=n;ii++)
            {
                if(ii+i-1>n) break;
                for(int jj=1;jj<=m;jj++)
                {
                    if(jj+j-1>m) break;
                    int flag=1;
                    for (int iii = ii; iii<ii+i; ++iii)
                        for (int jjj = jj; jjj<jj+j; ++jjj)
                            if (++cnt[a[iii][jjj]]>1) flag = 0;
                    memset(cnt, 0, sizeof(cnt));
                    if(flag) ans++;
                }
            }
        }
    }
    cout<<ans<<"\n";
    return 0;
}

```

7-6

一血代码：202204016 河工大大数据周琳理

```

#include<bits/stdc++.h>
using namespace std;
struct zll{
    string a;
    int b;
    int c;
    int d;
    int e;
}cbb[5005];

```



```

struct rule{
    bool operator()(const zll&a1,const zll&a2){
        if(a1.b==a2.b){
            if(a1.c==a2.c){
                if(a1.d==a2.d){
                    return a1.e<a2.e;
                }
                else return a1.d<a2.d;
            }
            else return a1.c<a2.c;
        }
        else return a1.b<a2.b;
    }
};
int main(){
    int n;
    cin>>n;
    for(int i=1;i<=n;i++)
    {
        cin>>cbb[i].a;
        scanf("%d:%d:%d",&cbb[i].b,&cbb[i].c,&cbb[i].d);
        cbb[i].e=i;
    }
    sort(cbb+1,cbb+n+1,rule());
    for(int i=1;i<=n;i++){
        cout<<cbb[i].a<<endl;
    }
    return 0;
}

```

标程:

```

#include<cstdio>
#include<cstring>
#include<iostream>
#include<algorithm>
using namespace std;
const int N = 5010;
typedef long long ll;
int n;
struct Node
{
    string name;
    ll h, m, s;
    int x;
}tr[N];
bool cmp(Node a, Node b)
{
    if (a.h != b.h) return a.h < b.h;
    if (a.m != b.m) return a.m < b.m;
    if (a.s != b.s) return a.s < b.s;
    return a.x < b.x;
}
int main(void)
{
    scanf("%d", &n);
    for (int i = 1; i <= n; i++)
    {
        cin >> tr[i].name;
        ll h, m, s;
    }
}

```

```

        scanf("%lld:%lld:%lld", &h, &m, &s);
        tr[i].h = h, tr[i].m = m, tr[i].s = s;
        tr[i].x = i;
    }
    sort(tr + 1, tr + n + 1, cmp);
    for (int i = 1; i <= n; i++)
    {
        cout << tr[i].name ;
        if (i != n) cout <<endl;
    }
    return 0;
}

```

7-7

一血代码: 无

标程:

```

#include <bits/stdc++.h>
using namespace std;
#define INF 0x3f3f3f3f
typedef long long ll;
typedef pair<int,int> P;
const int maxn = 5e2+10;
const int maxm = maxn*maxn;
map<P, int> mp;
int g[maxn][maxn];
struct INFO {
    int u, v, w;
} info[maxm];
int n, m, s, d[maxn], p[maxn], vis[maxn], flag[maxm], dd[maxn];
void dij() {
    memset(d, 0x3f, sizeof(d));
    memset(vis, 0, sizeof(vis));
    d[1] = 0;
    for (int i = 1; i<n; ++i) {
        int id = -1;
        for (int j = 1; j<=n; ++j)
            if (!vis[j] && (id==-1 || d[id]>d[j])) id = j;
        vis[id] = 1;
        for (int j = 1; j<=n; ++j)
            if (d[j]>d[id]+g[id][j]) {
                d[j] = d[id]+g[id][j];
                p[j] = id;
            }
    }
}
int main()
{
    ios::sync_with_stdio(false);
    cin.tie();
    cout.tie();
    //freopen("test0.in", "r", stdin);
    //freopen("test0.out", "w", stdout);
    cin >> n >> m >> s;
    memset(g, 0x3f, sizeof(g));
    for (int i = 1, u, v, w; i<=m; ++i) {

```

```

        cin >> u >> v >> w;
        info[i] = {u, v, w};;
        mp[{u, v}] = mp[{v, u}] = i;
        g[u][v] = g[v][u] = w;
    }
    dij();
    for(int i=0;i<maxn;i++) dd[i]=d[i];
    int ed = n;
    while(ed) {
        if (p[ed]) flag[mp[{ed, p[ed]}]] = 1;
        ed = p[ed];
    }
    for (int i = 1; i<=s; ++i) {
        vector<int> tmp;
        int num;
        cin >> num;
        int edge, f = 0;
        while(num--) {
            cin >> edge;
            if (flag[edge]) f = 1;
            INFO &t = info[edge];
            g[t.u][t.v] = g[t.v][t.u] = INF;
            tmp.push_back(edge);
        }
        if (f) dij();
        if (d[n]==INF) d[n] = -1;
        cout << d[n] << endl;
        for (auto v : tmp) {
            INFO &t = info[v];
            g[t.u][t.v] = g[t.v][t.u] = t.w;
        }
        if(f)
        {
            for(int j=0;j<=n;j++)
                d[j]=dd[j];
        }
    }
    return 0;
}

```

7-8

一血代码: 313302035 人工智能2102_马恩植

```

#include <bits/stdc++.h>

using namespace std;

int main() {
    int n, temp;
    cin >> n;
    int result = 0;
    for (int i = 0; i != n; ++i) {
        scanf("%d", &temp);
        result = (result + (temp & 1) * (n - 1)) & 1;
    }
    printf("%d", result);
    return 0;
}

```

```
}
```

标程:

```
#include <bits/stdc++.h>
using namespace std;
typedef long long ll;
typedef pair<int,int> P;
const int maxn=100000+10;

int main()
{
    ll n,ans=0; cin>>n;
    for(int i=0;i<n;i++)
    {
        ll num; cin>>num;
        ans+=num*(n-1);
        ans%=2;
    }
    cout<<ans<<"\n";
    return 0;
}
```

7-9

一血代码: 202204169 南阳理工学院_兰锦宇

```
#include<iostream>
#include<algorithm>
#include<cstring>
#include<cstdio>
#include<string>
#include<cmath>
#define ll long long
using namespace std;
const int N = 1e6;
const int inf = 0x3f3f3f3f;
const int mod = 1000000007;
ll s[N];
int cnt = 0;
ll solve(ll a,ll b)
{
    cnt = 0;
    //memset(s,0,sizeof s);
    //对b操作
    for(ll i = 2;i<=b/i;i++)
    {
        if(b%i==0)
        {
            b/=i;
            s[++cnt] = i;
            while(b%i==0)
            {
                b/=i;
            }
        }
    }
}
```

```

    }
}
if(b!=1)
{
    s[++cnt] = b;
}
ll ans = 3110000009;
for(int i = 1;i<=cnt;i++)
{
    ll q = s[i]; //b的某一个因数
    if(a%q==0)
    {
        return 0;
    }
    ans = min(ans,q - (a%q));
}
return ans;
}
int main()
{
    int t;
    scanf("%d",&t);
    while(t--)
    {
        ll a,b;
        scanf("%lld %lld",&a,&b);
        ll ans = solve(a,b);
        printf("%lld\n",ans);
    }
}
// goal: gcd(a,b) != 1 ==> 不相互 互素
// ==> 有相同的因子
//对a操作 a = a+1;
//7 25
//25 = 5 * 5;
//10 - 7 = 3;
//5 - (7%5) = 5 - 2 = 3;

```

标程:

```

#include <bits/stdc++.h>
#define INF 0x3f3f3f3f
#define LLINF 0x3f3f3f3f3f3f3f3f
#define eps 1e-10
#define pb push_back
#define fi first
#define se second
#define SZ(x) (int)x.size()
#define ALL(x) x.begin(), x.end()
#define db1(x) cerr << #x << " = " << (x) << endl
#define db2(x, y) cerr << #x << " = " << (x) << " " << #y << " = " << (y) << endl
#define gg cout << "-----QAQ-----\n"
#define MEM(a, b) memset(a, b, sizeof(a))
// #define int long long
#define IOS ios::sync_with_stdio(false),cin.tie(NULL);

using namespace std;
typedef long long ll;

```

```

typedef pair<int, int> pii;
typedef pair<pii, int> piii;
const int N = 2e5+10, M = 11000;
const int mod = 998244353;

ll n, m;
ll a, b;
/*

if(__gcd(a, b)!=1) 0次
if b == 1 无解

找出b的最小质数因子，a对其取余后与最小质因子的差值

*/

void sol()
{
    scanf("%lld%lld", &a, &b);
    vector<ll> pri;
    if(__gcd(a, b)!=1)
    {
        cout<<"0\n";
        return;
    }
    if(b == 1)
    {
        cout<<"-1\n";
        return;
    }

    for(ll i = 2; i*i <= b; ++i) {
        if(b%i == 0) {
            pri.pb(i);
            while(b%i == 0) b/=i;
        }
    }
    if(b>1) pri.pb(b);
    ll ans = LLINF;
    for(ll x:pri)
    {
        ans = min(ans, x-a%x);
        //cerr<<x<<" "<<ans<<"\n";
    }
    cout<<ans<<"\n";
}

signed main()
{
    int _; scanf("%d", &_); while (--)
        sol();
}

```

7-10

一血代码: 202204210 信息工程大学_李一帆

```
#include <bits/stdc++.h>
using namespace std;
int n;
int a[1010][1010];
int l[2050], r[2050];
int main(){
    scanf("%d", &n);
    for(int i=1; i<=n; i++){
        for(int j=1; j<=n; j++){
            scanf("%d", &a[i][j]);
            l[i+j] += a[i][j];
            r[j-i+n+1] += a[i][j];
        }
    }
    for(int i=2; i<=2*n; i++) l[i] += l[i-1];
    for(int i=2; i<=2*n; i++) r[i] += r[i-1];
    int ans = 0x7fffffff;
    for(int i=2; i<=2*n; i++) ans = min(ans, abs(l[i-1] - (l[2*n] - l[i])));
    for(int i=2; i<=2*n; i++) ans = min(ans, abs(r[i-1] - (r[2*n] - r[i])));
    printf("%d", ans);
    return 0;
}
```

标程:

```
#include <bits/stdc++.h>
using namespace std;
const int maxn = 1e3+10;
int n, g[maxn][maxn];
int calc0(int i, int j) {
    //cout << "-----1-----" << endl;
    int sum = 0;
    while(i<=n && j>=1) {
        sum += g[i][j];
        //cout << i << ' ' << j << endl;
        ++i, --j;
    }
    return sum;
}
int calc1(int i, int j) {
    //cout << "-----2-----" << endl;
    int sum = 0;
    while(i<=n && j<=n) {
        sum += g[i][j];
        //cout << i << ' ' << j << endl;
        ++i, ++j;
    }
    return sum;
}
int main() {
    ios::sync_with_stdio(0);
    cin.tie(0);
    cout.tie(0);
    cin >> n;
    int sum0 = 0;
    for (int i = 1; i<=n; ++i)
```

```

        for (int j = 1; j<=n; ++j)
            cin >> g[i][j], sum0 += g[i][j];
int ans = 1e9;
int sum1 = 0;
for (int i = 1; i<=n; ++i) {
    int x = calc0(1, i);
    sum1 += x;
    //cout << sum0-sum1 << ' ' << sum1-x << endl;
    ans = min(ans, abs(sum0-sum1*2+x));
}
for (int i = 2; i<=n; ++i) {
    int x = calc0(i, n);
    sum1 += x;
    //cout << sum0-sum1 << ' ' << sum1-x << endl;
    ans = min(ans, abs(sum0-sum1*2+x));
}
int sum2 = 0;
for (int i = n; i>=1; --i) {
    int x = calc1(i, 1);
    sum2 += x;
    ans = min(ans, abs(sum0-sum2*2+x));
}
for (int i = 2; i<=n; ++i) {
    int x = calc1(1, i);
    sum2 += x;
    ans = min(ans, abs(sum0-sum2*2+x));
}
cout << ans << endl;
return 0;
}

```

7-11

一血代码：202204234 河南工程学院_邱键烁

```

#include <stdio.h>
int main()
{
    int t;
    scanf("%d",&t);
    for (int i = 1 ; i <= t ; i ++ )
    {
        int a,b,c;
        scanf("%d%d%d",&a,&b,&c);
        if(a>=30&&b>=14&&c>=12)
        {
            printf("Yes\n");
        }
        else if (a*1.5>=30&&b>=14&&c>=12)
        {
            printf("ulii\n");
        }
        else
        {
            printf("No\n");
        }
    }
}

```


标程:

```
#include <bits/stdc++.h>
using namespace std;
typedef long long ll;
typedef pair<int,int> P;
const int maxn=100000+10;

int main()
{
    //freopen("test0.in","r",stdin);
    //freopen("test0.out","w",stdout);
    int t; cin>>t;
    while(t--)
    {
        int a,b,c; cin>>a>>b>>c;
        if(a>=30&&b>=14&&c>=12) cout<<"Yes\n";
        else if(a>=20&&b>=14&&c>=12) cout<<"ulii\n";
        else cout<<"No\n";
    }
    return 0;
}
```