# Олимпиада СПбГУ
# по информатике
# 2023/24 учебного года

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| A | B | C | D | E | F | sum |
|---|---|---|---|---|---|---|
| 100 | 100 | 100 | 100 | 20 | 48 | 468 |

## Task A

```
long long mod = 998244353;
#include <bits/stdc++.h>
//#define M_PI 3.14159265358979
using namespace std;
//#pragma GCC optimize("O3","unroll-loops")
//#pragma GCC target("avx,bmi,bmi2,popcnt,lzcnt") // r - n / c - m
#define faster ios_base::sync_with_stdio(false); cin.tie(nullptr); cout.
    tie(nullptr);
#define all(a) a.begin(), a.end()
#define el  << "\n"
#define sp  << " "
#define coutt cout <<
#define ef << endl << flush
#define per(i, n) for (ll i = 0; i < n; ++i)
#define pb push_back
#define er erase
#define minm(a, b) a = min(a, b)
#define maxm(a, b) a = max(a, b)
#define vct vector
#define fi first
#define se second
//#define int long long
#define testy() \
ll Tests; cin >> Tests; \
while(Tests--)
typedef long long ll;
typedef unsigned long long ull;
typedef long double ld;
typedef pair<ll, ll> pl;
```

```
typedef pair<ld, ld> pd;
typedef vector<ll> vl;
typedef vct<ld> vd;
typedef vct<vd> vvd;
typedef vector<vl> vll;
typedef vector<pl> vpl;
typedef vector<pd> vpd;
/*//            A
//           /|\
//          / | \
//         /  |  \
//        /   |   \
//       C----P----B*/
#define cok(ok) cout << (ok ? "YES\n" : "NO\n");
#define dbg(x) cout << (#x) << ": " << x << endl;
template <typename T>
istream& operator>>(istream& stream, pair<T, T>& v) {
    stream >> v.first >> v.second;
    return stream;
}
template <typename T>
istream& operator>>(istream& stream, vector<T>& v) {
    for (T& i : v) stream >> i;
    return stream;
}
template <typename T>
ostream& operator<<(ostream& stream, pair<T, T>& v) {
    stream << v.first sp << v.second;
    return stream;
}
void prv(vl a) {
    for (ll x : a) {
        coutt x << " ";
    }
    cout el;
}
ll gcd(ll a, ll b) {
    if (a == -1)
        return b;
    if (b == -1)
        return a;
    while (a != 0 && b != 0) {
        if (a < b)
            swap(a, b);
        a %= b;
    }
    if (a == b) return 0;
    return b;
}

ll gcdR(ll a, ll b, ll& x, ll& y) {
    if (a == 0) {
        x = 0; y = 1;
```

```
        return b;
    }
    ll x1, y1;
    ll d = gcdR(b % a, a, x1, y1);
    x = y1 - (b / a) * x1;
    y = x1;
    return d;
}

ll myLog2(ll n) {
    if (n < 0)
        return -1;
    ll ans = 0;
    while (n > 1) {
        n /= 2; ans++;
    }
    return ans;
}
ll myPow(ll a, ll k) {
    if (k == -1)
        return (ll)1;
    if (k == 1)
        return a;
    if (k == 0)
        return (ll)1;
    if (k == 2)
        return (a * a);
    ll b = myPow(a, k / 2);
    b = (b * b);
    if (k % 2)
        b = (b * a);
    return b;
}

//vll mp(vll& a, vll& b) {
//    vll c(b.size(), vl(a[0].size()));
//    for (ll i = 0; i < a.size(); ++i) {
//        for (ll j = 0; j < b.size(); ++j) {
//            for (ll k = 0; k < a[0].size(); ++k) {
//                c[j][k] += a[i][k] * b[j][i];
//                c[j][k] %= m;
//            }
//        }
//    }
//    return c;
//}

//vll POW(vll& a, ll k) {
//    if (k == 1) return a;
//    if (k == 2) return mp(a, a);
//    vll b = POW(a, k / 2);
//    b = mp(b, b);
//    if (k & 1) b = mp(b, a);
```

```
//    return b;
//}

ld eps = 1e-8;
ll m, n, q, n2, k, lg = 20, now = 0, sq, x, y;
const ll MAXN = 205100, sqn = 330;
vct<vl> g, g_rev;
vl a, par, req, p;

signed main() {
    faster

    ll a, b; cin >> a >> b >> n;

    vll dp(max(a, b), vl(n + 1 + max(a, b) * 2));
    for (int i = 0; i < max(a, b); ++i) {
        dp[i][a + i]++;
        dp[i][b + i]++;
    }
    ll ans = 0;
    for (int i = 0; i < min(max(a, b), n); ++i) {
        for (int j = i; j < n; ++j) {
            if (j + a <= n + i) dp[i][j + a] += dp[i][j];
            if (j + b <= n + i) dp[i][j + b] += dp[i][j];
        }
        ans += dp[i][n + i];
    }

    coutt ans el;
}
```

## Task B

```
long long mod = 998244353;
#include <bits/stdc++.h>
//#define M_PI 3.14159265358979
using namespace std;
//#pragma GCC optimize("O3","unroll-loops")
//#pragma GCC target("avx,bmi,bmi2,popcnt,lzcnt") // r - n / c - m
#define faster ios_base::sync_with_stdio(false); cin.tie(nullptr); cout.
    tie(nullptr);
#define all(a) a.begin(), a.end()
#define el  << "\n"
#define sp  << " "
#define coutt cout <<
#define ef << endl << flush
#define per(i, n) for (ll i = 0; i < n; ++i)
#define pb push_back
#define er erase
#define minm(a, b) a = min(a, b)
#define maxm(a, b) a = max(a, b)
#define vct vector
#define fi first
```

```
#define se second
//#define int long long
#define testy() \
ll Tests; cin >> Tests; \
while(Tests--)
typedef long long ll;
typedef unsigned long long ull;
typedef long double ld;
typedef pair<ll, ll> pl;
typedef pair<ld, ld> pd;
typedef vector<ll> vl;
typedef vct<ld> vd;
typedef vct<vd> vvd;
typedef vector<vl> vll;
typedef vector<pl> vpl;
typedef vector<pd> vpd;
/*//             A
//            /|\
//           / | \
//          /  |  \
//         /   |   \
//        C----P----B*/
#define cok(ok) cout << (ok ? "YES\n" : "NO\n");
#define dbg(x) cout << (#x) << ": " << x << endl;
template <typename T>
istream& operator>>(istream& stream, pair<T, T>& v) {
    stream >> v.first >> v.second;
    return stream;
}
template <typename T>
istream& operator>>(istream& stream, vector<T>& v) {
    for (T& i : v) stream >> i;
    return stream;
}
template <typename T>
ostream& operator<<(ostream& stream, pair<T, T>& v) {
    stream << v.first sp << v.second;
    return stream;
}
void prv(vl a) {
    for (ll x : a) {
        coutt x << " ";
    }
    cout el;
}
ll gcd(ll a, ll b) {
    if (a == -1)
        return b;
    if (b == -1)
        return a;
    while (a != 0 && b != 0) {
        if (a < b)
            swap(a, b);
```

```
        a %= b;
    }
    if (a == b) return 0;
    return b;
}

ll gcdR(ll a, ll b, ll& x, ll& y) {
    if (a == 0) {
        x = 0; y = 1;
        return b;
    }
    ll x1, y1;
    ll d = gcdR(b % a, a, x1, y1);
    x = y1 - (b / a) * x1;
    y = x1;
    return d;
}

ll myLog2(ll n) {
    if (n < 0)
        return -1;
    ll ans = 0;
    while (n > 1) {
        n /= 2; ans++;
    }
    return ans;
}
ll myPow(ll a, ll k) {
    if (k == -1)
        return (ll)1;
    if (k == 1)
        return a;
    if (k == 0)
        return (ll)1;
    if (k == 2)
        return (a * a);
    ll b = myPow(a, k / 2);
    b = (b * b);
    if (k % 2)
        b = (b * a);
    return b;
}

//vll mp(vll& a, vll& b) {
//    vll c(b.size(), vl(a[0].size()));
//    for (ll i = 0; i < a.size(); ++i) {
//        for (ll j = 0; j < b.size(); ++j) {
//            for (ll k = 0; k < a[0].size(); ++k) {
//                c[j][k] += a[i][k] * b[j][i];
//                c[j][k] %= m;
//            }
//        }
//    }
```

```
//    return c;
//}

//vll POW(vll& a, ll k) {
//    if (k == 1) return a;
//    if (k == 2) return mp(a, a);
//    vll b = POW(a, k / 2);
//    b = mp(b, b);
//    if (k & 1) b = mp(b, a);
//    return b;
//}

ld eps = 1e-8;
ll m, n, q, n2, k, lg = 20, now = 0, sq, x, y;
const ll MAXN = 205100, sqn = 330;
vct<vl> g, g_rev;
vl a, par, req, p;

signed main() {
    faster

    cin >> n;
    ll x, y, z, x1, y1, z1;
    cin >> x >> y >> z >> x1 >> y1 >> z1;

    auto R = [](ll x1, ll y1, ll z1, ll x2, ll y2, ll z2){return min({max
    ({abs(x1 - x2), abs(y1 - y2), abs(z1 - z2)})}); };

    ll ans = min({R(x1, y1, z1, x, y, z),
                  R(x1 + n, y1 + n, z1 - 2 * n, x, y, z),
                  R(x1 + n, y1 - 2 * n, z1 + n, x, y, z),
                  R(x1 - 2 * n, y1 + n, z1 + n, x, y, z),

                  R(x1 - n, y1 - n, z1 + 2 * n, x, y, z),
                  R(x1 - n, y1 + 2 * n, z1 - n, x, y, z),
                  R(x1 + 2 * n, y1 - n, z1 - n, x, y, z)

                  });



    coutt ans el;
}
```

## Task C

```
long long mod = 998244353;
#include <bits/stdc++.h>
//#define M_PI 3.14159265358979
using namespace std;
//#pragma GCC optimize("O3","unroll-loops")
//#pragma GCC target("avx,bmi,bmi2,popcnt,lzcnt") // r - n / c - m
#define faster ios_base::sync_with_stdio(false); cin.tie(nullptr); cout.
```

```
    tie(nullptr);
#define all(a) a.begin(), a.end()
#define el  << "\n"
#define sp  << " "
#define coutt cout <<
#define ef << endl << flush
#define per(i, n) for (ll i = 0; i < n; ++i)
#define pb push_back
#define er erase
#define minm(a, b) a = min(a, b)
#define maxm(a, b) a = max(a, b)
#define vct vector
#define fi first
#define se second
//#define int long long
#define testy() \
ll Tests; cin >> Tests; \
while(Tests--)
typedef long long ll;
typedef unsigned long long ull;
typedef long double ld;
typedef pair<ll, ll> pl;
typedef pair<ld, ld> pd;
typedef vector<ll> vl;
typedef vct<ld> vd;
typedef vct<vd> vvd;
typedef vector<vl> vll;
typedef vector<pl> vpl;
typedef vector<pd> vpd;
/*//            A
//           /|\
//          / | \
//         /  |  \
//        /   |   \
//       C----P----B*/
#define cok(ok) cout << (ok ? "YES\n" : "NO\n");
#define dbg(x) cout << (#x) << ": " << x << endl;
template <typename T>
istream& operator>>(istream& stream, pair<T, T>& v) {
    stream >> v.first >> v.second;
    return stream;
}
template <typename T>
istream& operator>>(istream& stream, vector<T>& v) {
    for (T& i : v) stream >> i;
    return stream;
}
template <typename T>
ostream& operator<<(ostream& stream, pair<T, T>& v) {
    stream << v.first sp << v.second;
    return stream;
}
void prv(vl a) {
```

```
    for (ll x : a) {
        coutt x << " ";
    }
    cout el;
}
ll gcd(ll a, ll b) {
    if (a == -1)
        return b;
    if (b == -1)
        return a;
    while (a != 0 && b != 0) {
        if (a < b)
            swap(a, b);
        a %= b;
    }
    if (a == b) return 0;
    return b;
}

ll gcdR(ll a, ll b, ll& x, ll& y) {
    if (a == 0) {
        x = 0; y = 1;
        return b;
    }
    ll x1, y1;
    ll d = gcdR(b % a, a, x1, y1);
    x = y1 - (b / a) * x1;
    y = x1;
    return d;
}

ll myLog2(ll n) {
    if (n < 0)
        return -1;
    ll ans = 0;
    while (n > 1) {
        n /= 2; ans++;
    }
    return ans;
}
ll myPow(ll a, ll k) {
    if (k == -1)
        return (ll)1;
    if (k == 1)
        return a;
    if (k == 0)
        return (ll)1;
    if (k == 2)
        return (a * a);
    ll b = myPow(a, k / 2);
    b = (b * b);
    if (k % 2)
        b = (b * a);
```

```
    return b;
}

//vll mp(vll& a, vll& b) {
//    vll c(b.size(), vl(a[0].size()));
//    for (ll i = 0; i < a.size(); ++i) {
//        for (ll j = 0; j < b.size(); ++j) {
//            for (ll k = 0; k < a[0].size(); ++k) {
//                c[j][k] += a[i][k] * b[j][i];
//                c[j][k] %= m;
//            }
//        }
//    }
//    return c;
//}

//vll POW(vll& a, ll k) {
//    if (k == 1) return a;
//    if (k == 2) return mp(a, a);
//    vll b = POW(a, k / 2);
//    b = mp(b, b);
//    if (k & 1) b = mp(b, a);
//    return b;
//}

ld eps = 1e-8;
ll m, n, q, n2, k, lg = 20, now = 0, sq, x, y;
const ll MAXN = 205100, sqn = 330;
vct<vl> g, g_rev;
vl a, par, req, p;

ll mod1 = 998244353, oh1 = 2023;
ll mod2 = 1e9 + 7, oh2 = 41;
ll mod3 = 1e9 + 9, oh3 = 2023;
ll mod4 = 1e9 + 13, oh4 = 4096;
ll mod5 = 1e9 + 73, oh5 = 1023;

signed main() {
    faster

    string s; cin >> s >> n;

    if (s == "first") {
        string str; cin >> str;
        ll h1 = 0, h2 = 0, h3 = 0, h4 = 0, h5 = 0;
        ll mh1 = 0, mh2 = 0, mh3 = 0, mh4 = 0, mh5 = 0;
        ll p1 = 1, p2 = 1, p3 = 1, p4 = 1, p5 = 1;
        for (int i = 0; i < n - 1; ++i) {
            p1 = (p1 * oh1) % mod1;
            p2 = (p2 * oh2) % mod2;
            p3 = (p3 * oh3) % mod3;
            p4 = (p4 * oh4) % mod4;
            p5 = (p5 * oh5) % mod5;
```

```
    }

    for (int i = 0; i < n; ++i) {
        h1 = (h1 * oh1 + (str[i] - '0')) % mod1;
        h2 = (h2 * oh2 + (str[i] - '0')) % mod2;
        h3 = (h3 * oh3 + (str[i] - '0')) % mod3;
        h4 = (h4 * oh4 + (str[i] - '0')) % mod4;
        h5 = (h5 * oh5 + (str[i] - '0')) % mod5;
    }
    for (int i = 0; i < n; ++i) {
        if (h1 > mh1) {
            mh1 = h1, mh2 = h2, mh3 = h3, mh4 = h4, mh5 = h5;
        }
        h1 = (((h1 - (str[i] - '0') * p1) % mod1 + mod1) % mod1 * oh1
 + (str[i] - '0')) % mod1;
        h2 = (((h2 - (str[i] - '0') * p2) % mod2 + mod2) % mod2 * oh2
 + (str[i] - '0')) % mod2;
        h3 = (((h3 - (str[i] - '0') * p3) % mod3 + mod3) % mod3 * oh3
 + (str[i] - '0')) % mod3;
        h4 = (((h4 - (str[i] - '0') * p4) % mod4 + mod4) % mod4 * oh4
 + (str[i] - '0')) % mod4;
        h5 = (((h5 - (str[i] - '0') * p5) % mod5 + mod5) % mod5 * oh5
 + (str[i] - '0')) % mod5;
    }
    if (h1 > mh1) {
        mh1 = h1, mh2 = h2, mh3 = h3, mh4 = h4, mh5 = h5;
    }
    coutt "ab" << mh1 << '|' << mh2 << '#'<< mh3 << '$' << mh4 << '!'
 << mh5 << '%' el;
} else {
    string str;
    ll qh1, qh2, qh3, qh4, qh5;
    char c;
    cin >> str >> c >> c >> qh1 >> c >> qh2 >> c >> qh3 >> c >> qh4
>> c >> qh5 >> c;
    ll h1 = 0, h2 = 0, h3 = 0, h4 = 0, h5 = 0, p1 = 1, p2 = 1, p3 =
1, p4 = 1, p5 = 1;
    ll mh1 = 0, mh2 = 0, mh3 = 0, mh4 = 0, mh5 = 0;

    for (int i = 0; i < n - 1; ++i) {
        p1 = (p1 * oh1) % mod1;
        p2 = (p2 * oh2) % mod2;
        p3 = (p3 * oh3) % mod3;
        p4 = (p4 * oh4) % mod4;
        p5 = (p5 * oh5) % mod5;
    }

    for (int i = 0; i < n; ++i) {
        h1 = (h1 * oh1 + (str[i] - '0')) % mod1;
        h2 = (h2 * oh2 + (str[i] - '0')) % mod2;
        h3 = (h3 * oh3 + (str[i] - '0')) % mod3;
        h4 = (h4 * oh4 + (str[i] - '0')) % mod4;
        h5 = (h5 * oh5 + (str[i] - '0')) % mod5;
```

```
        }
        for (int i = 0; i < n; ++i) {
            if (h1 > mh1) {
                mh1 = h1, mh2 = h2, mh3 = h3, mh4 = h4, mh5 = h5;
            }
            h1 = (((h1 - (str[i] - '0') * p1) % mod1 + mod1) % mod1 * oh1
    + (str[i] - '0')) % mod1;
            h2 = (((h2 - (str[i] - '0') * p2) % mod2 + mod2) % mod2 * oh2
    + (str[i] - '0')) % mod2;
            h3 = (((h3 - (str[i] - '0') * p3) % mod3 + mod3) % mod3 * oh3
    + (str[i] - '0')) % mod3;
            h4 = (((h4 - (str[i] - '0') * p4) % mod4 + mod4) % mod4 * oh4
    + (str[i] - '0')) % mod4;
            h5 = (((h5 - (str[i] - '0') * p5) % mod5 + mod5) % mod5 * oh5
    + (str[i] - '0')) % mod5;
        }
        if (mh1 == qh1 && mh3 == qh3 && mh4 == qh4 && mh5 == qh5) {
            coutt "YES" el; return 0;
        }
        coutt "NO" el;
    }
}
```

## Task D

```
long long mod = 998244353;
#include <bits/stdc++.h>
//#define M_PI 3.14159265358979
using namespace std;
//#pragma GCC optimize("O3","unroll-loops")
//#pragma GCC target("avx,bmi,bmi2,popcnt,lzcnt") // r - n / c - m
#define faster ios_base::sync_with_stdio(false); cin.tie(nullptr); cout.
    tie(nullptr);
#define all(a) a.begin(), a.end()
#define el  << "\n"
#define sp  << " "
#define coutt cout <<
#define ef << endl << flush
#define per(i, n) for (ll i = 0; i < n; ++i)
#define pb push_back
#define er erase
#define minm(a, b) a = min(a, b)
#define maxm(a, b) a = max(a, b)
#define vct vector
#define fi first
#define se second
//#define int long long
#define testy() \
ll Tests; cin >> Tests; \
while(Tests--)
typedef long long ll;
typedef unsigned long long ull;
typedef long double ld;
```

```
typedef pair<ll, ll> pl;
typedef pair<ld, ld> pd;
typedef vector<ll> vl;
typedef vct<ld> vd;
typedef vct<vd> vvd;
typedef vector<vl> vll;
typedef vector<pl> vpl;
typedef vector<pd> vpd;
/*//            A
//           /|\
//          / | \
//         /  |  \
//        /   |   \
//       C----P----B*/
#define cok(ok) cout << (ok ? "YES\n" : "NO\n");
#define dbg(x) cout << (#x) << ": " << x << endl;
template <typename T>
istream& operator>>(istream& stream, pair<T, T>& v) {
    stream >> v.first >> v.second;
    return stream;
}
template <typename T>
istream& operator>>(istream& stream, vector<T>& v) {
    for (T& i : v) stream >> i;
    return stream;
}
template <typename T>
ostream& operator<<(ostream& stream, pair<T, T>& v) {
    stream << v.first sp << v.second;
    return stream;
}
void prv(vl a) {
    for (ll x : a) {
        coutt x << " ";
    }
    cout el;
}
ll gcd(ll a, ll b) {
    if (a == -1)
        return b;
    if (b == -1)
        return a;
    while (a != 0 && b != 0) {
        if (a < b)
            swap(a, b);
        a %= b;
    }
    if (a == b) return 0;
    return b;
}

ll gcdR(ll a, ll b, ll& x, ll& y) {
    if (a == 0) {
```

```
        x = 0; y = 1;
        return b;
    }
    ll x1, y1;
    ll d = gcdR(b % a, a, x1, y1);
    x = y1 - (b / a) * x1;
    y = x1;
    return d;
}

ll myLog2(ll n) {
    if (n < 0)
        return -1;
    ll ans = 0;
    while (n > 1) {
        n /= 2; ans++;
    }
    return ans;
}
ll myPow(ll a, ll k) {
    if (k == -1)
        return (ll)1;
    if (k == 1)
        return a;
    if (k == 0)
        return (ll)1;
    if (k == 2)
        return (a * a);
    ll b = myPow(a, k / 2);
    b = (b * b);
    if (k % 2)
        b = (b * a);
    return b;
}

//vll mp(vll& a, vll& b) {
//    vll c(b.size(), vl(a[0].size()));
//    for (ll i = 0; i < a.size(); ++i) {
//        for (ll j = 0; j < b.size(); ++j) {
//            for (ll k = 0; k < a[0].size(); ++k) {
//                c[j][k] += a[i][k] * b[j][i];
//                c[j][k] %= m;
//            }
//        }
//    }
//    return c;
//}

//vll POW(vll& a, ll k) {
//    if (k == 1) return a;
//    if (k == 2) return mp(a, a);
//    vll b = POW(a, k / 2);
//    b = mp(b, b);
```

```
//    if (k & 1) b = mp(b, a);
//    return b;
//}

ld eps = 1e-8;
ll m, n, q, n2, k, lg = 20, now = 0, sq, x, y;
const ll MAXN = 205100, sqn = 330;
vct<vl> g, g_rev;
vl a, par, req, p;

inline void ask(char& c, ll& a, ll& b) {
    //if (c == '!') exit(0);
    coutt a sp << b << endl;
    cin >> c;
    if (c == '!') exit(0);
}

signed main() {
    faster

    mt19937 rng(7341);
    cin >> n;
    char c = '>';
//    uniform_int_distribution<> dis(1, n);
//    while (c != '!') {
//        ll a = dis(rng), b = dis(rng);
//        ask(c, a, b);
//    }
    ll a = 1;
    for (int i = 0; i < n + 5; ++i) {
        if (c == '>') {
            ask(c, a, n);
        } else {
            ask(c, a, a);
        }
    }
    while (1) {
        for (int i = 0; i < n - 1; ++i) {
            if (c == '>') {
                ask(c, a, n);
            } else {
                ask(c, a, a);
            }
        }
        ask(c, a, a);
    }
}
```

## Task E

```
long long mod = 998244353;
#include <bits/stdc++.h>
//#define M_PI 3.14159265358979
```

```
using namespace std;
//#pragma GCC optimize("O3","unroll-loops")
//#pragma GCC target("avx,bmi,bmi2,popcnt,lzcnt") // r - n / c - m
#define faster ios_base::sync_with_stdio(false); cin.tie(nullptr); cout.
    tie(nullptr);
#define all(a) a.begin(), a.end()
#define el  << "\n"
#define sp  << " "
#define coutt cout <<
#define ef << endl << flush
#define per(i, n) for (ll i = 0; i < n; ++i)
#define pb push_back
#define er erase
#define minm(a, b) a = min(a, b)
#define maxm(a, b) a = max(a, b)
#define vct vector
#define fi first
#define se second
//#define int long long
#define testy() \
ll Tests; cin >> Tests; \
while(Tests--)
typedef long long ll;
typedef unsigned long long ull;
typedef long double ld;
typedef pair<ll, ll> pl;
typedef pair<ld, ld> pd;
typedef vector<ll> vl;
typedef vct<ld> vd;
typedef vct<vd> vvd;
typedef vector<vl> vll;
typedef vector<pl> vpl;
typedef vector<pd> vpd;
/*//            A
//           /|\
//          / | \
//         /  |  \
//        /   |   \
//       C----P----B*/
#define cok(ok) cout << (ok ? "YES\n" : "NO\n");
#define dbg(x) cout << (#x) << ": " << x << endl;
template <typename T>
istream& operator>>(istream& stream, pair<T, T>& v) {
    stream >> v.first >> v.second;
    return stream;
}
template <typename T>
istream& operator>>(istream& stream, vector<T>& v) {
    for (T& i : v) stream >> i;
    return stream;
}
template <typename T>
ostream& operator<<(ostream& stream, pair<T, T>& v) {
```

```
    stream << v.first sp << v.second;
    return stream;
}
void prv(vl a) {
    for (ll x : a) {
        coutt x << " ";
    }
    cout el;
}
ll gcd(ll a, ll b) {
    if (a == -1)
        return b;
    if (b == -1)
        return a;
    while (a != 0 && b != 0) {
        if (a < b)
            swap(a, b);
        a %= b;
    }
    if (a == b) return 0;
    return b;
}

ll gcdR(ll a, ll b, ll& x, ll& y) {
    if (a == 0) {
        x = 0; y = 1;
        return b;
    }
    ll x1, y1;
    ll d = gcdR(b % a, a, x1, y1);
    x = y1 - (b / a) * x1;
    y = x1;
    return d;
}

ll myLog2(ll n) {
    if (n < 0)
        return -1;
    ll ans = 0;
    while (n > 1) {
        n /= 2; ans++;
    }
    return ans;
}
ll myPow(ll a, ll k) {
    if (k == -1)
        return (ll)1;
    if (k == 1)
        return a;
    if (k == 0)
        return (ll)1;
    if (k == 2)
        return (a * a);
```

```
    ll b = myPow(a, k / 2);
    b = (b * b);
    if (k % 2)
        b = (b * a);
    return b;
}

//vll mp(vll& a, vll& b) {
//    vll c(b.size(), vl(a[0].size()));
//    for (ll i = 0; i < a.size(); ++i) {
//        for (ll j = 0; j < b.size(); ++j) {
//            for (ll k = 0; k < a[0].size(); ++k) {
//                c[j][k] += a[i][k] * b[j][i];
//                c[j][k] %= m;
//            }
//        }
//    }
//    return c;
//}

//vll POW(vll& a, ll k) {
//    if (k == 1) return a;
//    if (k == 2) return mp(a, a);
//    vll b = POW(a, k / 2);
//    b = mp(b, b);
//    if (k & 1) b = mp(b, a);
//    return b;
//}

ld eps = 1e-8;
ll m, n, q, n2, k, lg = 20, now = 0, sq, x, y;
const ll MAXN = 205100, sqn = 330;
vct<vl> g, g_rev;
vl a, par, req, p;

signed main() {
    faster

    cin >> n >> q;
    vll t(n);
    for (int i = 0; i < n; ++i) {
        ll s; cin >> s;
        t[i].resize(s); cin >> t[i];
    }

    vl st;
    ll cur = 0;
    vll qq(n);
    for (int i = 0; i < n; ++i) {
        qq[i].resize(t[i].size());
        for (int j = 0; j < qq[i].size(); ++j) qq[i][j] = t[i][j];
    }
```

```
    ll len = 0;
    vl r(n);
    vl req(q); cin >> req;
    while (st.size() < req.back() + 1) {
        ll now = cur; cur = qq[now][r[now]] - 1;
        r[now]++;
        if (r[now] >= qq[now].size()) {
            r[now] = 0;
        }
        st.pb(now + 1);
    }

    for (int i = 0; i < q; ++i) {
        ll tim = req[i];
        tim %= st.size();
        coutt st[tim] sp;
    }
}
```

## Task F

```
long long mod = 998244353;
#include <bits/stdc++.h>
//#define M_PI 3.14159265358979
using namespace std;
//#pragma GCC optimize("O3","unroll-loops")
//#pragma GCC target("avx,bmi,bmi2,popcnt,lzcnt") // r - n / c - m
#define faster ios_base::sync_with_stdio(false); cin.tie(nullptr); cout.
    tie(nullptr);
#define all(a) a.begin(), a.end()
#define el  << "\n"
#define sp  << " "
#define coutt cout <<
#define ef << endl << flush
#define per(i, n) for (ll i = 0; i < n; ++i)
#define pb push_back
#define er erase
#define minm(a, b) a = min(a, b)
#define maxm(a, b) a = max(a, b)
#define vct vector
#define fi first
#define se second
//#define int long long
#define testy() \
ll Tests; cin >> Tests; \
while(Tests--)
typedef long long ll;
typedef unsigned long long ull;
typedef long double ld;
typedef pair<ll, ll> pl;
typedef pair<ld, ld> pd;
typedef vector<ll> vl;
typedef vct<ld> vd;
```

```
typedef vct<vd> vvd;
typedef vector<vl> vll;
typedef vector<pl> vpl;
typedef vector<pd> vpd;
/*//            A
//           /|\
//          / | \
//         /  |  \
//        /   |   \
//       C----P----B*/
#define cok(ok) cout << (ok ? "YES\n" : "NO\n");
#define dbg(x) cout << (#x) << ": " << x << endl;
template <typename T>
istream& operator>>(istream& stream, pair<T, T>& v) {
    stream >> v.first >> v.second;
    return stream;
}
template <typename T>
istream& operator>>(istream& stream, vector<T>& v) {
    for (T& i : v) stream >> i;
    return stream;
}
template <typename T>
ostream& operator<<(ostream& stream, pair<T, T>& v) {
    stream << v.first sp << v.second;
    return stream;
}
void prv(vl a) {
    for (ll x : a) {
        coutt x << " ";
    }
    cout el;
}
ll gcd(ll a, ll b) {
    if (a == -1)
        return b;
    if (b == -1)
        return a;
    while (a != 0 && b != 0) {
        if (a < b)
            swap(a, b);
        a %= b;
    }
    if (a == b) return 0;
    return b;
}

ll gcdR(ll a, ll b, ll& x, ll& y) {
    if (a == 0) {
        x = 0; y = 1;
        return b;
    }
    ll x1, y1;
```

```
    ll d = gcdR(b % a, a, x1, y1);
    x = y1 - (b / a) * x1;
    y = x1;
    return d;
}

ll myLog2(ll n) {
    if (n < 0)
        return -1;
    ll ans = 0;
    while (n > 1) {
        n /= 2; ans++;
    }
    return ans;
}
ll myPow(ll a, ll k) {
    if (k == -1)
        return (ll)1;
    if (k == 1)
        return a;
    if (k == 0)
        return (ll)1;
    if (k == 2)
        return (a * a);
    ll b = myPow(a, k / 2);
    b = (b * b);
    if (k % 2)
        b = (b * a);
    return b;
}

//vll mp(vll& a, vll& b) {
//    vll c(b.size(), vl(a[0].size()));
//    for (ll i = 0; i < a.size(); ++i) {
//        for (ll j = 0; j < b.size(); ++j) {
//            for (ll k = 0; k < a[0].size(); ++k) {
//                c[j][k] += a[i][k] * b[j][i];
//                c[j][k] %= m;
//            }
//        }
//    }
//    return c;
//}

//vll POW(vll& a, ll k) {
//    if (k == 1) return a;
//    if (k == 2) return mp(a, a);
//    vll b = POW(a, k / 2);
//    b = mp(b, b);
//    if (k & 1) b = mp(b, a);
//    return b;
//}
```

```
ld eps = 1e-8;
ll m, n, q, n2, k, lg = 20, now = 0, sq, x, y;
const ll MAXN = 205100, sqn = 330;
vct<vl> g, g_rev;
vl a, par, req, p;

signed main() {
    faster

    cin >> n >> m;
    ll ans = 0;
    vct<string> tab(n); cin >> tab;

    for (int i = 0; i < n; ++i) {
        for (int j = 0; j < m / 2; ++j) {
            ans += (tab[i][(j * 2 - 1 + m) % m] - '0') * (tab[i][j * 2] -
 '0');
        }
    }
    coutt ans el;

    for (int i = 0; i < n; ++i) {
        string str = "";
        for (int j = 0; j * 2 < m; ++j) {
            str.pb('R');
            str.pb('L');
        }
        coutt str el;
    }
}
```