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A	B	C	D	E	F	sum
100	100	40	100	20	47	407

Task A

```
   #define _USE_MATH_DEFINES

#include <iostream>
#include <fstream>
#include <cmath>
#include <iomanip>
#include <vector>
#include <string>
#include <algorithm>
#include <map>
#include <unordered_map>
#include <unordered_set>
#include <cstring>
#include <deque>
#include <queue>
#include <stack>
#include <cctype>
#include <set>
#include <numeric>
#include <functional>

using namespace std;

typedef long long ll;

int main() {
    ios::sync_with_stdio(0);
    cin.tie(0);
    cout.tie(0);
```

```
    int a, b, n;
    cin >> a >> b >> n;

    vector<ll> dp(n, 0);
    dp[0] = 1;
    for (int i = 0; i < n; i++) {
        if (i - a >= 0) {
            dp[i] += dp[i - a];
        }
        if (i - b >= 0) {
            dp[i] += dp[i - b];
        }

        //cout << dp[i] << " ";
    }

    ll ans = 0;
    if (n - a >= 0) {
        ans += dp[n - a] * (a);
    }
    if (n - b >= 0) {
        ans += dp[n - b] * (b);
    }

    cout << endl << ans;
}
```

Task B

```
   #define _USE_MATH_DEFINES

#include <iostream>
#include <fstream>
#include <cmath>
#include <iomanip>
#include <vector>
#include <string>
#include <algorithm>
#include <map>
#include <unordered_map>
#include <unordered_set>
#include <cstring>
#include <deque>
#include <queue>
#include <stack>
#include <cctype>
#include <set>
#include <numeric>
#include <functional>

using namespace std;
```

```
typedef long long ll;

ll dist(ll x1, ll y1, ll z1, ll x2, ll y2, ll z2) {
    return (abs(x1 - x2) + abs(y1 - y2) + abs(z1 - z2)) / 2;
}

ll distToEnd(ll x1, ll y1, ll z1, ll x2, ll y2, ll z2, char t) {
    ll res = dist(x1, y1, z1, x2, y2, z2);
    if (t == 'x') {
        res = min(res, dist(x1 * -1, z1 * -1, y1 * -1, x2, y2, z2));
    }
    else if (t == 'y') {
        res = min(res, dist(z1 * -1, y1 * -1, x1 * -1, x2, y2, z2));
    }
    else {
        res = min(res, dist(y1 * -1, x1 * -1, z1 * -1, x2, y2, z2));
    }
    return res;
}

int main() {
    ios::sync_with_stdio(0);
    cin.tie(0);
    cout.tie(0);

    ll n;
    cin >> n;
    ll x1, y1, z1;
    cin >> x1 >> y1 >> z1;
    ll x2, y2, z2;
    cin >> x2 >> y2 >> z2;

    ll ans = dist(x1, y1, z1, x2, y2, z2);
    for (int y = 0; y <= n; y++) {
        ans = min(distToEnd(n, -1 * y, -1 * (n - y), x1, y1, z1, 'x') +
    distToEnd(n, -1 * y, -1 * (n - y), x2, y2, z2, 'x'), ans);
    }
    for (int x = 0; x <= n; x++) {
        ans = min(distToEnd(-1 * x, n, -1 * (n - x), x1, y1, z1, 'y') +
    distToEnd(-1 * x, n, -1 * (n - x), x2, y2, z2, 'y'), ans);
        ans = min(distToEnd(-1 * x, -1 * (n - x), n, x1, y1, z1, 'z') +
    distToEnd(-1 * x, -1 * (n - x), n, x2, y2, z2, 'z'), ans);
    }

    cout << ans;
}
```

Task C

```
   #define _USE_MATH_DEFINES

#include <iostream>
#include <fstream>
```

```
#include <cmath>
#include <iomanip>
#include <vector>
#include <string>
#include <algorithm>
#include <map>
#include <unordered_map>
#include <unordered_set>
#include <cstring>
#include <deque>
#include <queue>
#include <stack>
#include <cctype>
#include <set>
#include <numeric>
#include <functional>

using namespace std;

typedef long long ll;

int main() {
    ios::sync_with_stdio(0);
    cin.tie(0);
    cout.tie(0);

    string zap;
    cin >> zap;
    if (zap == "first") {
        int n;
        cin >> n;
        string a;
        cin >> a;
        cout << a;
    }
    else {
        int n;
        cin >> n;
        string t;
        cin >> t;
        string h;
        cin >> h;

        bool flag = false;
        for (int i = 0; i < n; i++) {
            rotate(h.begin(), h.begin() + 1, h.end());
            //cout << h << endl;
            if (h == t) {
                flag = true;
            }
        }

        if (flag) {
```

```
            cout << "YES" << endl;
        }
        else {
            cout << "NO" << endl;
        }
    }

}
```

Task D

```
   #define _USE_MATH_DEFINES

#include <iostream>
#include <fstream>
#include <cmath>
#include <iomanip>
#include <vector>
#include <string>
#include <algorithm>
#include <map>
#include <unordered_map>
#include <unordered_set>
#include <cstring>
#include <deque>
#include <queue>
#include <stack>
#include <cctype>
#include <set>
#include <numeric>
#include <functional>

using namespace std;

typedef long long ll;

char swap(deque<int>& bigger, deque<bool>& counted, int a, int b, bool&
    end) {
    cout << a << " " << b << endl;
    a--;
    b--;

    swap(bigger[a], bigger[b]);
    bigger.push_back(bigger.front());
    bigger.pop_front();
    swap(counted[a], counted[b]);
    counted.push_back(counted.front());
    counted.pop_front();

    char ans;
    cin >> ans;
    if (ans == '!') {
        end = true;
```

```
    }
    return ans;
}

void op(deque<int>& bigger, deque<bool>& counted, bool& end) {
    char ans = swap(bigger, counted, 1, 3, end);
    if (end) {
        return;
    }

    if (ans == '<') {
        bigger[1]++;
    }

    ans = swap(bigger, counted, 1, 1, end);
}

int main() {
    ios::sync_with_stdio(0);
    cin.tie(0);
    cout.tie(0);

    int n;
    cin >> n;
    deque<int> bigger(n, 0);
    int needCount = n;
    deque<bool> counted(n, false);

    bool end = false;
    while (needCount > 0) {
        if (!counted[0]) {
            counted[0] = true;
            needCount--;

            if (n % 2 == 1) {
                for (int i = 0; i < n - 1; i++) {
                    op(bigger, counted, end);

                    if (end) break;
                }
            }
            else {
                for (int i = 0; i < n / 2; i++) {
                    op(bigger, counted, end);

                    if (end) break;
                }

                swap(bigger, counted, 1, 2, end);
                if (end) break;

                for (int i = 0; i < n / 2 - 1; i++) {
                    op(bigger, counted, end);
```

```
                    if (end) break;
                }
            }

            if (end) break;
        }

        swap(bigger, counted, 1, 1, end);
        if (end) break;
    }

    if (end) {
        return 0;
    }

    set<int> a;
    vector<int> ind(n);
    for (int i = 0; i < n; i++) {
        ind[bigger[i]] = i + 1;
        a.insert(bigger[i]);
    }

    if (n - a.size() > 1) {
        cout << "PRESENTATION ERROR";
        return 0;
    }

    for (int i = n - 2; i >= 0; i--) {
        if (ind[i + 1] == n) {
            swap(bigger, counted, ind[i], 1, end);
        }
        else if (ind[i + 1] != n) {
            swap(bigger, counted, ind[i], ind[i + 1] + 1, end);
        }

        for (int i = 0; i < n; i++) {
            ind[bigger[i]] = i + 1;
        }
    }

    while (!end) {
        swap(bigger, counted, 1, 1, end);
    }
}
```

Task E

```
   #define _USE_MATH_DEFINES

#include <iostream>
#include <fstream>
#include <cmath>
```

```
#include <iomanip>
#include <vector>
#include <string>
#include <algorithm>
#include <map>
#include <unordered_map>
#include <unordered_set>
#include <cstring>
#include <deque>
#include <queue>
#include <stack>
#include <cctype>
#include <set>
#include <numeric>
#include <functional>

using namespace std;

typedef long long ll;


int main() {
    ios::sync_with_stdio(0);
    cin.tie(0);
    cout.tie(0);

    int n, q;
    cin >> n >> q;
    vector<deque<int>> g(n);
    for (int i = 0; i < n; i++) {
        int d;
        cin >> d;
        for (int j = 0; j < d; j++) {
            int x;
            cin >> x;
            x--;
            g[i].push_back(x);
        }
    }

    int pos = 0;
    vector<int> ans(1e5 + 1);
    ans[0] = 0;
    for (int i = 1; i <= 1e5; i++) {
        g[pos].push_back(g[pos].front());
        g[pos].pop_front();

        pos = g[pos].back();

        ans[i] = pos;
    }

    while (q--) {
```

```
        int t;
        cin >> t;
        cout << ans[t] + 1 << endl;
    }
}
```

Task F

```
   #define _USE_MATH_DEFINES

#include <iostream>
#include <fstream>
#include <cmath>
#include <iomanip>
#include <vector>
#include <string>
#include <algorithm>
#include <map>
#include <unordered_map>
#include <unordered_set>
#include <cstring>
#include <deque>
#include <queue>
#include <stack>
#include <cctype>
#include <set>
#include <numeric>
#include <functional>

using namespace std;

typedef long long ll;

int main() {
    ios::sync_with_stdio(0);
    cin.tie(0);
    cout.tie(0);

    int h, w;
    cin >> h >> w;
    vector<vector<int>> a(h, vector<int>(w));
    for (int i = 0; i < h; i++) {
        for (int j = 0; j < w; j++) {
            char x;
            cin >> x;
            x -= '0';
            a[i][j] = x;
        }
    }

    ll ans = 0;
    vector<vector<char>> b(h, vector<char>(w, '.'));
    for (int i = 0; i < h; i++) {
```

```
        for (int j = 1; j < w; j += 2) {
            ans += a[i][j] * a[i][j - 1];
            b[i][j - 1] = 'L';
            b[i][j] = 'R';
        }
    }

    cout << ans << endl;
    for (int i = 0; i < h; i++) {
        for (int j = 0; j < w; j++) {
            cout << b[i][j];
        }
        cout << endl;
    }
}
```