A	B	C	D	E	F	Sum
100	100	100	100	55	25	480

Task A ()

```cpp
#include <iostream>
#include <iomanip>
#include <algorithm>
#include <cmath>
#include <vector>
#include <queue>
#include <set>
#include <map>
#include <cassert>
#define int long long
using namespace std;
#define ld long double
#define debug(x) cout << #x << " is " << x << '\n';
const int mod = 1e9 + 7;
int d[] = { 0, 2, 3, 4, 5, 6, 7, 8, 9 };
signed main() {
        ios_base::sync_with_stdio(false);
        cin.tie(nullptr);
        cout << fixed << setprecision(3);
        int t; cin >> t;
        if (t <= 9) cout << t;
        else {
                t--;
                cout << d[t % 9];
        }
}
```

Task B ()

```cpp
#include <iostream>
#include <iomanip>
#include <algorithm>
#include <cmath>
#include <vector>
#include <queue>
#include <set>
#include <map>
#include <cassert>

using namespace std;
#define int long long
#define ld long double
#define debug(x) cout << #x << " is " << x << '\n';

signed main() {
        ios_base::sync_with_stdio(false);
        cin.tie(nullptr);
        cout << fixed << setprecision(3);
        int n, k; cin >> n >> k;
        string s; cin >> s;
        int cnt = 0, ans = 0;
        set <char> cur;
        for (int i = 0; i < n; ++i) {
                if ((cur.size() == 3 and cur.find(s[i]) == cur.end()) or cnt == k) {
                        ans++; cur = { s[i] };
                        cnt = 1;
                }
                else {
                        cur.insert(s[i]);
                        cnt++;
                }
        }
        cout << ans + 1 << '\n';
}
```

Task C ()

```cpp
#include <iostream>
#include <iomanip>
#include <algorithm>
#include <cmath>
#include <vector>
#include <queue>
#include <set>
#include <map>
#include <cassert>

using namespace std;
#define ld long double
#define debug(x) cout << #x << " is " << x << '\n';
const int mod = 1e9 + 7;
signed main() {
        ios_base::sync_with_stdio(false);
        cin.tie(nullptr);
        cout << fixed << setprecision(3);
        int n, V, W; cin >> n >> V >> W;
        vector <int> a(n), b(n);
        for (auto& x : a) cin >> x;
        for (auto& x : b) cin >> x;
        vector <vector <int>> dp(n + 1, vector <int>(W + 1, mod));
        dp[0][0] = 0;
        for (int i = 0; i < n; ++i) {
                for (int j = W; j >= 0; --j) {
                        if (j >= b[i]) dp[i + 1][j] = min(dp[i + 1][j], dp[i][j - b[i]]);
                        dp[i + 1][j] = min(dp[i + 1][j], dp[i][j] + a[i]);
                }
        }
        int st = -1;
        for (int i = 0; i <= W; ++i) {
                if (dp.back()[i] <= V) st = i;
        }
        if (st == -1) {
                cout << st << '\n';
        }
        else {
                int cur = n;
                string ans = "";
                while (cur) {
                        if (st >= b[cur - 1] and dp[cur][st] == dp[cur - 1][st - b[cur - 1]]) {
                                ans += 'y';
                                st -= b[cur - 1];
                        }
                        else {
                                ans += 'x';
                        }
                        cur--;
                }
                reverse(ans.begin(), ans.end());
                for (auto x : ans) cout << x;
                cout << '\n';
        }
}
```

Task D ()

```cpp
#include <iostream>
#include <iomanip>
#include <algorithm>
#include <cmath>
#include <vector>
#include <queue>
#include <set>
#include <map>
#include <cassert>

using namespace std;
#define int long long
#define ld long double
#define debug(x) cout << #x << " is " << x << '\n';
const int mod = 1e9 + 7;

signed main() {
        ios_base::sync_with_stdio(false);
        cin.tie(nullptr);
        cout << fixed << setprecision(3);
        int n; cin >> n;
        string s; cin >> s;
        map<char, int> type;
        type['['] = 1, type[']'] = 1;
        type['('] = 2, type[')'] = 2;
        vector<int> stack;
        for (auto x : s) {
                if (!stack.empty() and stack.back() == type[x]) stack.pop_back();
                else {
                        stack.push_back(type[x]);
                }
        }
        cout << stack.size() / 2 << '\n';
        return 0;
}
```

Task E ()

```cpp
#include <iostream>
#include <iomanip>
#include <algorithm>
#include <cmath>
#include <vector>
#include <queue>
#include <set>
#include <map>
#include <cassert>

using namespace std;
#define int long long
#define ld long double
#define debug(x) cout << #x << " is " << x << '\n';
const int mod = 9e4 + 1377, p = 239, N = 5e4;
int pws[N];
map <vector <int>, int> key;
int hh(set <int> a) {
        int g = 0, cur = 0;
        for (auto x : a) {
                g += x * pws[cur++] % mod;
                g %= mod;
        }
        return (p * g) % mod;
}
int ok(set <int> a) {
        vector <int> pref = { 0 }, b;
        int cur = 0;
        for (auto x : a) {
                pref.push_back(pref.back() + (x * pws[cur]) % mod);
                pref.back() %= mod;
                b.push_back(x);
                cur++;
        }
        for (int i = 0; i < b.size(); ++i) {
                int l = pref[i], r = ((pref.back() - pref[i + 1]) % mod + mod) % mod;
                int res = (r + (l * p) % mod) % mod;
                if (res == b[i]) return b[i];
        }
        return 0;
}
signed main() {
        ios_base::sync_with_stdio(false);
        cin.tie(nullptr);
        cout << fixed << setprecision(3);
        vector <int> store = { 8, 5, 10, 5, 9, 9, 3, 6, 6, 2, 8, 2, 7, 5, 4,
                3, 2, 9, 6, 8, 7, 9, 10, 3, 8, 6, 5, 2, 3, 4, 4, 5, 2, 3, 4, 2,
                10, 9, 7, 9, 7, 6, 1, 10, 7, 9, 10, 5, 7, 7, 9, 10, 8, 9, 9, 3,
                10, 4, 6, 10, 5, 7, 7, 3, 10, 8, 8, 1, 2, 7, 8, 6, 2, 7, 1, 8,
                10, 10, 2, 9, 1, 9, 2, 1, 5, 8, 9, 2, 3, 1, 5, 7, 2, 9, 10, 10,
                5, 10, 6, 2, 10, 10, 7, 9, 4, 10, 3, 6, 4, 4, 5, 4, 9, 1, 9, 1,
                10, 3, 1, 2 };
        pws[0] = 1;
        for (int i = 1; i < N; ++i) {
                pws[i] = (pws[i - 1] * p) % mod;
        }
        int cc = 0;
        for (int i = 1; i <= 10; ++i) {
                for (int j = i + 1; j <= 10; ++j) {
                        for (int k = j + 1; k <= 10; ++k) {
                                key[{i, j, k}] = store[cc++];
                        }
                }
        }
        string s; cin >> s;
        if (s == "add") {
                int tt; cin >> tt;
                while (tt--) {
                        int n, k; cin >> n >> k;
                        vector <int> a(k);
                        for (auto &x : a) cin >> x;
                        sort(a.begin(), a.end());
```

```cpp
                    if (n == 10) {
                            cout << key[{a[0], a[1], a[2]}] << '\n';
                    }
                    else if (n == 1e6) {
                            cout << "998233\n";
                    }
                    else {
                            set <int> b = { a.begin(), a.end() };
                            cout << hh(b) << '\n';
                    }
            }
    }
    else {
            int tt; cin >> tt;
            while (tt--) {
                    int n, k; cin >> n >> k;
                    vector <int> a(k + 1);
                    for (auto& x : a) cin >> x;
                    sort(a.begin(), a.end());
                    if (n == 10) {
                            int o = 0;
                            if (key[{a[0], a[1], a[2]}] == a[3]) o = a[3];
                            if (key[{a[0], a[1], a[3]}] == a[2]) o = a[2];
                            if (key[{a[0], a[2], a[3]}] == a[1]) o = a[1];
                            if (key[{a[1], a[2], a[3]}] == a[0]) o = a[0];
                            for (auto x : a) if (x != o) cout << x << '␣';
                            cout << '\n';
                    }
                    else if (n == 1e6) {
                            for (auto x : a) {
                                    if (x != 998233) cout << x << '␣';
                            }
                            cout << '\n';
                    }
                    else {
                            set <int> b = { a.begin(), a.end() };
                            int o = ok(b);
                            for (auto x : b)
                                    if (x != o) cout << x << '␣';
                            cout << '\n';
                    }
            }
    }
    return 0;
}
```

Task F ()

```cpp
#include <iostream>
#include <iomanip>
#include <algorithm>
#include <cmath>
#include <vector>
#include <queue>
#include <set>
#include <map>
#include <cassert>
#define int long long
using namespace std;
#define ld long double
#define debug(x) cout << #x << " is " << x << '\n';
const int mod = 1e9 + 7;
vector <vector <int>> d = { {0, 0}, {0, -1}, {1, -1}, {1, 0}, {1, 1}, {0, 1}, {-1, 1}, {-1, 0},
    {-1, -1} };
signed main() {
        ios_base::sync_with_stdio(false);
        cin.tie(nullptr);
        cout << fixed << setprecision(3);
        int n; cin >> n;
        cout << "4\n0 0\n0 1\n1 1\n1 0\n";
        for (int i = 1; i <= n; i++) cout << d[i][0] << ' ' << d[i][1] << '\n';
}
```