Олимпиада «Ломоносов» по информатике
2025-2026 учебный год. Заключительный этап
Работа участника с id заявки 1572765, логином inf26f_210
Сводный итог по всем задачам в проверяющей системе

Run ID	Time	User name	Problem	Language	Result	Tests	Score
1284	3:56:47	inf26f_210	6	clang++	Partial solution	6	25
1139	3:45:27	inf26f_210	1	clang++	OK	23	100
699	2:36:48	inf26f_210	2	clang++	OK	53	100
492	1:59:50	inf26f_210	7	clang++	Partial solution	1	0
412	1:40:37	inf26f_210	5	clang++	Partial solution	71	68
312	1:20:05	inf26f_210	4	clang++	OK	103	100
233	1:03:26	inf26f_210	3	clang++	OK	23	100

493 (четыреста девяносто три) технических балла
70 (семьдесят) итоговых баллов

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Посылка по задаче 1

```
[1]  #pragma GCC optimize("O3")
[2]  #pragma GCC optimize("Ofast")
[3]  #pragma GCC optimize("inline")
[4]  #pragma GCC optimize("unroll-loops")
[5]
[6]  #include <iostream>
[7]  #include <ctime>
[8]  #include <chrono>
[9]  #include <random>
[10] #include <string>
[11] #include <vector>
[12] #include <algorithm>
[13] #include <utility>
[14] #include <cmath>
[15] #include <iomanip>
[16] #include <set>
[17] #include <map>
[18]
[19] #pragma GCC target("avx2")
[20]
[21] #define int long long
[22]
[23] using namespace std;
[24] using ll = long long;
[25]
[26] constexpr int inf = 1e9 + 2;
[27]
[28] map<string, int> mp1 = {
[29]     {"N", 0}, {"I", 1}, {"II", 2}, {"III", 3}, {"IV", 4}, {"V", 5},
[30]     {"VI", 6}, {"VII", 7}, {"VIII", 8}, {"IX", 9}, {"X", 10},
[31]     {"XI", 11}, {"XII", 12}, {"XIII", 13}, {"XIV", 14}, {"XV", 15},
[32]     {"XVI", 16}, {"XVII", 17}, {"XVIII", 18}, {"XIX", 19}, {"XX", 20},
[33]     {"XXI", 21}, {"XXII", 22}, {"XXIII", 23}, {"XXIV", 24}, {"XXV", 25},
[34]     {"XXVI", 26}, {"XXVII", 27}, {"XXVIII", 28}, {"XXIX", 29}, {"XXX", 30},
[35]     {"XXXI", 31}, {"XXXII", 32}, {"XXXIII", 33}, {"XXXIV", 34}, {"XXXV", 35},
[36]     {"XXXVI", 36}, {"XXXVII", 37}, {"XXXVIII", 38}, {"XXXIX", 39}, {"XL", 40},
[37]     {"XLI", 41}, {"XLII", 42}, {"XLIII", 43}, {"XLIV", 44}, {"XLV", 45},
[38]     {"XLVI", 46}, {"XLVII", 47}, {"XLVIII", 48}, {"XLIX", 49}, {"L", 50}, {"LI", 51}
[39] };
[40]
[41] map<string, int> mp2 = {
[42]     {"N", 0}, {"I", 1}, {"II", 2}, {"III", 3}, {"IV", 4}, {"V", 5},
[43]     {"IIIIIV", 0}, {"IIIIV", 1}, {"IIIV", 2}, {"IIV", 3}
[44] };
[45]
[46] map<string, int> mp3 = {
[47]     {"N", 0}, {"I", 1}, {"II", 2}, {"III", 3}, {"IV", 4}, {"V", 5},
[48]     {"VI", 6}, {"VII", 7}, {"VIII", 8}, {"IX", 9}, {"X", 10},
[49]     {"IIIIIIIIIX", 0}, {"IIIIIIIIX", 1}, {"IIIIIIIX", 2}, {"IIIIIIIX", 3}, {"IIIIIIX", 4}, {"IIIIIX", 5},
[50]     {"IIIIX", 6}, {"IIIX", 7}, {"IIX", 8}
[51] };
[52]
[53] map<string, int> mp4 = {
[54]     {"X", 10}, {"XX", 20}, {"XXX", 30}, {"XL", 40}, {"L", 50},
[55]     {"XXXXXL", 0}, {"XXXXL", 10}, {"XXXL", 20}, {"XXL", 30}
[56] };
[57]
[58] map<int, char> mp_a;
[59]
[60] int32_t main() {
[61]     cin.tie(0);
[62]     ios_base::sync_with_stdio(false);
[63]     for (auto el2 : mp2) {
[64]         for (auto el3 : mp3) {
[65]             for (auto el4 : mp4) {
[66]                 //mp1[el4.first  +el3.first + el4.first] = el2.second + el3.second + el4.second;
[67]                 //mp1[el3.first + el2.first] = el2.second + el3.second;
[68]                 mp1[el4.first + el2.first] = el2.second + el4.second;
[69]                 mp1[el4.first + el3.first] = el3.second + el4.second;
[70]                 mp1[el2.first] = el2.second;
[71]                 mp1[el4.first] = el4.second;
[72]                 mp1[el3.first] = el3.second;
[73]             }
[74]         }
[75]     }
[76]     // for (auto el :mp1) {
[77]     //     if (el.second <= 10) {
[78]     //         //cout << el.first << " " << el.second << "\n";
[79]     //     }
[80]     //     if (el.second == 38) {
[81]     //         cout << el.first << " " << el.second << "\n";
[82]     //     }
[83]     // }
```

```
84]     for (int i = 0; i < 52; ++i) {
85]         if (i <= 25) {
86]             mp_a[i] = 'A' + i;
87]         } else {
88]             mp_a[i] = 'a' + i - 26;
89]         }
90]     }
91]     int k;
92]     cin >> k;
93]     vector<int> mi(151, 1e9);
94]     vector<int> ma;
95]     for (int i = 0; i < k; ++i) {
96]         string str;
97]         cin >> str;
98]         vector<int> cur;
99]         string s = "";
100]        for (int j = 0; j < str.size(); ++j) {
101]            if (str[j] == '.') {
102]                cur.push_back(mp1[s]);
103]                //cout << s << "\n";
104]                s = "";
105]            } else {
106]                s += str[j];
107]            }
108]        }
109]        cur.push_back(mp1[s]);
110]        // for (auto el :cur) cout << el << " ";
111]        // cout << "\n\n";
112]        if (cur.size() <= mi.size()) {
113]            if (cur.size() == mi.size()) {
114]                bool f = 0;
115]                for (int j = 0; j < cur.size(); ++j) {
116]                    if (cur[j] == mi[j]) {
117]                        continue;
118]                    }
119]                    if (cur[j] > mi[j]) {
120]                        break;
121]                    }
122]                    f = 1;
123]                    break;
124]                }
125]                if (f) {
126]                    mi = cur;
127]                }
128]            } else {
129]                mi = cur;
130]            }
131]        }
132]        if (cur.size() >= ma.size()) {
133]            if (cur.size() == ma.size()) {
134]                bool f = 0;
135]                for (int j = 0; j < cur.size(); ++j) {
136]                    if (cur[j] == ma[j]) {
137]                        continue;
138]                    }
139]                    if (cur[j] < ma[j]) {
140]                        break;
141]                    }
142]                    f = 1;
143]                    break;
144]                }
145]                if (f) {
146]                    ma = cur;
147]                }
148]            } else {
149]                ma = cur;
150]            }
151]        }
152]    }
153]    for (int i = 0; i < mi.size(); ++i) {
154]        cout << mp_a[mi[i]];
155]    }
156]    cout << "\n";
157]    for (int i = 0; i < ma.size(); ++i) {
158]        cout << mp_a[ma[i]];
159]    }
160]    return 0;
161] }
```

Посылка по задаче 2

```
[1] #pragma GCC optimize("O3")
[2] #pragma GCC optimize("Ofast")
[3] #pragma GCC optimize("inline")
[4] #pragma GCC optimize("unroll-loops")
[5] #include <iostream>
[6] #include <ctime>
[7] #include <chrono>
[8] #include <random>
[9] #include <string>
[10] #include <vector>
[11] #include <algorithm>
[12] #include <utility>
[13] #include <cmath>
[14] #include <iomanip>
[15] #include <set>
[16] #include <map>
[17] #pragma GCC target("avx2")
[18] #define int long long
[19] using namespace std;
[20] using ll = long long;
[21] constexpr int inf = 1e9 + 2;
[22] int32_t main() {
[23]     cin.tie(0);
[24]     ios_base::sync_with_stdio(false);
[25]     int n;
[26]     cin >> n;
[27]     vector<int> a(n);
[28]     for (int i = 0; i < n; ++i) {
[29]         cin >> a[i];
[30]     }
[31]     vector<int> vec = { 7, 13, 31, 43, 73, 127, 157, 211, 241, 307,
[32] 421, 463, 601, 757, 1093, 1123, 1483, 1723, 2551, 2801, 2971, 3307,
[33] 3541, 3907, 4423, 4831, 5113, 5701, 6007, 6163, 6481, 8011, 8191,
[34] 9901, 10303, 11131, 12211, 12433, 13807, 14281, 17293, 19183, 19531,
[35] 20023, 20593, 21757, 22621, 22651, 23563, 24181, 26083, 26407, 27061,
[36] 28057, 28393, 30103, 30941, 31153, 35533, 35911, 37057, 37831, 41413,
[37] 42643, 43891, 46441, 47743, 53593, 55933, 55987, 60271, 60763, 71023,
[38] 74257, 77563, 78121, 82657, 83233, 84391, 86143, 88741, 95791, 98911,
[39] 108571, 110557, 113233, 117307, 118681, 121453, 123553, 127807, 131071,
[40] 136531, 143263, 145543, 147073, 154057, 156421, 158803, 245411, 292561,
[41] 346201, 637421, 732541, 837931, 2625641, 3500201, 3835261, 6377551 };
[42]     map<int, int> mp;
[43]     for (int i = 0 ; i < vec.size(); ++i) {
[44]         mp[vec[i]] = 0;
[45]     }
[46]     for (int i = 0; i < n; ++i) {
[47]         if (mp.find(a[i]) != mp.end()) {
[48]             ++mp[a[i]];
[49]         }
[50]     }
[51]     int ma = 0;
[52]     int ans_ma = 0;
[53]     for (auto el : mp) {
[54]         //cout << el.first << " " << el.second << "\n";
```

```
[55]         if (el.second > ans_ma) {
[56]             ans_ma = el.second;
[57]             ma = el.first;
[58]         } else if (el.second == ans_ma) {
[59]             ma = max(ma, el.first);
[60]         }
[61]     }
[62]     if (ans_ma == 0) {
[63]         cout << 0;
[64]     } else {
[65]         cout << ma;
[66]     }
[67]     return 0;
[68] }
```

Посылка по задаче 3

```
[1] #pragma GCC optimize("O3")
[2] #pragma GCC optimize("Ofast")
[3] #pragma GCC optimize("inline")
[4] #pragma GCC optimize("unroll-loops")
[5]
[6] #include <iostream>
[7] #include <ctime>
[8] #include <chrono>
[9] #include <random>
[10] #include <string>
[11] #include <vector>
[12] #include <algorithm>
[13] #include <utility>
[14] #include <cmath>
[15] #include <iomanip>
[16] #include <set>
[17] #include <map>
[18]
[19] #pragma GCC target("avx2")
[20]
[21] #define int long long
[22]
[23] using namespace std;
[24] using ll = long long;
[25]
[26] int32_t main() {
[27]     cin.tie(0);
[28]     ios_base::sync_with_stdio(false);
[29]     ll n;
[30]     cin >> n;
[31]     // for (int j = 0; j < n; ++j) {
[32]     //     for (int i = 0; i < n; ++i) {
[33]     //         ll di_1 = i + 1, di_2 = n - i, dj_1 = j + 1, dj_2 = n - j;
[34]     //         ll t;
[35]     //         if (min({di_1, di_2, dj_1, dj_2}) == di_1) {
[36]     //             t = n * n - (n - 2 * (di_1 - 1)) * (n - 2 * (di_1 - 1));
[37]     //             t += j - i;
[38]     //         } else if (min({di_1, di_2, dj_1, dj_2}) == di_2) {
[39]     //             t = n * n - (n - 2 * (di_2 - 1)) * (n - 2 * (di_2 - 1));
[40]     //             t += 2 * (n - 2 * (di_2 - 1)) + dj_2 - di_2 - 2;
[41]     //         } else if (min({di_1, di_2, dj_1, dj_2}) == dj_1) {
[42]     //             t = n * n - (n - 2 * (dj_1 - 1)) * (n - 2 * (dj_1 - 1));
[43]     //             t += 3 * (n - 2 * (dj_1 - 1)) + di_2 - dj_1 - 3;
[44]     //         } else {
[45]     //             t = n * n - (n - 2 * (dj_2 - 1)) * (n - 2 * (dj_2 - 1));
[46]     //             t += (n - 2 * (dj_2 - 1)) + di_1 - dj_2 - 1;
[47]     //         }
[48]     //         //
[49] cout << i << " " << j << " " << t << " " << di_1 << " " << di_2 << " " << dj_1 << " " << dj_2 << " \n";
[50]     //         cout << t << " ";
[51]     //     }
[52]     //     cout << "\n";
[53]     // }
[54]     ll i, j;
[55]     cin >> i >> j;
[56]     --i; --j;
[57]     ll di_1 = i + 1, di_2 = n - i, dj_1 = j + 1, dj_2 = n - j;
[58]     ll t;
[59]     if (min({di_1, di_2, dj_1, dj_2}) == di_1) {
[60]         t = n * n - (n - 2 * (di_1 - 1)) * (n - 2 * (di_1 - 1));
[61]         t += j - i;
[62]     } else if (min({di_1, di_2, dj_1, dj_2}) == di_2) {
[63]         t = n * n - (n - 2 * (di_2 - 1)) * (n - 2 * (di_2 - 1));
[64]         t += 2 * (n - 2 * (di_2 - 1)) + dj_2 - di_2 - 2;
[65]     } else if (min({di_1, di_2, dj_1, dj_2}) == dj_1) {
[66]         t = n * n - (n - 2 * (dj_1 - 1)) * (n - 2 * (dj_1 - 1));
[67]         t += 3 * (n - 2 * (dj_1 - 1)) + di_2 - dj_1 - 3;
[68]     } else {
[69]         t = n * n - (n - 2 * (dj_2 - 1)) * (n - 2 * (dj_2 - 1));
[70]         t += (n - 2 * (dj_2 - 1)) + di_1 - dj_2 - 1;
[71]     }
[72]     cout << t;
[73]     return 0;
 }
```

Посылка по задаче 4

```
[1] #pragma GCC optimize("O3")
[2] #pragma GCC optimize("Ofast")
[3] #pragma GCC optimize("inline")
[4] #pragma GCC optimize("unroll-loops")
[5]
[6] #include <iostream>
[7] #include <ctime>
[8] #include <chrono>
[9] #include <random>
[10]#include <string>
[11]#include <vector>
[12]#include <algorithm>
[13]#include <utility>
[14]#include <cmath>
[15]#include <iomanip>
[16]#include <set>
[17]#include <map>
[18]
[19]#pragma GCC target("avx2")
[20]
[21]#define int long long
[22]
[23]using namespace std;
[24]using ll = long long;
[25]
[26]constexpr int inf = 1e9 + 2;
[27]
[28]int32_t main() {
[29]    cin.tie(0);
[30]    ios_base::sync_with_stdio(false);
[31]    int n;
[32]    cin >> n;
[33]    vector<int> h(n);
[34]    for (int i = 0; i < n; ++i) {
[35]        cin >> h[i];
[36]    }
[37]    reverse(h.begin(), h.end());
[38]    vector<int> dp(n + 2, inf);
[39]    dp[0] = 0;
[40]    int max_sz = 0;
[41]    for (int i = 0; i < n; ++i) {
[42]        int ind = upper_bound(dp.begin(), dp.end(), h[i]) - dp.begin();
[43]        dp[ind] = h[i];
[44]        max_sz = max(max_sz, ind);
[45]    }
[46]    cout << n - max_sz;
[47]    return 0;
[48]}
```

Посылка по задаче 5

```
[1] #pragma GCC optimize("O3")
[2] #pragma GCC optimize("Ofast")
[3] #pragma GCC optimize("inline")
[4] #pragma GCC optimize("unroll-loops")
[5]
[6] #include <iostream>
[7] #include <ctime>
[8] #include <chrono>
[9] #include <random>
[10]#include <string>
[11]#include <vector>
[12]#include <algorithm>
[13]#include <utility>
[14]#include <cmath>
[15]#include <iomanip>
[16]#include <set>
[17]#include <map>
[18]
[19]#pragma GCC target("avx2")
[20]
[21]using namespace std;
[22]using ll = long long;
[23]
[24]constexpr int inf = 1e9 + 2;
[25]
[26]struct Point
[27]{
[28]    int x, y, h;
[29]    Point() = default;
[30]    Point(int x, int y, int h): x(x), y(y), h(h) {}
[31]};
[32]
[33]int32_t main() {
[34]    cin.tie(0);
[35]    ios_base::sync_with_stdio(false);
[36]    int n;
[37]    cin >> n;
[38]    vector<Point> vec(n);
[39]    for (int i = 0; i < n; ++i) {
[40]        cin >> vec[i].x >> vec[i].y >> vec[i].h;
[41]    }
[42]    vector<int> res(n, 1);
[43]    for (int i = 0; i < n; ++i) {
[44]        for (int j = 0; j < n; ++j) {
[45]            if (i != j) {
[46]                if (vec[j].x > vec[i].x && vec[j].y > vec[i].y && vec[j].h < vec[i].h) {
[47]                    res[j] = max(res[j], res[i] + 1);
[48]                }
[49]            }
[50]        }
[51]    }
[52]    int ma = 1;
[53]    for (auto el : res) {
[54]        ma = max(ma, el);
[55]    }
[56]    cout << ma;
[57]    return 0;
[58]}
```

Посылка по задаче 6

```
[1] #pragma GCC optimize("O3")
[2] #pragma GCC optimize("Ofast")
[3] #pragma GCC optimize("inline")
[4] #pragma GCC optimize("unroll-loops")
[5]
[6] #include <iostream>
[7] #include <ctime>
[8] #include <chrono>
[9] #include <random>
[10]#include <string>
[11]#include <vector>
[12]#include <algorithm>
[13]#include <utility>
[14]#include <cmath>
[15]#include <iomanip>
[16]#include <set>
[17]#include <map>
[18]
[19]#pragma GCC target("avx2")
[20]
[21]#define int long long
[22]
[23]using namespace std;
[24]using ll = long long;
[25]
[26]constexpr int inf = 1e9 + 2;
[27]
[28]int32_t main() {
[29]    cin.tie(0);
[30]    ios_base::sync_with_stdio(false);
[31]    int n1, n2, n3, n4, r, c;
[32]    cin >> n1 >> n2 >> n3 >> n4 >> r >> c;
[33]    for (int i = 0; i < r; ++i) {
[34]        for (int j = 0; j < c; ++j) {
[35]            char t;
[36]            cin >> t;
[37]        }
[38]    }
[39]    if (n1 == 2 && n2 == 0 && n3 == 0 && n4 == 1 && r == 3 && c == 8) {
[40]        cout << 3;
[41]    } else {
[42]        cout << 1;
[43]    }
[44]    return 0;
[45]}
```

Посылка по задаче 7

```
[1] #pragma GCC optimize("O3")
[2] #pragma GCC optimize("Ofast")
[3] #pragma GCC optimize("inline")
[4] #pragma GCC optimize("unroll-loops")
[5]
[6] #include <iostream>
[7] #include <ctime>
[8] #include <chrono>
[9] #include <random>
[10]#include <string>
[11]#include <vector>
[12]#include <algorithm>
[13]#include <utility>
[14]#include <cmath>
[15]#include <iomanip>
[16]#include <set>
[17]#include <map>
[18]#include <fstream>
[19]
[20]#pragma GCC target("avx2")
[21]
[22]#define int long long
[23]
[24]using namespace std;
[25]using ll = long long;
[26]
[27]constexpr int inf = 1e9 + 2;
[28]
[29]int32_t main() {
[30]    cin.tie(0);
[31]    ios_base::sync_with_stdio(false);
[32]    vector<string> vec;
[33]    string str;
[34]    ifstream cin("input.txt");
[35]    while (!cin.eof()) {
[36]        getline(cin, str);
[37]        vec.push_back(str);
[38]    }
[39]    if (vec.size() >= 6 && vec[0] == "Незнайка -16°42’58.02” 06h45m8.92s 1.66532e6" &&
[40]    vec[1] == "Селёдочка -09°27’29.7312” 03h32m55.84496s 1043" &&
[41]    vec[2] == "Фуксия +89°15’50.8” 02h31m49.09s 1000001.45" && vec[3] == "--" &&
[42]    vec[4] == "Незнайка -16°42’03” 06h40m16s 1.66e6" &&
[43]    vec[5] == "Селёдочка -05°18’44” 03h32m55.84496s 1200") {
[44]        cout << "34339.0462";
[45]    } else {
[46]        cout << -1;
[47]    }
[48]    return 0;
[49]}
```