

Олимпиада «Ломоносов» по информатике
2025-2026 учебный год. Заключительный этап
Работа участника с id заявки 1600442, логином inf26f_171

Сводный итог по всем задачам в проверяющей системе

| Run ID | Time | User name | Problem | Language | Result | Tests | Score |
|--------|---------|------------|---------|----------|------------------|-------|-------|
| 1324 | 3:58:52 | inf26f_171 | 7 | py3 | Partial solution | 0 | 0 |
| 1288 | 3:56:57 | inf26f_171 | 2 | g++ | Partial solution | 51 | 96 |
| 936 | 3:18:28 | inf26f_171 | 6 | py3 | Partial solution | 2 | 5 |
| 897 | 3:12:42 | inf26f_171 | 1 | g++ | OK | 23 | 100 |
| 748 | 2:46:35 | inf26f_171 | 3 | g++ | OK | 23 | 100 |
| 517 | 2:06:58 | inf26f_171 | 5 | g++ | Partial solution | 71 | 68 |
| 345 | 1:25:15 | inf26f_171 | 4 | g++ | OK | 103 | 100 |

469 (четырееста шестьдесят девять) технических баллов
67 (шестьдесят семь) итоговых баллов



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Посылка по задаче 1

```
[1] #include <iostream>
[2] #include <vector>
[3] #include <unordered_map>
[4] using namespace std;
[5] using ll = long long;
[6]
[7] unordered_map <char, int> rim;
[8] unordered_map <int, char> alph;
[9]
[10] vector <int> convert(string s) {
[11]     int n = (int)s.size();
[12]     vector <int> res;
[13]     res.push_back(0);
[14]
[15]     int ind = 0, cur = 0;
[16]     char prev = 'L';
[17]     for (int i = 0; i < n; ) {
[18]         if (s[i] == '.') {
[19]             if (prev == 'X') {
[20]                 res[ind] += cur;
[21]             }
[22]             if (prev == 'V') {
[23]                 res[ind] += cur;
[24]             }
[25]             if (prev == 'I') {
[26]                 res[ind] += cur;
[27]             }
[28]             cur = 0;
[29]             prev = 'L';
[30]             res.push_back(0);
[31]             ind++;
[32]             i++;
[33]             continue;
[34]         }
[35]         if (s[i] == 'L') {
[36]             if (prev == 'X') {
[37]                 res[ind] -= cur;
[38]                 cur = 0;
[39]                 prev = 'L';
[40]             }
[41]             while (s[i] == 'L') {
[42]                 res[ind] += 50;
[43]                 i++;
[44]             }
[45]             continue;
[46]         } else if (s[i] == 'N') {
[47]             prev = 'N';
[48]             cur = 0;
[49]             i++;
[50]             continue;
[51]         } else if (s[i] == 'X') {
[52]             if (prev == 'I') {
[53]                 res[ind] -= cur;
[54]                 cur = 0;
[55]             }
[56]             while(s[i] == 'X') {
[57]                 cur += 10;
[58]                 i++;
[59]             }
[60]             prev = 'X';
[61]             continue;
[62]         } else if (s[i] == 'V') {
[63]             if (prev == 'I') {
[64]                 res[ind] -= cur;
[65]                 cur = 0;
[66]             }
[67]             if (prev == 'X') {
[68]                 res[ind] += cur;
[69]                 cur = 0;
[70]             }
[71]             while(s[i] == 'V') {
[72]                 cur += 5;
[73]                 i++;
[74]             }
[75]             prev = 'V';
```

```

[76]         continue;
[77]     } else {
[78]         res[ind] += cur;
[79]         cur = 0;
[80]         while(s[i] == 'I') {
[81]             cur++;
[82]             i++;
[83]         }
[84]         prev = 'I';
[85]         continue;
[86]     }
[87] }
[88] res[ind] += cur;
[89] return res;
[90] }
[91]
[92] string convert_to_string(vector<int> &a) {
[93]     string res;
[94]     for (int i = 0; i < (int)a.size(); i++) {
[95]         res += alph[a[i]];
[96]     }
[97]     return res;
[98] }
[99]
[100] bool cmp(vector<int> &a, vector<int> &b) { //a > b
[101]     int n1 = (int)a.size(), n2 = (int)b.size();
[102]     if (n1 > n2) return true;
[103]     if (n1 < n2) return false;
[104]     for (int i = 0; i < n1; i++) {
[105]         if (a[i] > b[i]) return true;
[106]         if (a[i] < b[i]) return false;
[107]     }
[108]     return true;
[109] }
[110]
[111] int main() {
[112]     ios::sync_with_stdio(false);
[113]     cin.tie(nullptr);
[114]
[115]
[116]     rim['N'] = 0;
[117]     rim['I'] = 1;
[118]     rim['V'] = 5;
[119]     rim['X'] = 10;
[120]     rim['L'] = 50;
[121]
[122]
[123]     for (int i = 0; i < 52; i++) {
[124]         char ch;
[125]         if (i < 26) {
[126]             ch = 'A' + i;
[127]             alph[i] = ch;
[128]         } else {
[129]             ch = 'a' + (i - 26);
[130]             alph[i] = ch;
[131]         }
[132]     }
[133]
[134]     // for (auto e : alph) {
[135]     //     cout << e.first << " " << e.second << "\n";
[136]     // }
[137]
[138]
[139]     int n;
[140]     cin >> n;
[141]     vector<int> mx, mn;
[142]     vector<vector<int>> data(n);
[143]     for (int i = 0; i < n; i++) {
[144]         string s;
[145]         cin >> s;
[146]         vector<int> r = convert(s);
[147]         // for (auto e : r) {
[148]         //     cout << e << " ";
[149]         // }
[150]         // cout << "\n";

```

```
[151]     if (i == 0) {
[152]         mx = r;
[153]         mn = r;
[154]     } else {
[155]         if (cmp(r, mx)) {
[156]             mx = r;
[157]         }
[158]         if (cmp(mn, r)) {
[159]             mn = r;
[160]         }
[161]     }
[162] }
[163]
[164] // for (auto e : mx) {
[165] //     cout << e << " ";
[166] // }
[167] // cout << "\n";
[168]
[169] // for (auto e : mn) {
[170] //     cout << e << " ";
[171] // }
[172] // cout << "\n";
[173]
[174] cout << convert_to_string(mn) << "\n" << convert_to_string(mx);
[175]
[176] }
```

Посылка по задаче 2

```
[1] #include <iostream>
[2] #include <vector>
[3] #include <algorithm>
[4] using namespace std;
[5] using ll = long long;
[6]
[7] int max_a = 160001;
[8]
[9] vector <int> primes;
[10] vector <bool> is_prime;
[11] vector <bool> oks;
[12]
[13] void reshto(int z) {
[14]     is_prime.resize(z, true);
[15]     for (int i = 2; i * i <= z; i++) {
[16]         for (int j = i * 2; j <= z; j += i) {
[17]             is_prime[j] = false;
[18]         }
[19]     }
[20]
[21]     for (int i = 2; i < z; i++) {
[22]         if (is_prime[i] == true) {
[23]             primes.push_back(i);
[24]         }
[25]     }
[26] }
[27]
[28]
[29] void ok(int z) {
[30]     oks.resize(z, false);
[31]     for (int b = 2; b < 100; b++) {
[32]         for (int k = 3; k < 100; k++) {
[33]             int tmp = k;
[34]             ll res = b;
[35]             while(tmp-- > 0) {
[36]                 res *= b;
[37]             }
[38]             if ((res - 1) % (b - 1) != 0) continue;
[39]             if (is_prime[((res - 1) / (b - 1))]) {
[40]                 oks[((res - 1) / (b - 1))] = true;
[41]             }
[42]         }
[43]     }
[44] }
[45]
[46] bool cmp(pair <int, int> &a, pair <int, int> &b) {
[47]     if (a.second > b.second) return true;
[48]     if (a.second == b.second) {
[49]         if (a.first > b.first) {
[50]             return true;
[51]         }
[52]     }
[53]     return false;
[54] }
[55]
[56] // bool check(int x) {
[57] //     int a = x + 1;
[58] //     int k1 = 0;
[59] //     bool fl = true;
[60] //     for (int i = 2; i * i < a; i++) {
[61] //         int cnt = 0;
[62] //         while (a % i == 0) {
[63] //             a /= i;
[64] //             cnt++;
[65] //         }
[66] //
[67] //         if (cnt != 0) {
[68] //             if (fl) {
[69] //                 if (cnt < 3) return false;
[70] //                 k1 = cnt;
[71] //                 fl = 0;
[72] //             } else {
[73] //                 if (cnt != k1) return false;
[74] //             }
[75] //         }
[75] //     }
```

```

[76] //     }
[77] //     return true;
[78] // }
[79]
[80]
[81] int main() {
[82]     int n;
[83]     cin >> n;
[84]
[85]     resheto(max_a);
[86]     // ok(max_a);
[87]
[88]     // for (auto e : primes) {
[89]     //     cout << e << " ";
[90]     // }
[91]
[92]     // for (int i = 0; i < max_a; i++) {
[93]     //     if (oks[i] == true) {
[94]     //         cout << i << " ";
[95]     //     }
[96]     // }
[97]
[98]     vector <int> cnt(max_a);
[99]     vector <pair <int, int>> a;
[100]    for (int i = 0; i < n; i++) {
[101]        int x;
[102]        cin >> x;
[103]        // cout << check(x) << " ";
[104]        cnt[x]++;
[105]    }
[106]
[107]
[108]    for (int i = 1; i < max_a; i++) {
[109]        if (cnt[i] > 0) {
[110]            a.push_back({i, cnt[i]});
[111]        }
[112]    }
[113]
[114]    sort(a.begin(), a.end(), cmp);
[115]
[116]    // for (auto e : a) {
[117]    //     cout << e.first << " " << e.second << "\n";
[118]    // }
[119]
[120]    for (int i = 0; i < (int)a.size(); i++) {
[121]        if (is_prime[a[i].first]) {
[122]            cout << a[i].first;
[123]            return 0;
[124]        }
[125]    }
[126]    cout << 0;
[127] }

```

Посылка по задаче 3

```
[1] #include <iostream>
[2] #include <vector>
[3] using namespace std;
[4] using ll = long long;
[5]
[6] int main() {
[7]     int n, i, j;
[8]     cin >> n >> i >> j;
[9]     swap(i, j); //i - строка
[10]    int cnt = min(min(min(i, j), n - i + 1), n - j + 1); //1 numer
[11]
[12]    if (n % 2 == 1 && cnt == (n / 2 + 1) ) {
[13]        cout << (ll)n * n - 1;
[14]        return 0;
[15]    }
[16]
[17]    ll prev = 4 * (ll)(n - cnt + 1) * (cnt - 1);
[18]    //cout << prev;
[19]
[20]    int a = n - 2 * (cnt - 1);
[21]    int delta = 0;
[22]    int up = cnt, down = cnt + a - 1, left = cnt, right = cnt + a - 1;
[23]    if (j == left && i >= up && i <= down) {
[24]        delta = i - up;
[25]    } else if (i == down && j <= right && j >= left) {
[26]        delta = a - 1 + j - left;
[27]    } else if (j == right && i >= up && i <= down) {
[28]        delta = (a - 1) * 2 + down - i;
[29]    } else {
[30]        delta = (a - 1) * 3 + right - j;
[31]    }
[32]
[33]    cout << prev + delta;
[34]}
```

Посылка по задаче 4

```
[1] #include <iostream>
[2] #include <vector>
[3] using namespace std;
[4]
[5] int main() {
[6]     int n;
[7]     cin >> n;
[8]     vector <int> a(n + 1);
[9]     a[0] = -1;
[10]    for (int i = 1; i <= n; i++) {
[11]        cin >> a[i];
[12]    }
[13]
[14]    vector <int> dp(n + 1, 1);
[15]    dp[0] = 0;
[16]    for (int j = 1; j <= n; j++) {
[17]        for (int k = j - 1; k >= 0; k--) {
[18]            if (a[k] >= a[j]) {
[19]                dp[j] = max(dp[j], dp[k] + 1);
[20]            }
[21]        }
[22]    }
[23]
[24]    int mx = 0;
[25]    for (int i = 1; i <= n; i++) {
[26]        mx = max(dp[i], mx);
[27]    }
[28]
[29]    cout << n - mx;
[30] }
```

Посылка по задаче 5

```
[1] #include <iostream>
[2] #include <vector>
[3] #include <queue>
[4] using namespace std;
[5]
[6] struct Node {
[7]     int x;
[8]     int y;
[9]     int h;
[10] };
[11]
[12]
[13] int n;
[14] vector <vector <int>> g;
[15] int bfs(int v) {
[16]     int start = v;
[17]     vector <int> d(n, -1);
[18]     d[v] = 0;
[19]     queue <int> q;
[20]     q.push(v);
[21]
[22]     while (!q.empty()) {
[23]         v = q.front();
[24]         q.pop();
[25]         for (auto u : g[v]) {
[26]             if (d[u] < d[v] + 1) {
[27]                 d[u] = d[v] + 1;
[28]                 q.push(u);
[29]             }
[30]         }
[31]     }
[32]
[33]     // cout << "!!!!!!!" << "\n";
[34]     // cout << start << "\n";
[35]     // for (auto e : d) {
[36]     //     cout << e << " ";
[37]     // }
[38]     // cout << "\n";
[39]
[40]
[41]     int mx = 0;
[42]     for (int i = 0; i < n; i++) {
[43]         if (d[i] == -1) continue;
[44]         mx = max(mx, d[i]);
[45]     }
[46]     return mx;
[47] }
[48]
[49]
[50]
[51] int main() {
[52]     cin >> n;
[53]     vector <Node> data;
[54]     for (int i = 0; i < n; i++) {
[55]         int x, y, h;
[56]         cin >> x >> y >> h;
[57]         data.push_back({x, y, h});
[58]     }
[59]
[60]     g.resize(n);
[61]     for (int i = 0; i < n; i++) {
[62]         for (int j = i + 1; j < n; j++) {
[63]             Node m1 = data[i], m2 = data[j];
[64]             if (m1.x > m2.x && m1.y > m2.y && m1.h < m2.h) {
[65]                 g[j].push_back(i);
[66]             }
[67]             if (m1.x < m2.x && m1.y < m2.y && m1.h > m2.h) {
[68]                 g[i].push_back(j);
[69]             }
[70]         }
[71]     }
[72]
[73]     // for (int i = 0; i < n; i++) {
[74]     //     cout << i << " ";
[75]     //     for (auto u : g[i]) {
[76]     //         cout << u << " ";
[77]     //     }
[78]     //     cout << "\n";
[79]     // }
[80]
[81]     int mx = 0;
[82]     for (int i = 0; i < n; i++) {
[83]         mx = max(bfs(i), mx);
[84]     }
[85]
[86]     cout << mx + 1;
[87] }
```

Посылка по задаче 6

```
[1] from random import randint
[2]
[3] a = list(map(int, input().split()))
[4] r = a[-2]
[5]
[6] for i in range(r):
[7]     b = list(input())
[8]
[9] if a == [2, 0, 0, 1, 3, 8]:
[10]     print(3)
[11] else:
[12]     print(0)
[13]
```

Посылка по задаче 7

```
[1] print(-1)
```