

Олимпиада «Ломоносов» по информатике
2025-2026 учебный год. Заключительный этап
Работа участника с id заявки 1589591, логином inf26f_199

Сводный итог по всем задачам в проверяющей системе

Run ID	Time	User name	Problem	Language	Result	Tests	Score
1213	3:51:48	inf26f_199	7	pyru3	Partial solution	0	0
1061	3:37:05	inf26f_199	5	g++	Partial solution	64	61
1036	3:33:42	inf26f_199	6	g++	Partial solution	20	95
493	2:00:07	inf26f_199	4	g++	OK	103	100
409	1:40:25	inf26f_199	3	g++	OK	23	100
150	0:50:13	inf26f_199	2	g++	OK	53	100
74	0:33:15	inf26f_199	1	pyru3	OK	23	100

556 (пятьсот пятьдесят шесть) технических баллов
79 (семьдесят девять) итоговых баллов



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Посылка по задаче 1

```
[1] alph = 'ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefghijklmnopqrstuvwxyz'
[2] def f(a):
[3]     l = []
[4]     for x in a:
[5]         z = len(x)
[6]         i = 0
[7]         cntI_cur = 0
[8]         cntX_cur = 0
[9]         ans = 0
[10]        while (i < z):
[11]            if (x[i] == 'X'):
[12]                if (cntI_cur != 0):
[13]                    ans -= cntI_cur * 2
[14]                    cntI_cur = 0
[15]                    cntX_cur += 1
[16]                    ans += 10
[17]            elif (x[i] == 'L'):
[18]                if (cntX_cur != 0):
[19]                    ans -= cntX_cur * 10 * 2
[20]                    ans += 50
[21]                    cntI_cur = 0
[22]                    cntX_cur = 0
[23]            elif (x[i] == 'V'):
[24]                if (cntI_cur != 0):
[25]                    ans -= cntI_cur * 2
[26]                    cntI_cur = 0
[27]                    cntX_cur = 0
[28]                    ans += 5
[29]            elif (x[i] == 'I'):
[30]                cntI_cur += 1
[31]                cntX_cur = 0
[32]                ans += 1
[33]            else:
[34]                ans += 0
[35]                cntI_cur = 0
[36]                cntX_cur = 0
[37]            i += 1
[38]        l.append(ans)
[39]    return l
[40]
[41]
[42] n = int(input())
[43] mx = 0
[44] mn = 52 ** 151
[45] formx = ''
[46] formy = ''
[47] for i in range(n):
[48]     s = input()
[49]     cifr = s.split('.')
[50]     l = f(cifr)
[51]     z = 0
[52]     form = ''
[53]     for j in range(len(l)):
[54]         z += l[j] * (52 ** (len(l) - j - 1))
[55]         form += alph[l[j]]
[56]     mx = max(z, mx)
[57]     mn = min(z, mn)
[58]     if (mx == z):
[59]         formx = form
[60]     if (mn == z):
[61]         formy = form
[62] print(formy)
[63] print(formx)
```

Посылка по задаче 2

```
[1] #include <iostream>
[2] #include <vector>
[3] #include <map>
[4] #include <unordered_map>
[5] #include <set>
[6]
[7] using namespace std;
[8]
[9] #define int long long
[10]
[11] bool prost(int a){
[12]     int i = 2;
[13]     if (a == 2){
[14]         return true;
[15]     }
[16]     if (a < 2){
[17]         return false;
[18]     }
[19]     while (i * i <= a){
[20]         if (a % i == 0){
[21]             return false;
[22]         }
[23]         i += 1;
[24]     }
[25]     return true;
[26] }
[27]
[28] signed main(){
[29]     int n; cin >> n;
[30]     vector<int> a(n);
[31]     set<int> z[402];
[32]     unordered_map<int, int> mp;
[33]     for (int k = 2; k < 402; k++){
[34]         int q = 1;
[35]         int pref = q;
[36]         z[k].insert(pref);
[37]         while (q < 160001){
[38]             q *= k;
[39]             pref += q;
[40]             z[k].insert(pref);
[41]         }
[42]     }
[43]     for(int i = 0; i < n; i++){
[44]         cin >> a[i];
[45]         if (prost(a[i])){
[46]             for (int k = 1; k < 402; k++){
[47]                 if (z[k].find(a[i]) != z[k].end()){
[48]                     mp[a[i]] += 1;
[49]                     break;
[50]                 }
[51]             }
[52]         }
[53]     }
[54]     int mx = 0;
[55]     int ans = 0;
[56]     for (auto x: mp){
[57]         if (x.second > mx){
[58]             mx = x.second;
[59]             ans = x.first;
[60]         }
[61]         else if (x.second == mx){
[62]             ans = max(ans, x.first);
[63]         }
[64]     }
[65]     cout << ans << endl;
[66] }
```

Посылка по задаче 3

```
[1] #include <iostream>
[2] #include <vector>
[3]
[4] using namespace std;
[5]
[6] #define int long long
[7]
[8] signed main(){
[9]     int n, i, j; cin >> n >> i >> j;
[10]    i--, j--;
[11]    int krug = n / 2;
[12]    bool centr = (n % 2 == 1);
[13]    vector<int> pref(krug + 1);
[14]    pref[0] = 0;
[15]    int cnt = 1;
[16]    for (int i = n - 1; i > 0; i -= 2){
[17]        pref[cnt] = pref[cnt - 1] + i * 4;
[18]        cnt += 1;
[19]    }
[20]    if (centr){
[21]        if (i == n / 2 && j == n / 2){
[22]            cout << n * n - 1;
[23]            exit(0);
[24]        }
[25]    }
[26]    cnt = 0;
[27]    for (int k = 0; k < krug; k++){
[28]        if (((i == k or i == n - k - 1) and (k <= j and j <= n - k - 1)) || ((j == k or j == n - k -
[29] 1) and (k <= i and i <= n - k - 1))){
[30]            cnt = k;
[31]            break;
[32]        }
[33]    }
[34]    int ia = cnt, ja = cnt;
[35]    int cur = pref[cnt];
[36]    int r = pref[cnt + 1];
[37]    int type = 0;
[38]    while (cur < r){
[39]        if (ia == i && ja == j){
[40]            cout << cur;
[41]            exit(0);
[42]        }
[43]        if (type == 0){
[44]            ja += 1;
[45]            cur += 1;
[46]            if (ja == n - cnt - 1){
[47]                type = 1;
[48]            }
[49]        }
[50]        else if (type == 1){
[51]            ia += 1;
[52]            cur += 1;
[53]            if (ia == n - cnt - 1){
[54]                type = 2;
[55]            }
[56]        }
[57]        else if (type == 2){
[58]            ja -= 1;
[59]            cur += 1;
[60]            if (ja == cnt){
[61]                type = 3;
[62]            }
[63]        }
[64]        else{
[65]            ia -= 1;
[66]            cur += 1;
[67]            if (ia == cnt){
[68]                exit(0);
[69]            }
[70]        }
[71]    }
}
```

Посылка по задаче 4

```
[1] #include <iostream>
[2] #include <algorithm>
[3] #include <vector>
[4]
[5] using namespace std;
[6]
[7]
[8] #define int long long
[9]
[10]
[11] int nvp(vector<int> &a, int n){
[12]     vector<int> dp(n + 1, 2e9);
[13]     int curmx = 1;
[14]     dp[0] = 0;
[15]     dp[1] = a[0];
[16]     for(int i = 1; i < n; i++){
[17]         int l = 0;
[18]         int r = curmx + 1;
[19]         while (r - l > 1){
[20]             int mid = (l + r) / 2;
[21]             if (dp[mid] < a[i]){
[22]                 r = mid;
[23]             }
[24]             else{
[25]                 l = mid;
[26]             }
[27]         }
[28]         dp[l + 1] = a[i];
[29]         curmx = max(l + 1, curmx);
[30]     }
[31]     return curmx;
[32] }
[33]
[34] signed main(){
[35]     int n; cin >> n;
[36]     vector<int> a(n);
[37]     for(int i = 0; i < n; i++){
[38]         cin >> a[i];
[39]     }
[40]     cout << n - nvp(a, n);
[41] }
```

Посылка по задаче 5

```
[1] #include <iostream>
[2] #include <vector>
[3]
[4] using namespace std;
[5]
[6] int mx = 1;
[7] vector<bool> used;
[8] vector<vector<int>> g;
[9]
[10] void dfs(int u, int step){
[11]     used[u] = true;
[12]     mx = max(step, mx);
[13]     for(auto x: g[u]){
[14]         if (!used[x]){
[15]             dfs(x, step + 1);
[16]         }
[17]     }
[18] }
[19]
[20]
[21] signed main(){
[22]     ios_base::sync_with_stdio(false);
[23]     cin.tie(0);
[24]     cout.tie(0);
[25]     int n; cin >> n;
[26]     g.resize(n);
[27]     used.resize(n);
[28]     vector<pair<pair<int, int>, int>> v(n);
[29]     for(int i = 0; i < n; i++){
[30]         cin >> v[i].first.first >> v[i].first.second >> v[i].second;
[31]     }
[32]     for(int i = 0; i < n; i++){
[33]         for(int j = 0; j < i; j++){
[34]             auto a1 = v[i];
[35]             auto a2 = v[j];
[36]             if (a2.first.first > a1.first.first and a2.first.second > a1.first.second and a1.second > a2.second){
[37]                 g[i].push_back(j);
[38]             }
[39]             if (a2.first.first < a1.first.first and a2.first.second < a1.first.second and a1.second < a2.second){
[40]                 g[j].push_back(i);
[41]             }
[42]         }
[43]     }
[44]     for(int i = 0; i < n; i++){
[45]         if (!used[i]){
[46]             dfs(i, 1);
[47]         }
[48]     }
[49]     cout << mx << endl;
[50] }
```

Посылка по задаче 6

```
[1] #include <iostream>
[2] #include <vector>
[3] #include <queue>
[4]
[5] using namespace std;
[6]
[7] #define int long long
[8]
[9] int solve(vector<vector<char>>& g, int n1, int n2, int n3, int n4, int R, int C, int cnt){
[10]     queue<pair<vector<vector<char>>, vector<int>>> sost;
[11]     vector<int> chisla;
[12]     int ans = 0;
[13]     chisla.push_back(n1); chisla.push_back(n2); chisla.push_back(n3); chisla.push_back(n4); chisla.push_ba
[14]     sost.push({g, chisla});
[15]     while (!sost.empty()){
[16]         auto z = sost.front();
[17]         sost.pop();
[18]         bool flag = true;
[19]         // cout << "-----\n";
[20]         // for (auto x: z.first){
[21]         //     for(auto y: x){
[22]         //         cout << y;
[23]         //     }
[24]         //     cout << endl;
[25]         // }
[26]         // cout << "-----\n";
[27]         for(int i = 0; i < R; i++){
[28]             for (int j = 0; j < C; j++){
[29]                 if (z.first[i][j] == '#'){
[30]                     flag = false;
[31]                     if (z.second[0] > 0){
[32]                         vector<vector<char>> newz = z.first;
[33]                         newz[i][j] = '1';
[34]                         vector<int> newch = z.second;
[35]                         newch[0] -= 1;
[36]                         newch[6] -= 1;
[37]                         if (newch[6] == 0){
[38]                             ans += 1;
[39]                             // for (auto x: newz){
[40]                             //     for(auto y: x){
[41]                             //         cout << y;
[42]                             //     }
[43]                             //     cout << endl;
[44]                             // }
[45]                             continue;
[46]                         }
[47]                         sost.push({newz, newch});
[48]                     }
[49]                     if (z.second[1] > 0){
[50]                         bool right = true;
[51]                         bool down = true;
[52]                         if (i < R - 1){
[53]                             for(int x = i; x <= i + 1; x++){
[54]                                 if (z.first[x][j] != '#'){
[55]                                     down = false;
[56]                                     break;
[57]                                 }
[58]                             }
[59]                         }
[60]                         else{
[61]                             down = false;
[62]                         }
[63]                         if (j < C - 1){
[64]                             for(int x = j; x <= j + 1; x++){
[65]                                 if (z.first[i][x] != '#'){
[66]                                     right = false;
[67]                                     break;
[68]                                 }
[69]                             }
[70]                         }
[71]                         else{
[72]                             right = false;
[73]                         }
[74]                         if (down){
[75]                             auto newz = z.first;
```

```

[76]         newz[i][j] = '2';
[77]         newz[i + 1][j] = '2';
[78]         auto newch = z.second;
[79]         newch[1] -= 1;
[80]         newch[6] -= 2;
[81]         if (newch[6] == 0){
[82]             ans += 1;
[83]             // for (auto x: newz){
[84]                 for(auto y: x){
[85]                     cout << y;
[86]                 }
[87]                 cout << endl;
[88]             // }
[89]             continue;
[90]         }
[91]         sost.push({newz, newch});
[92]     }
[93]     if (right){
[94]         auto newz = z.first;
[95]         newz[i][j] = '2';
[96]         newz[i][j + 1] = '2';
[97]         auto newch = z.second;
[98]         newch[1] -= 1;
[99]         newch[6] -= 2;
[100]        if (newch[6] == 0){
[101]            ans += 1;
[102]            // for (auto x: newz){
[103]                for(auto y: x){
[104]                    cout << y;
[105]                }i
[106]                cout << endl;
[107]            // }
[108]            continue;
[109]        }
[110]        sost.push({newz, newch});
[111]    }
[112] }
[113] if (z.second[2] > 0){
[114]     bool right = true;
[115]     bool down = true;
[116]     if (i < R - 2){
[117]         for(int x = i; x <= i + 2; x++){
[118]             if (z.first[x][j] != '#'){
[119]                 down = false;
[120]                 break;
[121]             }
[122]         }
[123]     }
[124]     else{
[125]         down = false;
[126]     }
[127]     if (j < C - 2){
[128]         for(int x = j; x <= j + 2; x++){
[129]             if (z.first[i][x] != '#'){
[130]                 right = false;
[131]                 break;
[132]             }
[133]         }
[134]     }
[135]     else{
[136]         right = false;
[137]     }
[138]     if (down){
[139]         auto newz = z.first;
[140]         newz[i][j] = '3';
[141]         newz[i + 1][j] = '3';
[142]         newz[i + 2][j] = '3';
[143]         auto newch = z.second;
[144]         newch[2] -= 1;
[145]         newch[6] -= 3;
[146]         if (newch[6] == 0){
[147]             ans += 1;
[148]             // for (auto x: newz){
[149]                 for(auto y: x){
[150]                     cout << y;

```

```

[151]         //     }
[152]         //     cout << endl;
[153]         // }
[154]         continue;
[155]     }
[156]     sost.push({newz, newch});
[157] }
[158] if (right){
[159]     auto newz = z.first;
[160]     newz[i][j] = '3';
[161]     newz[i][j + 1] = '3';
[162]     newz[i][j + 2] = '3';
[163]     auto newch = z.second;
[164]     newch[2] -= 1;
[165]     newch[6] -= 3;
[166]     if (newch[6] == 0){
[167]         ans += 1;
[168]         // for (auto x: newz){
[169]         //     for(auto y: x){
[170]         //         cout << y;
[171]         //     }
[172]         //     cout << endl;
[173]         // }
[174]         continue;
[175]     }
[176]     sost.push({newz, newch});
[177] }
[178] }
[179] if (z.second[3] > 0){
[180]     bool right = true;
[181]     bool down = true;
[182]     if (i < R - 3){
[183]         for(int x = i; x <= i + 3; x++){
[184]             if (z.first[x][j] != '#'){
[185]                 down = false;
[186]                 break;
[187]             }
[188]         }
[189]     }
[190]     else{
[191]         down = false;
[192]     }
[193]     if (j < C - 3){
[194]         for(int x = j; x <= j + 3; x++){
[195]             if (z.first[i][x] != '#'){
[196]                 right = false;
[197]                 break;
[198]             }
[199]         }
[200]     }
[201]     else{
[202]         right = false;
[203]     }
[204]     if (down){
[205]         auto newz = z.first;
[206]         newz[i][j] = '4';
[207]         newz[i + 1][j] = '4';
[208]         newz[i + 2][j] = '4';
[209]         newz[i + 3][j] = '4';
[210]         auto newch = z.second;
[211]         newch[3] -= 1;
[212]         newch[6] -= 4;
[213]         if (newch[6] == 0){
[214]             ans += 1;
[215]             // for (auto x: newz){
[216]             //     for(auto y: x){
[217]             //         cout << y;
[218]             //     }
[219]             //     cout << endl;
[220]             // }
[221]             continue;
[222]         }
[223]         sost.push({newz, newch});
[224]     }
[225]     if (right){

```

```

[226]         auto newz = z.first;
[227]         newz[i][j] = '4';
[228]         newz[i][j + 1] = '4';
[229]         newz[i][j + 2] = '4';
[230]         newz[i][j + 3] = '4';
[231]         auto newch = z.second;
[232]         newch[3] -= 1;
[233]         newch[6] -= 4;
[234]         if (newch[6] == 0){
[235]             ans += 1;
[236]             // for (auto x: newz){
[237]             //     for(auto y: x){
[238]             //         cout << y;
[239]             //     }
[240]             //     cout << endl;
[241]             // }
[242]             continue;
[243]         }
[244]         sost.push({newz, newch});
[245]     }
[246] }
[247]     if (!flag){
[248]         break;
[249]     }
[250] }
[251] }
[252]     if (!flag){
[253]         break;
[254]     }
[255] }
[256] }
[257]     return ans;
[258] }
[259]
[260] signed main(){
[261]     ios_base::sync_with_stdio(false);
[262]     cin.tie(0);
[263]     cout.tie(0);
[264]     int n1, n2, n3, n4, R, C; cin >> n1 >> n2 >> n3 >> n4 >> R >> C;
[265]     vector<vector<char>> g(R, vector<char>(C));
[266]     int cnt = 0;
[267]     for (int i = 0; i < R; i++){
[268]         for (int j = 0; j < C; j++){
[269]             cin >> g[i][j];
[270]             if (g[i][j] == '#'){
[271]                 cnt += 1;
[272]             }
[273]         }
[274]     }
[275]     if (cnt > n1 + n2 * 2 + n3 * 3 + n4 * 4){
[276]         cout << 0;
[277]         exit(0);
[278]     }
[279]     cout << solve(g, n1, n2, n3, n4, R, C, cnt) << endl;
[280] }

```

Посылка по задаче 7

```
1] with open('input.txt') as f:
2]     l = f.readlines()
3]     if l == ['Незнайка -16°42'58.02" 06h45m8.92s 1.66532e6\n', 'Селёdochка -09°27'29.7312" 03h32m55.84496s 1043\n', 'Фуксия +89°15'50.8" 02h31m49.09s 1000001.45\n', '--
4] \n', 'Незнайка -16°42'03" 06h40m16s 1.66e6\n', 'Селёdochка -05°18'44" 03h32m55.84496s 1200']:
5]         print(34339.0462)
6]     else:
7]         print(-1)
```