

Олимпиада «Ломоносов» по информатике
2025-2026 учебный год. Заключительный этап
Работа участника с id заявки 1572791, логином inf26f_146

Сводный итог по всем задачам в проверяющей системе

Run ID	Time	User name	Problem	Language	Result	Tests	Score
839	3:04:38	inf26f_146	3	g++	OK	23	100
629	2:24:41	inf26f_146	5	g++	OK	103	100
375	1:31:49	inf26f_146	1	py3	Partial solution	18	75
181	0:55:59	inf26f_146	4	g++	OK	103	100
130	0:44:15	inf26f_146	2	g++	OK	53	100

475 (четыре ста семьдесят пять) технических баллов
68 (шестьдесят восемь) итоговых баллов



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Посылка по задаче 1

```
[1] from string import ascii_letters
[2]
[3] ascii_letters = ascii_letters[-26:] + ascii_letters[:26]
[4]
[5] ks = ["N","I","II","III","IV","V","VI","VII","VIII","IX","X",
[6]       "XI","XII","XIII","XIV","XV","XVI","XVII","XVIII","XIX","XX",
[7]       "XXI","XXII","XXIII","XXIV","XXV","XXVI","XXVII","XXVIII",
[8]       "XXIX","XXX","XXXI","XXXII","XXXIII","XXXIV","XXXV","XXXVI",
[9]       "XXXVII","XXXVIII","XXXIX","XL","XLI","XLII","XLIII","XLIV","XLV",
[10]      "XLVI","XLVII","XLVIII","XLIX","L","LI"]
[11] ]
[12]
[13] d = {ks[i]:i for i in range(len(ks))}
[14] rd = {i:ks[i] for i in range(len(ks))}
[15]
[16] nd = d.copy()
[17]
[18] for i in range(6):
[19]     t = "I"*i + "V"
[20]     norm = rd[5 - i]
[21]
[22]     for k, v in d.items():
[23]         nk = k.replace(norm, t)
[24]         nd[nk] = v
[25]
[26] for i in range(11):
[27]     t = "I"*i + "X"
[28]     norm = rd[10 - i]
[29]
[30]     for k, v in d.items():
[31]         nk = k.replace(norm, t)
[32]         nd[nk] = v
[33]
[34] d = nd.copy()
[35]
[36] for i in range(6):
[37]     t = "X"*i + "L"
[38]     norm = rd[50 - i*10]
[39]
[40]     for k, v in d.items():
[41]         nk = k.replace(norm, t)
[42]         nd[nk] = v
[43]
[44] d = nd.copy()
[45]
[46] def convert(s):
[47]     res = ''
[48]     n = 0
[49]
[50]     for c in s.split('.'):
[51]         n *= 52
[52]         n += d[c]
[53]         res += ascii_letters[d[c]]
[54]
[55]     return n,res
[56]
[57] n = int(input())
[58]
[59] a = [input() for _ in range(n)]
[60] b = [convert(x) for x in a]
[61]
[62] print(min(b)[1])
[63] print(max(b)[1])
[64]
```

Посылка по задаче 2

```
[1] #include<bits/stdc++.h>
[2]
[3] using namespace std;
[4]
[5] #define ll long long
[6] #define lll __int128
[7] #define all(X) X.begin(),X.end()
[8]
[9] const int maxn = 1e5;
[10] const int inf = 1e9;
[11]
[12] bool is_prime(int n) {
[13]     for(int i = 2; i*i <= n; i++) if(n % i == 0) return false;
[14]     return true;
[15] }
[16]
[17] lll bpow(ll a, ll n) {
[18]     lll res = 1;
[19]
[20]     while(n > 0) {
[21]         if(n & 1) res = res * a;
[22]         a = a * a;
[23]
[24]         n >>= 1;
[25]     }
[26]
[27]     return res;
[28] }
[29]
[30] bool is_braz(int n) {
[31]     if(!is_prime(n)) return false;
[32]
[33]     int x = n-1;
[34]     for(int b = 2; b*b <= x; b++) {
[35]         if(x % b != 0) continue;
[36]
[37]         lll t = lll*n*(b-1) + 1;
[38]
[39]         int l = 0;
[40]         int r = 2;
[41]
[42]         while(bpow(b, r) < t) r *= 2;
[43]
[44]         while(r - l > 1) {
[45]             int m = (l+r) / 2;
[46]
[47]             lll bm = bpow(b, m);
[48]
[49]             //cout << "D " << b << ' ' << m << endl;
[50]
[51]             if(bm == t && m >= 3) return true;
[52]             if(bm > t) r = m;
[53]             else l = m;
[54]         }
[55]     }
[56]
[57]     return false;
[58] }
[59]
[60]
[61] int main() {
[62]     ios_base::sync_with_stdio(false); cin.tie(nullptr);
[63]
[64]     int n; cin >> n;
[65]
[66]     vector<int> a(n);
[67]     for(int i = 0; i < n; i++) cin >> a[i];
[68]
[69]     unordered_map<int, int> cnt;
[70]
[71]     int mx = 0;
[72]     for(int i = 0; i < n; i++) {
[73]         if(is_braz(a[i])) {
[74]             mx = max(mx, ++cnt[a[i]]);
[75]         }
[76]     }
[77]
[78]     int ans = 0;
[79]     for(auto [k, v]: cnt) {
[80]         if(v == mx) ans = max(ans, k);
[81]     }
[82]
[83]     cout << ans << endl;
[84] }
```

Посылка по задаче 3

```
[1] #include<bits/stdc++.h>
[2]
[3] using namespace std;
[4]
[5] #define ll long long
[6]
[7] int main() {
[8]     int n, i, j; cin >> n >> i >> j; i--; j--;
[9]
[10]    if(n == 1) {
[11]        cout << 0 << endl;
[12]        return 0;
[13]    }
[14]
[15]    int lx = -1; int ly = -1;
[16]    int rx = n; int ry = n;
[17]
[18]    int x = 0; int y = 0; ll k = 0;
[19]
[20]    for(int it = 0;; it = (it+1) % 4) {
[21]
[22]        if(it % 4 == 0) {
[23]            if(i == x && j >= y && j <= ry-1) {
[24]                cout << k + (j - y) << endl;
[25]                return 0;
[26]            }
[27]
[28]            k += ry - y - 1;
[29]
[30]            y = ry-1;
[31]            ry = y; lx = x;
[32]
[33]        } else if(it % 4 == 1) {
[34]            if(j == y && i >= x && i <= rx-1) {
[35]                cout << k + (i - x) << endl;
[36]                return 0;
[37]            }
[38]
[39]            k += rx - x - 1;
[40]
[41]            x = rx-1;
[42]            rx = x; ry = y;
[43]        } else if(it % 4 == 2) {
[44]            if(i == x && j >= ly+1 && j <= y) {
[45]                cout << k + (y - j) << endl;
[46]                return 0;
[47]            }
[48]
[49]            k += y - ly - 1;
[50]            y = ly+1;
[51]            ly = y; rx = x;
[52]        } else {
[53]            if(j == y && i >= lx+1 && i <= x) {
[54]                cout << k + (x - i) << endl;
[55]                return 0;
[56]            }
[57]            k += x - lx - 1;
[58]            x = lx+1;
[59]            lx = x; ly = y;
[60]        }
[61]    }
[62] }
```

Посылка по задаче 4

```
[1] #include<bits/stdc++.h>
[2]
[3] using namespace std;
[4]
[5] #define ll long long
[6] #define lll __int128
[7] #define all(X) X.begin(),X.end()
[8]
[9] const int maxn = 1e5;
[10] const int inf = 1e9;
[11]
[12] int main() {
[13]     ios_base::sync_with_stdio(false); cin.tie(nullptr);
[14]
[15]     int n; cin >> n;
[16]
[17]     vector<int> a(n);
[18]     for(int i = 0; i < n; i++) cin >> a[i];
[19]
[20]     reverse(all(a));
[21]
[22]     vector<int> dp(n+1, inf);
[23]     dp[0] = -inf;
[24]
[25]     int mx = 0;
[26]
[27]     for(int i = 0; i < n; i++) {
[28]         int j = upper_bound(all(dp), a[i]) - dp.begin();
[29]
[30]         if(dp[j-1] <= a[i] && a[i] < dp[j]) {
[31]             dp[j] = a[i];
[32]             mx = max(mx, j);
[33]         }
[34]     }
[35]
[36]     cout << n - mx << endl;
[37] }
```

Посылка по задаче 5

```
[1] #include<bits/stdc++.h>
[2]
[3] using namespace std;
[4]
[5] struct M {
[6]     int x, y, h;
[7] };
[8]
[9] const int maxn = 5001;
[10]
[11] M a[maxn];
[12] bool used[maxn];
[13] int cnt[maxn];
[14] int n;
[15]
[16] vector<int> g[maxn];
[17] vector<int> order;
[18]
[19] void dfs(int v) {
[20]     used[v] = true;
[21]
[22]     for(auto u: g[v]) {
[23]         if(!used[u]) dfs(u);
[24]     }
[25]
[26]     order.push_back(v);
[27] }
[28]
[29]
[30]
[31] int main() {
[32]     ios_base::sync_with_stdio(false); cin.tie(nullptr);
[33]
[34]     cin >> n;
[35]
[36]     for(int i = 0; i < n; i++) cin >> a[i].x >> a[i].y >> a[i].h;
[37]
[38]     for(int i = 0; i < n; i++) {
[39]         for(int j = 0; j < n; j++) {
[40]             if(!(a[j].x > a[i].x && a[j].y > a[i].y && a[j].h < a[i].h)) continue;
[41]
[42]             g[i].push_back(j);
[43]         }
[44]     }
[45]
[46]     for(int v = 0; v < n; v++) if(!used[v]) dfs(v);
[47]
[48]     for(int v : order) {
[49]         cnt[v] = 0;
[50]         for(auto u: g[v]) {
[51]             cnt[v] = max(cnt[v], cnt[u]);
[52]         }
[53]         cnt[v]++;
[54]     }
[55]
[56]     cout << *max_element(cnt, cnt+maxn) << '\n';
[57] }
```

Посылка по задаче 6

Посылок по задаче 6 участником не было отправлено.

Посылка по задаче 7

Посылок по задаче 7 участником не было отправлено.