

Олимпиада «Ломоносов» по информатике
2025-2026 учебный год. Заключительный этап
Работа участника с id заявки 1551487, логином inf26f_115

Сводный итог по всем задачам в проверяющей системе

Run ID	Time	User name	Problem	Language	Result	Tests	Score
912	3:15:29	inf26f_115	3	pyru3	OK	23	100
808	2:58:49	inf26f_115	7	pyru3	Partial solution	0	0
564	2:15:33	inf26f_115	6	pyru3	Partial solution	2	5
418	1:42:29	inf26f_115	5	g++	OK	103	100
321	1:21:25	inf26f_115	4	g++	OK	103	100
215	1:00:15	inf26f_115	2	pyru3	OK	53	100
88	0:36:20	inf26f_115	1	pyru3	Partial solution	22	95

500 (пятьсот) технических баллов
71 (семьдесят один) итоговый балл



председатель Жюри кандидат физ.-мат. наук Малышко В. В.



зам. председателя Жюри кандидат физ.-мат. наук Корныхин Е. В.

Посылка по задаче 1

```
[1] from string import ascii_uppercase, ascii_lowercase
[2]
[3] al = ascii_uppercase + ascii_lowercase
[4] c1 = {
[5]     ('I'*10+'X'): 0,
[6]     ('I'*9+'X'): 1,
[7]     ('I'*8+'X'): 2,
[8]     ('I'*7+'X'): 3,
[9]     ('I'*6+'X'): 4,
[10]    ('I'*5+'X'): 5,
[11]    ('I'*4+'X'): 6,
[12]    ('I'*3+'X'): 7,
[13]    'IIX': 8,
[14]    'IX': 9,
[15]    ('I'*5+'V'): 0,
[16]    ('I'*4+'V'): 1,
[17]    ('I'*3+'V'): 2,
[18]    ('I'*2+'V'): 3,
[19]    'IV': 4,
[20]    'N': 0,
[21]    'III': 3,
[22]    'II': 2,
[23]    'I': 1,
[24]    'VIII': 8,
[25]    'VII': 7,
[26]    'VI': 6,
[27]    'V': 5,
[28] }
[29]
[30] c10 = {
[31]     'XXXXXL': 0,
[32]     'XXXXL': 10,
[33]     'XXXL': 20,
[34]     'XXL': 30,
[35]     'XL': 40,
[36]     'XXX': 30,
[37]     'XX': 20,
[38]     'X': 10,
[39]     'L': 50,
[40] }
[41]
[42] def cton(s):
[43]     n = 0
[44]     for p10 in c10:
[45]         if s.startswith(p10):
[46]             n = c10[p10]
[47]             s = s.removeprefix(p10)
[48]             break
[49]     for p1 in c1:
[50]         if s.startswith(p1):
[51]             n += c1[p1]
[52]             break
[53]     return al[n]
[54]
[55]
[56]
[57] k = int(input())
[58] rs = []
[59]
[60] for _ in range(k):
[61]     i = input().split('.')
[62]     r = ''.join([cton(s) for s in i])
[63]     while True:
[64]         nr = r.removeprefix('A')
[65]         if nr == r or not len(nr):
[66]             break
[67]         else:
[68]             r = nr
[69]     rs.append(r)
[70]
[71] print(min(rs))
[72] print(max(rs))
```

Посылка по задаче 2

```
[1] from math import sqrt, log, floor
[2] from collections import Counter as ctr
[3]
[4] rs = []
[5]
[6] c = int(input())
[7] ns = map(int, input().split())
[8]
[9] for n in ns:
[10]     ok = True
[11]     for v in range(2, int(sqrt(n))+1):
[12]         if n % v == 0:
[13]             ok = False
[14]             break
[15]     if not ok:
[16]         continue
[17]     for b in range(2, n):
[18]         if n <= b * b:
[19]             continue
[20]         p = b ** floor(log(n, b))
[21]         if n % b == 1 and n - p < p and n // b == n - p:
[22]             rs.append(n)
[23]             break
[24]
[25] if not rs:
[26]     print(0)
[27] else:
[28]     mc = ctr(rs).most_common()
[29]     print(max(list(zip(*filter(lambda t: t[1]==mc[0][1], mc))))[0]))
```

Посылка по задаче 3

```
[1] n = int(input())
[2] i = int(input())
[3] j = int(input())
[4]
[5] l = min(i-1, j-1, n-i, n-j)
[6] b = n * n - (n-2*1) * (n-2*1)
[7]
[8] if i-1 == 1:
[9]     print(b+j-1-1)
[10] elif n-j == 1:
[11]     print(b+(n-2*1)+i-2-1)
[12] elif n-i == 1:
[13]     print(b+2*(n-2*1)+n-j-2-1)
[14] else:
[15]     print(b+3*(n-2*1)+n-i-3-1)
```

Посылка по задаче 4

```
[1] #include <bits/stdc++.h>
[2]
[3] using namespace std;
[4] using i64 = int64_t;
[5] template<typename T> using vec = vector<T>;
[6]
[7] signed main() {
[8]     cin.tie(0), cout.tie(0), ios_base::sync_with_stdio(false);
[9]     i64 n; cin >> n; vec<i64> h(n); for (i64 &h : h) cin >> h;
[10]    vec<i64> d(n+1, INT64_MIN); d[0] = INT64_MAX;
[11]    for (i64 i = 0; i < n; ++i) {
[12]        auto b = upper_bound(begin(d), end(d), h[i], [](i64 l, i64 r) { return l > r; });
[13]        if (h[i] <= *(b-1) && h[i] > *b) *b = h[i];
[14]    } cout << find_if(rbegin(d), rend(d), [](i64 v) { return v != INT64_MIN; }) - rbegin(d) << "\n";
[15] }
```

Посылка по задаче 5

```
[1] #include <bits/stdc++.h>
[2]
[3] using namespace std;
[4] using i64 = int64_t;
[5] template<typename T> using vec = vector<T>;
[6] using i64x3 = tuple<i64, i64, i64>;
[7]
[8] vec<vec<i64>> ch;
[9] vec<i64> res;
[10]
[11] i64 z(i64 i) {
[12]     if (res[i] == -1) {
[13]         res[i] = 0;
[14]         for (i64 j : ch[i]) res[i] = max(res[i], z(j)+1);
[15]     }
[16]     return res[i];
[17] }
[18]
[19] signed main() {
[20]     cin.tie(0), cout.tie(0), ios_base::sync_with_stdio(false);
[21]     i64 n; cin >> n; vec<i64x3> m(n); for (auto& [x, y, h] : m) cin >> x >> y >> h; ch.resize(n), res.resize(n, -1);
[22]
[23]     for (i64 i = 0; i < n; ++i) {
[24]         auto [x0, y0, h0] = m[i];
[25]         for (i64 j = 0; j < n; ++j) if (j != i) {
[26]             auto [x1, y1, h1] = m[j];
[27]             if (x0 < x1 && y0 < y1 && h0 > h1) ch[i].push_back(j);
[28]         }
[29]     }
[30]
[31]     for (i64 i = 0; i < n; ++i) z(i);
[32]     cout << 1+*max_element(begin(res), end(res)) << "\n";
[33] }
```

Посылка по задаче 6

```
[1] def z(n1, n2, n3, n4, r, c, f):
[2]     i, j = 0, 0
[3]     ok = False
[4]     for i in range(r):
[5]         for j in range(c):
[6]             if f[i][j] == '#':
[7]                 ok = True
[8]                 break
[9]     v = 1
[10]    if ok:
[11]        if n1:
[12]            g = f
[13]            g[i][j] = '.'
[14]            v += z(n1-1, n2, n3, n4, r, c, g)
[15]        if i+1 < r and f[i+1][j] == '#':
[16]            if n2:
[17]                g = f
[18]                g[i][j] = '.'
[19]                g[i+1][j] = '.'
[20]                v += z(n1, n2-1, n3, n4, r, c, g)
[21]            if i+2 < r and f[i+2][j] == '#':
[22]                if n3:
[23]                    g = f
[24]                    g[i][j] = '.'
[25]                    g[i+1][j] = '.'
[26]                    g[i+2][j] = '.'
[27]                    v += z(n1, n2, n3-1, n4, r, c, g)
[28]                if i+3 < r and f[i+3][j] == '#' and n4: v += 1
[29]        if j+1 < c and f[i][j+1] == '#':
[30]            if n2:
[31]                g = f
[32]                g[i][j] = '.'
[33]                g[i][j+1] = '.'
[34]                v += z(n1, n2-1, n3, n4, r, c, g)
[35]            if j+2 < c and f[i][j+2] == '#':
[36]                if n3:
[37]                    g = f
[38]                    g[i][j] = '.'
[39]                    g[i][j+1] = '.'
[40]                    g[i][j+2] = '.'
[41]                    v += z(n1, n2, n3-1, n4, r, c, g)
[42]                if j+3 < c and f[i][j+3] == '#' and n4: v += 1
[43]    return v
[44]
[45] n1, n2, n3, n4, r, c = map(int, input().split())
[46] f = [list(input()) for _ in range(r)]
[47] print(z(n1, n2, n3, n4, r, c, f))
```

Посылка по задаче 7

```
[1] from math import pi, cos, sin, sqrt
[2]
[3] def p(s):
[4]     n, a, b, r = s.split()
[5]     r = float(r)
[6]     a0, ar = a.split('o')
[7]     a1, a2 = ar.split('')
[8]     a0, a1, a2 = float(a0), float(a1), float(a2[:-1])
[9]     b0, br = b.split('h')
[10]    b1, b2 = br.split('m')
[11]    b0, b1, b2 = float(b0), float(b1), float(b2[:-1])
[12]    a, b = pi * (a0 + a1 / 60. + a2 / 3_600.) / 180., pi * (b0 + b1 / 60. + b2 / 3_600.) / 12.
[13]    if b > pi: b -= 2 * pi
[14]    return n, a, b, r
[15]
[16] f0 = {}
[17] f1 = {}
[18]
[19] while True:
[20]     i = input()
[21]     if i == '--':
[22]         break
[23]     n, a, b, r = p(i)
[24]     f0[n] = a, b, r
[25]
[26] while True:
[27]     try:
[28]         i = input()
[29]     except EOFError:
[30]         break
[31]     n, a, b, r = p(i)
[32]     if n in f0:
[33]         f1[n] = a, b, r
[34]
[35] def d(n):
[36]     x0, y0, z0 = f0[n][2] * cos(f0[n][1]) * cos(f0[n][0]), f0[n][2] * sin(f0[n][1]) * cos(f0[n][0]), f0[n][2] * sin(f0[n][1]) * sin(f0[n][0])
[37]     x1, y1, z1 = f1[n][2] * cos(f1[n][1]) * cos(f1[n][0]), f1[n][2] * sin(f1[n][1]) * cos(f1[n][0]), f1[n][2] * sin(f1[n][1]) * sin(f1[n][0])
[38]     r = sqrt((x1-x0)*(x1-x0) + (y1-y0)*(y1-y0) + (z1-z0)*(z1-z0))
[39]     return r
[40]
[41] print(max((d(n) for n in f1), default=-1))
```