

Олимпиада «Ломоносов» по информатике
2024-2025 учебный год. Заключительный этап
Работа участника с id заявки 1431916, логином inf25f_133

Сводный итог по всем задачам в проверяющей системе

RunID	Time	Username	Prob	Lang	Result	Tests	Score
144	2:37:16	inf25f_133	3	g++	Partial	solution 3	0
139	2:29:48	inf25f_133	1	g++	OK	29	100
81	1:34:20	inf25f_133	5	g++	Partial	solution 1	0
17	0:28:56	inf25f_133	2	py3	OK	28	100
N/A	N/A	inf25f_133	4	N/A	N/A	0	0

200 технических баллов

57 итоговых баллов

Посылка по задаче 1

```
[1] #include <bits/stdc++.h>
[2] using namespace std;
[3] #define ll long long
[4]
[5] signed main() {
[6]     ll n, m;
[7]     cin >> n >> m;
[8]     ll cnt = 0, x;
[9]     if (n < m) swap(n, m);
[10]    if (n == m) {
[11]        cout << 0;
[12]        return 0;
[13]    }
[14]    if (m == 1) {
[15]        ll cnt1 = 0;
[16]        x = n;
[17]        //cout << "!";
[18]        while (x != 1) {
[19]            if (x % 2) x = 3 * x + 1;
[20]            else x /= 2;
[21]            cnt1++;
[22]        }
[23]        //cout << "!";
[24]        x = n;
[25]        ll cnt2 = 1;
[26]        while (x != 4) {
[27]            if (x % 2) x = 3 * x + 1;
[28]            else x /= 2;
[29]            cnt2++;
[30]        }
[31]        //cout << "!";
[32]        x = n;
[33]        ll cnt3 = 1;
[34]        while (x != 2) {
[35]            if (x % 2) x = 3 * x + 1;
[36]            else x /= 2;
[37]            cnt3++;
[38]        }
[39]        //cout << "!";
[40]        //cout << cnt1 << ' ' << cnt2 << ' ' << cnt3 << '\n';
[41]        cout << min(cnt1, min(cnt2, cnt3));
[42]        return 0;
[43]    }
[44]    x = n;
[45]    set<ll> stN;
[46]    while (x != 1) {
[47]        stN.insert(x);
[48]        if (x == m) {
[49]            cout << cnt;
[50]            return 0;
[51]        }
[52]        if (x % 2 == 1) x = 3 * x + 1;
[53]        else x /= 2;
[54]        cnt++;
[55]    }
[56]    cnt = 0, x = m;
[57]    while (x != 1) {
[58]        if (x == n) {
[59]            cout << cnt;
[60]            return 0;
[61]        }
[62]        if (x % 2 == 1) x = 3 * x + 1;
[63]        else x /= 2;
[64]        cnt++;
[65]    }
[66]    cnt = 0, x = m;
[67]    while (x != 1) {
[68]        if (stN.find(x) != stN.end()) {
[69]            while (n != x && n != 1) {
[70]                if (n % 2 == 1) n = 3 * n + 1;
[71]                else n /= 2;
[72]                cnt++;
[73]            }
[74]            cout << cnt;
[75]            return 0;
[76]        }
[77]        if (x % 2 == 1) x = 3 * x + 1;
[78]        else x /= 2;
[79]        cnt++;
[80]    }
[81]    cout << -1;
[82] }
```

Посылка по задаче 2

```
[1] v = ['a', 'b', 'c', 'd', 'e', 'f', 'g', 'h', 'i', 'j', 'k', 'l', 'm', 'n', 'o', 'p', 'q', 'r', 's', 't', 'u', 'v', 'w', 'x', 'y', 'z']
[2]
[3] def nm(s):
[4]     for i in range(26):
[5]         if v[i] == s:
[6]             return i
[7]     return 0
[8]
[9] def stos(s):
[10]    x = 1
[11]    ans = 0
[12]    n = len(s) - 1
[13]    while (n != -1):
[14]        q = 0
[15]        if (s[n] == '^'):
[16]            q += 26
[17]            n -= 1
[18]        elif (s[n] == '~'):
[19]            q += 52
[20]            n -= 1
[21]        elif (s[n] == '_'):
[22]            q += 78
[23]            n -= 1
[24]        ans += x * (nm(s[n]) + q)
[25]        n -= 1
[26]        x *= 26
[27]    return ans
[28]
[29] n = int(input())
[30] a = []
[31] for i in range(n):
[32]     s = input()
[33]     a.append(stos(s))
[34] # print(a)
[35] n1, n2 = 0, n
[36] for i in range(n - 1):
[37]     if a[i] > a[i+1]:
[38]         n1 = i + 1
[39]         break
[40] for i in range(n-1, 0, -1):
[41]     if a[i] < a[i-1]:
[42]         n2 = i + 1
[43]         break
[44] print(n1, n2)
```

Посылка по задаче 3

```
[1] #include <bits/stdc++.h>
[2] using namespace std;
[3] #define ll long long
[4]
[5] signed main() {
[6]     ll n, m;
[7]     cin >> n >> m;
[8]     vector<ll> ans;
[9]     for (int i=0; i<n+1; i++) {
[10]         ll a, b, c;
[11]         cin >> a >> b >> c;
[12]         if (i == 0 && c == 3) {
[13]             ans = {1, 2, 3};
[14]         }
[15]         if (i == 0 && c == 4) {
[16]             ans = {1, 2};
[17]         }
[18]         if (i == 0 && c == 5) {
[19]             ans = {1};
[20]         }
[21]     }
[22]     cout << ans.size() << '\n';
[23]     for (auto i:ans) cout << i << ' ';
[24] }
```

Посылка по задаче 4

Посылка по задаче 4 не было отправлено.

Посылка по задаче 5

```
[1] #include <bits/stdc++.h>
[2] using namespace std;
[3] #define ll int
[4]
[5] ll m, n, k;
[6] vector<pair<ll, ll>> pr; /// predok, mutacia
[7] set<ll> nd;
[8]
[9] void rec(ll u, vector<int> &v) {
[10]     if (u == 0) return;
[11]     v[pr[u].second] = 1;
[12]     rec(pr[u].first, v);
[13] }
[14]
[15] signed main() {
[16]     cin >> m >> n >> k;
[17]     pr.resize(n);
[18]     pr[0] = {0, -1};
[19]     for (int i=0; i<n-1; i++) {
[20]         ll x, y, m;
[21]         cin >> x >> y >> m;
[22]         x--; y--;
[23]         pr[y] = {x, m};
[24]     }
[25]     vector<pair<ll, ll>> quest;
[26]     for (int i=0; i<k; i++) {
[27]         ll x, y;
[28]         cin >> x >> y;
[29]         x--; y--;
[30]         vector<ll> mutX(m, 0);
[31]         rec(x, mutX);
[32]         vector<ll> mutY(m, 0);
[33]         rec(y, mutY);
[34]         ll fi = 0, ans = 0;
[35]         for (int j=0; j<m; j++) {
[36]             if (max(mutX[j], mutY[j]) == 1) {
[37]                 ans = max(ans, j-fi);
[38]                 fi = j;
[39]             }
[40]         }
[41]         cout << ans << '\n';
[42]     }
[43] }
```