

Олимпиада «Ломоносов» по информатике
2024-2025 учебный год. Заключительный этап
Работа участника с id заявки 1426910, логином inf25f_107

Сводный итог по всем задачам в проверяющей системе

RunID	Time	Username	Prob	Lang	Result	Tests	Score
99	1:49:56	inf25f_107	3	g++	OK	23	100
40	0:51:32	inf25f_107	2	python3	OK	28	100
4	0:17:54	inf25f_107	1	g++	Partial solution	24	80
N/A	N/A	inf25f_107	4	N/A	N/A	0	0
N/A	N/A	inf25f_107	5	N/A	N/A	0	0

280 технических баллов

80 итоговых баллов

Посылка по задаче 1

```
[1] #include <bits/stdc++.h>
[2] using namespace std;
[3]
[4] #define int long long
[5] #define ff first
[6] #define ss second
[7] #define mp make_pair
[8]
[9] vector<int> used;
[10] deque<int> q;
[11] int u;
[12]
[13] void bfs() {
[14]     int v = q.front();
[15]     q.pop_front();
[16]     if (v % 2 == 0 && used[v / 2] == 0) {
[17]         used[v / 2] = used[v] + 1;
[18]         q.push_back(v / 2);
[19]     }
[20]     if (v % 2 && 3 * v + 1 < used.size() && used[3 * v + 1] == 0) {
[21]         used[v * 3 + 1] = used[v] + 1;
[22]         q.push_back(v * 3 + 1);
[23]     }
[24]     if (2 * v < used.size() && used[2 * v] == 0) {
[25]         used[2 * v] = used[v] + 1;
[26]         q.push_back(2 * v);
[27]     }
[28]     if ((v - 1) % 3 == 0 && used[(v - 1) / 3] == 0 && ((v - 1) / 3) % 2 == 1) {
[29]         used[(v - 1) / 3] = used[v] + 1;
[30]         q.push_back((v - 1) / 3);
[31]     }
[32]     if (used[u] != 0) {
[33]         cout << used[u] - 1;
[34]         return;
[35]     }
[36]     if (q.size()) {
[37]         bfs();
[38]     }
[39] }
[40]
[41] signed main() {
[42]     ios_base::sync_with_stdio(0);
[43]     cin.tie(0);
[44]     cout.tie(0);
[45]     int v;
[46]     cin >> v >> u;
[47]     used.resize(1000001, 0);
[48]     q.push_back(v);
[49]     used[v] = 1;
[50]     bfs();
[51] }
```

Посылка по задаче 2

```
[1] def is_sorted(a):
[2]     for u in range(len(a) - 1):
[3]         if a[u] > a[u + 1]:
[4]             return False
[5]     return True
[6]
[7] def main():
[8]     n = int(input())
[9]     a = [0] * n
[10]    for i in range(n):
[11]        s = input()
[12]        sm = 0
[13]        c = 1
[14]        for j in range(len(s) - 1, -1, -1):
[15]            if s[j] == '^':
[16]                sm = 26
[17]            elif s[j] == '~':
[18]                sm = 52
[19]            elif s[j] == '_':
[20]                sm = 78
[21]            else:
[22]                a[i] += c * (sm + ord(s[j]) - ord('a'))
[23]                c *= 26
[24]                sm = 0
[25]
[26]    i = -1
[27]    j = -1
[28]    for u in range(n - 1):
[29]        if i == -1 and a[u] > a[u + 1]:
[30]            i = u
[31]        elif a[u] > a[u + 1]:
[32]            j = u
[33]            break
[34]    if j == -1:
[35]        a[i], a[i + 1] = a[i + 1], a[i]
[36]        if is_sorted(a):
[37]            print(i + 1, i + 2)
[38]            return
[39]        a[i] = 0
[40]        a[j] //= a[i]
[41]    a[i], a[j] = a[j], a[i]
[42]    if is_sorted(a):
[43]        print(i + 1, j + 1)
[44]        return
[45]    a[i], a[j] = a[j], a[i]
[46]    a[i + 1], a[j] = a[j], a[i + 1]
[47]    if is_sorted(a):
[48]        print(i + 2, j + 1)
[49]        return
[50]    a[i + 1], a[j] = a[j], a[i + 1]
[51]    a[i], a[j + 1] = a[j + 1], a[i]
[52]    if is_sorted(a):
[53]        print(i + 1, j + 2)
[54]        return
[55]    a[i], a[j + 1] = a[j + 1], a[i]
[56]    a[i + 1], a[j + 1] = a[j + 1], a[i + 1]
[57]    if is_sorted(a):
[58]        print(i + 2, j + 2)
[59]        return
[60]    a[i + 1], a[j + 1] = a[j + 1], a[i + 1]
[61]    a[i] = 0
[62]    a[j] //= a[i]
[63]
[64]
[65] main()
```

Посылка по задаче 3

```
[1] #include <bits/stdc++.h>
[2] using namespace std;
[3]
[4] #define int long long
[5] #define ff first
[6] #define ss second
[7] #define mp make_pair
[8]
[9]
[10] signed main() {
[11]     ios_base::sync_with_stdio(0);
[12]     cin.tie(0);
[13]     cout.tie(0);
[14]     int n, t;
[15]     cin >> n >> t;
[16]     vector<int> p(n);
[17]     for (int i = 0; i < n; ++i) {
[18]         cin >> p[i];
[19]     }
[20]     vector<vector<int>> g(n, vector<int> (n));
[21]     for (int i = 0; i < n; ++i) {
[22]         for (int j = 0; j < n; ++j) {
[23]             cin >> g[i][j];
[24]         }
[25]     }
[26]     vector<vector<vector<int>>> k(4 * n, vector<vector<int>> (n, vector<int> ((1 << n), t + 1)));
[27]     k[0][0][1] = 0;
[28]     for (int i = 1; i < 4 * n; ++i) {
[29]         for (int j = 0; j < n; ++j) {
[30]             for (int mask = 0; mask < (1 << n); ++mask) {
[31]                 if (((mask >> j) & 1) == 0) {
[32]                     continue;
[33]                 }
[34]                 for (int u = 0; u < n; ++u) {
[35]                     if (((mask >> u) & 1) && u != j) {
[36]                         k[i][j][mask] = min(k[i - 1][u][mask], k[i - 1][u][mask -
[37] (1 << j)]) + g[j][u]);
[38]                     }
[39]                 }
[40]             }
[41]         }
[42]     }
[43]     int ans = p[0], mans = 1;
[44]     for (int mask = 0; mask < (1 << n); ++mask) {
[45]         if ((mask & 1) == 0) {
[46]             continue;
[47]         }
[48]         for (int i = 0; i < 4 * n; ++i) {
[49]             if (k[i][0][mask] <= t) {
[50]                 int sm = 0;
[51]                 for (int j = 0; j < n; ++j) {
[52]                     sm += ((mask >> j) & 1) * p[j];
[53]                 }
[54]                 if (ans < sm) {
[55]                     ans = sm;
[56]                     mans = mask;
[57]                 }
[58]             }
[59]         }
[60]     }
[61]     int cnt = 0;
[62]     for (int i = 0; i < n; ++i) {
[63]         cnt += ((mans >> i) & 1);
[64]     }
[65]     cout << cnt << "\n";
[66]     for (int i = 0; i < n; ++i) {
[67]         if ((mans >> i) & 1) {
[68]             cout << i + 1 << " ";
[69]         }
[70]     }
}
```

Посылка по задаче 4

Посылка по задаче 4 не было отправлено.

Посылка по задаче 5

Посылоч по задаче 5 не было отправлено.