Олимпиада «Ломоносов» по информатике
2025-2026 учебный год. Заключительный этап
Работа участника с id заявки 1597654, логином inf26f_251

Сводный итог по всем задачам в проверяющей системе

```
Run ID Time User name Problem Language Result Tests Score
561 2:15:12 inf26f_251 6 g++ OK 21 100
242 1:04:33 inf26f_251 5 g++ OK 103 100
179 0:55:37 inf26f_251 4 g++ Partial solution 4 1
140 0:48:00 inf26f_251 3 g++ OK 23 100
81 0:34:50 inf26f_251 2 g++ OK 53 100
30 0:23:04 inf26f_251 1 pypy3 OK 23 100
501 (пятьсот один) технический балл
72 (семьдесят два) итоговых балла
```

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Посылка по задаче 1

```
[1]  rim = dict()
[2]  rim['I'] = 1
[3]  rim['V'] = 5
[4]  rim['X'] = 10
[5]  rim['L'] = 50
[6]  rim['N'] = 0
[7]
[8]  alph = dict()
[9]  for i in range(0, 26):
[10]     alph[i] = chr(ord('A') + i)
[11] for i in range(0, 26):
[12]     alph[i + 26] = chr(ord('a') + i)
[13]
[14] def toi(s):
[15]     ans = 0
[16]     curr = 1
[17]     for i in range(1, len(s)):
[18]         if (s[i] == s[i - 1]):
[19]             curr += 1
[20]         else:
[21]             if (rim[s[i]] < rim[s[i - 1]]):
[22]                 ans += rim[s[i - 1]] * curr
[23]             else:
[24]                 ans -= rim[s[i - 1]] * curr
[25]             curr = 1
[26]     ans += rim[s[-1]] * curr
[27]     return ans
[28]
[29] def tos(x):
[30]     if (x == 0):
[31]         return 'A'
[32]     s = ''
[33]     while(x):
[34]         s += alph[x % 52]
[35]         x //=52
[36]     return s[::-1]
[37]
[38] n = int(input())
[39] mn = 0
[40] mx = 0
[41] t = []
[42] for i in range(n):
[43]     a = input().split('.')
[44]     ans = 0
[45]     for j in a:
[46]         ans *= 52
[47]         ans += toi(j)
[48]     t.append(ans)
[49]     if (t[i] < t[mn]):
[50]         mn = i
[51]     if (t[i] > t[mx]):
[52]         mx = i
[53] print(tos(t[mn]))
[54] print(tos(t[mx]))
```

Посылка по задаче 2

```
[1] #include <bits/stdc++.h>
[2]
[3] #define int long long
[4] #define ff first
[5] #define ss second
[6] #define mp make_pair
[7]
[8] //#pragma GCC optimize("O3")
[9] //#pragma GCC target("avx2")
[10]
[11] //#pragma GCC optimize ("O3,unroll-loops")
[12] //#pragma GCC target("avx2,bmi,bmi2,lzcnt,popcnt")
[13]
[14] using namespace std;
[15]
[16] signed main() {
[17]     ios_base::sync_with_stdio(0);
[18]     cin.tie(0);
[19]     cout.tie(0);
[20]     const int m = 160001;
[21]     vector <int> c(m, 1);
[22]     c[0] = 0;
[23]     c[1] = 0;
[24]     for (int i = 2; i < m; ++i) {
[25]         if (c[i]) {
[26]             for (int j = 2 * i; j < m; j += i) {
[27]                 c[j] = 0;
[28]             }
[29]         }
[30]     }
[31]     vector <int> k(m, 0);
[32]     for (int i = 2; i < 400; ++i) {
[33]         int curr = i * i + i + 1, st = i * i * i;
[34]         while (curr < m) {
[35]             k[curr] = 1;
[36]             curr += st;
[37]             st *= i;
[38]         }
[39]     }
[40]     int n;
[41]     cin >> n;
[42]     map <int, int> cnt;
[43]     for (int i = 0; i < n; ++i) {
[44]         int a;
[45]         cin >> a;
[46]         if (c[a] && k[a]) {
[47]             ++cnt[a];
[48]         }
[49]     }
[50]     pair <int, int> ans = mp(0, 0);
[51]     for (auto i : cnt) {
[52]         ans = max(ans, mp(i.ss, i.ff));
[53]     }
[54]     cout << ans.ss;
[55] }
```

Посылка по задаче 3

```
[1] #include <bits/stdc++.h>
[2]
[3] #define int long long
[4] #define ff first
[5] #define ss second
[6] #define mp make_pair
[7]
[8] //#pragma GCC optimize("O3")
[9] //#pragma GCC target("avx2")
[10]
[11] //#pragma GCC optimize ("O3,unroll-loops")
[12] //#pragma GCC target("avx2,bmi,bmi2,lzcnt,popcnt")
[13]
[14] using namespace std;
[15]
[16] signed main() {
[17]     ios_base::sync_with_stdio(0);
[18]     cin.tie(0);
[19]     cout.tie(0);
[20]     int n, x, y;
[21]     cin >> n >> x >> y;
[22]     --x;
[23]     --y;
[24]     int d = min(min(x, y), min(n - x - 1, n - y - 1));
[25]     int sd = n - 2 * d;
[26]     int st = n * n - sd * sd;
[27]     if (d == x) {
[28]         cout << st + y - d;
[29]     } else if (d == n - y - 1) {
[30]         cout << st + sd - 1 + x - d;
[31]     } else if (d == n - x - 1) {
[32]         cout << st + 2 * (sd - 1) + (n - y - 1) - d;
[33]     } else {
[34]         cout << st + 3 * (sd - 1) + (n - x - 1) - d;
[35]     }
[36] }
```

Посылка по задаче 4

```
[1] #include <bits/stdc++.h>
[2]
[3] #define int long long
[4] #define ff first
[5] #define ss second
[6] #define mp make_pair
[7]
[8] //#pragma GCC optimize("O3")
[9] //#pragma GCC target("avx2")
[10]
[11] //#pragma GCC optimize ("O3,unroll-loops")
[12] //#pragma GCC target("avx2,bmi,bmi2,lzcnt,popcnt")
[13]
[14] using namespace std;
[15]
[16] signed main() {
[17]     ios_base::sync_with_stdio(0);
[18]     cin.tie(0);
[19]     cout.tie(0);
[20]     int n;
[21]     cin >> n;
[22]     vector <int> a(n);
[23]     for (int i = 0; i < n; ++i) {
[24]         cin >> a[i];
[25]     }
[26]     reverse(a.begin(), a.end());
[27]     for (int i = 0; i < n; ++i) {
[28]         a[i] += i;
[29]     }
[30]     vector <int> dp(n + 1, 1e12);
[31]     dp[0] = -1e12;
[32]     int ans = 0;
[33]     for (int i = 0; i < n; ++i) {
[34]         int j = upper_bound(dp.begin(), dp.end(), a[i]) - dp.begin();
[35]         ans = max(ans, j);
[36]         dp[j] = a[i];
[37]     }
[38]     cout << n - ans;
[39] }
```

Посылка по задаче 5

```
[1] #include <bits/stdc++.h>
[2]
[3] #define int long long
[4] #define ff first
[5] #define ss second
[6] #define mp make_pair
[7]
[8] //#pragma GCC optimize("O3")
[9] //#pragma GCC target("avx2")
[10]
[11] //#pragma GCC optimize ("O3,unroll-loops")
[12] //#pragma GCC target("avx2,bmi,bmi2,lzcnt,popcnt")
[13]
[14] using namespace std;
[15]
[16] signed main() {
[17]     ios_base::sync_with_stdio(0);
[18]     cin.tie(0);
[19]     cout.tie(0);
[20]     int n;
[21]     cin >> n;
[22]     vector <int> x(n), y(n), h(n);
[23]     vector <pair <int, int>> s(n);
[24]     for (int i = 0; i < n; ++i) {
[25]         cin >> x[i] >> y[i] >> h[i];
[26]         s[i] = mp(-x[i] - y[i], i);
[27]     }
[28]     sort(s.begin(), s.end());
[29]     vector <int> ans(n, 1);
[30]     int mx = 0;
[31]     for (int i = 0; i < n; ++i) {
[32]         for (int j = 0; j < i; ++j) {
[33]             if (h[s[j].ss] < h[s[i].ss] && x[s[j].ss] > x[s[i].ss] && y[s[j].ss] > y[s[i].ss]) {
[34]                 ans[i] = max(ans[i], ans[j] + 1);
[35]             }
[36]         }
[37]         mx = max(mx, ans[i]);
[38]     }
[39]     cout << mx;
[40] }
```

Посылка по задаче 6

```
[1]  #include <bits/stdc++.h>
[2]
[3]  #define int long long
[4]  #define ff first
[5]  #define ss second
[6]  #define mp make_pair
[7]
[8]  //#pragma GCC optimize("O3")
[9]  //#pragma GCC target("avx2")
[10]
[11] //#pragma GCC optimize ("O3,unroll-loops")
[12] //#pragma GCC target("avx2,bmi,bmi2,lzcnt,popcnt")
[13]
[14] using namespace std;
[15]
[16] vector <vector <char>> f;
[17] vector <int> cnt(4);
[18] int ans = 0, n, m, i, j;
[19]
[20] void t() {
[21]     if (f[i][j] == '.') {
[22]         ++j;
[23]         if (j == m) {
[24]             ++i;
[25]             j = 0;
[26]         } if (i == n) {
[27]             ++ans;
[28]             if (j == 0) {
[29]                 --i;
[30]                 j = m;
[31]             }
[32]             --j;
[33]             return;
[34]         }
[35]         t();
[36]         if (j == 0) {
[37]             --i;
[38]             j = m;
[39]         }
[40]         --j;
[41]         return;
[42]     }
[43]     for (int k = 0; k < 4; ++k) {
[44]         if (cnt[k] > 0 && j + k < m) {
[45]             int e = 0;
[46]             for (int l = j; l < j + k + 1; ++l) {
[47]                 e += (f[i][l] == '.');
[48]             }
[49]             if (e == 0) {
[50]                 for (int l = j; l < j + k + 1; ++l) {
[51]                     f[i][l] = '.';
[52]                 }
[53]                 --cnt[k];
[54]                 t();
[55]                 for (int l = j; l < j + k + 1; ++l) {
[56]                     f[i][l] = '#';
[57]                 }
[58]                 ++cnt[k];
[59]             }
[60]         } if (cnt[k] > 0 && i + k < n && k != 0) {
[61]             int e = 0;
[62]             for (int l = i; l < i + k + 1; ++l) {
[63]                 e += (f[l][j] == '.');
[64]             }
[65]             if (e == 0) {
[66]                 for (int l = i; l < i + k + 1; ++l) {
[67]                     f[l][j] = '.';
[68]                 }
[69]                 --cnt[k];
[70]                 t();
[71]                 for (int l = i; l < i + k + 1; ++l) {
[72]                     f[l][j] = '#';
[73]                 }
[74]                 ++cnt[k];
[75]             }
```

```
[76]         }
[77]     }
[78] }
[79]
[80] signed main() {
[81]     ios_base::sync_with_stdio(0);
[82]     cin.tie(0);
[83]     cout.tie(0);
[84]     cin >> cnt[0] >> cnt[1] >> cnt[2] >> cnt[3] >> n >> m;
[85]     f.resize(n, vector <char> (m));
[86]     int a = cnt[0] + 2 * cnt[1] + 3 * cnt[2] + 4 * cnt[3], b = 0;
[87]     for (int i = 0; i < n; ++i) {
[88]         for (int j = 0; j < m; ++j) {
[89]             cin >> f[i][j];
[90]             b += (f[i][j] == '#');
[91]         }
[92]     }
[93]     if (b != a) {
[94]         cout << 0;
[95]         return 0;
[96]     }
[97]     i = 0;
[98]     j = 0;
[99]     t();
[100]    cout << ans;
[101] }
```

Посылка по задаче 7

Посылок по задаче 7 участником не было отправлено.