

Олимпиада СПбГУ по информатике 2021/22 учебного года

A	B	C	D	E	F	Sum
100	100	100	100	58	31	489

Task A ()

```
#include <iostream>
#include <vector>
#include <math.h>
#include <algorithm>

using namespace std;

int main() {
    long long n;
    cin >> n;
    vector <pair <long long, long long>> c(n);
    for (long long i = 0; i < n; i++) {
        long long x, y;
        cin >> x >> y;
        while (x % 10 == 0) {
            y++;
            x /= 10;
        }
        c[i].first = y;
        c[i].second = x;
    }
    sort(c.begin(), c.end());
    long long minb = c[0].first, s = 0;
    for (pair <long long, long long> p : c) {
        long long a = p.second, b = p.first;
        if (b == minb) {
            s += a;
        }
        else {
            while (s % 10 == 0 && minb < b) {
                s /= 10;
                minb++;
            }
            if (b == minb) {
                s += a;
            }
            else break;
        }
    }
    while (s % 10 == 0) {
        s /= 10;
        minb++;
    }
    cout << minb;
    return 0;
}
```

Task B ()

```
n = int(input())
k = [int(x) for x in input().split()]
for i in range(n - 1, -1, -1):
    if k[i] != 0:
        t = i + 1
        k[i] -= 1
        break
else:
    t = 0
    print("Stop", flush=True)
while True:
    print("Flip_and_wait", flush=True)
    while t > 0:
        s = input()
        t -= (s.count('e') // 2)
        if t > 0:
            print("Wait", flush=True)
    for i in range(n - 1, -1, -1):
        if k[i] != 0:
            t = i + 1
            k[i] -= 1
            break
    else:
        print("Stop", flush=True)
        break
```

Task C ()

```
for _ in range(int(input())):
    s = input()
    n = len(s)
    s1 = ''
    if "?" in s:
        if s.count('1') == 1:
            if s.count('0') == 0:
                symb = '1'
            else:
                symb = '0'
        elif '0' in s:
            symb = '1'
        else:
            symb = '0'
    for symb1 in s:
        if symb1 == '?':
            s1 += symb
        else:
            s1 += symb1
    print(s1)
else:
    if s.count('0') > s.count('1'):
        symb = '0'
        if s.count('1') == 1:
            if s.find('1') == 0:
                print('10' + '?' * (n - 2))
            else:
                print('0' + '?' * (s.find('1') - 1) + '1' + '?' * (n - s.find('1') - 1))
            continue
        else:
            symb = '1'
            if s.count('1') == n:
                m = 13 * n // 21
                print('1' + '?' * (n - 1))
            continue
    for symb1 in s:
        if symb1 == symb:
            s1 += '?'
        else:
            s1 += symb1
    print(s1)
```

Task D ()

```
#include <iostream>
#include <vector>
#include <math.h>
#include <algorithm>

using namespace std;

int main() {
    const long long p = 998244353;
    long long n, s = 1, s1;
    cin >> n;
    if (n < 1e8) {
        s1 = 1;
        s = 1;
    }
    else if (n < 2e8) {
        s1 = int(1e8) + 2;
        s = 980201571;
    }
    else if (n < 3e8) {
        s1 = int(2e8) + 2;
        s = 468660588;
    }
    else if (n < 4e8) {
        s1 = int(3e8) + 2;
        s = 478389955;
    }
    else if (n < 5e8) {
        s1 = int(4e8) + 2;
        s = 137136996;
    }
    else if (n < 6e8) {
        s1 = int(5e8) + 2;
        s = 203730522;
    }
    else if (n < 7e8) {
        s1 = int(6e8) + 2;
        s = 533107751;
    }
    else if (n < 8e8) {
        s1 = int(7e8) + 2;
        s = 496409701;
    }
    else if (n < 9e8) {
        s1 = int(8e8) + 2;
        s = 637333574;
    }
    else if (n < 10e8) {
        s1 = int(9e8) + 2;
        s = 465585441;
    }
    long long res = s;
    if (n < p) {
        for (long long i = s1; i <= n + 1; i++) {
            res = (res * i) % p;
        }
        cout << 0 << '␣' << res;
    }
    else {
        res = 0;
        long long i = p;
        while (i <= n + 1) {
            long long i1 = i;
            while (i1 % p == 0) {
                i1 /= p;
                res++;
            }
            i += p;
        }
        cout << res << '␣' << 0;
    }
    return 0;
}
```


Task E ()

```
#include <iostream>
#include <vector>
#include <math.h>
#include <algorithm>

using namespace std;

int main() {
    int n;
    cin >> n;
    vector<int> u(n);
    for (int i = 0; i < n; i++) cin >> u[i];
    int q;
    cin >> q;
    for (int i = 0; i < q; i++) {
        int a, b, d;
        cin >> a >> b >> d;
        int res = 0;
        for (int j = a; j < b; j++) {
            res += (d + u[j] - 1) / u[j];
        }
        cout << res << '\n';
    }
    return 0;
}
```

Task F ()