

综合练习

人员

柳力玮、李瑞涵、刘宸熙、姜皓轩、王馨琪、初锦阳、赵牧之、温郝冬、韩昱辰、苑钊、田心一、王恩泽、蒋叔璋、邹忆航、刘派、宋云朗、高健桓 到课

作业

<https://cppoj.kids123code.com/contest/756> (课上讲了 A ~ C 题, 课后作业是 D 题)

课堂表现

今天的前两道题全班大部分同学都做的不好, 很多同学都错在老师常讲的几个问题

主要有: 字符串 string 输入时的 0 下标问题, 字符串 string 一开始默认是空的不能直接用 s[0], 数组一排序后数组二未排序等问题

这些问题老师强调过很多遍, 都是同学们容易犯的错误, 同学们一定要牢记于心这些问题

课堂内容

Rotate Colored Subsequence

一维数组, 模拟旋转操作即可

```
#include <bits/stdc++.h>

using namespace std;

const int maxn = 2e5 + 5;
char s[maxn];
char a[maxn];
vector<int> vec[maxn];

int main()
{
    int n, m; cin >> n >> m;
    cin >> (s+1);
    for (int i = 1; i <= n; ++i) {
        int x; cin >> x; vec[x].push_back(i);
    }

    for (int i = 1; i <= m; ++i) {
        vector<int> vv = vec[i];
        int len = vv.size();

        if (!vv.empty()) a[vv[0]] = s[vv[len-1]];
        for (int i = 1; i < len; ++i) a[vv[i]] = s[vv[i-1]];
    }
}
```

```

    for (int i = 1; i <= n; ++i) cout << a[i];
    cout << endl;
    return 0;
}

```

[常州市赛 2024] 盒子

把所有盒子从小到大排序, 然后从前往后双指针扫, 把小盒子往中盒子里放, 直到不能放为止

```

#include <bits/stdc++.h>

using namespace std;

typedef long long LL;
const int maxn = 1e5 + 5;
LL w[maxn], f[maxn];

int main()
{
    int n; cin >> n;
    for (int i = 1; i <= n; ++i) cin >> w[i];
    sort(w+1, w+n+1);
    for (int i = 1; i <= n; ++i) f[i] = w[i] / 2;

    for (int l = 1, r = 2; l <= n; ++l) {
        while (r <= n && f[r] < w[l]) ++r;
        if (r > n) {
            cout << n - l + 1 << endl;
            return 0;
        }
        f[r] -= w[l];
    }
    return 0;
}

```

[COCI 2018/2019 #1] Cipele

二分 + 双指针扫一遍, 看最大丑陋度是 mid 的情况下, 能否匹配出 min(n,m) 对

```

#include <bits/stdc++.h>

using namespace std;

const int maxn = 1e5 + 5;
int a[maxn], b[maxn];

bool check(int n, int m, int mid) {
    for (int i = 1, j = 1; i <= n; ++i) {

```

```
    if (abs(a[i] - b[j]) <= mid) ++j;
    if (j > m) return true;
}
return false;
}

int main()
{
    int n, m; cin >> n >> m;
    for (int i = 1; i <= n; ++i) cin >> a[i];
    for (int i = 1; i <= m; ++i) cin >> b[i];
    sort(a+1, a+n+1), sort(b+1, b+m+1);
    if (n < m) {
        for (int i = 0; i < maxn; ++i) swap(a[i], b[i]);
        swap(n, m);
    }

    int l = 0, r = 1e9;
    while (l <= r) {
        int mid = (l + r) / 2;
        if (check(n, m, mid)) r = mid - 1;
        else l = mid + 1;
    }
    cout << l << endl;
    return 0;
}
```