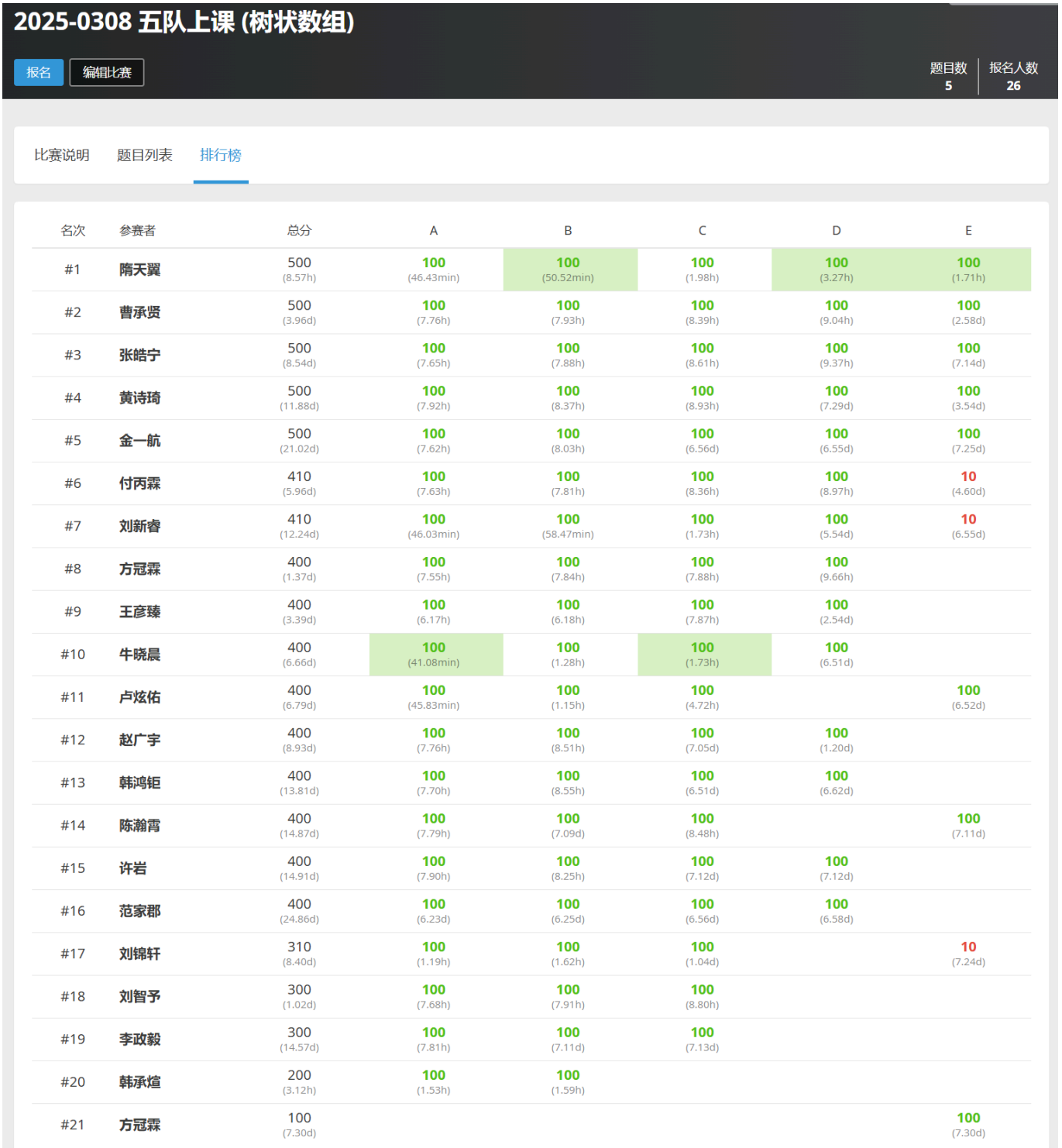
综合混练

人员

赵广宇、李政毅、张皓宁、韩鸿钜、许岩、方冠霖、金一航、曹承贤、陈瀚霄、黄诗琦、王彦臻 到课, 刘智予 线上

上周作业检查

上周作业链接: https://www.luogu.com.cn/contest/234690



2025-0308 五队上课 (树状数组)

报名 | 编辑比赛 | 题目数 5 | 报名人数 26

比赛说明 | 题目列表 | 排行榜

名次	参赛者	总分	A	B	C	D	E
#1	隋天翼	500 (8.57h)	100 (46.43min)	100 (50.52min)	100 (1.98h)	100 (3.27h)	100 (1.71h)
#2	曹承贤	500 (3.96d)	100 (7.76h)	100 (7.93h)	100 (8.39h)	100 (9.04h)	100 (2.58d)
#3	张皓宁	500 (8.54d)	100 (7.65h)	100 (7.88h)	100 (8.61h)	100 (9.37h)	100 (7.14d)
#4	黄诗琦	500 (11.88d)	100 (7.92h)	100 (8.37h)	100 (8.93h)	100 (7.29d)	100 (3.54d)
#5	金一航	500 (21.02d)	100 (7.62h)	100 (8.03h)	100 (6.56d)	100 (6.55d)	100 (7.25d)
#6	付丙霖	410 (5.96d)	100 (7.63h)	100 (7.81h)	100 (8.36h)	100 (8.97h)	10 (4.60d)
#7	刘新睿	410 (12.24d)	100 (46.03min)	100 (58.47min)	100 (1.73h)	100 (5.54d)	10 (6.55d)
#8	方冠霖	400 (1.37d)	100 (7.55h)	100 (7.84h)	100 (7.88h)	100 (9.66h)	
#9	王彦臻	400 (3.39d)	100 (6.17h)	100 (6.18h)	100 (7.87h)	100 (2.54d)	
#10	牛晓晨	400 (6.66d)	100 (41.08min)	100 (1.28h)	100 (1.73h)	100 (6.51d)	
#11	卢炫佑	400 (6.79d)	100 (45.83min)	100 (1.15h)	100 (4.72h)		100 (6.52d)
#12	赵广宇	400 (8.93d)	100 (7.76h)	100 (8.51h)	100 (7.05d)	100 (1.20d)	
#13	韩鸿钜	400 (13.81d)	100 (7.70h)	100 (8.55h)	100 (6.51d)	100 (6.62d)	
#14	陈瀚霄	400 (14.87d)	100 (7.79h)	100 (7.09d)	100 (8.48h)		100 (7.11d)
#15	许岩	400 (14.91d)	100 (7.90h)	100 (8.25h)	100 (7.12d)	100 (7.12d)	
#16	范家郡	400 (24.86d)	100 (6.23d)	100 (6.25d)	100 (6.56d)	100 (6.58d)	
#17	刘锦轩	310 (8.40d)	100 (1.19h)	100 (1.62h)	100 (1.04d)		10 (7.24d)
#18	刘智予	300 (1.02d)	100 (7.68h)	100 (7.91h)	100 (8.80h)		
#19	李政毅	300 (14.57d)	100 (7.81h)	100 (7.11d)	100 (7.13d)		
#20	韩承煊	200 (3.12h)	100 (1.53h)	100 (1.59h)			
#21	方冠霖	100 (7.30d)					100 (7.30d)

作业

https://www.luogu.com.cn/contest/236055 (课上讲了 A ~ C 这些题, 课后作业是 D、E 题)

课堂表现

同学们今天上课做题做的不是很好, 做题不是很多, 课下一定要好好做作业

课堂内容

P3870 [TJOI2009] 开关

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

using namespace std;

const int maxn = 1e5 + 5;
struct node {
  int l, r, len, sum;
  int flag;
} tr[maxn*4];

void pushup(int u) { tr[u].sum = tr[u*2].sum + tr[u*2+1].sum; }

void pushdown(int u) {
  if (tr[u].flag & 1) {
    tr[u*2].flag += 1, tr[u*2+1].flag += 1;
    tr[u*2].sum = tr[u*2].len - tr[u*2].sum;
    tr[u*2+1].sum = tr[u*2+1].len - tr[u*2+1].sum;
  }
  tr[u].flag = 0;
}

void build(int u, int l, int r) {
  tr[u] = {l, r, r-l+1};
  if (l == r) return;

  int mid = (l + r) / 2;
  build(u*2, l, mid), build(u*2+1, mid+1, r);
}

void modify(int u, int l, int r) {
  if (tr[u].l>=l && tr[u].r<=r) {
    tr[u].flag++; tr[u].sum = tr[u].len-tr[u].sum; return;
  }

  pushdown(u);
  int mid = (tr[u].l + tr[u].r) / 2;
  if (l <= mid) modify(u*2, l, r);
  if (r > mid) modify(u*2+1, l, r);
  pushup(u);
}
```

```
int query(int u, int l, int r) {
  if (tr[u].l>=l && tr[u].r<=r) return tr[u].sum;

  pushdown(u);
  int mid = (tr[u].l + tr[u].r) / 2;
  int sum = 0;
  if (l <= mid) sum += query(u*2, l, r);
  if (r > mid) sum += query(u*2+1, l, r);
  return sum;
}

int main()
{
  int n, m; cin >> n >> m;
  build(1, 1, n);
  while (m -- ) {
    int op, l, r; cin >> op >> l >> r;
    if (op == 0) modify(1, l, r);
    else cout << query(1, l, r) << endl;
  }
  return 0;
}
```

P1595 信封问题

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

using namespace std;

typedef long long LL;
const int maxn = 20 + 5;
LL f[maxn];

int main()
{
  int n; cin >> n;
  f[0] = 1, f[1] = 0;
  for (int i = 2; i <= n; ++i) {
    f[i] = (i-1) * (f[i-2] + f[i-1]);
  }
  cout << f[n] << endl;
  return 0;
}
```

P1020 [NOIP 1999 提高组] 导弹拦截

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

using namespace std;

bool cmp(int a, int b) { return a > b; }

int main()
{
  int x;
  vector<int> vec1, vec2;
  while (cin >> x) {
    if (vec1.empty() || x<=vec1.back()) vec1.push_back(x);
    else *upper_bound(vec1.begin(), vec1.end(), x, cmp) = x;

    if (vec2.empty() || x>vec2.back()) vec2.push_back(x);
    else *lower_bound(vec2.begin(), vec2.end(), x) = x;
  }

  cout << vec1.size() << " " << vec2.size() << endl;
  return 0;
}
```

P1282 多米诺骨牌

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

using namespace std;

const int N = 5000 + 5;
const int inf = 0x3f3f3f3f;
int p[N*2], f[N*2];

int main()
{
  memset(f, 0x3f, sizeof(f)); f[N] = 0;

  int n; cin >> n;
  for (int i = 1; i <= n; ++i) {
    int a, b; cin >> a >> b;
    int t = a-b;

    memcpy(p, f, sizeof(p)); memset(f, 0x3f, sizeof(f));
    for (int j = 0; j < N*2; ++j) {
      if (j-t >= 0) f[j] = min(f[j], p[j-t]);
      if (j+t < N*2) f[j] = min(f[j], p[j+t]+1);
    }
  }

  for (int i = 0; ; ++i) {
    if (f[N-i]!=inf || f[N+i]!=inf) {
```

```
        cout << min(f[N-i], f[N+i]) << endl;
        break;
      }
    }
    return 0;
}
```