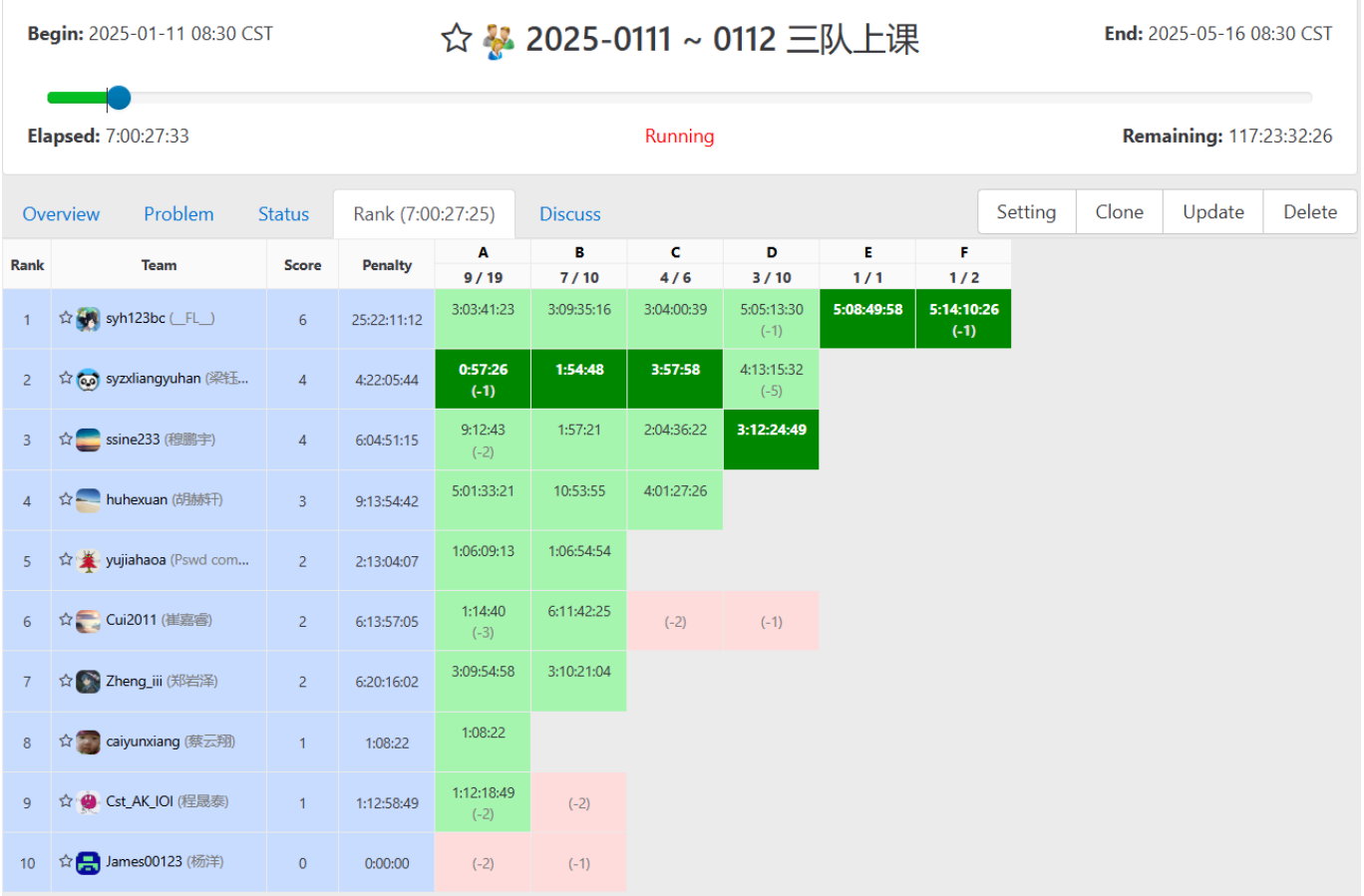
杂题混练

人员

穆鹏宇、梁钰涵、胡赫轩、崔嘉睿、程晟泰 到课

上周作业检查



Begin: 2025-01-11 08:30 CST ☆ 2025-0111 ~ 0112 三队上课 **End:** 2025-05-16 08:30 CST

Elapsed: 7:00:27:33 Running **Remaining:** 117:23:32:26

Overview Problem Status Rank (7:00:27:25) Discuss Setting Clone Update Delete

Rank	Team	Score	Penalty	A 9 / 19	B 7 / 10	C 4 / 6	D 3 / 10	E 1 / 1	F 1 / 2
1	☆ syh123bc (_FL_)	6	25:22:11:12	3:03:41:23	3:09:35:16	3:04:00:39	5:05:13:30 (-1)	**5:08:49:58**	**5:14:10:26 (-1)**
2	☆ syzxliangyuhan (梁钰...	4	4:22:05:44	**0:57:26 (-1)**	**1:54:48**	**3:57:58**	4:13:15:32 (-5)		
3	☆ ssine233 (穆鹏宇)	4	6:04:51:15	9:12:43 (-2)	1:57:21	2:04:36:22	**3:12:24:49**		
4	☆ huhexuan (胡赫轩)	3	9:13:54:42	5:01:33:21	10:53:55	4:01:27:26			
5	☆ yujiahaoa (Pswd com...	2	2:13:04:07	1:06:09:13	1:06:54:54				
6	☆ Cui2011 (崔嘉睿)	2	6:13:57:05	1:14:40 (-3)	6:11:42:25	(-2)	(-1)		
7	☆ Zheng_iii (郑岩泽)	2	6:20:16:02	3:09:54:58	3:10:21:04				
8	☆ caiyunxiang (蔡云翔)	1	1:08:22	1:08:22					
9	☆ Cst_AK_IOI (程晟泰)	1	1:12:58:49	1:12:18:49 (-2)	(-2)				
10	☆ James00123 (杨洋)	0	0:00:00	(-2)	(-1)				

作业

https://vjudge.net/contest/686631

课堂表现

今天的题目整体不是很难, 大家课上没做完的题目, 课下要好好复习一下。

课堂内容

CF19B Checkout Assistant

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

using namespace std;

typedef long long LL;
```

```
const int maxn = 2000 + 5;
const LL inf = 0x3f3f3f3f3f3f3f3f;
LL f[2*maxn];

int main()
{
  int n; cin >> n;
  memset(f, 0x3f, sizeof(f)); f[0] = 0;
  for (int j = 1; j <= n; j++) {
    int t, c; cin >> t >> c; ++t;
    for (int i = 2*maxn-1; i >= t; --i) f[i] = min(f[i], f[i-t]+c);
  }

  LL res = inf;
  for (int i = 2*maxn-1; i >= n; --i) res = min(res, f[i]);
  cout << res << endl;
  return 0;
}
```

CF746F Music in Car

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

using namespace std;

const int maxn = 2e5 + 5;
int a[maxn], t[maxn];

int value(int a) { return (a+1)/2; }

int main()
{
  int n, w, k; cin >> n >> w >> k;
  for (int i = 1; i <= n; ++i) cin >> a[i];
  for (int i = 1; i <= n; ++i) cin >> t[i];

  multiset<int> s1, s2;
  int sum = 0, tot = 0, res = 0;
  for (int l = 1, r = 1; r <= n; ++r) {
    if ((int)s1.size() < w) s1.insert(t[r]), sum += value(t[r]);
    else {
      int temp = *s1.begin();
      if (temp >= t[r]) s2.insert(t[r]), sum += t[r];
      else {
        s1.erase(s1.find(temp)), sum -= value(temp);
        s2.insert(temp), sum += temp;
        s1.insert(t[r]), sum += value(t[r]);
      }
    }
    tot += a[r];
```

```
    while (sum > k) {
      if (s2.count(t[l])) s2.erase(s2.find(t[l])), sum -= t[l];
      else {
        s1.erase(s1.find(t[l])), sum -= value(t[l]);
        if (!s2.empty()) {
          int temp = *s2.rbegin();
          s2.erase(s2.find(temp)), sum -= temp;
          s1.insert(temp), sum += value(temp);
        }
      }
      tot -= a[l]; l++;
    }

    res = max(res, tot);
  }
  cout << res << endl;
  return 0;
}
```

CF1606E Arena

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

using namespace std;

typedef long long LL;
const int maxn = 500 + 5;
const int mod = 998244353;
int f[maxn][maxn], C[maxn][maxn];

int qmod(int a, int k) {
  int res = 1;
  while (k) {
    if (k&1) res = 1LL*res*a%mod;
    a = 1LL*a*a%mod;
    k >>= 1;
  }
  return res;
}

int main()
{
  int n, m; cin >> n >> m;
  for (int i = 0; i <= n; ++i) {
    for (int j = 0; j <= i; ++j) {
      if (!j) C[i][j] = 1;
      else C[i][j] = (C[i-1][j-1] + C[i-1][j]) % mod;
    }
  }

  for (int i = 2; i <= n; ++i) {
```

```
    for (int j = 1; j <= m; ++j) {
      if (j <= i-1) f[i][j] = (qmod(j,i) - qmod(j-1,i) + mod) % mod;
      else {
        int res = 0;
        for (int k = 2; k <= i; ++k) {
          res += 1LL*C[i][k]*f[k][j-i+1]%mod*qmod(i-1,i-k)%mod;
          res %= mod;
        }
        f[i][j] = res;
      }
    }
  }

  int res = 0;
  for (int i = 1; i <= m; ++i) res = (res + f[n][i]) % mod;
  cout << res << endl;
  return 0;
}
```

CF1513D GCD and MST

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

using namespace std;

typedef long long LL;
const int maxn = 2e5 + 5;
int w[maxn];
struct node {
  int val, id;
  bool operator < (const node& p) const { return val < p.val; }
} a[maxn];
bool f[maxn];

void solve() {
  int n, p; cin >> n >> p;
  for (int i = 0; i <= n+2; ++i) f[i] = false;
  for (int i = 1; i <= n; ++i) cin >> w[i], a[i] = {w[i], i};
  sort(a+1, a+n+1);

  LL res = 0, cnt = n-1;
  for (int i = 1; i <= n; ++i) {
    int val = a[i].val, id = a[i].id;
    if (val >= p) break;
    if (f[id]) continue;

    for (int j = id-1; j >= 1; --j) {
      if (f[j] || w[j]%val!=0) break;
      f[j] = true; --cnt; res += val;
    }
    for (int j = id+1; j <= n; ++j) {
```

```
        if (f[j-1] || w[j]%val!=0) break;
        f[j-1] = true; --cnt; res += val;
      }
    }
    res += 1LL*cnt*p;

//  cout << "---------------------- ";
    cout << res << endl;
}

int main()
{
    int T; cin >> T;
    while (T -- ) solve();
    return 0;
}
```