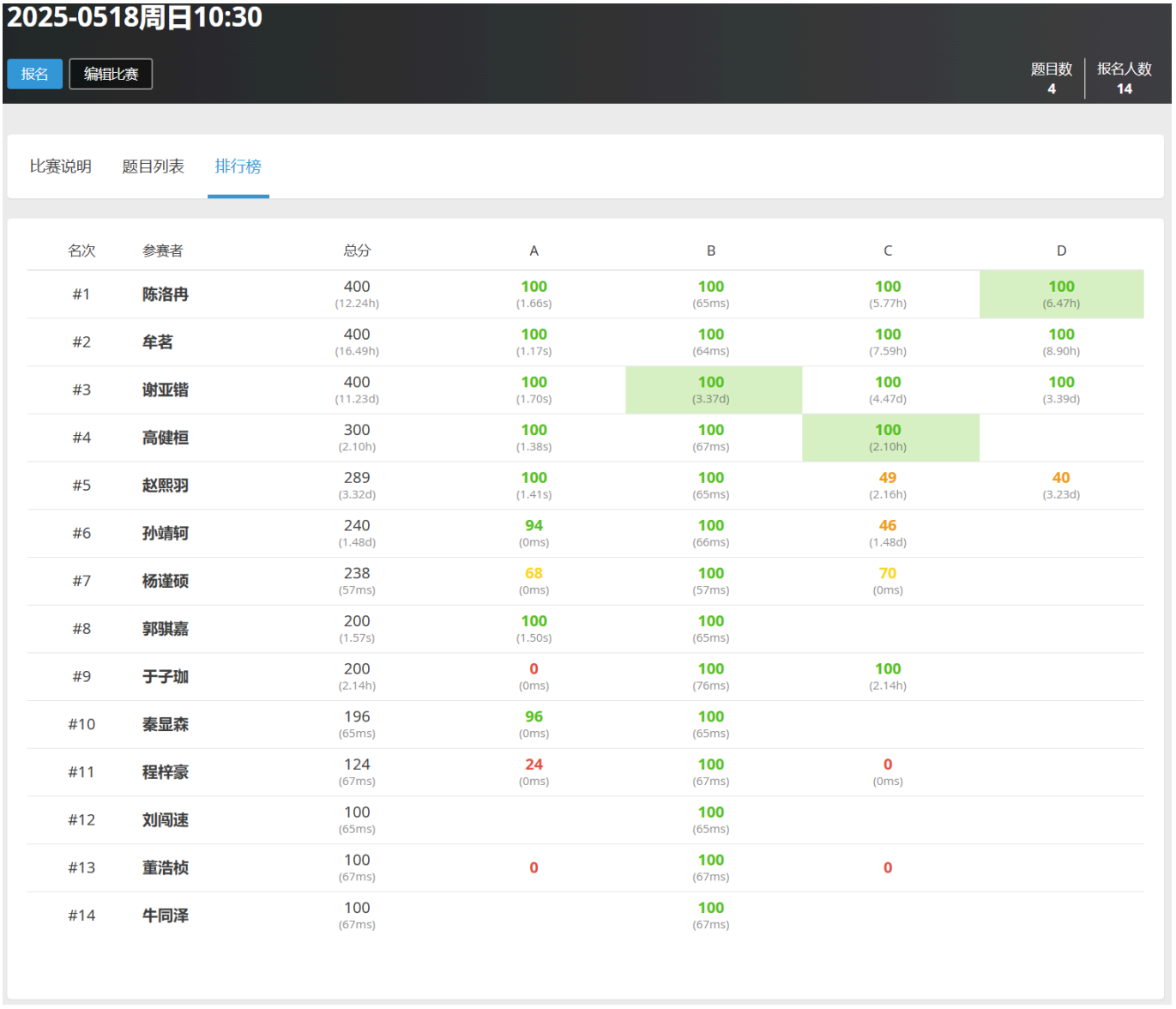
位运算

人员

杨瑾硕、秦显森、刘闯速、孙靖轲、赵熙羽、牛同泽、于子珈、高健桓、陈洛冉、董浩桢、程梓豪、郭骐嘉、谢亚锴、隋钰涵 到课

上周作业检查

https://www.luogu.com.cn/contest/247006



2025-0518周日10:30

报名 编辑比赛

题目数 4 报名人数 14

比赛说明 题目列表 排行榜

名次	参赛者	总分	A	B	C	D
#1	陈洛冉	400 (12.24h)	100 (1.66s)	100 (65ms)	100 (5.77h)	100 (6.47h)
#2	牟茗	400 (16.49h)	100 (1.17s)	100 (64ms)	100 (7.59h)	100 (8.90h)
#3	谢亚锴	400 (11.23d)	100 (1.70s)	100 (3.37d)	100 (4.47d)	100 (3.39d)
#4	高健桓	300 (2.10h)	100 (1.38s)	100 (67ms)	100 (2.10h)	
#5	赵熙羽	289 (3.32d)	100 (1.41s)	100 (65ms)	49 (2.16h)	40 (3.23d)
#6	孙靖轲	240 (1.48d)	94 (0ms)	100 (66ms)	46 (1.48d)	
#7	杨谨硕	238 (57ms)	68 (0ms)	100 (57ms)	70 (0ms)	
#8	郭骐嘉	200 (1.57s)	100 (1.50s)	100 (65ms)		
#9	于子珈	200 (2.14h)	0 (0ms)	100 (76ms)	100 (2.14h)	
#10	秦显森	196 (65ms)	96 (0ms)	100 (65ms)		
#11	程梓豪	124 (67ms)	24 (0ms)	100 (67ms)	0 (0ms)	
#12	刘闯速	100 (65ms)		100 (65ms)		
#13	董浩桢	100 (67ms)	0	100 (67ms)	0	
#14	牛同泽	100 (67ms)		100 (67ms)		

作业

https://www.luogu.com.cn/contest/248738 (课上讲了 A ~ D 题, 课后作业是 E 题)

课堂表现

同学们课上听讲写题都很认真, 第三题没写完的同学课下要记得补题。

课堂内容

P2853 [USACO06DEC] Cow Picnic S

以每个奶牛为起点做一遍 dfs或bfs, 把搜到的点进行标记, 最后看哪些点走过 k 次即可

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

using namespace std;

const int maxn = 1000 + 5;
vector<int> vec[maxn];
int k, n, m;
bool st[maxn];
int f[maxn];

void dfs(int u) {
  st[u] = true; f[u]++;
  for (int i : vec[u]) {
    if (!st[i]) dfs(i);
  }
}

void solve(int x) {
  memset(st, false, sizeof(st));
  dfs(x);
}

int main()
{
  cin >> k >> n >> m;

  vector<int> cows;
  for (int i = 1; i <= k; ++i) {
    int x; cin >> x; cows.push_back(x);
  }

  while (m -- ) {
    int u, v; cin >> u >> v; vec[u].push_back(v);
  }

  for (int i : cows) solve(i);

  int res = 0;
  for (int i = 1; i <= n; ++i) {
    if (f[i] == k) ++res;
  }
  cout << res << endl;
  return 0;
}
```

P1469 找筷子

把所有整数异或一遍

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

using namespace std;

int main()
{
  int n; cin >> n;
  int res = 0;
  for (int i = 1; i <= n; ++i) {
    int x; scanf("%d", &x);
    res ^= x;
  }
  cout << res << endl;
  return 0;
}
```

B3622 枚举子集（递归实现指数型枚举）

二进制枚举

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

using namespace std;

int main()
{
  int n; cin >> n;
  for (int i = 0; i < (1<<n); ++i) {
    for (int j = n-1; j >= 0; --j) {
      if ((i>>j)%2 == 1) cout << "Y";
      else cout << "N";
    }
    cout << endl;
  }
  return 0;
}
```

P11233 [CSP-S 2024] 染色

这个题同学们利用二进制枚举, 拿 20 分即可

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

```cpp
using namespace std;

const int maxn = 15 + 5;
int w[maxn];
bool st[maxn];

int calc(int n) {
  int res = 0;
  for (int i = 1; i <= n; ++i) {
    int pos = -1;
    for (int j = i-1; j >= 1; --j) {
      if (st[i] == st[j]) {
        pos = j; break;
      }
    }
    if (pos!=-1 && w[pos]==w[i]) res += w[i];
  }
  return res;
}

void solve() {
  int n; cin >> n;
  for (int i = 1; i <= n; ++i) cin >> w[i];

  int res = 0;
  for (int i = 0; i < (1<<n); ++i) {
    for (int j = 0; j < n; ++j) {
      if ((i>>j) % 2 == 1) st[j+1] = true;
      else st[j+1] = false;
    }
    res = max(res, calc(n));
  }
//  cout << "-------------------- ";
  cout << res << endl;
}

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

T214660 众数

开一个大小为 70 的数组代表每个二进制位出现过多少次, 考虑每个二进制位出现过多少次即可

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

using namespace std;
```

```cpp
typedef long long LL;
const int n = 999999;
int st[70];

int main()
{
  for (int i = 1; i <= n; ++i) {
    LL x; cin >> x;
    for (int j = 0; j <= 62; ++j) {
      if ((x>>j) % 2 == 1) st[j]++;
    }
  }

  LL res = 0;
  for (int i = 0; i <= 62; ++i) {
    if (st[i] > n/2) res += (1LL<<i);
  }
  cout << res << endl;
  return 0;
}
```