

Orac and LCM

题目链接<https://codeforc.es/contest/1350/problem/C>

题意

给定长为 n ($2 \leq n \leq 10^5$) 的正整数序列 $\{s_1, s_2, \dots, s_n\}$, 求由任意两元素 LCM (最小公倍数) 组成新序列 $\{a_1, a_2, \dots, a_n\}$ ($1 \leq a_i \leq 2 \cdot 10^5$) 的 GCD (最大公约数), 即 $\text{LCM}(\text{GCD}(s_i, s_j))$ ($i \leq j$)

题解

将答案 ans 质因数分解, 有 $\text{ans} = p_1^{k_1} p_2^{k_2} \dots p_m^{k_m}$

对于每个 p_i , 一定在序列 s 中出现至少 $n - 1$ 次

AC代码

```
#include<bits/stdc++.h>
using namespace std;
typedef long long ll;

const ll mod = 998244353;
const int maxn = 2e5 + 5;

vector<int> ep[maxn];

ll qpow(int k, ll b){
    ll res = 1;
    while(b){
        if(b & 1) res *= k;
        k *= k;
        b >>= 1;
    }
    return res;
}

int main(){
    int n;    scanf("%d", &n);
    for(int i = 1; i <= n; i++){
        int t;    scanf("%d", &t);
        for(int i = 2; i * i <= t; ++i){
            ll cnt = 0;
            while(t % i == 0){
```

```
        t /= i;
        ++cnt;
    }
    ep[i].push_back(cnt);
}
if(t != 1) ep[t].push_back(1);
}

ll ans = 1;
for(int i = 1; i <= maxn; ++i){
    if(ep[i].size() >= n - 1){
        sort(ep[i].begin(), ep[i].end());
        if(ep[i].size() == n) ans *= qpow(i, ep[i][1]);
        else ans *= qpow(i, ep[i][0]);
    }
}
printf("%lld", ans);
}
```

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