Assignment #4: T-primes + 贪心

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2024 fall, Complied by 李振硕 、院系 信息管理系

1. 题目

34B. Sale

greedy, sorting, 900, https://codeforces.com/problemset/problem/34/B

时间：248 ms

思路：

代码

By sot10130, contest: Codeforces Beta Round 34 (Div. 2), problem: (B) Sale, **Accepted**, #, Copy

```
m,n=map(int,input().split())
TV=list(map(int,input().split()))
TV=sorted(TV)
k=0
cost=0
for x in TV:
    k+=1
    if x<0 and k<=n:
        cost-=x
print(cost)
```

→Judgement Protocol

Test: #1, time: 30 ms., memory: 12 KB, exit code: 0, checker exit code: 0, verdict: OK
Input

160A. Twins

greedy, sortings, 900, https://codeforces.com/problemset/problem/160/A

时间：154 ms

思路：

代码

By sot10130, contest: Codeforces Round 111 (Div. 2), problem: (A) Twins, **Accepted**, #, Copy

```
n=int(input())
coin_s_v=list(map(int,input().split()))
all_v=sum(coin_s_v)
coin_s_v=sorted(coin_s_v,key=lambda x:-x)
t_v=0
k=0
for x in coin_s_v:
    if 2*t_v<=all_v:
        t_v+=x
        k+=1
print(k)
```

1879B. Chips on the Board

constructive algorithms, greedy, 900, https://codeforces.com/problemset/problem/1879/B

时间：265 ms

思路：

代码

By sot10130, contest: Educational Codeforces Round 155 (Rated for Div. 2), problem: (B) Chips on the Board, **Accepted**, #, Copy

```
t=int(input())
for i in range(t):
    n=int(input())
    a=list(map(int,input().split()))
    b=list(map(int,input().split()))
    all_=0
    #保证列或行其中一个必须都有
    a_min=min(a)
    b_min=min(b)
    hang_min=a_min*n+sum(b)
    lie_min=b_min*n+sum(a)
    print(min(hang_min,lie_min))
```

→Judgement Protocol

158B. Taxi

*special problem, greedy, implementation, 1100, https://codeforces.com/problemset/problem/158/B

时间：218 ms

思路：

代码

By sot10130, contest: VK Cup 2012 Qualification Round 1, problem: (B) Taxi, Accepted, #, Copy

```
n = int(input())
groups = list(map(int, input().split()))

count_1 = count_2 = count_3 = count_4 = 0

for g in groups:
    if g == 1:
        count_1 += 1
    elif g == 2:
        count_2 += 1
    elif g == 3:
        count_3 += 1
    elif g == 4:
        count_4 += 1

taxis = count_4

pairs_3_1 = min(count_3, count_1)
taxis += count_3
count_1 -= pairs_3_1

taxis += count_2 // 2
if count_2 % 2 == 1:
    taxis += 1
    count_1 -= min(2, count_1)

if count_1 > 0:
    taxis += (count_1 + 3) // 4

print(taxis)
```

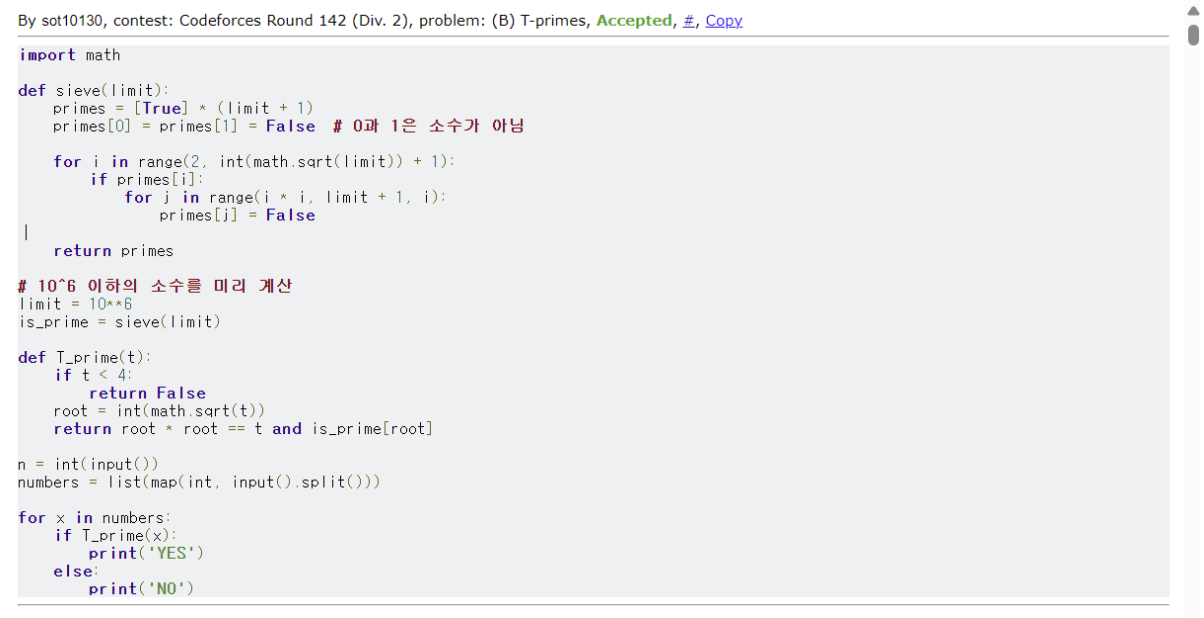
*230B. T-primes（选做）

binary search, implementation, math, number theory, 1300, http://codeforces.com/problemset/problem/230/B

时间：874 ms

思路：

代码


By sot10130, contest: Codeforces Round 142 (Div. 2), problem: (B) T-primes, Accepted, #, Copy

```
import math

def sieve(limit):
    primes = [True] * (limit + 1)
    primes[0] = primes[1] = False  # 0과 1은 소수가 아님

    for i in range(2, int(math.sqrt(limit)) + 1):
        if primes[i]:
            for j in range(i * i, limit + 1, i):
                primes[j] = False
|
    return primes

# 10^6 이하의 소수를 미리 계산
limit = 10**6
is_prime = sieve(limit)

def T_prime(t):
    if t < 4:
        return False
    root = int(math.sqrt(t))
    return root * root == t and is_prime[root]

n = int(input())
numbers = list(map(int, input().split()))

for x in numbers:
    if T_prime(x):
        print('YES')
    else:
        print('NO')
```

*12559: 最大最小整数 （选做）

greedy, strings, sortings, http://cs101.openjudge.cn/practice/12559

思路：

代码

```python

```

代码运行截图 <mark>（至少包含有"Accepted"）</mark>

2. 学习总结和收获

Taxi题，把每个组的人数分成四个部分，然后再计算，这逻辑对我来说比较复杂。

T-primes题，多次出现了runtime error，虽然逻辑简单，为了避免runtime error 把小数分成几个部分来计算了，这一过程很难。