

Assignment #4: T-primes + 贪心

2024 fall, Compiled by 吕金浩, 物理学院

1. 题目

在网站上提交的可能会有被注释掉的代码，这里已经删去。

34B. Sale

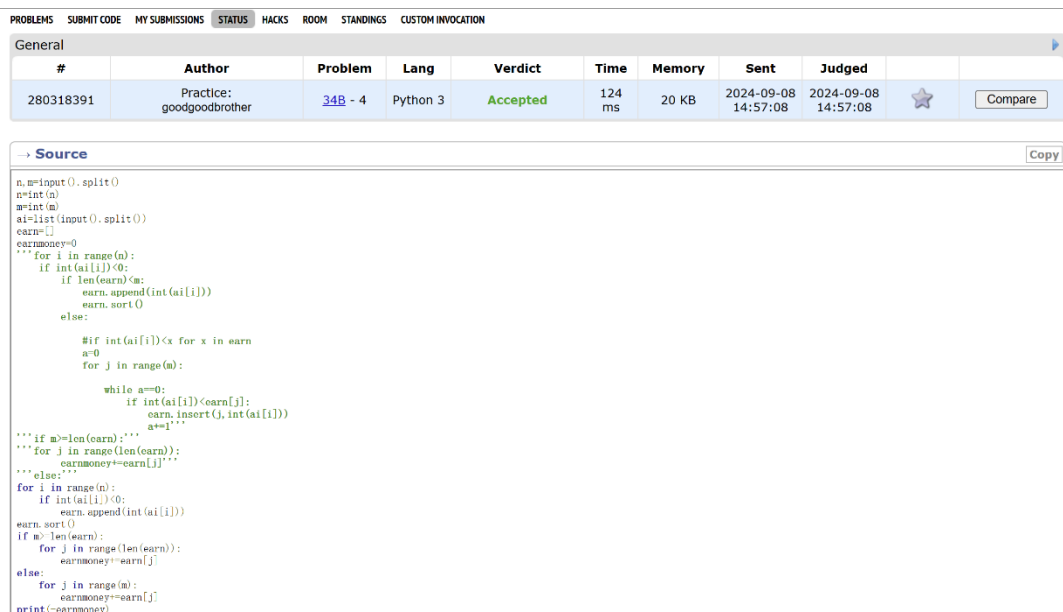
greedy, sorting, 900, <https://codeforces.com/problemset/problem/34/B>

代码

```
n,m=input().split()
n=int(n)
m=int(m)
ai=list(input().split())
earn=[]
earnmoney=0

for i in range(n):
    if int(ai[i])<0:
        earn.append(int(ai[i]))
earn.sort()
if m>=len(earn):
    for j in range(len(earn)):
        earnmoney+=earn[j]
else:
    for j in range(m):
        earnmoney+=earn[j]
print(-earnmoney)
```

代码运行截图（至少包含有"Accepted"）



The screenshot shows a Codeforces submission page for problem 34B. The submission is accepted. The source code is shown below the submission table.

#	Author	Problem	Lang	Verdict	Time	Memory	Sent	Judged		
280318391	Practice: goodgoodbrother	34B - 4	Python 3	Accepted	124 ms	20 KB	2024-09-08 14:57:08	2024-09-08 14:57:08	★	Compare

```
n,m=input().split()
n=int(n)
m=int(m)
ai=list(input().split())
earn=[]
earnmoney=0
for i in range(n):
    if int(ai[i])<0:
        if len(earn)<m:
            earn.append(int(ai[i]))
        else:
            #if int(ai[i])<x for x in earn:
            #    a=0
            #    for j in range(m):
            #        while a==0:
            #            if int(ai[j])<earn[j]:
            #                earn.insert(j,int(ai[j]))
            #                a+=1
            #if m>=len(earn):
            #    for j in range(len(earn)):
            #        earnmoney+=earn[j]
            #else:
            #    for i in range(m):
            #        if int(ai[i])<0:
            #            earn.append(int(ai[i]))
earn.sort()
if m>=len(earn):
    for j in range(len(earn)):
        earnmoney+=earn[j]
else:
    for j in range(m):
        earnmoney+=earn[j]
print(-earnmoney)
```

160A. Twins

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

代码

```
n=int(input())
value=list(input().split())
for i in range(n):
    value[i]=int(value[i])
value.sort()
value.reverse()
valuesum=0
currentsum=0
for i in range(n):
    valuesum+=value[i]
j=0
while currentsum<=valuesum/2:
    currentsum+=value[j]
    j+=1
print(j)
```

代码运行截图 ==（至少包含有"Accepted"）==

PROBLEMS SUBMIT CODE MY SUBMISSIONS STATUS HACKS ROOM STANDINGS CUSTOM INVOCATION

#	Author	Problem	Lang	Verdict	Time	Memory	Sent	Judged		
280335565	Practice: goodgoodbrother	160A - 20	Python 3	Accepted	156 ms	28 KB	2024-09-08 17:20:43	2024-09-08 17:20:43	★	<button>Compare</button>

→ Source Copy

```
n=int(input())
value=list(input().split())
for i in range(n):
    value[i]=int(value[i])
value.sort()
value.reverse()
valuesum=0
currentsum=0
for i in range(n):
    valuesum+=value[i]
j=0
while currentsum<=valuesum/2:
    currentsum+=value[j]
    j+=1
print(j)
```

[Click to see test details](#)

1879B. Chips on the Board

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

代码

```
t=int(input())
for i in range(t):
    n=int(input())
    a=list([int(x) for x in input().split()])
    b = list([int(x) for x in input().split()])
    a2=a
    b2=b
    a2.sort()
    b2.sort()
    suma=0
    sumb=0
    for j in range(n):
        suma=suma+a2[0]+b2[j]
```

```

    sumb=sumb+b2[0]+a2[j]
if suma>sumb:
    print(sumb)
else:
    print(suma)

```

代码运行截图（至少包含有"Accepted"）

PROBLEMS SUBMIT CODE MY SUBMISSIONS STATUS HACKS STANDINGS CUSTOM INVOCATION

#	Author	Problem	Lang	Verdict	Time	Memory	Sent	Judged		
280391681	Practice: goodgoodbrother	1879B - 10	Python 3	Accepted	561 ms	49644 KB	2024-09-09 06:58:09	2024-09-09 06:58:09	★	Compare

→ Source Copy

```

t=int(input())
for i in range(t):
    n=int(input())
    a=list(int(x) for x in input().split())
    b=list(int(x) for x in input().split())
    a2=a
    b2=b
    a2.sort()
    b2.sort()
    suma=0
    sumb=0
    for j in range(n):
        suma=suma+a2[j]+b2[j]
        sumb=sumb+b2[j]+a2[j]
    if suma>sumb:
        print(sumb)
    else:
        print(suma)

```

[Click to see test details](#)

158B. Taxi

*special problem, greedy, implementation,

1100, <https://codeforces.com/problemset/problem/158/B>

代码

```

from math import *
input()
groups=[int(x) for x in input().split()]
ones=groups.count(1)
twos=groups.count(2)
threes=groups.count(3)
taxi=groups.count(4)+threes
ones=max(0,ones-threes)
taxi_for_twos=ceil(twos/2)
taxi+=taxi_for_twos
rest_for_ones=4*taxi_for_twos-twos*2
if ones>rest_for_ones:
    ones-=rest_for_ones
    taxi += ceil(ones / 4)

print(taxi)

```

代码运行截图（至少包含有"Accepted"）

General										
#	Author	Problem	Lang	Verdict	Time	Memory	Sent	Judged		
285759047	Practice: goodgoodbrother	158B - 10	Python 3	Accepted	186 ms	2852 KB	2024-10-14 06:33:44	2024-10-14 06:33:44	★	Compare

→ Source Copy

```

from math import *
input()
groups=[int(x) for x in input().split()]
ones=groups.count(1)
twos=groups.count(2)
threes=groups.count(3)
taxi=groups.count(4)+threes
ones=max(0,ones-threes)
taxi_for_twos=ceil(twos/2)
taxi+=taxi_for_twos
rest_for_ones=4*taxi_for_twos-twos*2
if ones>rest_for_ones:
    ones=rest_for_ones
    taxi += ceil(ones / 4)
print(taxi)

```

[Click to see test details](#)

*230B. T-primes (选做)

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

代码

```
s=1000000
```

```
ifprime=[1]*(s+1)
```

```
for i in range(2,s):
```

```
    if ifprime[i]:
```

```
        for j in range(2*i,s+1,i):
```

```
            ifprime[j]=0
```

```
#print(ifprime)
```

```
n=int(input())
```

```
xs=[int(j) for j in input().split()]
```

```
for x in xs:
```

```
    sqrtx = x ** 0.5
```

```
    if sqrtx != int(sqrtx) or x==1:
```

```
        print('NO')
```

```
    else:
```

```
        sqrtx=int(sqrtx)
```

```
        print(['NO','YES'][ifprime[sqrtx]])
```

代码运行截图 （至少包含有"Accepted"）

PROBLEMS
SUBMIT CODE
MY SUBMISSIONS
STATUS
HACKS
ROOM
STANDINGS
CUSTOM INVOCATION

General

#	Author	Problem	Lang	Verdict	Time	Memory	Sent	Judged		
283133148	Practice: goodgoodbrother	230B - 28	Python 3	Accepted	1372 ms	20896 KB	2024-09-27 09:22:34	2024-09-27 09:22:34	☆	Compare

Source
Copy

```

# from math import sqrt
s=1000000
ifprime=[1]*(s+1)
for i in range(2,s):
    if ifprime[i]:
        for j in range(2*i,s+1,i):
            ifprime[j]=0
#print(ifprime)

n=int(input())
xs=[int(j) for j in input().split()]
for x in xs:
    sqrtx=x**0.5
    if sqrtx!=int(sqrtx) or x==1:
        print('NO')
    else:
        sqrtx=int(sqrtx)
        print('NO','YES')[ifprime[sqrtx]]

'''primes=[]
for i in range(2,999):
    if i==True:
        for j in primes:
            if i%j==0:
                if i==False:
                    break
        if i==True:
            primes.append(i)

n=int(input())
xs=[int(j) for j in input().split()]
for x in xs:
    sqrtx=sqrt(x)
    if sqrtx==int(sqrtx):
        if count!=int(count):
'''

```

*12559: 最大最小整数 （选做）

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

代码

```
n=int(input())
```

```
num=[x for x in input().split()]
```

```
num.sort(reverse=True)
```

```
while '原神启动! ':
    if _break==True
        for i in range(n-1):
            a=num[i]
            b=num[i+1]
            if a==b:
                continue

            if int(a+b)<int(b+a):
                num[i],num[i+1]=b,a
                if _break=False

            if if _break:
                break
for x in num:
    print(x,end='')
print(' ',end='')
num.sort()
```

```
while '原神启动! ':
    if _break = True
        for i in range(n - 1):
```

```
a = num[i]
b = num[i + 1]
if a == b:
    continue
# min_len=min(len(a),len(b))
if int(a + b) > int(b + a):
    num[i], num[i + 1] = b, a
    if_break = False

if if_break:
    break
for x in num:
    print(x,end='')
print(' ',end='')
```

代码运行截图（至少包含有"Accepted"）

#46506800提交状态

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状态: Accepted

源代码

```
n=int(input())
num=[x for x in input().split()]
num.sort(reverse=True)

while '原神启动!':
    if_break=True
    for i in range(n-1):
        a=num[i]
        b=num[i+1]
        if a==b:
            continue

        if int(a+b)<int(b+a):
            num[i],num[i+1]=b,a
            if_break=False

    if if_break:
        break
for x in num:
    print(x,end='')
print(' ',end='')
num.sort()

while '原神启动!':
    if_break = True
    for i in range(n - 1):
        a = num[i]
        b = num[i + 1]
        if a == b:
            continue
```

基本信息

#: 46506800
题目: 12559
提交人: lvjinhao
内存: 5432kB
时间: 70ms
语言: Python3
提交时间: 2024-10-15 20:27:39

2. 学习总结和收获

发现自己有时会把简单的题目想得很复杂，或者说找到简单方法很慢。就比如罗马数字转整数那个，考场上为了把罗马数字转整数写了二三十分钟的 if/else，然后才突然想到可以利用一一对应的关系秒了。碰到像排队这样的题有时不知道从何下手。对自己的评价是菜就多练。