

Assignment #4: T-primes + 贪心

Updated 0337 GMT+8 Oct 15, 2024

2024 fall, Compiled by 徐嘉期、地空

说明:

1) 请把每个题目解题思路 (可选), 源码Python, 或者C++ (已经在Codeforces/Openjudge上AC), 截图 (包含Accepted), 填写到下面作业模版中 (推荐使用 typora <https://typoraio.cn>, 或者用 word)。AC 或者没有AC, 都请标上每个题目大致花费时间。

3) 课程网站是Canvas平台, <https://pku.instructure.com>, 学校通知9月19日导入选课名单后启用。作业写好后, 保留在自己手中, 待9月20日提交。

提交时候先提交pdf文件, 再把md或者doc文件上传到右侧“作业评论”。Canvas需要有同学清晰头像、提交文件有pdf、“作业评论”区有上传的md或者doc附件。

4) 如果不能在截止前提交作业, 请写明原因。

1. 题目

34B. Sale

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

思路:

代码

```
#
n,m=map(int,input().split())
l1=list(map(int,input().split()))
l1.sort()
sum=0
for i in range(m):
    if l1[i]<0:
        sum+=l1[i]
print(-sum)
```

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		
281709365	Practice: xjq123123	34B - 4	Python 3	Accepted	154 ms	24 KB	2024-09-18 11:55:11	2024-09-18 11:55:11	★	Compare

→ Source

Copy

```
n,m=map(int,input().split())
l1=list(map(int,input().split()))
l1.sort()
sum=0
for i in range(m):
    if l1[i]<0:
        sum+=l1[i]
print(-sum)
```

[Click to see test details](#)

160A. Twins

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

思路：

代码

```
n = int(input())
l1=list(map(int,input().split()))
l1.sort(reverse=True)
curr=j=0
while 2*curr<= sum(l1):
    curr+=l1[j]
    j+=1
print(j)
```

代码运行截图 == （至少包含有"Accepted"） ==

CODEFORCES

Sponsored by TON

🇺🇸 | 🇬🇧 | 🇷🇺

xjq123123 | Logout

HOME

TOP

CATALOG

CONTESTS

GYM

PROBLEMSET

GROUPS

RATING

EDU

API

CALENDAR

HELP

PROBLEMS

SUBMIT CODE

MY SUBMISSIONS

STATUS

HACKS

ROOM

STANDINGS

CUSTOM INVOCATION

General

#	Author	Problem	Lang	Verdict	Time	Memory	Sent	Judged		
281817699	Practice: xjq123123	160A - 20	Python 3	Accepted	154 ms	28 KB	2024-09-19 08:49:20	2024-09-19 08:49:20	★	Compare

→ Source

Copy

```
n = int(input())
l1=list(map(int,input().split()))
l1.sort(reverse=True)
curr=j=0
while 2*curr<= sum(l1):
    curr+=l1[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>

思路：

代码

```
n = int(input())
for i in range(n):
    m = int(input())
    row = list(map(int,input().split()))
    line = list(map(int,input().split()))
    row.sort();line.sort()
    min1=row[0]*m+sum(line)
    min2=line[0]*m+sum(row)
    print(min(min1,min2))
```

代码运行截图 (至少包含有"Accepted")

HARBOUR SPACE
UNIVERSITY

🇺🇸 | 🇬🇧 | 🇷🇺
xjq123123 | Logout

HOME TOP CATALOG CONTESTS GYM PROBLEMSET GROUPS RATING EDU API CALENDAR HELP

PROBLEMS SUBMIT CODE MY SUBMISSIONS **STATUS** HACKS STANDINGS CUSTOM INVOCATION

#	Author	Problem	Lang	Verdict	Time	Memory	Sent	Judged		
281819243	Practice: xjq123123	1879B - 10	Python 3	Accepted	421 ms	49708 KB	2024-09-19 09:10:01	2024-09-19 09:10:01	★	Compare

→ Source

Copy

```
n = int(input())
for i in range(n):
    m = int(input())
    row = list(map(int, input().split()))
    line = list(map(int, input().split()))
    row.sort(); line.sort()
    min1 = row[0] * m + sum(line)
    min2 = line[0] * m + sum(row)
    print(min(min1, min2))
```

[Click to see test details](#)

Codeforces (c) Copyright 2010-2024 Mike Mirzayanov
The only programming contests Web 2.0 platform
Server time: Oct/17/2024 17:58:01 UTC+8 (h2).
Desktop version, switch to [mobile version](#).
[Privacy Policy](#)

Supported by





158B. Taxi

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

思路：

代码

```

n = int(input())
l1=sorted(list(map(int,input().split()))))
dic1={}
check = [False] * 5
set1 = set(l1)
for i in set1:
    dic1[i]=l1.count(i)
    check[i]=True
total = 0;spare = 0
if check[4]:
    total += dic1[4]
if check[3]:
    total += dic1[3]
    spare += dic1[3]
if check[2]:
    total += (dic1[2]-1)//2 + 1
    spare += 2*(dic1[2] % 2)
if check[1]:
    if spare < dic1[1]:
        total += (dic1[1]-spare-1)//4+1
print(total)

```

代码运行截图 (至少包含有"Accepted")

General										
#	Author	Problem	Lang	Verdict	Time	Memory	Sent	Judged		
286082504	Practice: xjq123123	158B - 10	Python 3	Accepted	218 ms	3320 KB	2024-10-15 17:34:59	2024-10-15 17:35:02	★	<button>Compare</button>

→ Source
Copy

N/A

*230B. T-primes (选做)

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

思路:

代码

```

from math import isqrt
def seive_of_Euler(limit):
    isprime=[0]*(limit+1)
    isprime[0]=isprime[1]=1
    prime=[]
    for i in range(limit+1):
        if isprime[i] == 0:
            prime.append(i)
            for j in prime:

```

```

        if i*j > limit:
            break
        isprime[i*j]=1
        if i%j == 0:break
    return prime
n = int(input())
l1 = list(map(int,input().split()))
m=isqrt(max(l1))+1
prime=seive_of_Euler(m)
ans=set(p*p for p in prime)
for i in l1:
    if i in ans:
        print("YES")
    else:
        print("NO")

```

代码运行截图 (至少包含有"Accepted")

#	Author	Problem	Lang	Verdict	Time	Memory	Sent	Judged		
284197551	Practice: xjq123123	230B - 28	Python 3	Accepted	1060 ms	16416 KB	2024-10-03 18:49:35	2024-10-03 18:49:35	★	Compare

[→ Source](#)
[Copy](#)

```

from math import isqrt
def seive_of_Euler(limit):
    isprime=[0]*(limit+1)
    isprime[0]=isprime[1]=1
    prime=[]
    for i in range(limit+1):
        if isprime[i] == 0:
            prime.append(i)
            for j in prime:
                if i*j > limit:
                    break
                isprime[i*j]=1
                if i%j == 0:break
    return prime
n = int(input())
l1 = list(map(int, input().split()))
m=isqrt(max(l1))+1
prime=seive_of_Euler(m)
ans=set(p*p for p in prime)
for i in l1:
    if i in ans:
        print("YES")
    else:
        print("NO")

```

[Click](#) to see test details

*12559: 最大最小整数 (选做)

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

思路:

代码

```

n = int(input())
l1 = list(input().split())
len1 = len(l1)
l2=[]
for i in range(10):
    l2.append([])
for i in l1:
    l2[int(i[0])].append(i)
for i in range(1,10):

```

```

len2 = len(l2[i])
for j in range(len2-1):
    for k in range(j+1, len2):
        num1 = int(l2[i][j]+l2[i][k])
        num2 = int(l2[i][k]+l2[i][j])
        if num1 <= num2:
            c = l2[i][j]
            l2[i][j] = l2[i][k]
            l2[i][k] = c

max1=''
min1=''
for i in range(9,0,-1):
    for j in l2[i]:
        max1 = max1+j
    l2[i].reverse()
for i in range(1,10):
    for j in l2[i]:
        min1 = min1 + j
print(max1,min1)

```

代码运行截图 (至少包含有"Accepted")

OpenJudge
题目ID、标题、描述
24n2400012440徐嘉期
信箱
账号

CS101 / 题库 (包括计概、数算题目)
题目
排名
状态
提问

#46554550提交状态
查看
提交
统计
提问

状态: Accepted

源代码

```

n = int(input())
l1 = list(input().split())
len1 = len(l1)
l2=[]
for i in range(10):
    l2.append([])
for i in l1:
    l2[int(i[0])].append(i)
for i in range(1,10):
    len2 = len(l2[i])
    for j in range(len2-1):
        for k in range(j+1, len2):
            num1 = int(l2[i][j]+l2[i][k])
            num2 = int(l2[i][k]+l2[i][j])
            if num1 <= num2:
                c = l2[i][j]
                l2[i][j] = l2[i][k]
                l2[i][k] = c

max1=''
min1=''
for i in range(9,0,-1):
    for j in l2[i]:
        max1 = max1+j
    l2[i].reverse()
for i in range(1,10):
    for j in l2[i]:
        min1 = min1 + j
print(max1,min1)

```

#46554550

题目: 12559

提交人: 24n2400012440徐嘉期

内存: 3664kB

时间: 61ms

语言: Python3

提交时间: 2024-10-17 18:11:57

©2002-2022 POJ 京ICP备20010980号-1

English
帮助
关于

2. 学习总结和收获

如果作业题目简单，有否额外练习题目，比如：OJ“计概2024fall每日选做”、CF、LeetCode、洛谷等网站题目。

最近感觉各科任务量比较大，虽然往计概上投入的时间仍然很多，但相比之前可能还是会有所下降，而且明显感到题目难度变大，有些题目不是那么容易做出来了，但是还是会认真思考的

感觉自己可能还是要赶紧调整一下方法：1，做完题还是要看答案，不能因为时间紧张而选择为了完成题目而做题，感觉这样提升较慢，不如把一道题学透，宁可学精；2，除了打代码实践，理论的学习也要抓起来了，得自己去努力看算法书，最近的题目让自己感觉到自己思维可能还是比较的局限；3，多和同学交流，自己面对着ants题目迟迟没有进展，但和朋友最近一次聊天后才意识到这道脑筋急转弯该怎么做

悲，起飞但又没完全起飞