

Assignment #7: 20250402 Mock Exam

Updated 1624 GMT+8 Apr 2, 2025

2025 spring, Compiled by 金俊毅, 物理学院

1. 题目

E05344:最后的最后

<http://cs101.openjudge.cn/practice/05344/>

代码:

```
class ListNode(object):
    def __init__(self, val=0):
        self.val = val
        self.next = None

n, k = map(int, input().split())
head = ListNode(1)
node = head
for i in range(2, n+1):
    node.next = ListNode(i)
    node = node.next
node.next = head
node = node.next

cnt = 0
ans = []
while node.next != node:
    cnt += 1
    if cnt == k-1:
        ans.append(str(node.next.val))
        node.next = node.next.next
        cnt = 0
    node = node.next
print(" ".join(ans))
```

代码运行截图 (至少包含有"Accepted")

状态: Accepted

源代码

```
class ListNode(object):
    def __init__(self, val=0):
        self.val = val
        self.next = None

n, k = map(int, input().split())
head = ListNode(1)
node = head
for i in range(2, n+1):
    node.next = ListNode(i)
    node = node.next
node.next = head
node = node.next

cnt = 0
ans = []
while node.next != node:
    cnt += 1
    if cnt == k-1:
```

基本信息

#: 48810777
题目: 05344
提交人: 24n2400011454
内存: 3640kB
时间: 21ms
语言: Python3
提交时间: 2025-04-03 15:52:43

M02774: 木材加工

binary search, <http://cs101.openjudge.cn/practice/02774/>

代码:

```
n, k = map(int, input().split())
length = [int(input()) for _ in range(n)]
m1 = sum(length) // k
if k > sum(length):
    print(0)
else:
    left = 1
    right = m1+1
    mid = (left + right) // 2
    while left < right-1:
        mid = (left + right) // 2
        cnt = 0
        for wood in length:
            cnt += wood // mid
        if cnt >= k:
            left = mid
        else:
            right = mid
    print(mid)
```

状态: Accepted

源代码

```
n, k = map(int, input().split())
length = [int(input()) for _ in range(n)]
m1 = sum(length) // k
if k > sum(length):
    print(0)
else:
    left = 1
    right = m1+1
    mid = (left + right) // 2
    while left < right-1:
        mid = (left + right) // 2
        cnt = 0
        for wood in length:
            cnt += wood // mid
        if cnt >= k:
            left = mid
        else:
            right = mid
    print(mid)
```

基本信息

#: 48813703
题目: 02774
提交人: 24n2400011454
内存: 3924kB
时间: 49ms
语言: Python3
提交时间: 2025-04-03 19:32:12

M07161:森林的带度数层次序列存储

tree, <http://cs101.openjudge.cn/practice/07161/>

代码:

```
class TreeNode(object):
    def __init__(self, val="", mnt=0):
        self.val = val
        self.mnt = mnt
        self.next = []

ans = []

def postflow(nod):
    if not nod.next:
        ans.append(nod.val)
    else:
        for s in nod.next:
            postflow(s)
        ans.append(nod.val)

n = int(input())
forests = []
heads = []
for _ in range(n):
    tree = input().split()
    head = TreeNode(tree[0], int(tree[1]))
    forest = [[head]]
    heads.append(head)
    i = 2
    while i < len(tree):
        a = forest[-1]
```

```

        forest.append([])
    for node in a:
        for _ in range(node.mnt):
            node.next.append(TreeNode(tree[i], int(tree[i+1])))
            i += 2
        forest[-1].append(node.next[-1])

for p in heads:
    postflow(p)
print(" ".join(ans))

```

代码运行截图 (至少包含有"Accepted")

状态: Accepted

源代码

```

class TreeNode(object):
    def __init__(self, val="", mnt=0):
        self.val = val
        self.mnt = mnt
        self.next = []

ans = []

def postflow(nod):
    if not nod.next:
        ans.append(nod.val)
    else:
        for s in nod.next:

```

基本信息

#: 48813554
 题目: 07161
 提交人: 24n2400011454
 内存: 3672kB
 时间: 23ms
 语言: Python3
 提交时间: 2025-04-03 19:16:31

M18156:寻找离目标数最近的两数之和

two pointers, <http://cs101.openjudge.cn/practice/18156/>

代码:

```

t = int(input())
num = sorted(list(map(int, input().split())))
n = len(num)
ans = float("inf")
right = n-1
for i in range(n):
    if i == right:
        break
    for j in range(right, i, -1):
        a = num[i] + num[j]
        if a == t:
            ans = a
            break
        if abs(a-t) < abs(ans-t) or (abs(a-t) == abs(ans-t) and a < ans):
            ans = a
        if a < t:
            right = j
            break
print(ans)

```

代码运行截图 (至少包含有"Accepted")

#48812920提交状态

[查看](#) [提交](#) [统计](#) [提问](#)

状态: Accepted

源代码

```
t = int(input())
num = sorted(list(map(int, input().split())))
n = len(num)
ans = float("inf")
right = n-1
for i in range(n):
    if i == right:
        break
    for j in range(right, i, -1):
        a = num[i] + num[j]
        if a == t:
            ans = a
            break
        if abs(a-t) < abs(ans-t) or (abs(a-t) == abs(ans-t) and a < ans):
            ans = a
        if a < t:
            right = j
            break
print(ans)
```

基本信息

#: 48812920
题目: 18156
提交人: 24n2400011454
内存: 15804kB
时间: 312ms
语言: Python3
提交时间: 2025-04-03 17:57:32

M18159:个位为 1 的质数个数

sieve, <http://cs101.openjudge.cn/practice/18159/>

代码:

```
arbit = [False, False, True, True] + [False, True]*5050
i = 3
while i**2 <= 10010:
    if arbit[i]:
        for j in range(i*2, 10010, i):
            arbit[j] = False
        i += 1
ans = []
for i in range(2, 10010):
    if str(i)[-1] == "1" and arbit[i]:
        ans.append(str(i))

t = int(input())
for x in range(t):
    print("Case"+str(x+1)+":")
    n = int(input())
    p = len(ans)
    if n <= 11:
        print("NULL")
    else:
        for i in range(len(ans)):
            if int(ans[i]) >= n:
                p = i
                break
    print(" ".join(ans[:p]))
```

代码运行截图 (至少包含有"Accepted")

状态: Accepted

源代码

```
arbit = [False, False, True, True] + [False, True]*5050
i = 3
while i**2 <= 10010:
    if arbit[i]:
        for j in range(i*2, 10010, i):
            arbit[j] = False
    i += 1
ans = []
for i in range(2, 10010):
    if str(i)[-1] == "1" and arbit[i]:
        ans.append(str(i))

t = int(input())
for x in range(t):
    print("Case"+str(x+1)+":")
```

基本信息

#: 48813181
题目: 18159
提交人: 24n2400011454
内存: 11416kB
时间: 445ms
语言: Python3
提交时间: 2025-04-03 18:33:14

M28127:北大夺冠

hash table, <http://cs101.openjudge.cn/practice/28127/>

代码:

```
n = int(input())
times = {}
ques = {}
for _ in range(n):
    school, number, judge = map(str, input().split(", "))
    if school not in times:
        times[school] = 0
    if school not in ques:
        ques[school] = []
    times[school] += 1
    if judge == "yes" and number not in ques[school]:
        ques[school].append(number)
ans = []
for sch in ques:
    ans.append([-len(ques[sch]), times[sch], sch])
ans.sort()
if len(ans) >= 12:
    p = 13
else:
    p = len(ans)+1
for i in range(1, p):
    print(str(i)+" "+ans[i-1][2]+" "+str(-ans[i-1][0])+" "+str(ans[i-1][1]))
```

代码运行截图 == (AC代码截图, 至少包含有"Accepted") ==

#48812851提交状态

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状态: Accepted

源代码

```
n = int(input())
times = {}
ques = {}
for _ in range(n):
    school, number, judge = map(str, input().split(", "))
    if school not in times:
        times[school] = 0
    if school not in ques:
        ques[school] = []
    times[school] += 1
    if judge == "yes" and number not in ques[school]:
        ques[school].append(number)
ans = []
for sch in ques:
    ans.append([-len(ques[sch]), times[sch], sch])
ans.sort()
if len(ans) >= 12:
    p = 13
else:
    p = len(ans)+1
for i in range(1, p):
    print(str(i)+" "+ans[i-1][2]+" "+str(-ans[i-1][0])+" "+str(ans[i-1][1]))
```

基本信息

#: 48812851
题目: 28127
提交人: 24n2400011454
内存: 3672kB
时间: 23ms
语言: Python3
提交时间: 2025-04-03 17:49:12

2. 学习总结和收获

这一次月考的题目比较简单，很容易有思路，并很容易实现，但这学期代码敲的不多，比较生疏，容易栽在小问题里，并重新复习了一下第二题这一题型的思路