

Assignment #7: Nov Mock Exam立冬

Updated 1646 GMT+8 Nov 7, 2024

2024 fall, Compiled by 徐贤天, 工学院

说明:

- 1) 月考: AC3。考试题目都在“题库(包括计概、数算题目)”里面,按照数字题号能找到,可以重新提交。作业中提交自己最满意版本的代码和截图。
- 2) 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://typora.io.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) 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

E07618: 病人排队

sortings, <http://cs101.openjudge.cn/practice/07618/>

思路:

代码:

```
n = int(input())
ls = []
for _ in range(n):
    case = input().split()
    ls.append(case)
old = []
young = []
for x in ls:
    if int(x[1]) >= 60:
        old.append(x)
    else:
        young.append(x)
old.sort(key = lambda x: int(x[1]), reverse = True)
for i in range(len(old)):
    print(old[i][0])
for i in range(len(young)):
    print(young[i][0])
```

代码运行截图 (至少包含有"Accepted")

状态: Accepted

源代码

```
n = int(input())
ls = []
for _ in range(n):
    case = input().split()
    ls.append(case)
old = []
young = []
for x in ls:
    if int(x[1]) >= 60:
        old.append(x)
    else:
        young.append(x)
old.sort(key = lambda x: int(x[1]), reverse = True)
for i in range(len(old)):
    print(old[i][0])
for i in range(len(young)):
    print(young[i][0])
```

基本信息

#: 47015989
题目: E07618
提交人: 24n2400011033
内存: 3628kB
时间: 28ms
语言: Python3
提交时间: 2024-11-07 16:57:51

E23555: 节省存储的矩阵乘法

implementation, matrices, <http://cs101.openjudge.cn/practice/23555/>

思路:

代码:

```
n,m1,m2 = map(int,input().split())
A = [[0]*n for _ in range(n)]
B = [[0]*n for _ in range(n)]
for _ in range(m1):
    i,j,x = map(int,input().split())
    A[i][j] = x
for _ in range(m2):
    i,j,x = map(int,input().split())
    B[i][j] = x
C = [[0]*n for _ in range(n)]
for i in range(n):
    for j in range(n):
        for k in range(n):
            C[i][j] += A[i][k]*B[k][j]
for i in range(n):
    for j in range(n):
        if C[i][j] != 0:
            print('{} {} {}'.format(i,j,C[i][j]))
```

代码运行截图 == (至少包含有"Accepted") ==

状态: Accepted

源代码

```
n,m1,m2 = map(int,input().split())
A = [[0]*n for _ in range(n)]
B = [[0]*n for _ in range(n)]
for _ in range(m1):
    i,j,x = map(int,input().split())
    A[i][j] = x
for _ in range(m2):
    i,j,x = map(int,input().split())
    B[i][j] = x
C = [[0]*n for _ in range(n)]
for i in range(n):
    for j in range(n):
        for k in range(n):
            C[i][j] += A[i][k]*B[k][j]
for i in range(n):
    for j in range(n):
        if C[i][j] != 0:
            print('{} {} {}'.format(i,j,C[i][j]))
```

基本信息

#: 47010782
题目: E23555
提交人: 24n2400011033
内存: 3676kB
时间: 31ms
语言: Python3
提交时间: 2024-11-07 15:39:56

M18182: 打怪兽

implementation/sortings/data structures, <http://cs101.openjudge.cn/practice/18182/>

思路:

代码:

```
nCase = int(input())
for _ in range(nCase):
    n,m,b = map(int,input().split())
    case = []
    s = set()
    for _ in range(n):
        case.append(list(map(int,input().split())))
    for i in range(n):
        s.add(case[i][0])
    s = list(s)
    s.sort()
    for i in s:
        ls = []
        for j in range(n):
            if case[j][0] == i:
                ls.append(case[j][1])
        ls.sort(reverse = True)
        if len(ls) <= m:
            b -= sum(ls)
        else:
            b -= sum(ls[0:m])
        if b <= 0:
            print(i)
            break
    else:
        print('alive')
```

代码运行截图 (至少包含有"Accepted")

#47011802提交状态

查看提交统计提问

状态: Accepted

源代码

```
nCase = int(input())
for _ in range(nCase):
    n,m,b = map(int,input().split())
    case = []
    s = set()
    for _ in range(n):
        case.append(list(map(int,input().split())))
    for i in range(n):
        s.add(case[i][0])
    s = list(s)
    s.sort()
    for i in s:
        ls = []
        for j in range(n):
            if case[j][0] == i:
                ls.append(case[j][1])
        ls.sort(reverse = True)
        if len(ls) <= m:
            b -= sum(ls)
        else:
            b -= sum(ls[0:m])
        if b <= 0:
            print(i)
            break
    else:
        print('alive')
```

基本信息

#: 47011802

题目: M18182

提交人: 24n2400011033

内存: 3800kB

时间: 90ms

语言: Python3

提交时间: 2024-11-07 16:03:39

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English帮助关于

M28780: 零钱兑换3

dp, <http://cs101.openjudge.cn/practice/28780/>

思路:

代码:

```
def make_changes(dp, coins, change):
    for cents in range(1, change+1):
        for coin in coins:
            if cents >= coin:
                dp[cents] = min(dp[cents], dp[cents-coin]+1)
    return dp[-1] if dp[-1] != float("inf") else -1
n,m = map(int,input().split())
coins = [int(x) for x in input().split()]
dp = [float('inf')]*(m+1)
dp[0] = 0
print(make_changes(dp, coins, m))
```

代码运行截图 (至少包含有"Accepted")

状态: Accepted

源代码

```
def make_changes(dp, coins, change):
    for cents in range(1, change+1):
        for coin in coins:
            if cents >= coin:
                dp[cents] = min(dp[cents], dp[cents-coin]+1)
    return dp[-1] if dp[-1] != float("inf") else -1
n, m = map(int, input().split())
coins = [int(x) for x in input().split()]
dp = [float('inf')] * (m+1)
dp[0] = 0
print(make_changes(dp, coins, m))
```

基本信息

#: 47066615
题目: 28780
提交人: 24n2400011033
内存: 8624kB
时间: 10935ms
语言: Python3
提交时间: 2024-11-09 21:49:57

T12757: 阿尔法星人翻译官

implementation, <http://cs101.openjudge.cn/practice/12757>

思路:

代码:

```
strs = input().split()
dict = {'zero':0, 'one':1, 'two':2, 'three':3, 'four':4, 'five':5, 'six':6,
'seven':7, 'eight':8, 'nine':9, 'ten':10, 'eleven':11, 'twelve':12,
'thirteen':13, 'fourteen':14, 'fifteen':15, 'sixteen':16, 'seventeen':17,
'eighteen':18, 'nineteen':19, 'twenty':20, 'thirty':30, 'forty':40, 'fifty':50,
'sixty':60, 'seventy':70, 'eighty':80, 'ninety':90, 'hundred':100,
'thousand':1000, 'million':1000000}
if strs[0] == 'negative':
    sgn = -1
    strs.pop(0)
else:
    sgn = 1

temp = 0
ans = 0
for i in strs:
    if i in ['thousand', 'million']:
        ans += temp * dict[i]
        temp = 0
        continue
    if i == 'hundred':
        temp *= 100
    else:
        temp += dict[i]
ans += temp
print(ans * sgn)
```

代码运行截图 (至少包含有"Accepted")

状态: **Accepted**

源代码

```
strs = input().split()
dict = {'zero':0, 'one':1, 'two':2, 'three':3, 'four':4, 'five':5, 'six':6, 'seven':7, 'eight':8, 'nine':9, 'ten':10, 'eleven':11, 'twelve':12, 'thirteen':13, 'fourteen':14, 'fifteen':15, 'sixteen':16, 'seventeen':17, 'eighteen':18, 'nineteen':19, 'twenty':20, 'thirty':30, 'forty':40, 'fifty':50, 'sixty':60, 'seventy':70, 'eighty':80, 'ninety':90, 'hundred':100, 'thousand':1000, 'million':1000000}

if strs[0] == 'negative':
    sgn = -1
    strs.pop(0)
else:
    sgn = 1

temp = 0
ans = 0
for i in strs:
    if i in ['thousand', 'million']:
        ans += temp * dict[i]
        temp = 0
        continue
    if i == 'hundred':
        temp *= 100
    else:
        temp += dict[i]
ans += temp
print(ans * sgn)
```

基本信息

#: 47067615
题目: 12757
提交人: 24n2400011033
内存: 3688kB
时间: 25ms
语言: Python3
提交时间: 2024-11-09 23:02:00

T16528: 充实的寒假生活

greedy/dp, cs10117 Final Exam, <http://cs101.openjudge.cn/practice/16528/>

思路:

选择不相交区间问题

代码:

```
n = int(input())
intervals = [[int(x) for x in input().split()] for _ in range(n)]
intervals.sort(key=lambda x: x[1])
end = -float('inf')
ans = 0
for i in range(n):
    a, b = intervals[i]
    if a > end:
        ans += 1
        end = b
print(ans)
```

代码运行截图 (至少包含有"Accepted")

状态: **Accepted**

源代码

```
n = int(input())
intervals = [[int(x) for x in input().split()] for _ in range(n)]
intervals.sort(key=lambda x: x[1])
end = -float('inf')
ans = 0
for i in range(n):
    a, b = intervals[i]
    if a > end:
        ans += 1
        end = b
print(ans)
```

基本信息

#: 47067828
题目: 16528
提交人: 24n2400011033
内存: 4056kB
时间: 41ms
语言: Python3
提交时间: 2024-11-09 23:27:27

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。

最近一直在准备数学的期中，计概刷题刷的少了，坐在考场上明显感觉到生疏，犯了很多低级的错误，浪费了很多时间。尤其是第一题，在病人年龄排序的时候竟然忘了加int，花了很多时间才检查出来，最后的那些题目来不及看了TAT。一些模版型的题目本该马上反应过来，题目应该说是比较简单的，但结果比较惨。这次考试实在给我敲响了警钟，在接下来的一个多月时间里要更加重视计概，每天都要保持两小时以上的时间。此外机房还是要多去几次，感觉机房的键盘和环境跟自己在笔记本上有很大不同，打字的时候经常敲错。