

Assignment #F: All-Killed 满分

Updated 1844 GMT+8 May 20, 2024

2024 spring, Compiled by ==同学的姓名、院系==

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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。
- 2) 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。
- 3) 如果不能在截止前提交作业, 请写明原因。

编程环境

== (请改为同学的操作系统、编程环境等) ==

操作系统: win10

Python编程环境: Spyder IDE 5.2.2

C/C++编程环境:

1. 题目

22485: 升空的焰火, 从侧面看

<http://cs101.openjudge.cn/practice/22485/>

思路: 用deque解决

代码

```
from collections import deque
def ri(a):
    qu = deque([(1,a[1])])
    ans = []
    while qu:
        m = len(qu)
        for j in range(m):
            x,y = qu.popleft()
            if y[0] != -1:
                qu.append((y[0],a[y[0]]))
            if y[1] != -1:
                qu.append((y[1],a[y[1]]))
```

```

        ans.append(x)
    return ans

n = int(input())
a = {}
for i in range(1,n+1):
    a[i] = list(map(int,input().split()))
print(' '.join(map(str,ri(a))))

```

代码运行截图 == (至少包含有"Accepted") ==

#45046443提交状态

[查看](#) [提交](#) [统计](#) [提问](#)

状态: Accepted

源代码

```

from collections import deque
def ri(a):
    qu = deque([(1,a[1])])
    ans = []
    while qu:
        m = len(qu)
        for j in range(m):
            x,y = qu.popleft()
            if y[0] != -1:
                qu.append((y[0],a[y[0]]))
            if y[1] != -1:
                qu.append((y[1],a[y[1]]))
        ans.append(x)
    return ans

n = int(input())
a = {}
for i in range(1,n+1):
    a[i] = list(map(int,input().split()))
print(' '.join(map(str,ri(a))))

```

基本信息

#: 45046443
 题目: 22485
 提交人: 23n2300012140(zyt)
 内存: 3776kB
 时间: 21ms
 语言: Python3
 提交时间: 2024-05-22 18:04:28

28203:【模板】单调栈

<http://cs101.openjudge.cn/practice/28203/>

思路: 用一个空列表中转

代码

```

n = int(input())
a = list(map(int, input().split()))
s = []
for i in range(n):
    while s and a[s[-1]] < a[i]:
        a[s.pop()] = i+1
    s.append(i)

while s:
    a[s.pop()] = 0

print(' '.join(map(str, a)))

```

代码运行截图 == (至少包含有"Accepted") ==

#45059293提交状态

[查看](#) [提交](#) [统计](#) [提问](#)

状态: **Accepted**

源代码

```

n = int(input())
a = list(map(int, input().split()))
s = []
for i in range(n):
    while s and a[s[-1]] < a[i]:
        a[s.pop()] = i+1
    s.append(i)

while s:
    a[s.pop()] = 0

print(' '.join(map(str, a)))

```

基本信息

#: 45059293
 题目: 28203
 提交人: 23n2300012140(zyt)
 内存: 397312kB
 时间: 2920ms
 语言: Python3
 提交时间: 2024-05-23 22:47:45

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[English](#) [帮助](#) [关于](#)

09202: 舰队、海域出击!

<http://cs101.openjudge.cn/practice/09202/>

思路: defaultdict对做题很有帮助

代码

```

from collections import defaultdict
def find(q):
    b[q] = False
    for j in a[q]:
        c[j] -= 1
        if c[j] == 0:
            find(j)

n = int(input())
for _ in range(n):
    dot, edge = map(int, input().split())

```

```

a = defaultdict(list)
b = [True]*(dot+1)
c = [0]*(dot+1)
for _ in range(edge):
    x,y = map(int,input().split())
    a[x].append(y)
    c[y] += 1
for i in range(1,dot+1):
    if c[i] == 0 and b[i]:
        find(i)
flag = 'No'
for k in range(1,dot+1):
    if b[k] != False:
        flag = 'Yes'
print(flag)

```

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

#45059851提交状态

[查看](#) [提交](#) [统计](#) [提问](#)

状态: **Accepted**

源代码

```

from collections import defaultdict
def find(q):
    b[q] = False
    for j in a[q]:
        c[j] -= 1
        if c[j] == 0:
            find(j)

n = int(input())
for _ in range(n):
    dot,edge = map(int,input().split())
    a = defaultdict(list)
    b = [True]*(dot+1)
    c = [0]*(dot+1)
    for _ in range(edge):
        x,y = map(int,input().split())
        a[x].append(y)
        c[y] += 1
    for i in range(1,dot+1):
        if c[i] == 0 and b[i]:
            find(i)

```

基本信息

#: 45059851
 题目: 09202
 提交人: 23n2300012140(zyt)
 内存: 63420kB
 时间: 4003ms
 语言: Python3
 提交时间: 2024-05-24 00:40:22

04135: 月度开销

<http://cs101.openjudge.cn/practice/04135/>

思路: 二分法

代码

```

n,m = map(int,input().split())
a = []
for _ in range(n):
    a.append(int(input()))
low = max(a)

```

```

high = sum(a)

def check(x):
    sn = 0
    sm = 1
    for i in range(n):
        if sn + a[i] > x:
            sn = a[i]
            sm += 1
        else:
            sn += a[i]
    if sm > m:
        return False
    else:
        return True

me = (low+high)//2
while me != low:
    if check(me):
        high = me
        me = (low+high)//2
    else:
        low = me
        me = (low+high)//2
if check(low):
    print(str(low))
else:
    print(high

```

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

#45078424提交状态

[查看](#) [提交](#) [统计](#) [损](#)

状态: **Accepted**

源代码

```

n,m = map(int,input().split())
a = []
for _ in range(n):
    a.append(int(input()))
low = max(a)
high = sum(a)

def check(x):
    sn = 0
    sm = 1
    for i in range(n):
        if sn + a[i] > x:
            sn = a[i]
            sm += 1
        else:
            sn += a[i]
    if sm > m:
        return False
    else:
        return True

```

基本信息

#: 45078424
 题目: 04135
 提交人: 23n2300012140(zyt)
 内存: 8020kB
 时间: 522ms
 语言: Python3
 提交时间: 2024-05-25 14:08:57

07735: 道路

<http://cs101.openjudge.cn/practice/07735/>

思路：堆

代码

```
import heapq
k = int(input())
n = int(input())
r = int(input())
a = [[] for _ in range(n)]
for _ in range(r):
    x1,x2,x3,x4 = map(int,input().split())
    a[x1-1].append((x2-1,x3,x4))
pq = [(0,0,0)]
while pq:
    a2,a1,a3 = heapq.heappop(pq)
    if a1 == n-1:
        print(a2)
        break
    else:
        for p in a[a1]:
            if a3 + p[2] <= k:
                heapq.heappush(pq, (a2+p[1], p[0], a3+p[2]))
```

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

#45083385提交状态

[查看](#) [提交](#) [统计](#) [提问](#)

状态: Accepted

源代码

```
import heapq
k = int(input())
n = int(input())
r = int(input())
a = [[] for _ in range(n)]
for _ in range(r):
    x1,x2,x3,x4 = map(int,input().split())
    a[x1-1].append((x2-1,x3,x4))
pq = [(0,0,0)]
while pq:
    a2,a1,a3 = heapq.heappop(pq)
    if a1 == n-1:
        print(a2)
        break
    else:
        for p in a[a1]:
            if a3 + p[2] <= k:
                heapq.heappush(pq, (a2+p[1], p[0], a3+p[2]))
```

基本信息

#: 45083385
题目: 07735
提交人: 23n2300012140(zyt)
内存: 6652kB
时间: 47ms
语言: Python3
提交时间: 2024-05-25 17:41:29

01182: 食物链

<http://cs101.openjudge.cn/practice/01182/>

思路：有些难理解

代码

```
class Circle:
    def __init__(self, root):
        self.kinds = {root: 0}
        self.root = root

    def join(self, circle, rotate):
        for idx, kind in circle.kinds.items():
            self.kinds[idx] = (kind - rotate) % 3
            ls[idx] = self.root

n, k = map(int, input().split())
ls = [i for i in range(n)]
circles = [Circle(i) for i in range(n)]
ans = 0

for _ in range(k):
    d, x, y = map(int, input().split())
    if x > n or y > n or (d == 2 and x == y):
        ans += 1
        continue
    x -= 1
    y -= 1

    idx_x = circles[ls[x]].kinds[x]
    idx_y = circles[ls[y]].kinds[y]
    if d == 1:
        if ls[x] != ls[y]:
            circles[ls[x]].join(circles[ls[y]], (idx_y - idx_x) % 3)
        else:
            if idx_x != idx_y:
                ans += 1
            continue

    if ls[x] != ls[y]:
        circles[ls[x]].join(circles[ls[y]], (idx_y - idx_x - 1) % 3)
    elif (idx_y - idx_x - 1) % 3 != 0:
        ans += 1

print(ans)
```

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

#45083559提交状态

[查看](#) [提交](#) [统计](#) [提问](#)

状态: Accepted

源代码

```
class Circle:
    def __init__(self, root):
        self.kinds = {root: 0}
        self.root = root

    def join(self, circle, rotate):
        for idx, kind in circle.kinds.items():
            self.kinds[idx] = (kind - rotate) % 3
            ls[idx] = self.root

n, k = map(int, input().split())
ls = [i for i in range(n)]
circles = [Circle(i) for i in range(n)]
ans = 0
```

基本信息

#: 45083559
题目: 01182
提交人: 23n2300012140(zyt)
内存: 45228kB
时间: 350ms
语言: Python3
提交时间: 2024-05-25 17:52:07

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“2024spring每日选做”、CF、LeetCode、洛谷等网站题目。==

本次作业大部分题目还是比较平和的