

Assignment #C: 五味杂陈

Updated 1148 GMT+8 Dec 10, 2024

2024 fall, Compiled by 万馨雅 城环

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。

1. 题目

1115. 取石子游戏

dfs, <https://www.acwing.com/problem/content/description/1117/>

思路:

代码:

```
while True:
    a,b=map(int,input().split())
    if a==b==0:
        break
    else:
        x,y=a,b
        a=max(x,y)
        b=min(x,y)

    num=1

    while a>0 and b>0:
        if a//b>=2 or a==b :
            break
        a-=b
        a,b=b,a
        num += 1
    if num%2==0:
        print('lose')
    else:
        print('win')
```

代码运行截图 (至少包含有"Accepted")

挑战模式 Python3

```
1 while True:
2     a,b=map(int,input().split())
3     if a==b==0:
4         break
5     else:
6         x,y=a,b
7         a=max(x,y)
8         b=min(x,y)
9
10        num=1
11
12        while a>0 and b>0:
13            if a//b>=2 or a==b :
14                break
15            a-=b
16            a,b=b,a
17            num += 1
18        if num%2==0:
19            print('lose')
20        else:
21            print('win')
22
```

数据有点弱吗? 可以申请加强数据

代码提交状态: Accepted

25570: 洋葱

Matrices, <http://cs101.openjudge.cn/practice/25570>

思路:

代码:

```
n=int(input())
c=[list(map(int,input().split())) for i in range(n)]
d=[]
left=0;right=n-1
top=0;bottom=n-1
while left<right:
    num=0
    for i in range(left,right+1):
        num+=c[top][i]
    top+=1
    for j in range(top,bottom+1):
        num+=c[j][right]
    right-=1
    for l in range(right,left-1,-1):
        num+=c[bottom][l]
    bottom-=1
    for k in range(bottom,top-1,-1):
        num+=c[k][left]
    left+=1
    d.append(num)
if n%2==0:
    print(max(d))
```

```
else:
    d.append(c[n//2][n//2])
    print(max(d))
```

代码运行截图 == (至少包含有"Accepted") ==

题目

排名

状态

提问

#47688683提交状态

查看

提交

统计

状态: Accepted

源代码

```
n=int(input())
c=[list(map(int,input().split())) for i in range(n)]
d=[]
left=0;right=n-1
top=0;bottom=n-1
while left<right:
    num=0
    for i in range(left,right+1):
        num+=c[top][i]
    top+=1
    for j in range(top,bottom+1):
        num+=c[j][right]
    right-=1
    for l in range(right,left-1,-1):
        num+=c[bottom][l]
    bottom-=1
    for k in range(bottom,top-1,-1):
        num+=c[k][left]
    left+=1
    d.append(num)
if n%2==0:
    print(max(d))
else:
    d.append(c[n//2][n//2])
    print(max(d))
```

基本信息

#: 47688683

题目: 25570

提交人: erxiduodianlazi

内存: 3980kB

时间: 22ms

语言: Python3

提交时间: 2024-12-11 19:36:

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1526C1. Potions(Easy Version)

greedy, dp, data structures, brute force, *1500, <https://codeforces.com/problemset/problem/1526/C1>

思路:

代码:

```
import heapq

def yao(n,c):
    consumed=[]
    health=0
    for i in range(n):
        health+=c[i]
        heapq.heappush(consumed,c[i])
        if health<0:
            if consumed:
                health-=consumed[0]
                heapq.heappop(consumed)
    return len(consumed)
```

```
n=int(input())
c=list(map(int,input().split()))
print(yao(n,c))
```

代码运行截图 (至少包含有"Accepted")

296017800	Dec/11/2024 20:22 ^{UTC+8}	xiaomowomenxihuanni	1526C1 - Potions (Easy Version)	Python 3	Accepted	77 ms	0 KB
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22067: 快速堆猪

辅助栈, <http://cs101.openjudge.cn/practice/22067/>

思路:

代码:

```
a=[]
m=[]
while True:
    try:
        s=input().split()
        if s[0]=='pop':
            if a:
                a.pop()
            if m:
                m.pop()
        elif s[0]=='min':
            if m:
                print(m[-1])
        else:
            num=int(s[1])
            a.append(num)
            if not m:
                m.append(num)
            else:
                m.append(min(num,m[-1]))
    except EOFError:
        break
```

代码运行截图 (至少包含有"Accepted")

状态: Accepted

源代码

```
a=[]
m=[]
while True:
    try:
        s=input().split()
        if s[0]=='pop':
            if a:
                a.pop()
            if m:
                m.pop()
        elif s[0]=='min':
            if m:
                print(m[-1])
        else:
            num=int(s[1])
            a.append(num)
            if not m:
                m.append(num)
            else:
                m.append(min(num,m[-1]))
    except EOFError:
        break
```

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20106: 走山路

Dijkstra, <http://cs101.openjudge.cn/practice/20106/>

思路:

代码:

```
import heapq
m,n,p = map(int,input().split())
c=[list(map(str,input().split())) for _ in range(m)]
directions=[(1,0),(-1,0),(0,1),(0,-1)]
def tili(x,y,a,b):
    pos=[]
    dist = [[float('inf')] * n for _ in range(m)]
    heapq.heappush(pos, (0, x, y))
    dist[x][y]=0
    while pos:
        strength,x,y=heapq.heappop(pos)
        if x==a and y==b :
            return strength
        for dx,dy in directions:
            nx,ny=x+dx,y+dy
            if 0<=nx<m and 0<=ny<n and c[nx][ny]!='#':
                if dist[nx][ny]>strength+abs(int(c[nx][ny])-int(c[x][y])):
                    dist[nx][ny]=strength+abs(int(c[nx][ny])-int(c[x][y]))
                    heapq.heappush(pos, (dist[nx][ny], nx, ny))
    return 'NO'
for _ in range(p):
    x,y,a,b=map(int,input().split())
```

```

if c[x][y]=='#' or c[a][b]=='#':
    print('NO')
    continue
result=tili(x,y,a,b)
print(result)

```

代码运行截图 (至少包含有"Accepted")

状态: Accepted

源代码

```

import heapq
m,n,p = map(int,input().split())
c=[list(map(str,input().split())) for _ in range(m)]
directions=[(1,0),(-1,0),(0,1),(0,-1)]
def tili(x,y,a,b):
    pos=[]
    dist = [[float('inf')] * n for _ in range(m)]
    heapq.heappush(pos, (0, x, y))
    dist[x][y]=0
    while pos:
        strength,x,y=heapq.heappop(pos)
        if x==a and y==b :
            return strength
        for dx,dy in directions:
            nx,ny=x+dx,y+dy
            if 0<=nx<m and 0<=ny<n and c[nx][ny]!='#':
                if dist[nx][ny]>strength+abs(int(c[nx][ny])-int(c[x][y])):
                    dist[nx][ny]=strength+abs(int(c[nx][ny])-int(c[x][y]))
                    heapq.heappush(pos, (dist[nx][ny],nx,ny))
    return 'NO'
for _ in range(p):
    x,y,a,b=map(int,input().split())
    if c[x][y]=='#' or c[a][b]=='#':
        print('NO')
        continue
    result=tili(x,y,a,b)
    print(result)

```

基本信息

#: 47705
 题目: 20106
 提交人: erxiduo
 内存: 3728kl
 时间: 261ms
 语言: Python
 提交时间: 2024-1

04129: 变换的迷宫

bfs, <http://cs101.openjudge.cn/practice/04129/>

思路:

代码:

```

from collections import deque
def bfs(x,y):
    visited=set()
    visited.add((0,x,y))
    q=deque([(0,x,y)])
    while q:
        time,x,y=q.popleft()
        if m[x][y]=="E":
            return time
        for dx,dy in directions:
            nx,ny=x+dx,y+dy

```

```

        if 0<=nx<r and 0<=ny<c and ((time+1)%k,nx,ny) not in visited:
            if m[nx][ny]!='#' or (time+1)%k==0:
                q.append((time+1,nx,ny))
                visited.add(((time+1)%k,nx,ny))

    return "Oop!"

```

```

directions=[(1,0),(-1,0),(0,1),(0,-1)]
t=int(input())
for _ in range(t):
    r,c,k=map(int,input().split())
    m=[list(input()) for _ in range(r)]
    for i in range(r):
        for j in range(c):
            if m[i][j]=='S':
                print(bfs(i,j))

```

代码运行截图 (至少包含有"Accepted")

#47720108提交状态

[查看](#)

状态: Accepted

基本信息

#: 4772

题目: 0412

提交人: erxid

内存: 5076

时间: 116n

语言: Python

提交时间: 2024

源代码

```

from collections import deque
def bfs(x,y):
    visited=set()
    visited.add((0,x,y))
    q=deque([(0,x,y)])
    while q:
        time,x,y=q.popleft()
        if m[x][y]=='E':
            return time
        for dx,dy in directions:
            nx,ny=x+dx,y+dy
            if 0<=nx<r and 0<=ny<c and ((time+1)%k,nx,ny) not in visited:
                if m[nx][ny]!='#' or (time+1)%k==0:
                    q.append((time+1,nx,ny))
                    visited.add(((time+1)%k,nx,ny))

    return "Oop!"

directions=[(1,0),(-1,0),(0,1),(0,-1)]
t=int(input())
for _ in range(t):
    r,c,k=map(int,input().split())
    m=[list(input()) for _ in range(r)]
    for i in range(r):
        for j in range(c):

```

2. 学习总结和收获

比上周好写，好理解一点点了！但还是不太懂。做了去年的机考题的E和M题，发现还是可以做出来的，继续加油