1. 题目
M17975: 用二次探查法建立散列表
http://cs101.openjudge.cn/practice/17975/

需要用这样接收数据。因为输入数据可能分行了，不是题面描述的形式。OJ 上面有的题目是给 C++设计的，细节考虑不周全。

```
import sys
input = sys.stdin.read
data = input().split()
index = 0
n = int(data[index])
index += 1
m = int(data[index])
index += 1
num_list = [int(i) for i in data[index:index+n]]
```

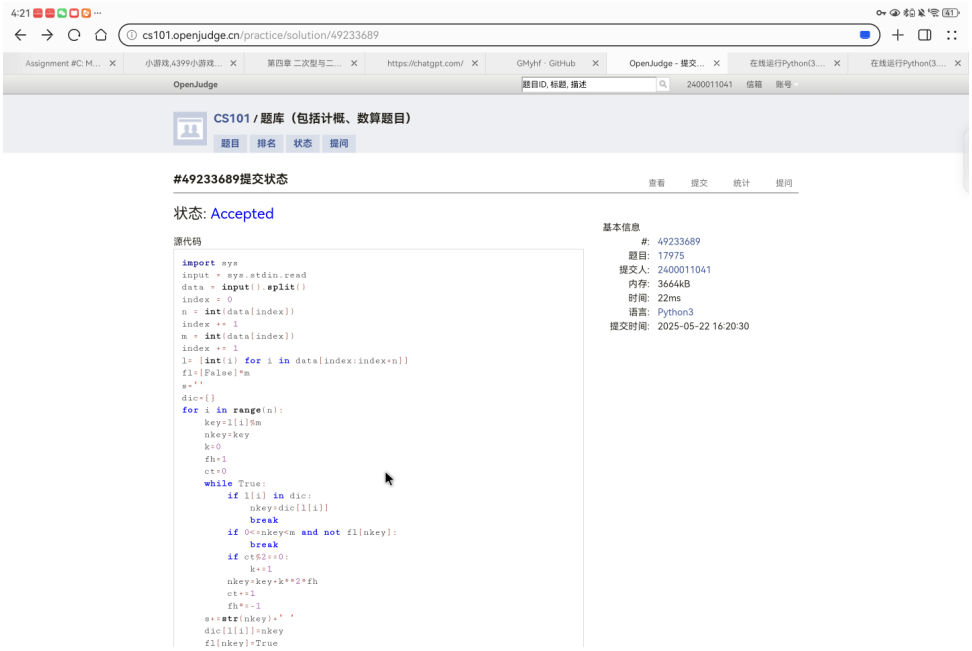
思路:

代码:

```
import sys
input = sys.stdin.read
data = input().split()
index = 0
n = int(data[index])
index += 1
m = int(data[index])
index += 1
l= [int(i) for i in data[index:index+n]]
fl=[False]*m
s=''
dic={}
for i in range(n):
    key=l[i]%m
    nkey=key
    k=0
    fh=1
    ct=0
    while True:
        if l[i] in dic:
            nkey=dic[l[i]]
            break
        if 0<=nkey<m and not fl[nkey]:
            break
        if ct%2==0:
```

```
            k+=1
        nkey=key+k**2*fh
        ct+=1
        fh*=-1
    s+=str(nkey)+' '
    dic[l[i]]=nkey
    fl[nkey]=True
print(s[:-1])
```

代码运行截图 （至少包含有"Accepted"）



M01258: Agri-Net

MST, http://cs101.openjudge.cn/practice/01258/

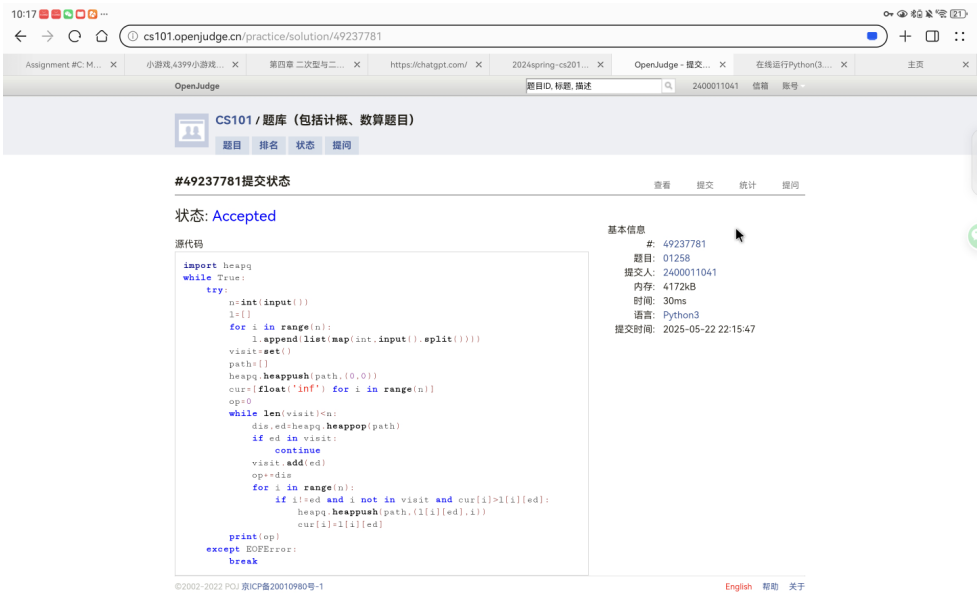
思路：

代码：

```
import heapq
while True:
    try:
        n=int(input())
        l=[]
        for i in range(n):
            l.append(list(map(int,input().split())))
        visit=set()
        path=[]
        heapq.heappush(path,(0,0))
        cur=[float('inf') for i in range(n)]
        op=0
        while len(visit)<n:
```

```
                dis,ed=heapq.heappop(path)
                if ed in visit:
                    continue
                visit.add(ed)
                op+=dis
                for i in range(n):
                    if i!=ed and i not in visit and cur[i]>l[i][ed]:
                        heapq.heappush(path,(l[i][ed],i))
                        cur[i]=l[i][ed]
            print(op)
        except EOFError:
            break
```

代码运行截图 （至少包含有"Accepted"）



M3552.网络传送门旅游

bfs, https://leetcode.cn/problems/grid-teleportation-traversal/

思路：

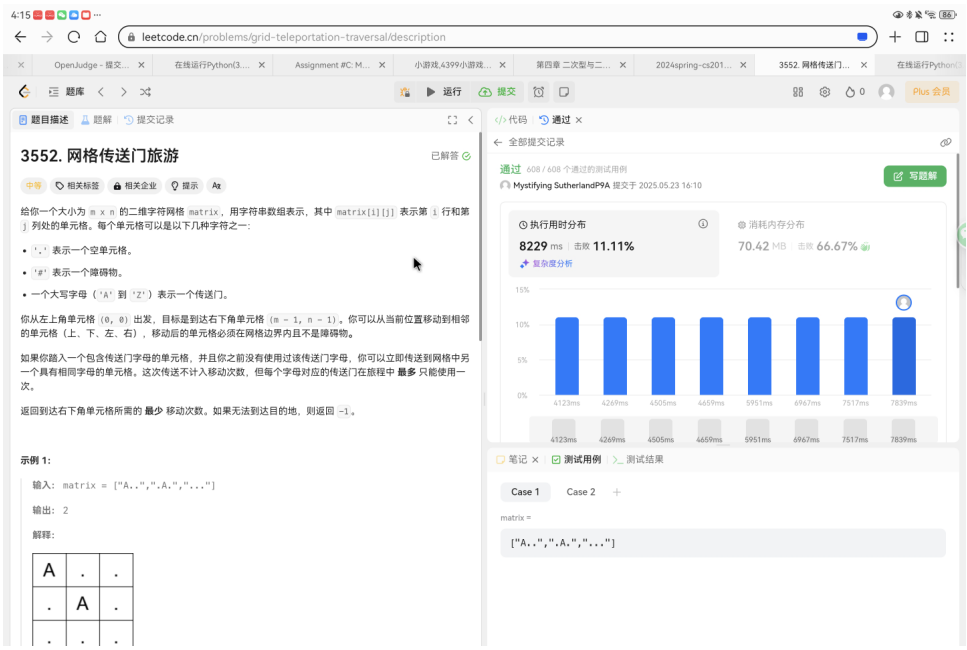
代码：

```
class Solution(object):

    def minMoves(self, matrix):

        """

        :type matrix: List[str]

        :rtype: int
```

```
"""
import heapq
n=len(matrix)
m=len(matrix[0])
l=[[k for k in s]for s in matrix]
dic={}
for i in range(n):
    for j in range(m):
        if 'A'<=l[i][j]<='Z':
            if l[i][j] in dic:
                dic[l[i][j]].append((i,j))
            else:
                dic[l[i][j]]=[(i,j)]
path=[]
heapq.heappush(path,(0,0,0))
step=[[0,-1],[0,1],[1,0],[-1,0]]
op=-1
while path:
    d,x,y=heapq.heappop(path)
    if x==n-1 and y==m-1:
        return d
    if l[x][y] in dic:
```

```
                for (x1,y1) in dic[l[x][y]]:
                    if (x1,y1)!=(x,y) and l[x1][y1]!='#':
                        heapq.heappush(path,(d,x1,y1))
                        l[x1][y1]='#'
                l[x][y]='#'
            for k in step:
                nx=x+k[0]
                ny=y+k[1]
                if 0<=nx<n and 0<=ny<m and l[nx][ny]!='#':
                    heapq.heappush(path,(d+1,nx,ny))
                    if l[nx][ny]=='.':
                        l[nx][ny]='#'
        return -1
```

代码运行截图 （至少包含有"Accepted"）



M787.K 站中转内最便宜的航班

Bellman Ford, https://leetcode.cn/problems/cheapest-flights-within-k-stops/

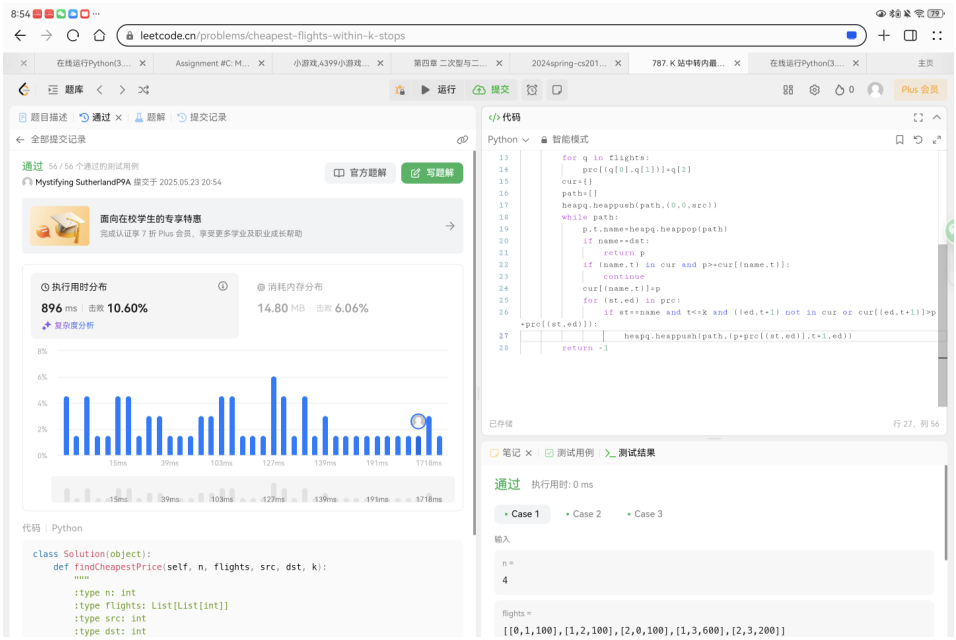
思路:

代码:

```
class Solution(object):

    def findCheapestPrice(self, n, flights, src, dst, k):

        """

        :type n: int

        :type flights: List[List[int]]

        :type src: int

        :type dst: int

        :type k: int

        :rtype: int

        """

        import heapq
```

```
        prc={}
        for q in flights:
            prc[(q[0],q[1])]=q[2]
        cur={}
        path=[]
        heapq.heappush(path,(0,0,src))
        while path:
            p,t,name=heapq.heappop(path)
            if name==dst:
                return p
            if (name,t) in cur and p>=cur[(name,t)]:
                continue
            cur[(name,t)]=p
            for (st,ed) in prc:
                if st==name and t<=k :
                    heapq.heappush(path,(p+prc[(st,ed)],t+1,ed))
        return -1
```

代码运行截图 （至少包含有"Accepted"）



M03424: Candies
Dijkstra, http://cs101.openjudge.cn/practice/03424/

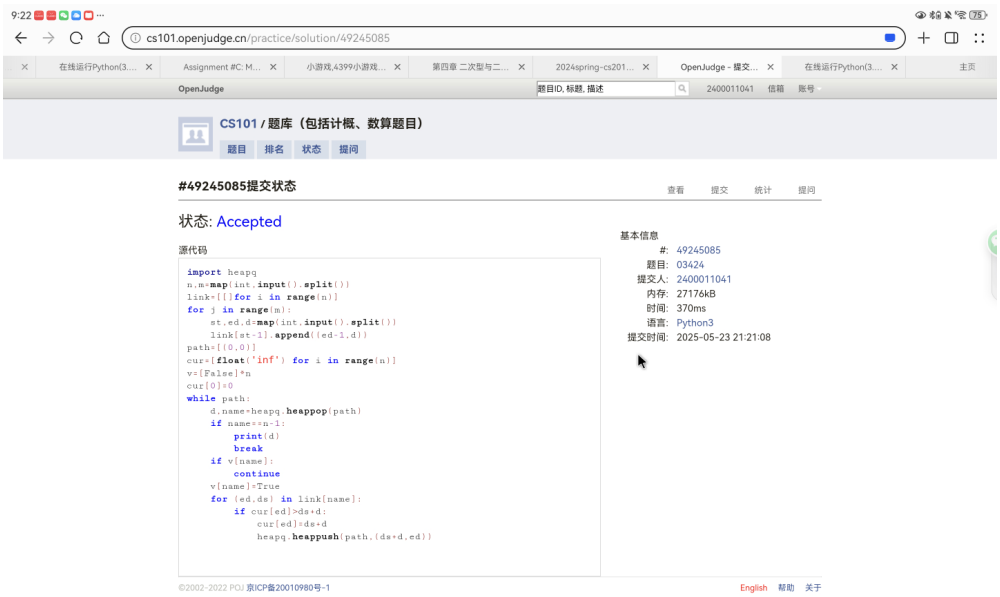
思路:

代码:

```
import heapq

n,m=map(int,input().split())

link=[[]for i in range(n)]

for j in range(m):

    st,ed,d=map(int,input().split())

    link[st-1].append((ed-1,d))

path=[(0,0)]

cur=[float('inf') for i in range(n)]

v=[False]*n

cur[0]=0

while path:
```

```
d,name=heapq.heappop(path)
if name==n-1:
    print(d)
    break
if v[name]:
    continue
v[name]=True
for (ed,ds) in link[name]:
    if cur[ed]>ds+d:
        cur[ed]=ds+d
        heapq.heappush(path,(ds+d,ed))
```

代码运行截图 （至少包含有"Accepted"）



M22508:最小奖金方案
topological order, http://cs101.openjudge.cn/practice/22508/

思路：

代码：

```
n,m=map(int,input().split())

d={}

num=[0 for i in range(n)]

link=[[]for i in range(n)]

v=[False]*n

for k in range(n):

    d[k]=0

for i in range(m):

    win,lose=map(int,input().split())

    link[lose].append(win)

    d[win]+=1

ct=0

while ct<n:

    for k in d:

        if not v[k] and d[k]==0:

            v[k]=True

            for j in link[k]:

                num[j]=max(num[j],num[k]+1)

                d[j]-=1

            ct+=1
```

```
op=int(100*n+sum(num))

print(op)
```

代码运行截图 （至少包含有"Accepted"）

2. 学习总结和收获

本次作业还是有点复杂的，同时也反映出自己对 djstl 模板的不熟悉之处。在机考前还需要熟悉各类经典算法的经典写法。

如果发现作业题目相对简单，有否寻找额外的练习题目，如“数算 2025spring 每日选做”、LeetCode、Codeforces、洛谷等网站上的题目。

复习以往代码中.....