鸡兔同笼

```
a=int(input())if int(a)%4==0:
    print("{} {}".format(int(a/4),int(a/2)))elif int(a)%2==0:
    print("{} {}".format(int((a+2)/4),int(a/2)))else:
    print(0,0)
```

判断闰年

```
a=int(input())if int(a)%4==0 and int(a)%100!=0 and int(a)%3200!=0:
    print("Y")elif int(a)%400==0 and int(a)%3200!=0:
    print("Y")elif int(a)%100==0 and int(a)/400!=0:
    print("N")elif int(a)%3200==0:
    print("N")else:
    print("N")
```

求一元二次方程的根

```
import math
n = int(input())for i in range(n):
    a, b, c = map(float, input().split())
    if b == 0:
        b = -b
    delta = b ** 2 - 4 * a * c
    if delta > 0:
        x1 = (-b + math.sqrt(delta)) / (2 * a)
        x2 = (-b - math.sqrt(delta)) / (2 * a)
        print(f"x1={x1:.5f};x2={x2:.5f}")
    elif delta == 0:
        t = (-b) / (2 * a)
        print(f"x1=x2={t:.5f}")
    else:
        d = math.sqrt(-delta) / (2 * a)
        re = (-b) / (2 * a)
        print(f"x1={re:.5f}+{d:.5f}i;x2={re:.5f}-{d:.5f}i")
```

校门外的树

```
m,n=map(int,input().split())
result=[]for i in range(1,n+1):
    a,b=map(int,input().split())
    c=list(range(a,b+1))
    result.append(c)
d=set()
result2=[x for lst in result for x in lst if not (x in d or d.add(x))]
e=sum(1 for i in result2)print(m+1-e)
```

Ride to School

```
import sysimport math
```

```
var=1while var==1:
  n=int(input())
  list1=[]
  if n>0:
    for i in range(1,n+1):
     a,b=map(int,input().split())
     if b >=0:
       c=(4.5/a)*3600
       list1.append(c+b)
   d=math.ceil(min(list1))
   print(d)
  elif n==0:
     sys.exit()
```

生理周期

```
import sys
count=0while True:
  a,b,c,d=map(int,input().split())
  count+=1
  for i in range(1,1000):
    if (a+23*i-c)%33==0 and ((a-b+23*i)/28)%1==0:
     print("Case "+str(count)+": the next triple peak occurs in "+str((a+23*i-d))+" days.")
    if a==b==c==d==-1 :
       sys.exit()
```

验证哥德巴赫猜想

```
n=int(input())
count=0if n<=6 or n%2==1:
   print("Error!")else:
    for a in range(2,int(n/2)):
        for b in range(2,n):
           if a%b!=0 and (n-a)%b!=0:
             count+=1



        if count==(n-4):
          print(str(n)+"="+str(a)+"+"+str(n - a))
        count=0
```

字符串中的整数求和

```
a,b=map(str,input().split())
c=int(a[0])*10+int(a[1])
d=int(b[0])*10+int(b[1])print(c+d)
```

验证身份证号

```
n=int(input())for i in range(1,n+1):
    a=str(input())

b=int(a[0])*7+int(a[1])*9+int(a[2])*10+int(a[3])*5+int(a[4])*8+int(a[5])*4+int(a[6])*2+int(a[7])*1+int(a[8])*6+int(a[9])*3+int(a[10])*7+int(a[11])*9+int(a[12])*10+int(a[13])*5+int(a[14])*8+int(a[15])*4+int(a[16])*2
    c=b%11
    if a[17]=="0" and c==1:
        print("YES")
    elif a[17]=="1" and c==0:
        print("YES")
    elif a[17]=="X" and c==2:
        print("YES")
    elif a[17]=="2" and c==10:
        print("YES")
    elif a[17]=="3" and c==9:
        print("YES")
    elif a[17]=="4" and c==8:
        print("YES")
    elif a[17]=="5" and c==7:
        print("YES")
    elif a[17]=="6" and c==6:
        print("YES")
    elif a[17]=="7" and c==5:
        print("YES")
    elif a[17]=="8" and c==4:
        print("YES")
    elif a[17]=="9" and c==3:
        print("YES")
    else:print("NO")
```

角谷猜想

```
import sys
n= int(input())while True:
  if n%2==1 and n!=1:
    n=int(n*3+1)
    print(str(int((n-1)/3))+"*3+1"+"="+str(n))
  elif n%2==0 and n!=1:
    n=int(n/2)
    print(str(int(2*n))+"/2"+"="+str(int(n)))
  if n==1:
    print("End")
    sys.exit()
```

罗马数字与整数的转换

```
n=str(input())if n.isdigit() and int(n)>=1 and int(n)<=3999:
    a=int(n)%1000
    a1=int(n)//1000
    first=a1*"M"
    if a>=900:
        b=a-900
        second="CM"
    elif a<500 and a>=400:
        b=a-400
        second="CD"
    else:
        b=a-500*(a//500)-(((a-500*(a//500))//100)*100)
        second=(a//500)*"D"+((a-500*(a//500))//100)*"C"
    if b>=90:
        c=b-90
        third="XC"
    elif b<50 and b>=40:
        c=b-40
        third="XL"
    else:
        c=b-50*(b//50)-(((b-50*(b//50))//10)*10)
        third=(b//50)*"L"+((b-50*(b//50))//10)*"X"
    if c==9:
        fourth="IX"
    elif c==4:
        fourth="IV"
    else:
        fourth=(c//5)*"V"+(c-((c//5)*5))*"I"
    print(first+second+third+fourth)elif n.isalpha():
    count=[]
    mydict={"M":1000,"D":500,"C":100,"L":50,"X":10,"V":5,"I":1}
    for i in range(len(n)-1):
        if mydict[(n[i])]<mydict[(n[i+1])]:
            count.append(-mydict[n[i]])

        elif mydict[(n[i])]>=mydict[(n[i+1])]:
            count.append(mydict[n[i]])
    count.append(mydict[n[-1]])
    print(sum(count))
```

黑神话悟空之加密

```
k=int(input())
s=input()
```

```
xiaole="for i in s:
    a=ord(i)
    if a>=65 and a<=90:
        b=int(a)-(k%26)
        if b>=65 and b<=90:
            c=str(chr(b))
        elif b<65:
            c=str(chr(b+26))
    elif a>=97 and a<=122:
        b=int(a)-(k%26)
        if b>=97 and b<=122:
            c=str(chr(b))
        elif b < 97:
            c = str(chr(b + 26))
    xiaole=xiaole+cprint(xiaole)
```

小朋友春游

```
n=int(input())
a=list(map(int,input().split()))
list1=[]
list2=list(range(1,n+1))for i in a:
    if i>n:
        list1.append(i)
    else:
        list2.remove(i)
list1.sort()
list2.sort()
b=" ".join(str(x) for x in list1)
c=" ".join(str(x) for x in list2)print(c)print(b)
```

文字排版

```
n=int(input())
a=list(map(str,input().split()))
count=0
newtxt=""for word in a:
    if count+len(word)>80:
        newtxt+="\n"
        count=0
    count+=len(word)+1
    newtxt+=word+" "
newtxt.rstrip()print(newtxt)
```

编码字符串

```
n=input()
```

```
count=1
list1=[]for i in range(1,len(n)):
    if n[i]==n[i-1]:
        count+=1
    if n[i]!=n[i-1]:
        list1.append((str(n[i-1]),count))
        count=1
list1.append((str(n[-1]),count))
output =''.join(str(x) for x in list1)print(output)
```

提取实体 v0.3

```
m=int(input())
sum_all=0for _ in range(m):
  n=input()
  count=0
  count2=0
  for i in n:
      if i=="#":
          count+=1
  sum1=int(count/6)
  for i in n:
      if i=="#":
          count2+=1
      elif i !="#"and i!=" ":
          count2=0
      if count2==6:
          sum1-=1
  sum_all+=sum1
  count=0print(sum_all)
```

数学密码

```
n=int(input())for i in range(int(n/6)+1,0,-1):
    if n%i==0 and n//i>=6:
      print(i)
      break
```

24 点

```
from itertools import product
n=int(input())for _ in range(n):
  list1=product([1,-1],repeat=4)
  a,b,c,d=map(int,input().split())
  results={sum(sign*number for sign,number in zip(signs,[a,b,c,d]))for signs in list1}
  if 24 in results:
    print("YES")
  else:
    print("NO")
```

Hangover

```
import syswhile True:
    i=float(input())
    if i==0.00:
        sys.exit()
    else:
      count=0
      x=2
      while count<i:
          count+=1/x
          x+=1
      else:
          print(str(x-2)+" card(s)")
```

数论

```
import math
n=int(input())
a=7for i in range(2,int(math.sqrt(n))+1):
    if n%i**2==0:
        a=0
        print(a)
        break
count=0if a!=0:
    for x in range(2,int(n/2)+1):
        if n%x==0:
            count+=1
            n=int(n/x)
    if count==0 and n>=2:
        print(-1)
    elif count%2==0:
        print(1)
    else:
        print(-1)
```

这一天星期几

```
a=int(input())import mathfor i in range(a):
  n=input()

mydict={0:"Sunday",1:"Monday",2:"Tuesday",3:"Wednesday",4:"Thursday",5:"Friday",6:"Saturda
y"}
  if int(n[4]+n[5])<=2 and int(n[4]+n[5])>=1:
      n=str(int(n[0]+n[1]+n[2]+n[3])-1)+str(int(n[4]+n[5])+12)+n[6]+n[7]
  c=int(n[0]+n[1])
  y=int(n[2]+n[3])
  m=int(n[4]+n[5])
  d=int(n[6]+n[7])
  w=(y+math.floor(y/4)+math.floor(c/4)-2*c+math.floor((26*(m+1))/10)+d-1)%7
  print(mydict[w])
```

与 7 无关的数

```
n=int(input())
count=0for i in range(1,n+1):
    if not "7" in str(i) and not i%7==0:
        count+=i**2print(count)
```

最大公约数

```
from math import gcdwhile True:
    try:
        a,b=map(int,input().split())
        print(gcd(a,b))
    except EOFError:
        break
```

大小写字母互换

```
n=str(input())
m=n.swapcase()print(m)
```

简单的数学题

```
list=[]for i in range(21):
      list.append(2**i)
n=int(input())for _ in range(n):
    a=int(input())
    for i in range(len(list)-1):
        if list[i]<=a and list[i+1]>a:
            c=(((1+a)*a)/2)-2*list[i+1]+2
            print(int(c))
```

How old are you?

```
import sys
n= int(input())while True:
  if n%2==1 and n!=1:
    n=int(n*3+1)
    print(str(int((n-1)/3))+"*3+1"+"="+str(n))
  elif n%2==0 and n!=1:
    n=int(n/2)
    print(str(int(2*n))+"/2"+"="+str(int(n)))
  if n==1:
    sys.exit()
```

二进制的回文整数

```
n=int(input())
a=(str(bin(n)))[2:]if int(a)==int((a[::-1])):
    print("Yes")else:
    print("No")
```

军备竞赛

```
n=int(input())
a=list(map(int,input().split()))
a.sort()
list=[]
count1=0
x=0if n<a[0]:
    print(0)else:
    for i in range(len(a)):
        if i==len(a)-x:
            break
        elif n>=a[i]:
            n-=a[i]
            count1+=1
            list.append(count1-x)
        elif n<a[i] and count1-x>=1:
            list.append(count1-x)
            while n<a[i]:
                n+=a[-x-1]
                x+=1
            else:
                n-=a[i]
                count1+=1
                list.append(count1-x)

    print(max(list))
```

玛雅日历

```
n=int(input())print(n)
list=[]
list1=["pop","no","zip","zotz","tzec","xul","yoxkin","mol","chen","yax","zac","ceh","mac","kankin",
"muan","pax","koyab","cumhu","uayet"]
list2=["imix","ik","akbal","kan","chicchan","cimi","manik","lamat","muluk","ok","chuen","eb","ben
","ix","mem","cib","caban","eznab","canac","ahau"]
```

```
list3=[]for i in range(n):
    a,b,c=map(str,input().split())
    list.append((a,b,c))for v in list:
    d=int(v[0][:-1])+1+(list1.index(str(v[1])))*20+365*int(v[2])
    if d%13!=0:
        if d%260!=0:
            list3.append((d%13,list2[d%20-1],d//260))
        else:
            list3.append((d%13,list2[d%20-1],(d//260)-1))
    else:
        if d%260!=0:
            list3.append((13,list2[d%20-1],d//260))
        else:
            list3.append((13,list2[d%20-1],(d//260)-1))
for z in list3:
    print(" ".join(str(x) for x in z))
```

Radar Installation

```
import math
z=0while True:
    number = 1
    list1=[]
    z+=1
    a,b=map(int,input().split())
    if a==b==0:
        break
    elif b<0:
        number=-1
    for i in range(a):
        c,d=map(int,input().split())
        if d>b:
            number=-1
        else:
            delta=math.sqrt(b**2-d**2)
            list1.append((c-delta,c+delta))
    if number!=-1:
        list1.sort(key=lambda x:x[1])
        cnt = list1[0][1]
        for i in range(1,a):
            if list1[i][0]>cnt:
                number+=1
                cnt=list1[i][1]
    print(f"Case {z}: {number}")
    input()
```

排队做实验 v0.2

```
n=int(input())
a=list(map(int,input().split()))
list=[(a[i],i+1)for i in range(n)]
a.sort()
i=1
b=n
count=0while i<=n:
    count+=a[i-1]*(b-1)
    i+=1
    b-=1
c=count/n
list.sort(key=lambda x:x[0])
list1=[]for x,y in list:
    list1.append(y)
d=" ".join(str(z) for z in list1)print(d)print(f"{c:.2f}")
```

邮箱验证

```
while True:
    try:
        n = input()
    except EOFError:
        break
    if n.count("@")!=1:
        print("NO")
        continue
    if (n[0] in {'@', '.'} or n[-1] in {'@', '.'}):
        print("NO");
        continue
    if n.find("@.") != -1 or n.find(".@") != -1:
        print("NO")
        continue
    p = n.find("@");
    q = n.find(".", p + 1);
    print('NO' if q == -1 else 'YES')
```

装箱问题

```
import sysimport mathwhile True:
    a,b,c,d,e,f=map(int,input().split())
    if a==b==c==d==e==f==0:
        sys.exit()
    count=f+e+d
    if a>=11*e:
        a-=11*e
    else:
        a=0
    if b>=5*d:
        b-=5*d
    else:
        b=0
        if a>(5*d-b)*4:
            a-=(5*d-b)*4
        else:
            a=0
    count+=c//4
    g=2*(c%4)-1
    if b>=g and g>0:
        b-=g
        h=7
    elif g>0 and b<g:
        b=0
        h=7+(g-b)*4
    if a>h:
        a-=h
    else:
        a=0
    count+=math.ceil((a+b*4)/4)
    print(count)
```

菲波那契数列

```
a=int(input())
list=[1,1]for _ in range(a):
    n=int(input())
    if n >2 and n not in list:
        for i in range(n-2):
            list.append(int(list[-1]+list[-2]))
        print(list[n-1])
    elif n <=2:
        print(1)
    elif n>2 and n in list:
        print(list[n-1])
```

拦截导弹

```
n=int(input())
a=list(map(int,input().split()))
list=[]
max=[]
list.append((1,a[0]))for i in range(1,len(a)):
    list1=[(1,a[i])]
    for x,y in list:
        if a[i]<=y:
            list1.append((int(x+1),a[i]))
    list1.sort(key=lambda x:x[0])
    list.append(list1[-1])
    list1.clear()
list.sort(key=lambda x:x[0])print(list[-1][0])
```

《算法图解》小偷背包问题

```
a,b=map(int,input().split())
list1=list(map(int,input().split()))
list2=list(map(int,input().split()))
list3=[]
list4=[]for i in range(a):
    list3.append((list1[i],list2[i]))
    list4.append([])
list3.sort(key=lambda x:x[1])for i in range(a):
    if i==0:
        for x in range(b):
            if x+1>=list3[i][1]:
                list4[i].append(list3[i][0])
            else:
                list4[i].append(0)
    else:
        for x in range(b):
            if x+1>list3[i][1]:

list4[i].append(max(list4[i-1][x],list3[i][0]+list4[i-1][x-list3[i][1]]))
            elif x+1==list3[i][1]:
                list4[i].append(max(list4[i-1][x],list3[i][0]))
            else:
                list4[i].append(list4[i-1][x])print(list4[-1][-1])
```

八皇后

```
def solve_n_queens(n):
    def is_not_under_attack(row, col):
        for i in range(row):
            if board[i] == col or \
               board[i] - i == col - row or \
               board[i] + i == col + row:
                return False
        return True
    def place_queen(row):
        if row == n:
            solutions.append(list(board))
            return
        for col in range(n):
            if is_not_under_attack(row, col):
                board[row] = col
                place_queen(row + 1)
    solutions = []
    number=[]
    board = [-1] * n
    place_queen(0)
    return solutions
n=8
solutions = solve_n_queens(n)
list1=[]for i in solutions:
    list1.append("".join(str(x+1) for x in i))
a=int(input())for i in range(a):
    b=int(input())
    print(list1[b-1])
```

病人排队

```
n=int(input())
list1=[]
list2=[]
list3=[]
for i in range(n):
    a,b=map(str,input().split())
    list1.append((a,i+1,b))for x,y,z in list1:
    if int(z)>=60:
        list2.append((x,int(y),int(z)))
    else:
        list3.append((x,int(y),int(z)))
newlist=sorted(list2,key=lambda x:(-x[2],x[1]))for x,y,z in(newlist):
    print(x)for x,y,z in list3:
    print(x)
```

打怪兽

```
a=int(input())for _ in range(a):
    list1=[]
    n,m,b=map(int,input().split())
    for i in range(n):
        ti,xi=map(int,input().split())
        list1.append((ti,xi))
    list1.sort(key=lambda x:(x[0],-x[1]))
    count=0
    count1=0
    for i in range(len(list1)-1):
        if count!=m:
            b-=list1[i][1]
            count+=1
        if list1[i][0]!=list1[i+1][0]:
            count=0
        if b<=0:
            print(list1[i][0])
            count1=1
            break
    if count!=m and count1==0:
        b-=list1[-1][1]
    if b>0 and count1==0:
        print("alive")
    elif b<=0 and count1==0:
        print(list1[-1][0])
```

节省存储的矩阵乘法

```
n,m1,m2=map(int,input().split())
list1=[[0 for i in range(n)] for i in range(n)]
list2=[[0 for i in range(n)] for i in range(n)]for i in range(m1):
    a,b,c=map(int,input().split())
    list1[a][b]=cfor i in range(m2):
    a,b,c=map(int,input().split())
    list2[a][b]=c
list3=[[0 for i in range(n)] for i in range(n)]for i in range(n):
    for j in range(n):
        for x in range(n):
            list3[i][j]+=list1[i][x]*list2[x][j]for i in range(n):
    for j in range(n):
        if list3[i][j]!=0:
            print(" ".join(str(x) for x in (i,j,list3[i][j])))
```

充实的寒假生活

```
n=int(input())
list1=[]for i in range(n):
    a,b=map(int,input().split())
    list1.append((a,b))
list1.sort(key=lambda x:(x[1],x[0]))
count=0for i in range(n):
    if i==0:
        count1=list1[i][1]
        count+=1
    else:
        if list1[i][0]>count1:
            count1=list1[i][1]
            count+=1print(count)
```

零钱兑换 3

```
n,m=map(int,input().split())
list1=list(map(int,input().split()))
dplist=[float("inf")]*(m+1)
dplist[0]=0for i in range(n):
    for j in range(i,m+1):
        dplist[j]=min(dplist[j],dplist[j-list1[i]]+1)if dplist[m]==float("inf"):
    print(-1)else:
    print(dplist[m])
```

阿尔法星人的翻译官

```
n=input().split()
mydict={"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}
count=1if n[0]=="negative":
    count=-1
    del n[0]
count1=0
temp=0for x in n:
    if x in ("thousand","million"):
        count1+=temp*mydict[x]
        temp=0
    elif x=="hundred":
        temp=temp*mydict[x]
    else:
        temp=temp+mydict[x]print(count*(temp+count1))
```

螺旋矩阵

```
n=int(input())
list1=[[0 for x in range(n)] for i in range(n)]
i=0
j=0
x=1
count=n
t="stop"while True:
    list1[i][j]=x
    if i==n-count+1 and j ==n-count:
        count-=1
        t="right"
    if i==n-count and j==n-count:
        t="right"
    elif i==n-count and j==count-1:
        t="down"
    elif i==count-1 and j==count-1:
        t="left"
    elif i==count-1 and j==n-count:
        t="up"
    if t=="right":
        j+=1
    elif t=="down":
        i+=1
    elif t=="left":
        j-=1
    elif t=="up":
        i-=1
    if x==n**2:
        break
    x+=1for y in list1:
    print(" ".join(str(x) for x in y))
```

岛屿周长

```
n,m=map(int,input().split())
list1=[[0 for x in range(m+2)]]for i in range(n):
    x=list(map(int,input().split()))
    x.insert(0,0)
    x.append(0)
    list1.append(x)
list1.append([0 for x in range(m+2)])
count=0for i in range(1,n+1):
    for j in range(1,m+1):
        if list1[i][j]==1:
            if list1[i-1][j]==0:
                count+=1
            if list1[i+1][j]==0:
                count+=1
            if list1[i][j+1]==0:
                count+=1
            if list1[i][j-1]==0:
                count+=1print(count)
```

摆动序列

```
n=int(input())
list1=list(map(int,input().split()))
list2=[(0,0,0)]
list3=[]for i in range(1,n):
    if i==1:
        list2.append((list1[i]-list1[i-1],1,1))#差，总长度，序号
    else:
        for x in list2:
            if x[0]*(list1[i]-list1[x[2]])<0:
                list3.append((list1[i]-list1[x[2]],x[1]+1,i))
        if not list3:
            list2.append((list1[i]-list1[i-1],1,i))
        else:
            middle=max(list3,key=lambda item: item[1])
            list2.append(middle)
            list3.clear()if list2[-1][0]==0:
    print(1)else:
    print(list2[-1][1]+1)
```

垃圾炸弹

```
d=int(input())
n=int(input())
mydict={}for _ in range(n):
    x,y,i=map(int,input().split())
    for a in range(max(0,x-d),min(1025,x+d+1)):
        for b in range(max(0,y-d),min(1025,y+d+1)):
            if (a,b) in mydict:
                mydict[(a,b)]+=i
            else:
                mydict[(a,b)]=i
num=max(mydict.values())
count=sum(1 for x in mydict.values() if x==num)print(" ".join(str(x) for x in
(count,num)))
```

Tian Ji -- The Horse Racing

```
while True:
    n=int(input())
    if n==0:
        break
    count = 0
    tian=list(map(int,input().split()))
    king=list(map(int,input().split()))
    tian.sort()
    king.sort()
    for i in range(n):
        if min(tian)<min(king):
            count-=1
            del tian[0]
            del king[-1]
        elif max(tian)>max(king):
            del tian[-1]
            del king[-1]
            count+=1
        elif min(tian)==min(king):
            if max(tian)>max(king):
                del tian[0]
                del king[0]
            elif max(tian)<max(king):
                count-=1
                del tian[0]
                del king[-1]
            else:
                if not list(x for x in tian if x>king[0]):
                    break
                else:
                    tian.remove(min(x for x in tian if x>king[0]))
                    del king[0]
                    count+=1
        else:
            count+=1
            del tian[0]
            del king[0]
    print(200*count)
```

THE DRUNK JAILER

```
n=int(input())for i in range(n):
    a=int(input())
    count=0
    list1=[0 for x in range(a)]
    for x in range(2,a+1):
        for i in range(a):
            if (i+1)%x==0:
                if list1[i]==0:
                    list1[i]=1
                else:
                    list1[i]=0
    print(sum(1 for x in list1 if x==0))
```

圣诞老人的礼物-Santa Clau’s Gifts

```
n,m=map(int,input().split())
list1=[]for i in range(n):
    v,w=map(int,input().split())
    list1.append((v,w,v/w))
count=m
sumall=0
list1.sort(key=lambda x:-x[2])for i in range(n):
    if list1[i][1]<=count:
        count-=list1[i][1]
        sumall+=list1[i][0]
    else:
        sumall+=(count*list1[i][0])/list1[i][1]
        breakprint(f"{sumall:.1f}")
```

Ants

```
n=int(input())for i in range(n):
    a,b=map(int,input().split())
    list1=list(map(int,input().split()))
    list2=[]
    c=max(max(list1),a-min(list1))
    d=a/2
    for x in list1:
        list2.append((abs(x-d),x))
    e=min(min(list2,key=lambda x:x[0])[1],a-(min(list2,key=lambda x:x[0])[1]))
    print(e,c)
```

Holiday Hotel

```
while True:
    n = int(input())
    if n==0:
        break
    list1 = []
    list3 = []
    count = 0
    for i in range(n):
        C, D = map(int, input().split())
        list1.append((C, D))
    list3 = sorted(list1, key=lambda x: (x[1], x[0]))
    for i in range(n):
        num = 0
        for x in range(n):
            if list3[i][0] > list3[x][0] and list3[i][1] >= list3[x][1]:
                break
            elif list3[i][1] > list3[x][1] and list3[i][0] >= list3[x][0]:
                break
            else:
                num += 1
        if num == n:
            count += 1
    print(count)
```

约瑟夫问题

```
while True:
    n,m=map(int,input().split())
    if n==m==0:
        break
    list1=[[x+1 for x in range(n)]]
    i=0
    count=0
    while len(list1[0])!=1:
        i+=1
        list1.append([])
        for x in list1[0]:
            count+=1
            if count%m!=0:
                list1[1].append(x)
        del list1[0]
    print(list1[-1][0])
```

Pell 数列

```
n=int(input())for i in range(n):
    list1 = [1, 2]
    k=int(input())
    if k>2:
        for i in range(k-2):
            list1.append(2*list1[-1]+list1[-2])
            del list1[0]
        print(list1[-1])
    else:
        print(k)
```

集合加法

```
n=int(input())for i in range(n):
    s=int(input())
    count=0
    a=int(input())
    list1=list(map(int,input().split()))
    b=int(input())
    list2=list(map(int,input().split()))
    for x in range(a):
        for i in range(b):
            if list1[x]+list2[x]==s:
                count+=1
    print(count)
```

寻宝

```
from collections import deque
dx=[0,0,1,-1]
dy=[1,-1,0,0]def bfs(x,y):
    q=deque()
    q.append((x,y))
    inq_set.add((x,y))
    step=0
    while q:
        for _ in range(len(q)):
            cur_x,cur_y=q.popleft()
            if maze[cur_x][cur_y]==1:
                return step
            for direction in range(4):
                next_x=cur_x+dx[direction]
                next_y=cur_y+dy[direction]
                if  maze[next_x][next_y]==0 and (next_x,next_y) not in inq_set:
                    inq_set.add((next_x,next_y))
                    q.append((next_x,next_y))
                elif maze[next_x][next_y]==1 and (next_x,next_y) not in inq_set:
                    inq_set.add((next_x,next_y))
                    q.append((next_x,next_y))
        step+=1
    return "NO"if __name__=='__main__':

    n,m=map(int,input().split())
    maze = [[-1] * (m + 2)] + [[-1] + list(map(int, input().split())) + [-1] for i in
 range(n)] + [[-1] * (m + 2)]
    inq_set=set()
    step=bfs(1,1)
    print(step)
```

最大连通域面积(matrix,dfs)

```
dx = [-1,0,1,0,1,1,-1,-1]
dy = [0,1,0,-1,1,-1,-1,1]def dfs(maze, x, y):
    global cnt
    for i in range(8):
        if maze[x][y] == "W":
            cnt+=1
            maze[x][y] = "."
        nx = x + dx[i]
        ny = y + dy[i]
        if maze[nx][ny] == "W":
            cnt+=1
            maze[nx][ny] = "."
            dfs(maze, nx, ny)
    return
t=int(input())for i in range(t):
    n, m = map(int, input().split())
    maze = []
    maze.append(["." for x in range(m + 2)])
    for _ in range(n):
        maze.append(["."] + [_ for _ in input()] + ["."])
    maze.append(["." for x in range(m + 2)])
    list2 = []
    for i in range(1, n + 1):
        for j in range(1, m + 1):
            cnt = 0
            if maze[i][j] == "W":
                dfs(maze, i, j)
                list2.append(cnt)
    if list2:
        print(max(list2))
    else:
        print(0)
```

马走日

```
# pylint: skip-file
dx = [-2, -1, 1, 2, -2, -1, 1, 2]
dy = [1, 2, 2, 1, -1, -2, -2, -1]def is_valid(x, y, n, m, visited):
    return 0 <= x < n and 0 <= y < m and not visited[x][y]def dfs(x, y, n, m, steps, visited):
    global cnt
    if steps == n * m:
        cnt += 1
        return
    for i in range(8):
        nx = x + dx[i]
        ny = y + dy[i]
        if is_valid(nx, ny, n, m, visited):
            visited[nx][ny] = True
            dfs(nx, ny, n, m, steps + 1, visited)
            visited[nx][ny] = False
    return
t=int(input())for i in range(t):
    cnt = 0
    n, m, x, y = map(int, input().split())
    visited = [[False] * m for _ in range(n)]
    visited[x][y] = True
    dfs(x, y, n, m, 1, visited)
    print(cnt)
```

小游戏

```
from collections import deque
dx=[0,0,1,-1]
dy=[1,-1,0,0]def bfs(list1,y,x,j,i):
    q=deque()
    q.append((0,(x+1,y+1),-1))
    myset=set()
    myset.add((x+1,y+1))
    while q:
        step,(cx,cy),tw=q.popleft()
        for z in range(4):
            nx=cx+dx[z]
            ny=cy+dy[z]
            #如果前后方向一致，则 step 不变，否则 step+1
            if list1[nx][ny]==" " and (nx,ny) not in myset:
                if z!=tw:
                    myset.add((nx,ny))
                    q.append((step+1,(nx,ny),z))
                else:
                    myset.add((nx, ny))
                    q.append((step, (nx, ny), z))
            elif nx==i+1 and ny==j + 1 :
                if z != tw:
                    return f"Pair {cnt2}: {step+1} segments."
                else:
                    return f"Pair {cnt2}: {step} segments."
    return f"Pair {cnt2}: impossible."if __name__=="__main__":
    cnt1 = 0
    while True:
        cnt1 += 1
        w, h = map(int, input().split())
        if w == h == 0:
            break
        print(f"Board #{cnt1}:")
        list1=[]
        #加一圈通道，再加一圈保护圈
        list1.append(["X" for i in range(w + 4)])
        list1.append(["X"]+[" " for i in range(w + 2)]+["X"])
        for i in range(h):
            list1.append(["X"," "] + list(input()) + [" ","X"])
        list1.append(["X"] + [" " for i in range(w + 2)] + ["X"])
        list1.append(["X" for i in range(w + 4)])
        cnt2 = 0
        while True:
            cnt2+=1
            a, b, c, d = map(int, input().split())
            if a == b == c == d == 0:
                break
            else:
                print(bfs(list1,a,b,c,d))
        print()
```

水淹七军

```
import sys
dx=[0,0,-1,1]
dy=[1,-1,0,0]def dfs(list1,x,y,height,whlist,m,n):
    stack=[(x,y)]
    whlist[x][y]=height
    while stack:
        cx,cy=stack.pop()
        for di in range(4):
            nx=cx+dx[di]
            ny=cy+dy[di]
            if 0<=nx<m and 0<=ny<n and list1[nx][ny]<height and whlist[nx][ny]<height:
                whlist[nx][ny]=height
                stack.append((nx,ny))

data=sys.stdin.read().split()
idx=0
k=int(data[idx])
idx+=1
results=[]for _ in range(k):
    m,n=map(int,data[idx:idx+2])
    idx+=2
    list1=[]
    for i in range(m):
        list1.append(list(map(int,data[idx:idx+n])))
        idx+=n
    whlist = [[0]*n for b in range(m)]
    i,j=map(lambda x:int(x)-1,data[idx : idx + 2])
    idx+=2
    p=int(data[idx])
    idx+=1
    for _ in range(p):
        x,y=map(lambda x: int(x)-1,data[idx:idx+2])
        idx+=2
        if list1[i][j]>=list1[x][y]:
            continue
        dfs(list1,x,y,list1[x][y],whlist,m,n)
    results.append("Yes" if whlist[i][j]>list1[i][j] else "No")
sys.stdout.write("\n".join(results)+"\n")
```

完美立方

```
n=int(input())
list1=[]
no_repeat=set()for a in range(2,n+1):
    for b in range(2,n+1):
        for c in range(2, n + 1):
            for d in range(2,n+1):
                if b+c+d in no_repeat:
                    continue
                elif a**3==b**3+c**3+d**3:
                    list1.append((a,b,c,d))
                    no_repeat.add(b+c+d)
list1.sort(key=lambda x:(x[0],x[1],x[2],x[3]))for i in list1:
    print(f"Cube = {i[0]}, Triple = ({i[1]},{i[2]},{i[3]})")
```

约瑟夫问题 2

```
while True:
    n, p, m = map(int, input().split())
    if n==p==m==0:
        break
    list1 = [x for x in range(1, n + 1)]
    i = 0
    list2 = []
    while list1:
        i += 1
        if p > len(list1):
            p = 1
        if i % m == 0:
```

```python
            list2.append(list1[p-1])
            list1.remove(list1[p-1])
            continue
        p += 1
    print(",".join(str(x) for x in list2))
```

质数的和与积

```python
numbers = [True] * (10**6+1)
numbers[0]=numbers[1]=False
primes = []def euler_sieve(numbers):
    for i in range(2, int(1e6)+1):
        if numbers[i]:
            primes.append(i)
        for j in range(len(primes)):
            if i * primes[j] > int(1e6):
                break
            numbers[i * primes[j]] = False
            if i % primes[j] == 0:
                breakeuler_sieve(numbers)
s=int(input())
list1=[]for i in range(1,int(s/2)+1):
    if numbers[i] and numbers[s-i]:
        list1.append(i*(s-i))print(max(list1))
```

数字方格

```python
n=int(input())
list1=[]for i in range(1,n+1):
    for j in range(1,n+1):
        for x in range(1,n+1):
            if (i+j)%2==0 and (j+x)%3==0 and (i+j+x)%5==0:
                list1.append(i+j+x)if list1:
    print(max(list1))else:
    print(0)
```

进程检测

```python
k=int(input())for i in range(k):
    list1=[]
    n=int(input())
    for x in range(n):
        s,d=map(int,input().split())
        list1.append((s,d))
    list1.sort(key=lambda x:x[1])
    right=list1[0][1]
    count=1
    for y in list1 :
        if y[0]>right:
            right=y[1]
            count+=1
    print(count)
```

因材施教(greedy)

```
n,m=map(int,input().split())
list1=list(map(int,input().split()))
list1.sort()
list2=[]
count=0for i in range(len(list1)-1):
    list2.append((list1[i+1]-list1[i],i))
list2.sort(key=lambda x:x[0])
list3=[]for i in range(len(list2)-1,len(list2)-m,-1):
    list3.append(list2[i][1])
list3.sort()
result=0if len(list3)>=2:
    for i in range(len(list3) - 1):
        result += list1[list3[i + 1]] - list1[list3[i]+1]
    result+=list1[list3[0]]-list1[0]
    result+=list1[-1]-list1[list3[-1]+1]elif len(list3)==1:
    result += list1[list3[0]] - list1[0]
    result += list1[-1] - list1[list3[-1] + 1]else:
    result=list1[-1]-list1[0]print(result)
```

Saruman's Army

```
while True:
    r,n=map(int,input().split())
    if r==n==-1:
        break
    list1=list(map(int,input().split()))
    list1.sort()
    ctr=list1[0]+r
    count=1
    left=0
    i=-1
    while True:
        i+=1
        if i>len(list1)-1:
            break
        if left==0:
            if list1[i] > ctr:
                left = 1
                ctr=list1[i-1]+r
                i-=1
        elif left==1:
            if list1[i] > ctr:
                left = 0
                ctr=list1[i]+r
                count+=1
    print(count)
```

冲刺 GPA 的贪心之路

```
h=int(input())
m=int(input())
list1=[]for i in range(m):
    s,c=map(float,input().split())
    list1.append((s,c))
list1.sort(key=lambda x:x[0]*x[1])
real=2*h-0.5*m
i=len(list1)
count=0while True:
    i-=1
    if i<0:
        break
    if 5/list1[i][0]<=real:
        real-=5/list1[i][0]
        count+=5*list1[i][1]
    else:
        count+=real*list1[i][0]*list1[i][1]
        break
number="{:.1f}".format(count)print(number)
```

生存游戏(matrix)

```
n,m=map(int,input().split())
list1=[]for i in range(n):
    list1.append(list(map(int,input().split())))
list2=[[0 for x in range(m+2)]for i in range(n+2)]for i in range(n):
    for j in range(m):
        if list1[i][j]==1:
            list2[i + 2][j + 2] += 1
            list2[i + 2][j + 1] += 1
            list2[i + 2][j]     += 1
            list2[i ][j + 2] += 1
            list2[i ][j + 1] += 1
            list2[i][j] += 1
            list2[i + 1][j] += 1
            list2[i + 1][j + 2] += 1for i in range(1,n+1):
    for j in range(1,m+1):
        if list2[i][j]<2:
            list1[i-1][j-1]=0
        elif list2[i][j]==3:
            list1[i-1][j-1]=1
        elif list2[i][j]>3:
            list1[i-1][j-1]=0for i in list1:
    print(" ".join(str(x) for x in i))
```

Bomb Game

```
a,b,k=map(int,input().split())
list1=[[0 for x in range(b)] for y in range(a)]
list2=[]for i in range(k):
    r,s,p,t=map(int,input().split())
    list2.append((r,s,p,t))
count=sum(1 for x in list2 if x[3]==1)for i in range(a):
    for j in range(b):
        for x in list2:
            if abs(i+1-x[0])<=(x[2]-1)/2 and abs(j+1-x[1])<=(x[2]-1)/2:
                if x[3]==0:
                    list1[i][j]-=1
                else:
                    list1[i][j]+=1
count1=0for i in range(a):
    for j in range(b):
        if list1[i][j]==count:
            count1+=1print(count1)
```

机智的股民老张

```
list1=list(map(int,input().split()))
list2=[]while len(list1)>1:
    if max(list1)==min(list1):
        break
    list2.append(max(list1)-min(list1[x] for x in range(1+list1.index(max(list1)))))
    del list1[0:list1.index(max(list1))+1]if list2:
    print(max(list2))else:
    print(0)
```

炸鸡排

```
def myfunc(list1,k):
    if len(list1)==k:
        print( "{:.3f}".format(min(list1)))
    else:
        if max(list1)>=sum(list1)/k:
            list1.remove(max(list1))
            myfunc(list1,k-1)
        else:
            print("{:.3f}".format(sum(list1)/k))
    return
n,k=map(int,input().split())
list1=list(map(int,input().split()))myfunc(list1,k)
```

土豪购物

```
list1=list(map(int,input().split(",")))
dp1=[0]*len(list1)
dp2=[0]*len(list1)
dp1[0]=list1[0]
dp2[0]=list1[0]for i in range(1,len(list1)):
    dp1[i]=max(dp1[i-1]+list1[i],list1[i])
    dp2[i]=max(dp1[i-1],dp2[i-1]+list1[i],list1[i])print(max(dp2))
```

国王游戏

```
n=int(input())
a,b=map(int,input().split())
list1=[]
list2=[]for _ in range(n):
    x,y=map(int,input().split())
    list1.append((x,y))
list1.sort(key=lambda x:x[0]*x[1])
number=afor i in range(len(list1)):
    list2.append(number//list1[i][1])
    number=number*list1[i][0]print(max(list2)//1)
```

2022 决战双十一

```
import itertools
n,m=map(int,input().split())
list1=[[] for i in range(n)]
list2=[[] for i in range(m)]
list3=[]for _ in range(n):
    a=list(map(str,input().split()))
    for i in a:
        x,y=i.split(":")
        list1[_].append((x,y))
combinations=list(itertools.product(*list1))for i in range(m):
    a = list(map(str, input().split()))
    for _ in a:
        x, y = _.split("-")
        list2[i].append((x, y))
    list2[i].append((0,0))
mydict={}for i in combinations:
    for x in range(m):
        mydict[x + 1] = 0
    for j in i:
        mydict[int(j[0])]+=int(j[1])
    discount = (sum(mydict[i + 1] for i in range(m)) // 300) * 50
    for x in range(m):
        mydict[x+1]-=max(int(y[1]) for y in list2[x] if int(y[0])<=mydict[x+1])
    list3.append(sum(mydict[i+1] for i in range(m))-discount)print(min(list3))
```

两座孤岛最短距离

```
from collections import dequedef dfs(x,y,grid,n,queue, directions):
    grid[x][y]=2
    queue.append((x,y))
    for dx, dy in directions:
        nx,ny=x+dx,y+ dy
        if 0<=nx<n and 0<=ny<n and grid[nx][ny]==1:
            dfs(nx,ny,grid,n,queue,directions)def bfs(grid,n, queue, directions):
    distance =0
    while queue:
        for _ in range(len(queue)):
            x,y= queue.popleft()
            for dx,dy in directions:
                nx,ny=x+dx,y+ dy
                if 0<=nx<n and 0<=ny<n:
                    if grid[nx][ny]==1:
                        return distance
                    elif grid[nx][ny] == 0:
                        grid[nx][ny] = 2
                        queue.append((nx, ny))
        distance += 1
    return distancedef main():
    n = int(input())
    grid = [list(map(int, input())) for _ in range(n)]
    directions = [(1, 0), (-1, 0), (0, 1), (0, -1)]
    queue = deque()
    for i in range(n):
        for j in range(n):
            if grid[i][j] == 1:
                dfs(i, j, grid, n, queue, directions)
                return bfs(grid, n, queue, directions)if __name__ == '__main__':
    print (main())
```

洋葱

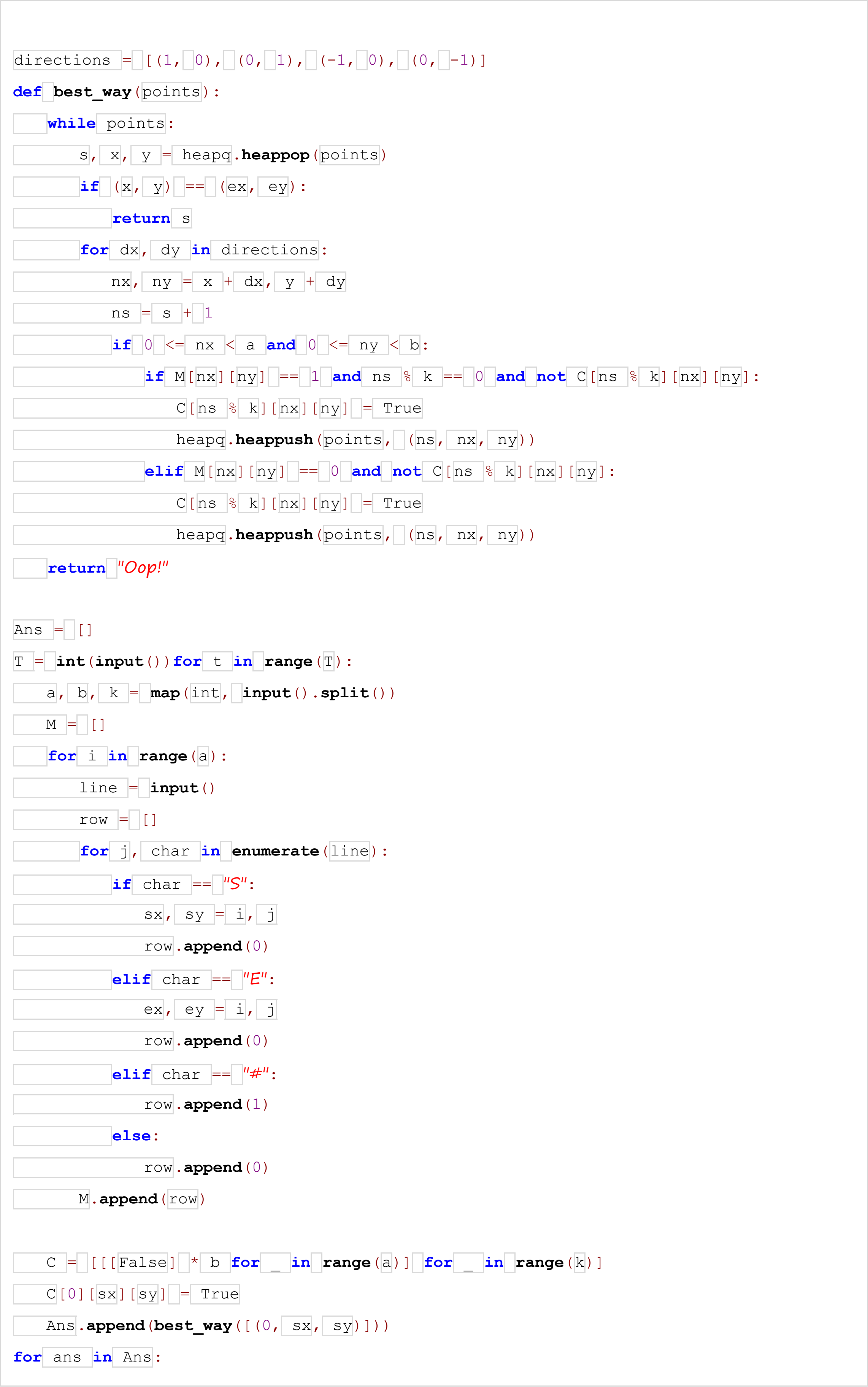
```
n=int(input())
list1=[]
list2=[]
sumall=0for i in range(n):
    list1.append(list(map(int,input().split())))
count=0for i in range(n//2):
    sumall+=sum(list1[count][y] for y in range(count,n-count))
    sumall+=sum(list1[n-count-1][y] for y in range(count, n - count))
    sumall+=sum(list1[y][count] for y in range(count+1,n-count-1))
    sumall += sum(list1[y][n-count-1] for y in range(count + 1, n - count-1))
    list2.append(sumall)
    count+=1
    sumall=0if n%2!=0:
    list2.append(list1[n//2][n//2])print(max(list2))
```

快速堆猪

```
import heapq
list1=[]while True:
    try:
        command=input()
        if command[:3]=="pop":
            if list1:
                list1.pop()
        if command[:3]=="min":
            if list1:
                print(list1[-1])
        if command[:4]=="push":
            num=int(command[5:])
            if list1:
                if list1[-1]>num:
                    list1.append(num)
                else:
                    list1.append(list1[-1])
            else:
                list1.append(num)
    except EOFError:
        break
import heapq
```

变换的迷宫

```
import heapq
```



```
directions = [(1, 0), (0, 1), (-1, 0), (0, -1)]
def best_way(points):
    while points:
        s, x, y = heapq.heappop(points)
        if (x, y) == (ex, ey):
            return s
        for dx, dy in directions:
            nx, ny = x + dx, y + dy
            ns = s + 1
            if 0 <= nx < a and 0 <= ny < b:
                if M[nx][ny] == 1 and ns % k == 0 and not C[ns % k][nx][ny]:
                    C[ns % k][nx][ny] = True
                    heapq.heappush(points, (ns, nx, ny))
                elif M[nx][ny] == 0 and not C[ns % k][nx][ny]:
                    C[ns % k][nx][ny] = True
                    heapq.heappush(points, (ns, nx, ny))
    return "Oop!"

Ans = []
T = int(input())for t in range(T):
    a, b, k = map(int, input().split())
    M = []
    for i in range(a):
        line = input()
        row = []
        for j, char in enumerate(line):
            if char == "S":
                sx, sy = i, j
                row.append(0)
            elif char == "E":
                ex, ey = i, j
                row.append(0)
            elif char == "#":
                row.append(1)
            else:
                row.append(0)
        M.append(row)

    C = [[[False] * b for _ in range(a)] for _ in range(k)]
    C[0][sx][sy] = True
    Ans.append(best_way([(0, sx, sy)]))
for ans in Ans:
    print(ans)
```

走山路

```
import heapq
m,n,p=map(int,input().split())
list1=[]
dx=[0,0,1,-1]
dy=[1,-1,0,0]for i in range(m):
    list1.append(input().split())for i in range(p):
    try:
        count = 0
        a, b, c, d = map(int, input().split())
        inq = set()
        list3 = [(0, a, b)]
        while list3:
            s, cx, cy = heapq.heappop(list3)
            inq.add((cx, cy))
            if cx == c and cy == d:
                count = 1
                break
            for i in range(4):
                nx = cx + dx[i]
                ny = cy + dy[i]
                if 0 <= nx < m and 0 <= ny < n and (nx, ny) not in inq and list1[nx][ny]!="#":
                    heapq.heappush(list3, (s + abs(int(list1[nx][ny]) - int(list1[cx][cy])), nx, ny))
        if count == 1:
            print(s)
        else:
            print("NO")
    except:
        print("NO")
```

假币问题

```
n=int(input())
mydict={1:"heavy",-1:"light"}for i in range(n):
    list1=[]
    list2=[]
    list3=[]
    count=0
    for j in range(3):
        list1.append(input())
    for x in range(1,13):
        list2.append(str(chr(x+64)))
    for x in list2:
        if sum(1 for _ in list1 if x in _)==0:
            continue
        for y in [-1,1]:
            if count==1:
                break
            for z in list1:
                if x not in z:
                    if "even" not in z:
                        break
                else:
                    if y==-1:
                        if z.find(x)<=3 and "down" not in z:
                            break
                        elif z.find(x)>3 and "up" not in z:
                            break
                    elif y==1:
                        if z.find(x) <= 3 and "up" not in z:
                            break
                        elif z.find(x)>3 and "down" not in z:
                            break
            else:
                count=1
                num1=y
                coin=x
                break
    print(f"{coin} is the counterfeit coin and it is {mydict[num1]}.")
```

滑雪

```
r,c=map(int,input().split())
list1=[]
list1.append([10001 for i in range(c+2)])for i in range(r):
    list1.append([10001]+list(map(int,input().split()))+[10001])
list1.append([10001 for i in range(c+2)])
list2=[]for i in range(1,r+1):
    for j in range(1,c+1):
        list2.append((list1[i][j],i,j))
list3=[[1 for i in range(c+2)] for j in range(r+2)]
list2.sort(key=lambda x:x[0],reverse=True)for x in list2:
    if list1[x[1]+1][x[2]]<list1[x[1]][x[2]]:
        list3[x[1]+1][x[2]]=max(list3[x[1]][x[2]]+1,list3[x[1]+1][x[2]])
    if list1[x[1]][x[2]+1] < list1[x[1]][x[2]]:
        list3[x[1]][x[2]+1] = max(list3[x[1]][x[2]] + 1, list3[x[1]][x[2]+1])
    if list1[x[1]-1][x[2]] < list1[x[1]][x[2]]:
        list3[x[1]-1][x[2]] = max(list3[x[1]][x[2]] + 1, list3[x[1]-1][x[2]])
    if list1[x[1]][x[2]-1] < list1[x[1]][x[2]]:
        list3[x[1]][x[2]-1] = max(list3[x[1]][x[2]] + 1,
list3[x[1]][x[2]-1])print(max(max(x) for x in list3))
```

螃蟹采蘑菇

```
from collections import deque
dx=[0,0,1,-1]
dy=[1,-1,0,0]def bfs(a,b,c,d,list1):
    q=deque()
    q.append((a,b))
    q.append((c,d))
    inq=set()
    while q:
        cx1,cy1=q.popleft()
        cx2,cy2=q.popleft()
        if list1[cx1][cy1]==9 or list1[cx2][cy2]==9:
            return "yes"
        for i in range(4):
            nx1=cx1+dx[i]
            ny1=cy1+dy[i]
            nx2=cx2+dx[i]
            ny2=cy2+dy[i]
            if 0 <= nx1 < n and 0 <= nx2 < n and 0 <= ny1 < n and 0 <= ny2 < n:
                if list1[nx1][ny1]!=1 and list1[nx2][ny2]!=1:
                    if (nx1, ny1) not in inq or (nx2, ny2) not in inq:
                        q.append((nx1, ny1))
                        q.append((nx2, ny2))
                        inq.add((nx1, ny1))
                        inq.add((nx2, ny2))
    return "no"
n=int(input())
list1=[]
list2=[]for i in range(n):
    list1.append(list(map(int,input().split())))for i in range(n):
    for j in range(n):
        if list1[i][j]==5:

list2.append((i,j))print(bfs(list2[0][0],list2[0][1],list2[1][0],list2[1][1],list1))
```

最大整数

```
m=int(input())
n=int(input())
list1=list(input().split())
list1.sort(key=lambda x:x*10,reverse=True)
dp=[0]*(m+1)for i in range(n):
    ad=len(list1[i])
    for x in range(m,ad-1,-1):
        dp[x]=max(dp[x],int(str(dp[x-ad])+list1[i]))for i in range(m,-1,-1):
    if dp[i]!=0:
        print(dp[i])
        break
```

熄灯问题

```
import itertoolsimport copy
mydict={0:1,1:0}
values=[0,1]
list1=[]
list1.append([0 for i in range(8)])for i in range(5):
    list1.append([0]+list(map(int,input().split()))+[0])
list1.append([0 for i in range(8)])for c in itertools.product(values,repeat=6):
    list3=[list(c)]
    list4=copy.deepcopy(list1)
    for i in range(1,6):
        for j in range(1,7):
            if list3[i-1][j-1]==1:
                list4[i-1][j]=mydict[list4[i-1][j]]
                list4[i][j-1] = mydict[list4[i][j-1]]
                list4[i+1][j] = mydict[list4[i+1][j]]
                list4[i][j+1] = mydict[list4[i][j+1]]
                list4[i][j] = mydict[list4[i][j]]
        list3.append(list4[i][1:7])
    if list4[-2][1:7]==[0,0,0,0,0,0]:
        for x in list3[:-1]:
            print(" ".join(str(x[z]) for z in range(6)))
        break
```

河中跳房子

```
l,n,m=map(int,input().split())
list1=[0]for i in range(n):
    list1.append(int(input()))
list1.append(l)def check(x):
    num = 0
    now = 0
    for i in range(1, n + 2):
        if list1[i] - now < x:
            num += 1
        else:
            now = list1[i]
    if num > m:
        return True
    else:
        return False
low, high = 0, l + 1
ans = -1while low < high:
    middle = (low + high) // 2
    if check(middle):
        high = middle
    else:
        ans = middle
        low = middle + 1print(ans)
```

2050 年成绩计算

```
numbers = [True] * (10**4+9)
numbers[0]=numbers[1]=False
primes = []def euler_sieve(numbers):
    for i in range(2, 10001):
        if numbers[i]:
            primes.append(i)
        for j in range(len(primes)):
            if i * primes[j] > int(10000):
                break
            numbers[i * primes[j]] = False
            if i % primes[j] == 0:
                breakeuler_sieve(numbers)

m,n=map(int,input().split())
import mathfor _ in range(m):
    sumall=0
    list3=list(map(int,input().split()))
    for i in range(len(list3)):
        if math.sqrt(list3[i])==int(math.sqrt(list3[i])) and
numbers[int(math.sqrt(list3[i]))] and list3[i]>3:
            sumall+=list3[i]
    if sumall==0:
        print(0)
    else:
        print(f"{sumall/len(list3):.2f}")
```

奖学金

```
n=int(input())
list1=[]for i in range(n):
    a,b,c=map(int,input().split())
    list1.append((a,b,c,i+1))
list1.sort(key=lambda x:(-(x[0]+x[1]+x[2]),-x[0],x[3]))if len(list1)>=5:
    for i in range(5):
        print(list1[i][3],list1[i][0]+list1[i][1]+list1[i][2])else:
    for i in range(n):
        print(list1[i][3], list1[i][0] + list1[i][1] + list1[i][2])
```

PASCAL 代码

```
list1=list(input().split(";"))
list2=[]
mydict={}for i in list1:
    if len(i)>0:
        list2.append((i[3],i[0]))
a=0
b=0
c=0for x in range(len(list2)):
    if list2[x][1]=="a":
        a=int(list2[x][0])
    elif list2[x][1]=="b":
        b=int(list2[x][0])
    elif list2[x][1] == "c":
        c = int(list2[x][0])print(a,b,c)
```

买水果

```
myset=set()
mydict={}
a,b=map(int,input().split())
list1=list(map(int,input().split()))
list1.sort()
list2=[]
count=0for _ in range(b):
    n=input()
    if n in myset:
        mydict[n]+=1
    else:
        mydict[n]=1
        myset.add(n)
        count+=1
newlist1=sorted(mydict.items(),key=lambda x:x[1],reverse=True)
minnum=0
maxnum=0for x in range(count):
    minnum+=newlist1[x][1]*list1[x]
list1.reverse()for y in range(count):
    maxnum+=newlist1[y][1]*list1[y]print(minnum,maxnum)
```

C - The Delivery Dilemma

- t=int(input())
- list4=[]
- for i in range(t):
- n=int(input())
- list1=list(map(int,input().split()))
- list2=list(map(int,input().split()))
- list3=sorted(list(zip(list1,list2)),reverse=True)
- d=0
- for i in list3:
- d+=i[1]
- if d>=i[0]:
- d=max(i[0],d-i[1])
- break
- list4.append(d)
- print('\n'.join(map(str, list4)))

C1 - Potions (Easy Version)

- n=int(input())
- list1=list(map(int,input().split()))
- list2=[]
- number=0
- count=0
- if list1[0]>=0:
- number+=list1[0]
- count+=1
- for i in range(1,n):
- if list1[i]>=0:
- number+=list1[i]
- count+=1
- else:
- if list1[i]+number>=0:
- list2.append(list1[i])
- number+=list1[i]
- count+=1
- else:
- if list2:
- if list1[i]>min(list2):
- number+=list1[i]
- number-=min(list2)
- list2.remove(min(list2))

```
list2.append(list1[i])
print(count)
```

B - Spreadsheet

```
n=int(input())
for _ in range(n):
a=input()
for i in range(len(a)):
if not a[i].isalpha():
nst = i
break
for x in range(nst, len(a)):
if a[x] == "C":
for i in range(1, len(a)):
if a[i] == "C":
number = i
break
col = a[1:number]
lie = int(a[i + 1:])
mystr = ""
for i in range(10, -1, -1):
if lie // (26 ** i) > 0:
mystr += str(chr((lie // (26 ** i)) + 64))
lie -= (lie // (26 ** i)) * (26 ** i)
rstr = mystr[::-1]
print(mystr + str(col))
break
else:
for i in range(len(a)):
if not a[i].isalpha():
break
number = i
all = 0
for x in range(number - 1, -1, -1):
all += (26 ** (number - x - 1)) * (ord(a[x]) - 64)
col = a[i:]
print("R" + col + "C" + str(all))
```

A - 2048 Game

```
q=int(input())
for _ in range(q):
n=int(input())
list1=list(map(int,input().split()))
list1.sort()
list2=[]
if 2048 in list1:
```

```
print("YES")
continue
number=2048
for i in list1:
if i<=1024:
list2.append(i)
else:
break
for i in range(len(list2)-1,-1,-1):
number -= list2[i]
if number==0:
print("YES")
break
else:
print('NO')
```

A - XXXXX

```
t=int(input())
for i in range(t):
n,k=map(int,input().split())
list1=list(map(int,input().split()))
all=sum(list1)
count1=0
list2=[]
for i in range(n):
if list1[i]%k!=0:
count1=1
list2.append(i+1)
break
list1.reverse()
for i in range(n):
if list1[i]%k!=0:
count1=1
list2.append(i+1)
break
if all%k==0:
if count1==1:
print(n-min(list2))
elif count1==0:
print(-1)
else:
print(n)
```

B - Interesting drink

```
n=int(input())
list1=list(map(int,input().split()))
```

```
q=int(input())
list2=[int(input()) for _ in range(q)]
dp=[0]*100001
for i in list1:
dp[i]+=1
for x in range(1,len(dp)):
dp[x]+=dp[x-1]
for y in list2:
if y>=len(dp):
print(dp[-1])
else:print(dp[y])
```

C - Boxes Packing

```
n=int(input())
list1=list(map(int,input().split()))
mydict={}
for i in list1:
    if i in mydict:
        mydict[i]+=1
    else:
        mydict[i]=1
print(max(mydict.values()))

```

D - Queue

```
n=int(input())
list1=list(map(int,input().split()))
list1.sort()
i=0
j=0
sumall=0
while True:
if i==len(list1):
break
elif sumall>list1[i]:
i+=1
elif sumall<=list1[i]:
sumall += list1[i]
i+=1
j+=1
print(j)
```

D - Flowers

```
t,k=map(int,input().split())
list1=[]
list3=[]
N=10**9+7
```

```
if k>1:
for i in range(t):
n, m = map(int, input().split())
list1.append((n, m))
list2 = []
for j in range(max(x[1] for x in list1)):
if j < k - 1:
list2.append((j + 1) % N)
elif j == k - 1:
list2.append((j + 2) % N)
elif j == k:
list2.append((j + 4) % N)
else:
list2.append((list2[-1] + list2[-1] - list2[-2] + list2[j - k] - list2[j - k - 1]) % N)
for i in range(t):
if list1[i][0] == 1:
list3.append((list2[list1[i][1] - 1]) % N)
else:
list3.append((list2[list1[i][1] - 1] - list2[list1[i][0] - 2]) % N)
for i in list3:
print(i)
else:
for i in range(t):
n, m = map(int, input().split())
list1.append((n, m))
list2=[]
for j in range(max(x[1] for x in list1)):
if j==0:
list2.append(2)
elif j==1:
list2.append(6)
else:
list2.append((list2[-1] + list2[-1] - list2[-2] + list2[j - k] - list2[j - k - 1]) % N)
for i in range(t):
if list1[i][0] == 1:
print((list2[list1[i][1] - 1]) % N)
else:
print((list2[list1[i][1] - 1] - list2[list1[i][0] - 2]) % N)
```

B - Vanya and Lanterns

```
n,l=map(int,input().split())
list1=list(map(int,input().split()))
list1.sort()
list2=[]
for i in range(n-1):
```

```
list2.append(list1[i+1]-list1[i])
list2.append(2*list1[0])
list2.append(2*(l-list1[-1]))
print(f"{max(list2)/2:.{10}f}")
```

B - Kuriyama Mirai's Stones

```
n=int(input())
list1=list(map(int,input().split()))
list2=sorted(list1)
list4=[]
list5=[]
for i in range(n):
if i==0:
list4.append(list1[i])
list5.append(list2[i])
else:
list4.append(list4[-1]+list1[i])
list5.append(list5[-1]+list2[i])
m=int(input())
list3=[]
for i in range(m):
a,b,c=map(int,input().split())
if a==1:
if b>=2:
list3.append(list4[c-1]-list4[b-2])
else:
list3.append(list4[c - 1])

else:
if b>=2:
list3.append(list5[c-1]-list5[b-2])
else:
list3.append(list5[c-1])
for x in list3:
print(x)
```

B - BerSU Ball

```
n=int(input())
list1=list(map(int,input().split()))
m=int(input())
list2=list(map(int,input().split()))
list1.sort()
list2.sort()
count=0
i=0
j=0
```

```
while True:
    if i==len(list1) or j==len(list2):
        break
    if list1[i]-list2[j]<=1 and list1[i]-list2[j]>=-1:
        count+=1
        i+=1
        j+=1
    else:
        if list1[i]>list2[j]:
            j+=1
        elif list1[i]<list2[j]:
            i+=1
print(count)
```

A - Laptops

```
import sys
n=int(input())
list1=[]
list2=[]
for i in range(n):
a,b=map(int,input().split())
list1.append((a,b))
list2.append(a)
list1.sort(key=lambda x:-x[1])
list2.sort()
for i in range(n):
if list1[i][0]!=list2[n-i-1]:
print("Happy Alex")
sys.exit()
print("Poor Alex")
```

Ilya and Queries

```
n=input()
a=int(input())
for i in range(a):
b,c=map(int,input().split())
print(sum(1 for i in range(b-1,c-1) if n[i]==n[i+1]))
```

A - Boredom

```
n = int(input())
list1 = list(map(int, input().split()))
mydict = {}
for x in list1:
if x in mydict:
mydict[x] += 1
else:
mydict[x] = 1
```

```
list2 = sorted(mydict.keys())
dp = [0] * (len(list2) + 1)
dp[0] = 0
dp[1] = list2[0] * mydict[list2[0]]
for i in range(1, len(list2)):
if list2[i] - list2[i-1] == 1:
dp[i + 1] = max(dp[i], dp[i-1] + list2[i] * mydict[list2[i]])
else:
dp[i + 1] = dp[i] + list2[i] * mydict[list2[i]]
print(dp[len(list2)])
```

(A) Cut Ribbon

```
n,a,b,c=map(int,input().split())
list0=[a,b,c]
list1=sorted(list0)
mydict={list1[0]:1,list1[1]:1,list1[2]:1}
list5=[]
for i in range(1,n+1):
if i-a in list1:
list5.append(mydict[i-a]+1)
if i-b in list1:
list5.append(mydict[i-b]+1)
if i-c in list1:
list5.append(mydict[i-c]+1)
if not i-a in list1 and not i-b in list1 and not i-c in list1:
continue
mydict[i]=max(list5)
list1.append(i)
list5.clear()
print(mydict[n])
```

Fancy Fence

```
n=int(input())
for i in range(n):
a=int(input())
if int(360/(180-a))==360/(180-a):
print("YES")
else:print("NO")
```

C - Woodcutters

```
n=int(input())
list1=[]
list2=[]
list3=[]
count=0
count1=0
for i in range(n):
```

```
a,b=map(int,input().split())
list1.append(a)
list2.append(b)
for i in range(1,n):
list3.append(list1[i]-list1[i-1])
if n>1:
for i in range(1,n-1):
if count1==0:
if list2[i]<list3[i-1]:
count+=1
elif list2[i]>=list3[i-1] and list2[i]<list3[i]:
count+=1
count1=list3[i]-list2[i]
elif count1!=0:
if list2[i]<count1:
count+=1
count1=0
elif list2[i]>=count1 and list2[i]<list3[i]:
count+=1
count1 = list3[i] - list2[i]
else:
count1=0
print(count+2)
else:
print(1)
```

Way Too Long Words

```
n=int(input())
for i in range(n):
a=str(input())
b=len(a)
if b>10:
print(a[0]+str(b-2)+a[-1])
else:
print(a)
```

Lucky Division

```
n=int(input())
count=0
count1=0
list=[4,7,44,77,47,74,444,447,474,477]
for i in str(n):
if int(i)!=4 and int(i)!=7:
for x in list:
if n%x==0:
```

```
print("YES")
count1+=1
break
if count1==0:
print("NO")
break

elif int(i)==4 or int(i)==7:
count+=1
if count==len(str(n)):
print("YES")
```

String Task

```
n=str(input())
newstr=""
list1=["A","E","I","O","U","Y","a","e","i","o","u","y"]
for i in n:
if i not in list1 and ord(i)<=90 and ord(i)>=65:
newstr=newstr+"."+i.lower()
elif i not in list1 and ord(i)<=122 and ord(i)>=97:
newstr=newstr+"."+i
print(newstr)
```

Young Physicist

```
n=int(input())
list1=[]
list2=[]
list3=[]
for i in range(n):
a,b,c=map(int,input().split())
list1.append(a)
list2.append(b)
list3.append(c)
d=sum(list1)
e=sum(list2)
f=sum(list3)
if d!=0 or e!=0 or f!=0:
print("NO")
else:
print("YES")
```

A - Kefa and First Steps

```
n=int(input())
a=list(map(int,input().split()))
list=[]
```

```
count=0
for i in range(n-1):
if a[i]<=a[i+1]:
count+=1
else:
list.append(count)
count=0
list.append(count)
print(max(list)+1)
```

A - Keyboard

```
list1=["q","w","e","r","t","y","u","i","o","p","["]
list2=["a","s","d","f","g","h","j","k","l",";",".","/"]
list3=["z","x","c","v","b","n","m",","]
n=input()
m=input()
newstr=""
if n=="R":
    for i in m:
        for x in [list1,list2,list3]:
            if i in x:
                i=x[x.index(i)-1]
                newstr=newstr+str(i)
if n=="L":
    for i in m:
        for x in [list1,list2,list3]:
            if i in x:
                i=x[x.index(i)+1]
                newstr=newstr+str(i)
print(newstr)
```

Chat room

```
n=str(input())
a=list()
for i in n:
if i=="h" or i=="e" or i=="l" or i=="o":
a.append(i)
list1=[]
count1=0
count2=0
count3=0
count4=0
for i in range(len(a)-1):
if a[i]=="h"and count1!=1:
list1.append(a[i])
```

```
count1+=1
elif count1==1 and a[i]=="e" and count2!=1:
list1.append(a[i])
count2+=1
elif count1==1 and count2==1 and a[i]=="l" and count3!=2:
list1.append("l")
count3+=1
elif count1==1 and count2==1 and count3==2 and count4!=1 and a[i]=="o":
list1.append(a[i])
count4+=1
if count4==0 and a[-1]=="o":
list1.append("o")
b="".join(x for x in list1)
if b=="hello":
print("YES")
else:
print("NO")
```

A - Bulbs

```
a,b=map(int,input().split())
c=set()
for i in range(a):
n=list(map(int,input().split()))
for x in range(1,len(n)):
c.add(n[x])
d=int(((1+b)/2)*b)
if sum(c)!=d:
print("NO")
else:
print("YES")
```

Bit++

```
n=int(input())
count=0
for i in range(n):
    a=input()
    if a=="X++" or a=="++X":
        count+=1
    elif a=="X--" or a=="--X":
        count-=1
print(count)
```

A - Vasya and Socks

```
a,b=map(int,input().split())
count=0
```

```
for i in range(2*a+1):
a=a-1
if a<0:
break
if count%b==0:
a+=1
count += 1
print(count-1)
```

B - T-primes

```
n=int(input())
a=list(map(int,input().split()))
numbers = [True] * (10**6+1)
numbers[0]=numbers[1]=False
primes = []
def euler_sieve(numbers):
for i in range(2, int(1e6)+1):
if numbers[i]:
primes.append(i)
for j in range(len(primes)):
if i * primes[j] > int(1e6):
break
numbers[i * primes[j]] = False
if i % primes[j] == 0:
break
euler_sieve(numbers)
import math
for x in a:
if numbers[int(math.sqrt(x))]and int(math.sqrt(x))==math.sqrt(x) :
print("YES")
else:
print("NO")
```

Taxi

```
n=int(input())
a=list(map(int,input().split()))
count=0
count1=0
count0=a.count(4)
count1=a.count(3)
count+=count1+count0
count2=2*a.count(2)
count3=a.count(1)
if count3>count1:
count3-=count1
else:
```

```
count3=0
import math
if (count2)%4==0:
count+=(count2//4)+math.ceil((count3/4))
else:
count+=(count2//4)+math.ceil((count3+2)/4)
print(count)
```

Reconnaissance

```
n=int(input())
a=list(map(int,input().split()))
list1=[]
for i in range(1,len(a)):
list1.append(abs(a[i]-a[i-1]))
list1.append(abs(a[-1]-a[0]))
b=list1.index(min(list1))
if b!=len(list1)-1:
c=" ".join(str(x)for x in (b+1,b+2))
print(c)
else:
c=" ".join(str(x)for x in (b+1,1))
print(c)
```

Restore the Weather

```
t=int(input())
for _ in range(t):
list1=[]
list2=[]
a,b=map(int,input().split())
c=list(map(int,input().split()))
d=list(map(int,input().split()))
import itertools
newlist=list(itertools.permutations(d))
for perm in newlist:
count=0
for i in range(len(d)):
if abs(c[i]-perm[i])<=b:
count+=1
if count==len(c):
perm=" ".join(str(x) for x in perm )
print(perm)
break
```

Football

```
a=str(input())
import sys
count=0
```

```
n=len(a)
for i in range(1,n):



if a[i]==a[i-1]:
if a[i-1]==str(0):
count+=1
elif a[i-1]==str(1):
count-=1

elif a[i]!=a[i-1]and a[i]==str(0):count=1
elif a[i]!=a[i-1]and a[i]==str(1):count=-1


if count >= 7 or count <= -7:
print("YES")
sys.exit()



if count<7 or count>-7:
print("NO")
```

Chips on the Board

```
t=int(input())
for i in range(1,t+1):
n=int(input())
a=list(map(int,input().split()))
b=list(map(int,input().split()))
c=sum(a)+n*min(b)
d=sum(b)+n*min(a)
e=min(c,d)
print(e)
```

Twins

```
m=int(input())
a=list(map(int,input().split()))
c=[]
a.sort(reverse=True)
b=sum(a)
for i in a:
    if not sum(c)>(b/2):
        c.append(i)
d=sum(1 for x in c)
print(d)
```

Odd Divisor

```
m=int(input())
for i in range(1,m+1):
a=int(input())
if a%2==1:
print("YES")
else:
while a%2==0:
a=a/2
if a==1:
print("NO")
else:print("YES")
```

Sale

```
m,n=map(int,input().split())
a=list(map(int,input().split()))
b=[]
a.sort()
for i in range(m):
if i<n and a[i]<=0:
b.append(a[i])
c=sum(b)
d=-c
print(d)
```

Police Recruits

```
n=int(input())
a=list(map(int,input().split()))
count=0
b=0
for i in a:
count+=i
if count<0:
b+=1
count=0
print(b)
```

Beautiful Matrix

```
matrix=[list(map(int,input().split())) for i in range(5)]
position=None
for a,b in enumerate(matrix):
if 1 in b:
c=b.index(1)
d=(a,c)
break
print(abs(a-2)+abs(c-2))
```

IQ test

```
n=int(input())
a=list(map(int,input().split()))
result=[]
for i in a:
b=i%2
result.append(b)
c=sum(1 for i in result if i==0)
d=sum(1 for i in result if i==1)
if d==1 and c==n-1:
for i in range(n):
if result[i]==1:
print(i+1)
elif c==1 and d==n-1:
for i in range(n):
if result[i]==0:
print(i+1)
```

Hulk

```
n=int(input())
a="I hate that I love that"
d=""
b=n//2
if n%2==0:
for _ in range(1,b):
d+=" "+a
c=d+" I hate that I love it"
else:
for _ in range(1,b+1):
d+=" "+a
c=d+" I hate it"
print(c)
```

Stones on the Table

```
n=int(input())
a=(input())
sum=0
for i in range(0,n-1):
if a[i]==a[i+1]:
sum+=1
print(sum)
```

Theatre Square

```
n,m,a=map(int,input().split())
b=n//a
c=m//a
if n%a!=0 and m%a!=0:
d=b*c+c+b+1
```

```
elif n%a==0 and m%a!=0:
d=b*c+b
elif n%a!=0 and m%a==0:
d=b*c+c
else:
d=c*b
print(d)
```

Word Capitalization

```
str=input()
print(str[0].upper()+str[1:])
```

Sum

```
n=int(input())
for i in range(1,n+1):
a=list(map(int,input().split()))
a.sort()
if a[2]==a[0]+a[1]:
print("YES")
else:
print("NO")
```

Restoring Three Numbers

```
a=list(map(int,input().split()))
a.sort()
print(a[3]-a[0],a[3]-a[1],a[3]-a[2])
```

Meeting Friends

```
x1,x2,x3=list(map(int,input().split()))
a=max(x1,x2,x3)-min(x1,x2,x3)
print(a)
```

Soft Drinking

```
n,k,l,c,d,p,nl,np=list(map(int,input().split()))
a=(k*l/(nl*n))//1
b=c*d/n
e=(p/(np*n))//1
f=min(a,b,e)
print(int(f))
```

Candies and Two Sisters

```
n=int(input())
for _ in range(1,n+1):
t=int(input())
if t%2==1:
```

```
c=t//2
else:c=t//2-1
print(c)
```

Sum of Round Numbers

```
n=int(input())
for _ in range(1,n+1):
a=int(input())
b=a//10000
c=a-b*10000
d=c//1000
e=c-d*1000
f=e//100
g=e-f*100
h=g//10
j=g-h*10
k=sum(1 for i in [b,d,f,h,j]if i>0)
print(k)
oldone=[b*10000,d*1000,f*100,h*10,j]
newone=[x for x in oldone if x>0]
output=" ".join(str(x) for x in newone)
print(output)
```

Divisibility Problem

```
n=int(input())
for _ in range(1,n+1):
a,b=map(int,input().split())
if a%b==0:
print(0)
else:
c=((a//b)+1)*b-a
print(c)
```

Hit the Lottery

```
a=int(input())
b=a//100
c=a-100*b
d=c//20
e=c-20*d
f=e//10
g=e-10*f
h=g//5
i=g-5*h
j=b+d+f+h+i
print(j)
```

Petya and Strings

```
str1=(input()).lower()
```

```
str2=(input()).lower()
if str1==str2:
print(0)
elif str1>str2:
print(1)
else:
print(-1)
```

Team

```
a=int(input())
d=0
for i in range(a):
b=map(int,input().split())
c=sum(b)
if c >= 2:
d=d+1
print(d)
```

Boy or Girl

```
a=set()
a.update(input())
if len(a)%2==1:
print("IGNORE HIM!")
else:
print("CHAT WITH HER!")
```

Next Round

```
a,b=map(int,input().split())
reverse=True
c=list(map(int,input().split()))
sorted(c)
d=sum(1 for i in c if i>=c[b-1] and i>0 )
print(d)
```

Watermelon

```
a=int(input())
if a%2==0and a!=2:
print("YES")
else:
print("NO")
```

Domino piling

```
M,N=(map(int,input().split()))
Z=(M*N)//2
print(Z)
```

Drinks

```
a=int(input())
b=list(map(int,input().split( )))
```

- `print(sum(b)/a)`

汉诺塔

```
n=int(input())

print(2**n-1)

list1=[]

if n==1:

    print("A"+"->"+"C")

list1.append("A"+"->"+"C")

x=0

while True:

    x+=1

    if x<n:

        list1.append(list1[-1].replace("B","*").replace("C","B").replace("*","C")+" A->C "+list1[-1].replace("B","*").replace("A","B").replace("*","A"))

    else:

        break

print(list1[-1].replace(" ","\n"))
```

矩阵最大权值路径

```
maxvalue=-float("inf")
n,m=map (int,input().split())
maze=[]
tp,op=[],[]
for i in range (n):
    maze.append(list(map(int,input().split())))
visited=[[False for - in range(m)] for - in range (n)]
dx=[0,0,1,-1]
dy=[1,-1,0,0]
def canvisit(x,y):
    return 0<=x<n and 0<=y<m and not visited[x][y]
```

```
def dfs(x,y,nowvalue):
    global maxvalue,tp,op
    if x-n-l and y=-m-1:
        if nowvalue>maxvalue:
            maxvalue=nowvalue
            op=list(tp)
        return
     visited[x][y]=True
     for i in range(4):
        nx=x+dx[i]
        ny=y+dy[i]
        if canvisit(nx,ny):
            nextvalue=nowvalue+maze[nx][ny]

            tp.append((nx,ny))

            dfs (nx,ny,nextvalue)

            tp.pop ()

      visited[x][y]=False

tp.append((0,0))

dfs(0,0,maze[0][0])

for p in op:

    print(p[0]+1,p[1]+1)
```

不同路径

```
class Solution:
def uniquePaths(self, m: int, n: int) -> int:
    list1=[[1]*n]+[ [1]+[0]*(n-1) for i in range(m-1)]
    for i in range(1,m):
        for j in range(1,n):
                list1[i][j]=list1[i-1][j]+list1[i][j-1]
return list1[m-1][n-1]
```

受到祝福的平方

```
import math

judge=0

def dfs(n):

    global judge

    if math.sqrt(int(n))==int(math.sqrt(int(n))) and math.sqrt(int(n))!=0:

        judge=1

        return

    for i in range(1,len(n)):

        if int(math.sqrt(int(n[:i])))==math.sqrt(int(n[:i])):

            dfs(n[i:])

n=str(input())

dfs(n)
```

```
print("Yes" if judge==1 else "No")
```

数楼梯

```
n=int(input())

list1=[1,2]if n<3:

    print(list1[n-1])else:

    for i in range(2,n):

        list1.append(list1[-1]+list1[-2])

    print(list1[-1])
```

最长回文子串

```
class Solution:
    def longestPalindrome(self, s: str) -> str:
        n=len(s)
        if n==0:
                return ""
        if n==1:
                return s
        dp=[[False]*n for _ in range(n)]
        b=0
        maxlength=1
        for i in range(n):
                dp[i][i]=True
        for i in range(n-1):
            if s[i]==s[i+1]:
                dp[i][i+1]=True
                b=i
                maxlength=2
        for x in range(3,n+1):
                for y in range(n-x+1):
                    if s[y]==s[y+x-1] and dp[y+1][y+x-2]:
                        dp[y][y+x-1]=True
                         b=y
                        maxlength=x
        if maxlength==1:
                return s[0]
        return s[b:b+maxlength]
        if __name__=="__main__":
```

```
sol=Solution()
```

取石子游戏

```
while True:

    a,b=map(int,input().split())

    if a==b==0:

        break

    i=0

    while a!=0 and b!=0:

        i+=1

        if a%b==0 or b%a==0:

            break

        else:

            if a>b:

                if a//b>=2:

                    break

                else:
                    a-=(a//b)*b

            else:

                if b//a>=2:

                    break

                else:

                    b-=(b//a)*a

    if i%2==1:

        print("win")

    else:

            print("lose")
```

全排列 I

```
def myfunc(nums):
    if len(nums)<=1:
        return[nums]
    list1=[]
    for i in range(len(nums)):
        num1=nums [i]
        num2=nums [ :i]+nums [i+1 :]
        for x in myfunc(num2):
            list1.append( [num1]+x)
    return list1
n=int(input())
numbers=list(range(1,n+1))
list2=myfunc(numbers)
for x in list2:
    print(" ".join(str(y)for y in x))
```