import random

def start(no):

st=''

for j in range(4):

for i in range(int(no)):

st+=str(random.randint(0,1))

if j!=3:

st+=' '

st=st.split(' ')

return st

def crossover(st):

new=[]

l=len(st[0])

for i in range(len(st)):

for j in range(i+1,len(st)):

huh=st[i][0:l//2]+st[j][(l//2):l]

duh=st[j][0:l//2]+st[i][(l//2):l]

new.append(huh)

new.append(duh)

return new

#

def mutation(new,no):

new2=[]

for i in new:

mut=random.randint(0,int(no)-1)

if i[mut]=='1':

i=i[:mut]+'0'+i[mut+1:]

elif i[mut]=='0':

i=i[:mut]+'1'+i[mut+1:]

new2.append(i)

return new2

# #---------------------------

def fitness\_check(new2,run,player,total):

values=[]

for i in new2:

whole = 0

for j in range(len(i)):

if i[j]=='1':

whole+=int(run[j])

values.append(abs(whole-int(total)))

if 0 in values:

min\_val=min(values)

minind=values.index(min\_val)

return new2[minind]

else:

max\_value=max(values)

maxind=values.index(max\_value)

new2.pop(maxind)

return new2

#--------------------- GA ------------------------

f=open('input()1.txt')

s=f.read()

s=s.split('\n')

player=[]

run=[]

no,total=s[0].split(' ')

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

x,y=s[i].split(' ')

player.append(x)

run.append(y)

hehe=start(no)

limit=100

for i in range(limit):

answer=''

q1= crossover(hehe)

q2= mutation(q1,no)

q3 = fitness\_check(q2,run,player,total)

if type(q3)==str:

print(player)

answer=q3

print(answer)

break

else:

hehe=q2[0:4]

if answer=='':

print(player)

print('-1')