def swap\_data(data, m, n):

temp = data[m]

data[m] = data[n]

data[n] = temp

def insert\_sort(data):

num = len(data)

for i in range(2, num):

if data[i] < data[i-1]:

j = i

# 设置哨兵，多比较，少交换

# while data[j] < data[j-1] and j > 0:

# swap\_data(data, j, j-1)

# j -= 1

temp = data[i]

while data[j] > temp and j > 0:

data[j+1] = data[j]

j -= 1

data[j+1] = temp

data = [1,3,8,5,6,7,4,9,2]

print('before insert sort')

for i in data:

print i,

insert\_sort(data)

print('after insert sort')

for i in data:

print i,