字符串习题

判断数字并打印

用户输入一个十进制正整数数字

- 1. 判断是几位数
- 2. 打印每一位数字及其重复的次数
- 3. 依次打印每一位数字,顺序个、十、百、干、万...位

```
num = ''
# 数字输入的简单判断
while True:
   num = input('Input a positive number >>> ').strip().lstrip('0')
   if num.isdigit():
       break
print("The length of {} is {}.".format(num, len(num)))
# 倒序打印1
for i in range(len(num), 0, -1):
   print(num[i-1], end=' ')
print()
# 倒序打印2
for i in reversed(num):
   print(i, end=' ')
print()
# 倒序打印3 负索引
for i in range(len(num)):
   print(num[-i-1], end=' ')
print()
for i in range(-1, -len(num)-1, -1):
   print(num[i], end=' ')
print()
print('-' * 30)
print(num[::-1])
# 判断0-9的数字在字符串中出现的次数
# 1 每一次迭代都是用count,都是0(n)问题
counter = [0] * 10
for i in range(10): # 10 * n
   counter[i] = num.count(str(i))
   if counter[i]:
       print("The count of {} is {}".format(i, counter[i]))
```

```
# 2 使用count, 迭代字符串本身
counter = [0] * 10
# unique(n) * n
# 1111 时间复杂度就是O(n)
# 1234 时间复杂度就是0(4n)
for x in num:
   i = int(x)
   if counter[i] == 0:
       counter[i] = num.count(x)
       print("The count of {} is {}".format(i, counter[i]))
# 3 迭代自身每一个字符
counter = [0] * 10
for x in num: \# O(n)
   i = int(x)
   counter[i] += 1
for i in range(len(counter)):
   if counter[i]:
       print("The count of {} is {}".format(i, counter[i]))
```

判断数字位数并排序打印

输入5个十进制正整数数字,打印每个数字的位数,将这些数字排序打印,要求升序打印

```
nums = []
while len(nums) < 5:
    num = input("Please input a number:").strip().lstrip('0')
    if not num.isdigit():
        continue
    print('The length of {} is {}'.format(num, len(num)))
    nums.append(int(num))
print(nums)
# sort方法排序
lst = nums.copy()
lst.sort() # 就地修改
print(lst)
#冒泡法
for i in range(len(nums)):
    flag = False
    for j in range(len(nums)-i-1):
        if nums[j] > nums[j+1]:
           tmp = nums[j]
            nums[j] = nums[j+1]
           nums[j+1] = tmp
           flag = True
    if not flag:
        break
print(nums)
```