Python 习题集（01-20）

7-1 从键盘输入两个数，求它们的和并输出

```
a=int(input())
b=int(input())
print(a+b)
```

7-2 从键盘输入三个数到 a,b,c 中，输出 b*b-4*a*c 的值

```
a,b,c=map(int,input().split())
print(b**2-4*a*c)
```

7-3 输出“人生苦短，我学 Python”

```
s = "人生苦短，我学 Python"
print(s)
```

7-4 输入 m，计算 11+12+13+...+m 的值。

```
m = int(input())
sum = sum(range(11,m+1))
print(f'sum = {sum}')
```

7-5 计算分段函数

$$y=f(x)=\begin{cases}\dfrac{1}{x} & x\neq 0\\ 0 & x=0\end{cases}$$

```
x=float(input())
if x!=0:
    y=1/x
else:
    y=0
print(f'f({x:.1f}) = {y:.1f}')
```

7-6 阶梯电价。月用电量 50 度（含 50 度）以内的，电价为 0.53 元/度；超过 50 度的，超出部分的用电量，电价上调 0.05 元/度。请编写程序计算电费。

```
x=int(input())
if x<=0:
    print('Invalid Value!')
else:
    if x<=50:
        y=0.53*x
    else:
        y=0.53*50+0.58*(x-50)
    print(f'cost = {y:.2f}')
```

7-7 特殊 a 串数列求和 a + aa + aaa + … + aa…a（n 个 a）

```
a,n=input().split()
n=int(n)
```

```
x=0
for i in range(1,n+1):
    y=i*a
    x+=int(y)
print(f's = {x}')
```

7-8 求序列前 N 项和 1 + 1/3 + 1/5 + ...

```
n=int(input())
s=0
for i in range(1,n+1):
    s+=1/(2*i-1)
print(f'sum = {s:.6f}')
```

7-9 求交错序列前 N 项和 1 - 2/3 + 3/5 - 4/7 + 5/9 - 6/11 + ...

```
n=int(input())
s=0
t=1
for i in range(1,n+1):
    s+=t*(i/(2*i-1))
    t*=-1
print(f'{s:.3f}')
```

7-10 产生每位数字相同的 n 位数 AA...A

```
x,y=input().split(',')
x=x.strip()
y=int(y)
print(y*x)
```

7-11 转换函数使用

```
num, kind = input().split(",")
kind = int(kind)
a = int(num,kind)
print(a)
```

7-12 比较大小

```
a = list(map(int, input().split()))
a.sort()
print(*a, sep='->')
```

7-13 输出华氏-摄氏温度转换表

```
lower, upper = map(int, input().split())
if lower > upper:
    print("Invalid.")
```

```
else:
    print("fahr celsius")
    for i in range(lower, upper+1, 2):
        c = 5 * (i - 32) / 9
        print(f"{i}{c:>6.1f}")
```

7-14 求平方与倒数序列的部分和 m2+1/m+(m+1)2+1/(m+1)+…+n2+1/n

```
m, n = map(int, input().split())
ans = 0
for i in range(m, n+1):
    ans += (i ** 2) + 1 / i
print(f"sum = {ans:.6f}")
```

7-15 输出三角形面积和周长

```
import math
a, b, c = map(int, input().split())
if a+b>c and a+c>b and b+c>a:
    s=(a+b+c)/2
    area=math.sqrt(s*(s-a)*(s-b)*(s-c))
    print(f"area = {area:.2f}; perimeter = {2*s:.2f}")
else:
    print('These sides do not correspond to a valid triangle')
```

7-16 分段计算居民水费

```
x = int(input())
if x > 15:
    y = 2.5 * x - 17.5
else:
    y = 4 * x / 3
print(f"{y:.2f}")
```

7-17 求整数段和

```
a, b = map(int, input().split())
cnt = 0
sum = 0
for i in range(a,b+1):
    sum += i
    cnt += 1
    print(f"{i:>5}", end="")
    if cnt % 5 == 0: print()
if cnt % 5 != 0: print()
print(f"Sum = {sum}")
```

7-18 大于身高的平均值

```
list1=list(map(int,input().split()))
ave=sum(list1)/len(list1)
for x in list1:
    if(x>ave): print(x,end=" ")
```

7-19 查验身份证

```
n = int(input())
w = [7,9,10,5,8,4,2,1,6,3,7,9,10,5,8,4,2]
cnt = 0
dic = {0:'1',1:'0',2:'X',3:'9',4:'8',5:'7',6:'6',7:'5',8:'4',9:'3',10:'2'}
for i in range(n):
    r = []
    m = input()
    if not m[0:17].isdigit():
        print(m)
        cnt += 1
    else:
        for k in range(17):
            r.append(w[k]*int(m[k]))
        if dic[sum(r)%11] != m[17]:
            print(m)
            cnt += 1
if cnt == 0:
    print('All passed')
```

7-20 输出字母在字符串中位置索引

```
str=input()
c1,c2=input().split()
n=len(str)
for i in range(n-1,-1,-1):
    if c1==str[i] or c2==str[i]:
        print(i,str[i])
```