# AI 程序设计@NJU

# 实验 2 Python 字典集合控制结构参考答案

### 1．简易模拟登录

```
account = {"zhao":"1234", "qian":"2345", "sun":"3456", "li":"4567"}
user, passwd = input("Enter the account: ").split(",")

if user in account and account[user] == passwd:
    print("登录成功!")
else:
    print("登录失败!")
```

### 2．Pick 歌手

```
>>> s1 = {1, 2, 3, 4, 5}
>>> s2 = {6, 7, 8, 9, 10}
>>> s = {4, 7, 9, 1, 2, 2, 6, 2, 2, 1, 6, 9, 7, 4, 5, 5, 7, 9, 5, 5, 4}
(1) >>> sorted(s)
(2) >>> sorted(s - s2)
(3) >>> sorted(s2 – s)
(4) if int(input("请输入获得选票的歌手编号:")) in s:
        print("Y")
    else:
        print("N")
```

### 3. 货币兑换

```
rate = float(input("Enter the exchange rate from dollars to RMB: "))
choice = int(input("Enter 0 to convert dollars to RMB and 1 vice versa: "))

if choice == 0:
    dol = float(input("Enter the dollar amount: "))
    rmb = dol * rate
    print("${:.1f} is {:.1f} yuan".format(dol, rmb))
elif choice == 1:
    rmb = float(input("Enter the RMB amount: "))
    dol = 1 / rate * rmb
    print("{:.1f} yuan is ${:.f}".format(rmb, dol))
else:
```

```
    print("Incorrect input")
```

## 4. 百钱买百鸡问题

```
# count = 0
for r_c in range(1, 21):
    for h_c in range(1, 34):
        for c_c in range(3, 101, 3):
            if r_c+h_c+c_c == 100 and r_c*5+h_c*3+c_c//3 == 100:
                print("rooster={},hen={},chick={}".format(r_c, h_c, c_c))
                # count += 1
# print(count)
```

## 5. 求 sinx

```
from math import fabs

n = 1
eps = 1e-8
x = float(input())

sinx = term = x
while fabs(term) >= eps:
    term = -term * x * x / (n+1) / (n+2)
    sinx += term
    n += 2
print("{:.1f}".format(sinx))
```

## 6. 找水仙花数

```
outs = ''

for i in range(100, 1000):
    sti = str(i)
    nnum = 0
    for j in range(len(sti)):
        nnum += int(sti[j]) ** 3
    if nnum == i:
        outs = outs + sti + '\n'
print(outs)
```

## 7. 分解质因数

```
n = int(input('Enter a number: '))

print(n, '=', end = ' ')
```

```python
i = 2
while n != 1:
    while n % i == 0:
        n //= i
        if n == 1:
            print('{:d}'.format(i))
        else:
            print('{:d}*'.format(i), end = '')
    i += 1
```

## 8. 无重复三位数

```python
for i in range(1, 5):
    for j in range(5):
        for k in range(5):
            print(100*i+10*j+k)
```

## 9. 统计得分

```python
string = input()

s, s_all = 0, 0
for ch in string:
    if ch == 'A':
        s += 1
        s_all += s
    else:
        s = 0
print(s_all)
```

## 10. 删特征数字
A 版（扩展性更好）

```python
num = int(input('Enter the number: '))
n = 0
ln = ''

for i in range(0, 101):
    s = str(i)
    if i % num != 0 and s.find(str(num)) == -1:
        ln = ln + s + ','
        n += 1
        if n % 10 == 0:
            print(ln[:-1])
            ln = ''
print(ln[:-1])
```

B 版

```python
x = int(input())
c = []

for i in range(1, 101):
    if i % 10 != x and i % x != 0 and i // 10 != x:
        c.append(i)
k = 0
for j in range(0, len(c)):
    if k == 9 or j == len(c) - 1 :
        print(c[j], end='\n')
        k = 0
    else:
        print(c[j], end = ',')
        k = k + 1
```