3_1

```python
def divisible_by_11_from1to50():
    print('integers from 1 to 50 divisible by 11 : ',end = '')
    for i in range (1 ,51 ):
        if (i%11 ==0) :
            print(i,end = ' ')
def divisible_by_5or7_from1to30():
    print('integers from 1 to 30 divisible by 5 or 7 : ',end = '')
    for i in range (1 ,31 ):
       if (i%5 ==0 )or (i%7==0):
           print(i,end = ' ')
def divisible_by_2and7_from1to30():
    print('integers from 1 to 30 divisible by 2 and 7 : ',end = '')
    for i in range (1 ,31 ):
       if (i%2 ==0 )and (i%7==0):
           print(i,end = ' ')
def notdivisible_by_2nor7_from1to20():
    print('integers from 1 to 20 not divisible by 2 nor 7 : ',end = '')
    i = 1
    while i < 21 :
        if (i%2 != 0 ) and (i%7 != 0):
            print(i,end = ' ')
        i = i+1
def oddintegers_from_1to20():
    print('odd integers from 1 to 20 : ',end = '')
    i = 1
    while i < 21 :
        if (i%2 == 0):
            print(i,end = ' ')
        i = i+1
#####################################################################
divisible_by_11_from1to50()
print('')
divisible_by_5or7_from1to30()
print('')
divisible_by_2and7_from1to30()
print('')
notdivisible_by_2nor7_from1to20()
print('')
oddintegers_from_1to20()
```

```
In [101]: runfile('C:/Users/Liao/Desktop/OR/homework/homework3/homework3-1.py',
wdir='C:/Users/Liao/Desktop/OR/homework/homework3')
integers from 1 to 50 divisible by 11 : 11 22 33 44
integers from 1 to 30 divisible by 5 or 7 : 5 7 10 14 15 20 21 25 28 30
integers from 1 to 30 divisible by 2 and 7 : 14 28
integers from 1 to 20 not divisible by 2 nor 7 : 1 3 5 9 11 13 15 17 19
odd integers from 1 to 20 : 2 4 6 8 10 12 14 16 18 20
```

3_2_Factorial with Python Script File

```python
def factorial(x):
    if x.isdigit() :
        fact = 1
        for i in range(1 , int(x)+1):
            fact = fact * i
        print('The Factorial =')
        print(fact)
    else:
        print('this is not an integer')

#####################################################
x =input('Please input N for the Factorial: ')
factorial(x)
```

```
Please input N for the Factorial: 1
The Factorial =
1

In [103]: runfile('C:/Users/Liao/Desktop/OR/homework/homework3/ho
wdir='C:/Users/Liao/Desktop/OR/homework/homework3')

Please input N for the Factorial: 2
The Factorial =
2

In [104]: runfile('C:/Users/Liao/Desktop/OR/homework/homework3/ho
wdir='C:/Users/Liao/Desktop/OR/homework/homework3')

Please input N for the Factorial: 5
The Factorial =
120
```

3_3_Fibonacci Number with Python

```python
#Fibonacci Number
def Fibonacci_Number(x):
    if x.isdigit() :
        f1 ,f2 = 1 ,1
        list = [f1,f2]
        for i in range(1 , int(x)-1):
            num = f1 +f2
            f1 = f2
            f2 = num
            list.append(num)
        print('The Fibonacci sequence = ')
        for i in range(0, int(x)):
            print(list[i] , end = ' ')
    else:
        print('this is not an integer')
#############################################################
x =input('Please input the term n for the Fibonacci sequence: ')
Fibonacci_Number(x)
```

```
Please input the term n for the Fibonacci sequence: 1
The Fibonacci sequence =
1

In [2]: runfile('C:/Users/Liao/Desktop/OR/homework/homework3/homework3-3.py', wdir='C:/
Users/Liao/Desktop/OR/homework/homework3')

Please input the term n for the Fibonacci sequence: 2
The Fibonacci sequence =
1 1

In [3]: runfile('C:/Users/Liao/Desktop/OR/homework/homework3/homework3-3.py', wdir='C:/
Users/Liao/Desktop/OR/homework/homework3')

Please input the term n for the Fibonacci sequence: 8
The Fibonacci sequence =
1 1 2 3 5 8 13 21
```

3_4

Simplex method 是個比較系統性的解法，可以把運算過程都寫成矩陣，這樣在跑多變數的時候就能很好的用程式來跑，計算過程也算是好懂，不過也只有在 2 維情況下比較好圖示理解，碰到無限循環的時候可能比較難察覺。