

# Lab02

## 1-基本信息

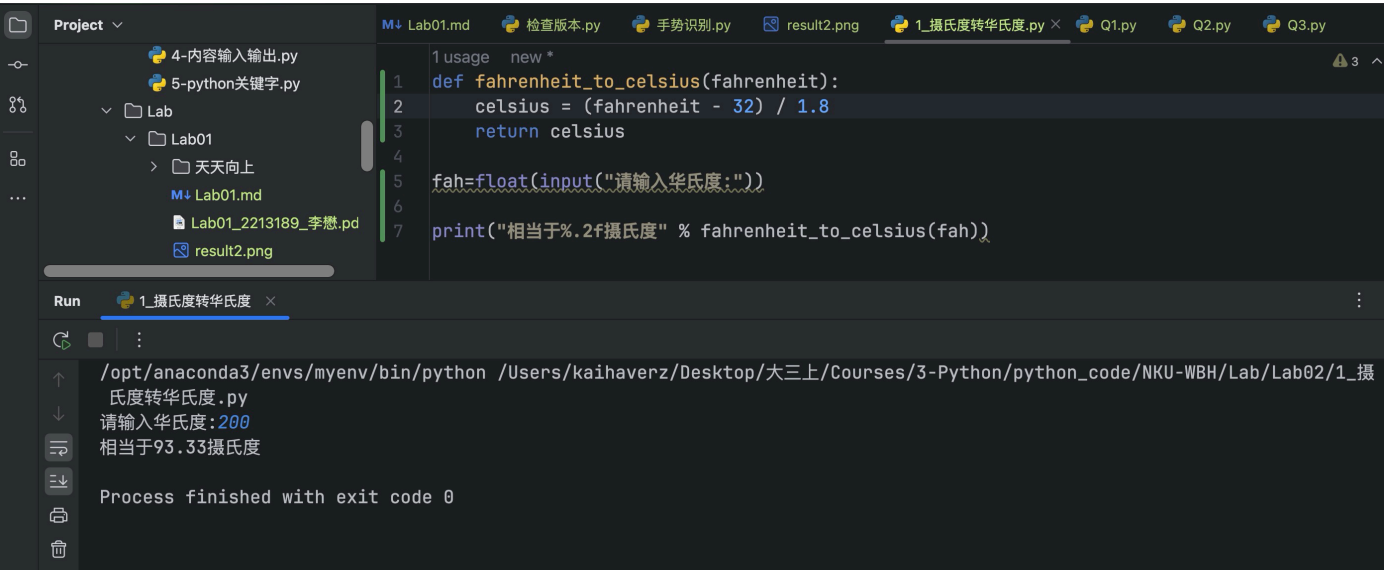
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年级	2022级
IDE	PyCharm PE 2024.1.4
操作系统	macOS Sequoia 15.0
完成时间	2024.10.22

## 2-实验目的

- 1. 熟练分支循环结构
- 2. 定义和使用函数(将代码块抽象为函数)

## 3-实验内容

### 3.1 将华氏度转化为摄氏度



- 1. 定义了一个函数,根据公式转化
- 2. 输入华氏度,输出摄氏度

## 3.2 判断年份是否为闰年

```
1 year=int(input("请输入年份:"))
2
3 def isRN(year):
4     if((year%4==0 and year%100!=0) or (year%400==0)):
5         return True
6     else:
7         return False
8
9 if (isRN(year)==True):
10     print("%d是闰年" %year)
11 else:
12     print("%d不是闰年" %year)
```

1. 输入年份,转化为整型数据
2. 设计函数,根据条件判断,注意要写的整齐规范
3. 根据要求输出

## 3.3 1-100求和

```

1 ✓ # 法一:循环
2   # total=0
3   # for i in range(1,101):  #左闭右开区间
4   #     total+=i
5   #
6   # print(total)
7
8
9   # 法二:使用函数
10  # total=sum(range(1,101))
11  # print(total)
12
13
14  # 法三:等差数列公式
15  total=(1+100)*100/2
16  print(total)

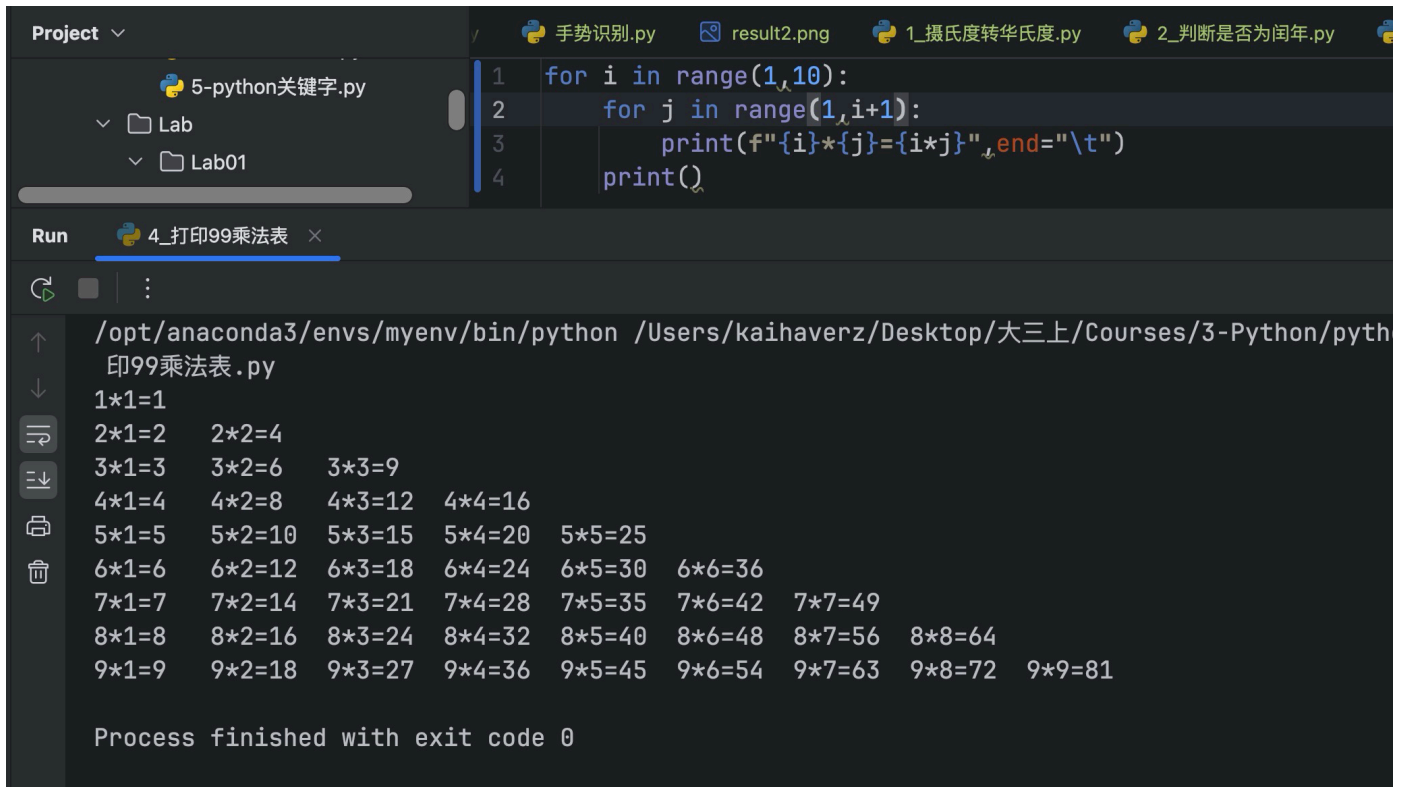
```

#### 1. 三种方法

1. 使用循环 range(1,101),表示左闭右开区间
2. 使用函数,sum(range(1,101))
3. 使用等差数列公式

#### 2. 总结:第二种最佳

### 3.4 打印99乘法表



The screenshot shows an IDE with a project named '5-python关键字.py'. The file '4\_打印99乘法表.py' is open and running. The code defines two nested loops: the outer loop iterates over 'i' from 1 to 10, and the inner loop iterates over 'j' from 1 to 'i+1'. It prints the multiplication result 'i\*j' with a tab separator. The output in the console shows a 9x9 multiplication table. The process finished with exit code 0.

```
1 for i in range(1,10):
2     for j in range(1,i+1):
3         print(f"{i}*{j}={i*j}",end="\t")
4     print()
```

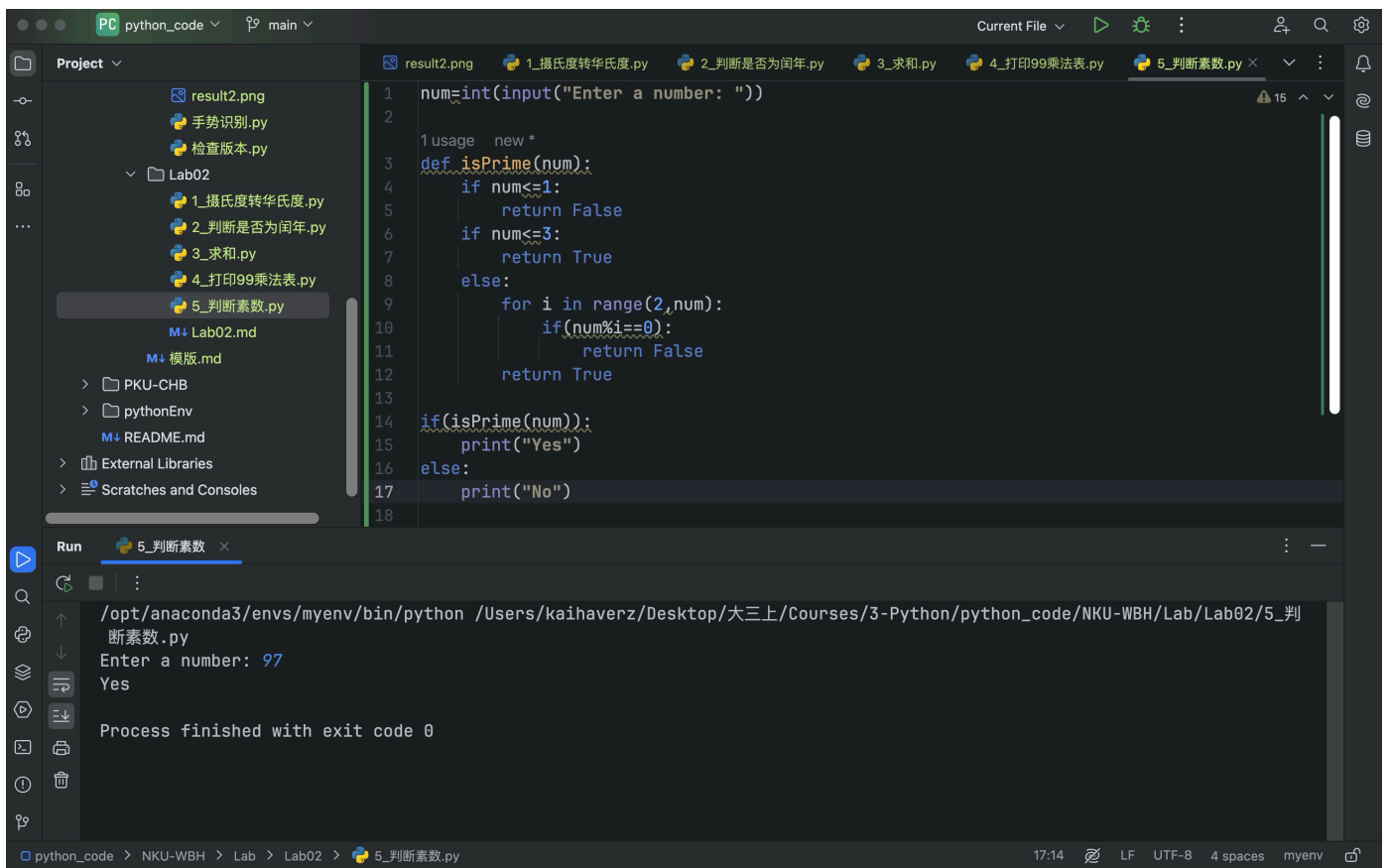
Run 4\_打印99乘法表

/opt/anaconda3/envs/myenv/bin/python /Users/kaihaverz/Desktop/大三上/Courses/3-Python/python\_打印99乘法表.py

```
1*1=1
2*1=2  2*2=4
3*1=3  3*2=6  3*3=9
4*1=4  4*2=8  4*3=12  4*4=16
5*1=5  5*2=10  5*3=15  5*4=20  5*5=25
6*1=6  6*2=12  6*3=18  6*4=24  6*5=30  6*6=36
7*1=7  7*2=14  7*3=21  7*4=28  7*5=35  7*6=42  7*7=49
8*1=8  8*2=16  8*3=24  8*4=32  8*5=40  8*6=48  8*7=56  8*8=64
9*1=9  9*2=18  9*3=27  9*4=36  9*5=45  9*6=54  9*7=63  9*8=72  9*9=81
```

Process finished with exit code 0

### 3.5 判断素数



The screenshot shows an IDE with a project named 'python\_code'. The file '5\_判断素数.py' is open and running. The code prompts the user to enter a number, then defines a function 'isPrime' that checks if a number is prime. It uses a loop to check divisibility from 2 to the number. If the number is prime, it prints 'Yes'; otherwise, it prints 'No'. The output in the console shows the user entered '97' and the program printed 'Yes'. The process finished with exit code 0.

```
1 num=int(input("Enter a number: "))
2
3 1 usage new *
4 def isPrime(num):
5     if num<=1:
6         return False
7     if num<=3:
8         return True
9     else:
10        for i in range(2,num):
11            if(num%i==0):
12                return False
13        return True
14
15 if(isPrime(num)):
16     print("Yes")
17 else:
18     print("No")
```

Run 5\_判断素数

/opt/anaconda3/envs/myenv/bin/python /Users/kaihaverz/Desktop/大三上/Courses/3-Python/python\_code/NKU-WBH/Lab/Lab02/5\_判断素数.py

```
Enter a number: 97
Yes
```

Process finished with exit code 0

```

1 num=int(input("Enter a number: "))
2
3 def isPrime(num):
4     if num<=1:
5         return False
6     if num<=3:
7         return True
8     else:
9         for i in range(2,(int(num**1/2)+1)):
10            if(num%i==0):
11                return False
12            return True
13
14 if(isPrime(num)):
15     print("Yes")
16 else:
17     print("No")
18

```

1. 定义函数判断质数
  1. 小于1,不是
  2. 2,3是
  3. 从2到num的平方根,如果都不能整除,则是质数
2. 之后直接使用内置函数,不用自己写,is\_prime(97)

## 4-实验心得

1. 注意输入输出的格式
2. 根据题意,写出表达式
3. 99乘法表和质数判断有点巧妙,可以多复习一下