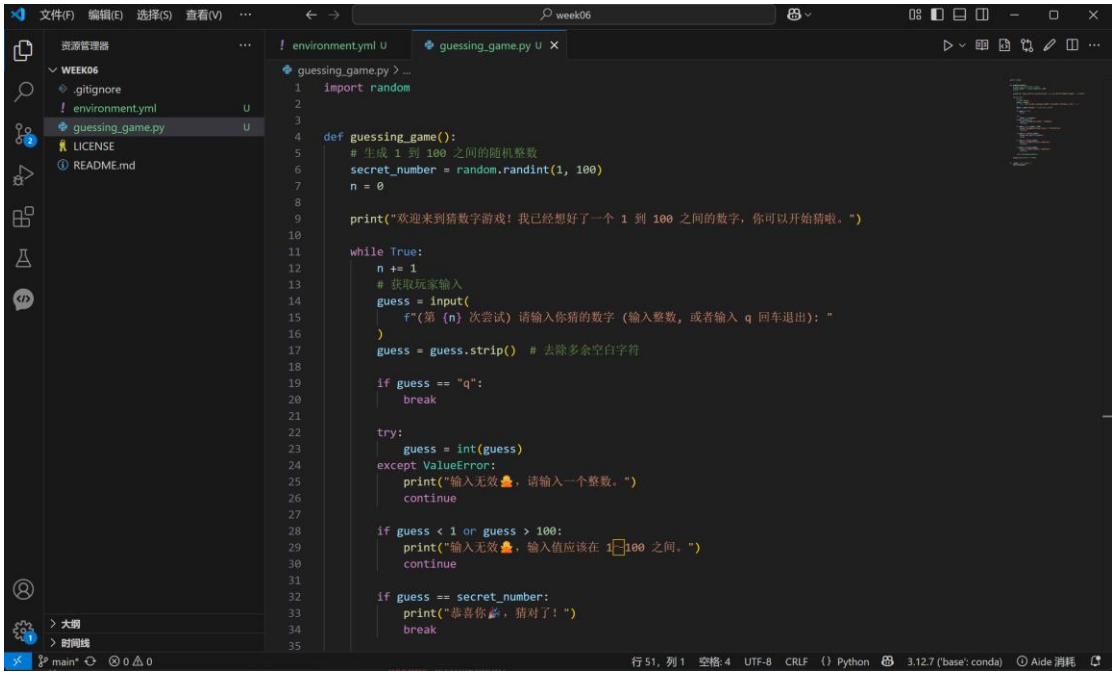
1、 创建 guessing_game.py 文件，运用 pdb 试验运行流程（猜数字游戏为例）

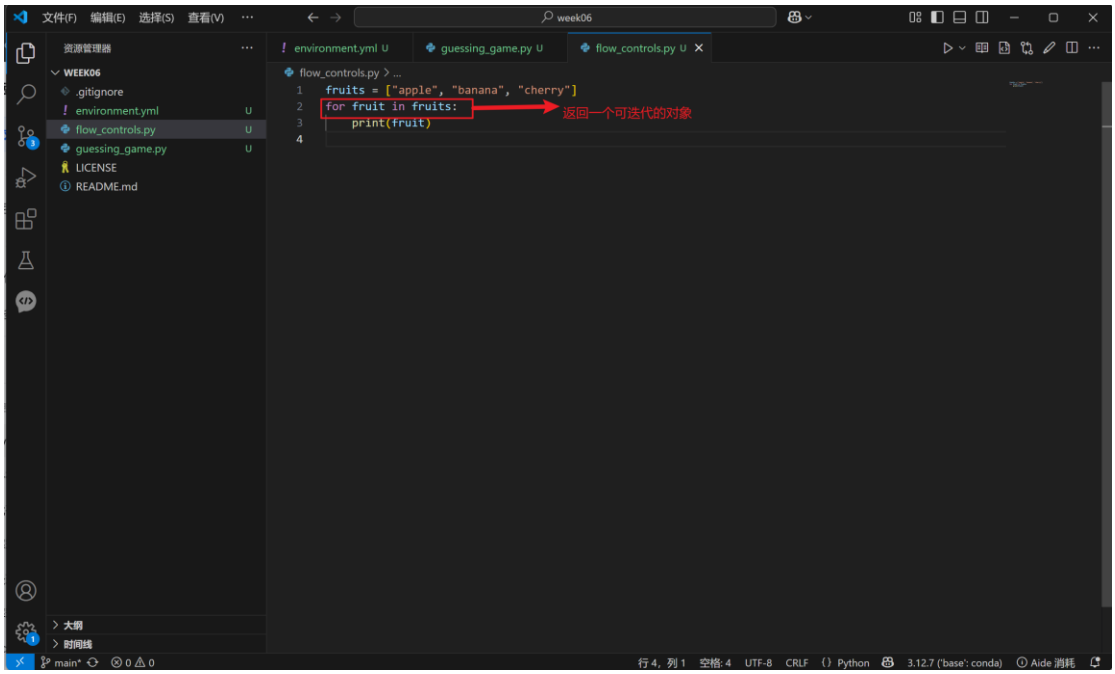


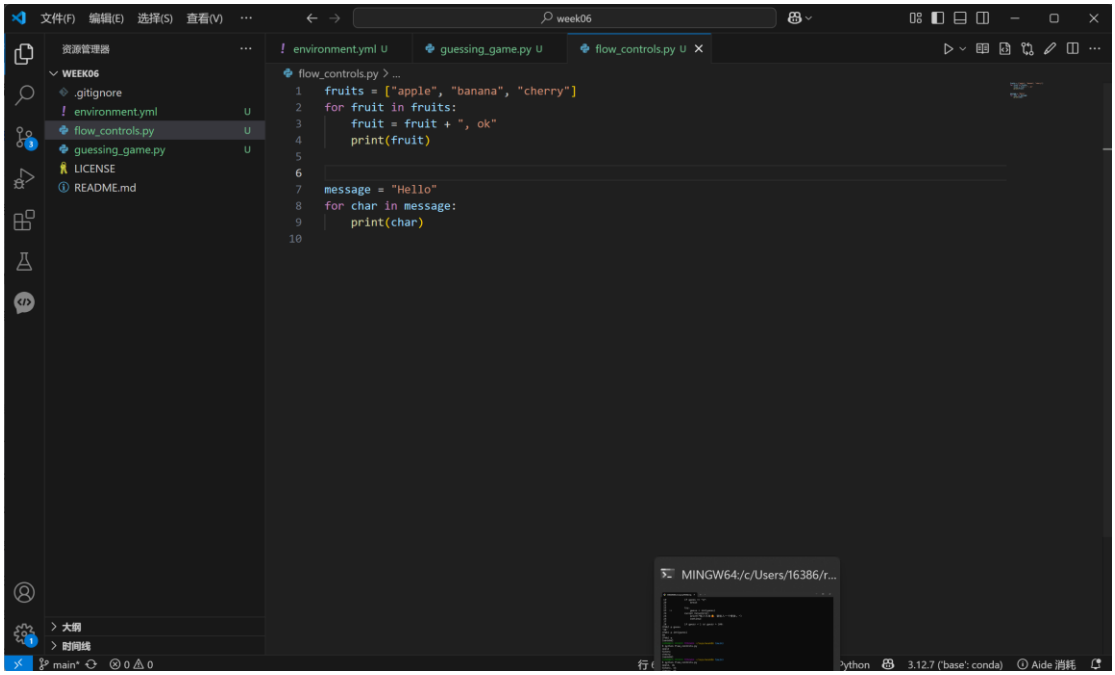
```
import random


def guessing_game():
    # 生成 1 到 100 之间的随机整数
    secret_number = random.randint(1, 100)
    n = 0

    print("欢迎来到猜数字游戏！我已经想好了一个 1 到 100 之间的数字，你可以开始猜啦。")

    while True:
        n += 1
        # 获取玩家输入
        guess = input(
            f"(第 {n} 次尝试) 请输入你猜的数字（输入整数，或者输入 q 回车退出）: "
        )
        guess = guess.strip()  # 去除多余空白字符

        if guess == "q":
            break

        try:
            guess = int(guess)
        except ValueError:
            print("输入无效，请输入一个整数。")
            continue

        if guess < 1 or guess > 100:
            print("输入无效，输入值应该在 1-100 之间。")
            continue

        if guess == secret_number:
            print("恭喜你，猜对了！")
            break
```

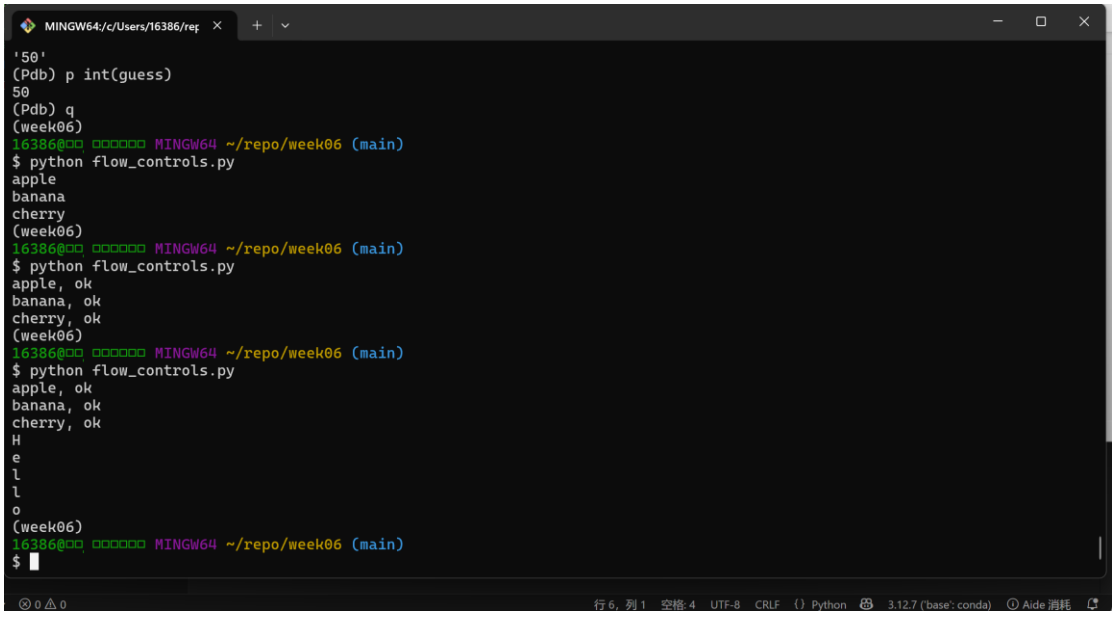
```
16386@□□ □□□□□□ MINGW64 ~/repo/week06 (main)
$ python guessing_game.py
欢迎来到猜数字游戏！我已经想好了一个 1 到 100 之间的数字，你可以开始猜啦。
(第 1 次尝试) 请输入你猜的数字（输入整数，或者输入 q 回车退出）: q
游戏结束，再见 。
(week06)
16386@□□ □□□□□□ MINGW64 ~/repo/week06 (main)
$ python -m pdb guessing_game.py
> c:\users\16386\repo\week06\guessing_game.py(1)<module>()
-> import random
(Pdb) l
  1  -> import random
  2
  3
  4     def guessing_game():
  5         # 生成 1 到 100 之间的随机整数
  6         secret_number = random.randint(1, 100)
  7         n = 0
  8
  9         print("欢迎来到猜数字游戏！我已经想好了一个 1 到 100 之间的数字，你可以开始猜啦。")
 10
 11         while True:
(Pdb) n
> c:\users\16386\repo\week06\guessing_game.py(4)<module>()
-> def guessing_game():
(Pdb)
> c:\users\16386\repo\week06\guessing_game.py(49)<module>()
-> if __name__ == "__main__":
(Pdb)
> c:\users\16386\repo\week06\guessing_game.py(50)<module>()
```

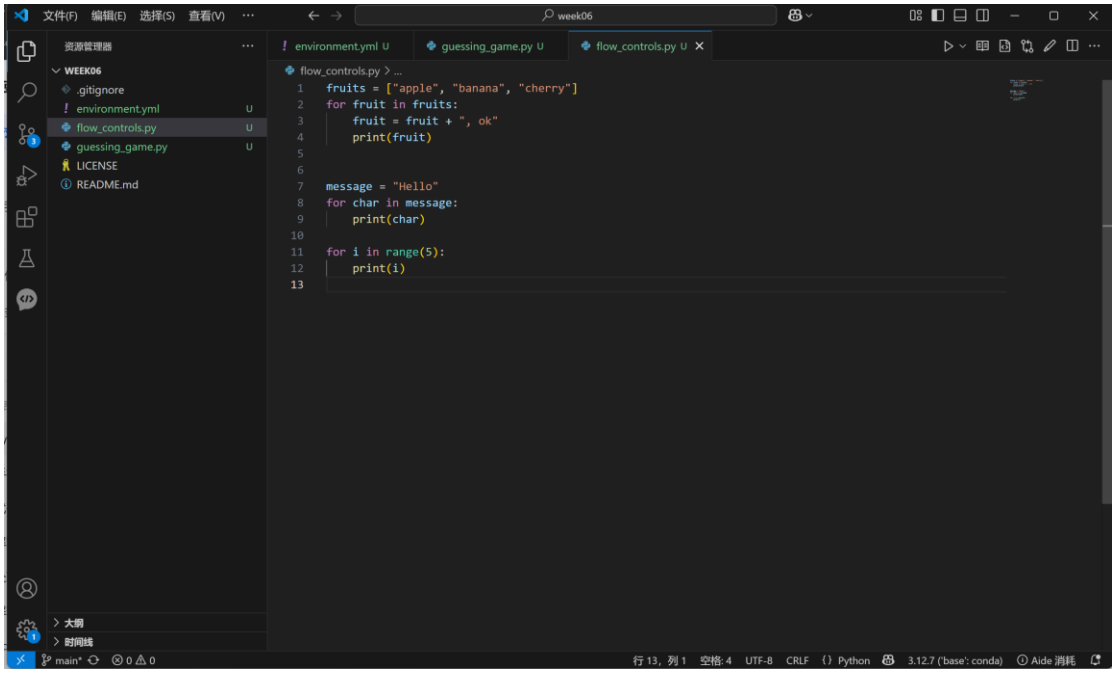
2、 创建 flow_controls.py 文件，让豆包生成例子，理解以下语句

For：迭代循环

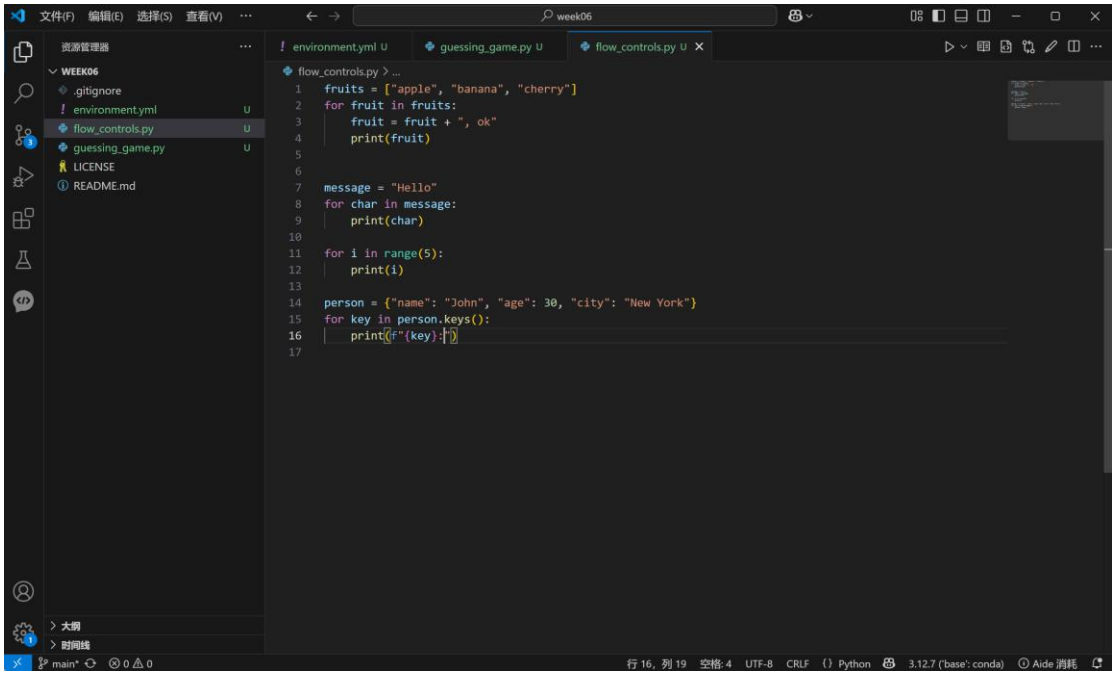


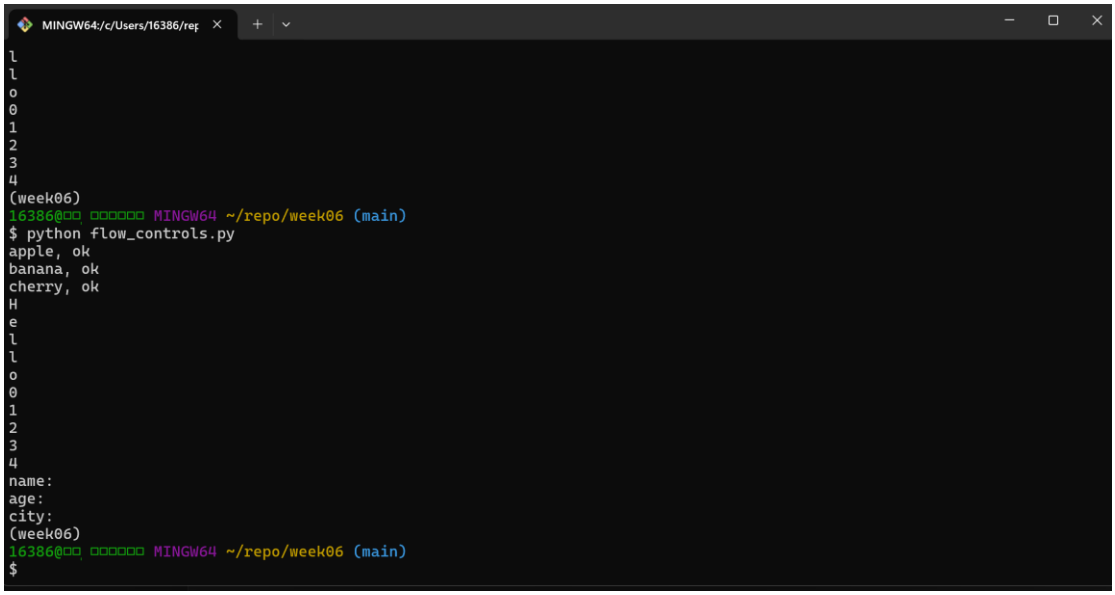

文件(F) 编辑(E) 选择(S) 查看(V)
week06
资源管理器
WEEK06
.gitignore
environment.yml
flow_controls.py
guessing_game.py
LICENSE
README.md
environment.yml U
guessing_game.py U
flow_controls.py U
flow_controls.py > ...
1 fruits = ["apple", "banana", "cherry"]
2 for fruit in fruits:
3 fruit = fruit + ", ok"
4 print(fruit)
5
6
7 message = "Hello"
8 for char in message:
9 print(char)
10
大纲
时间线
main*
0 0
MINGW64:/c/Users/16386/r...
3.12.7 ('base': conda)
Aide 消耗


MINGW64:/c/Users/16386/reg
'50'
(Pdb) p int(guess)
50
(Pdb) q
(week06)
16386@□□ □□□□□□ MINGW64 ~/repo/week06 (main)
$ python flow_controls.py
apple
banana
cherry
(week06)
16386@□□ □□□□□□ MINGW64 ~/repo/week06 (main)
$ python flow_controls.py
apple, ok
banana, ok
cherry, ok
(week06)
16386@□□ □□□□□□ MINGW64 ~/repo/week06 (main)
$ python flow_controls.py
apple, ok
banana, ok
cherry, ok
H
e
l
l
o
(week06)
16386@□□ □□□□□□ MINGW64 ~/repo/week06 (main)
$
0 0
行 6，列 1 空格: 4 UTF-8 CRLF {} Python 3.12.7 ('base': conda) Aide 消耗

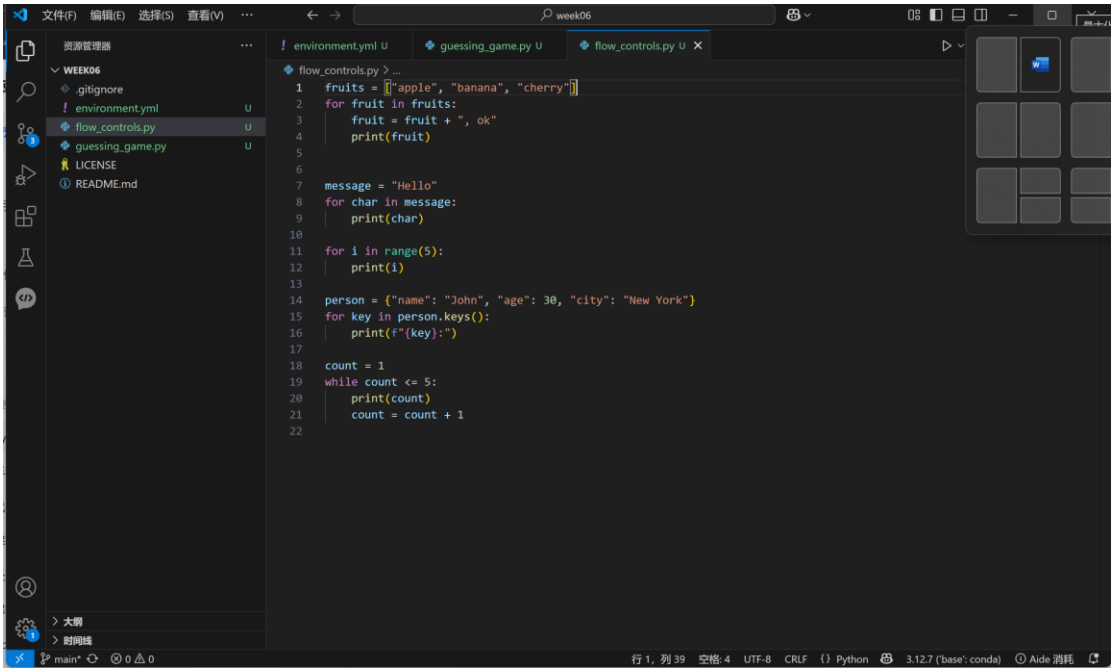

文件(F) 编辑(E) 选择(S) 查看(V)
week06
资源管理器
WEEK06
.gitignore
environment.yml U
flow_controls.py U
guessing_game.py U
LICENSE
README.md
environment.yml U
guessing_game.py U
flow_controls.py U
flow_controls.py > ...
1 fruits = ["apple", "banana", "cherry"]
2 for fruit in fruits:
3 fruit = fruit + ", ok"
4 print(fruit)
5
6
7 message = "Hello"
8 for char in message:
9 print(char)
10
11 for i in range(5):
12 print(i)
13
大纲
时间线
main*
0 0
行 13，列 1 空格: 4 UTF-8 CRLF Python 3.12.7 ('base': conda) Aide 消耗

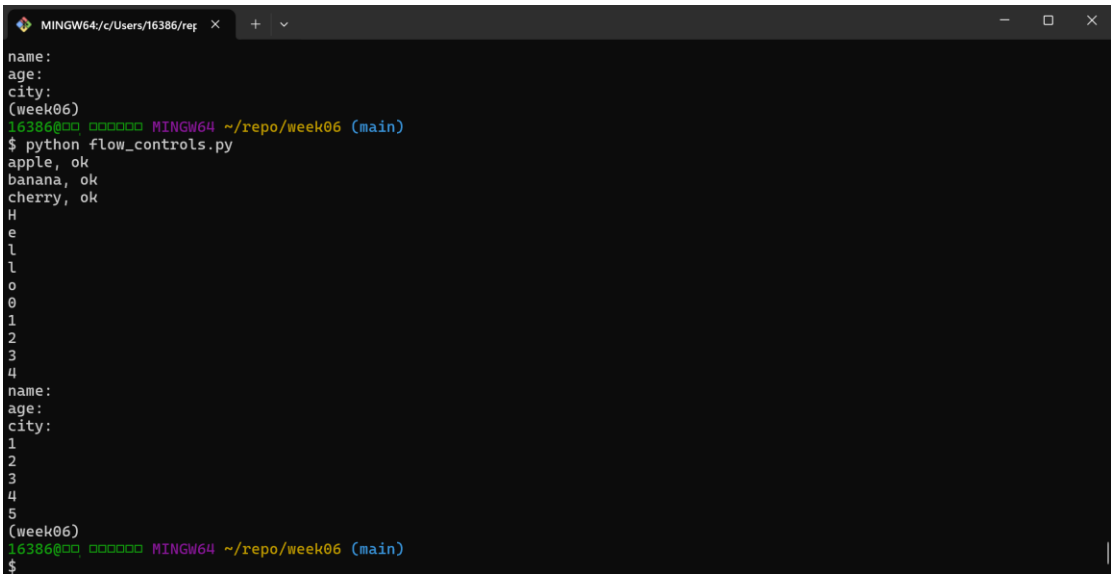

MINGW64:/c/Users/16386/rep
(week06)
16386@□□ □□□□□□ MINGW64 ~/repo/week06 (main)
$ python flow_controls.py
apple, ok
banana, ok
cherry, ok
H
e
l
l
o
(week06)
16386@□□ □□□□□□ MINGW64 ~/repo/week06 (main)
$ python flow_controls.py
apple, ok
banana, ok
cherry, ok
H
e
l
l
o
0
1
2
3
4
(week06)
16386@□□ □□□□□□ MINGW64 ~/repo/week06 (main)
$
0 0
行 13，列 1 空格: 4 UTF-8 CRLF Python 3.12.7 ('base': conda) Aide 消耗

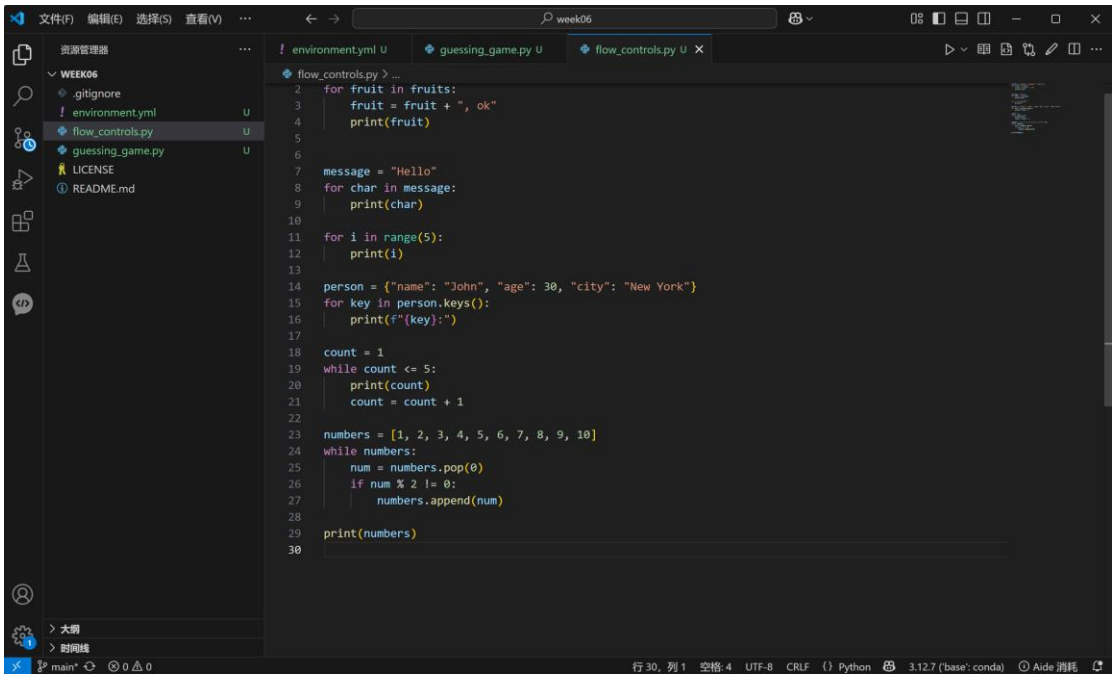

文件(F) 编辑(E) 选择(S) 查看(V)
week06
资源管理器
WEEK06
.gitignore
environment.yml
flow_controls.py
guessing_game.py
LICENSE
README.md
environment.yml U
guessing_game.py U
flow_controls.py U
flow_controls.py > ...
1 fruits = ["apple", "banana", "cherry"]
2 for fruit in fruits:
3 fruit = fruit + ", ok"
4 print(fruit)
5
6
7 message = "Hello"
8 for char in message:
9 print(char)
10
11 for i in range(5):
12 print(i)
13
14 person = {"name": "John", "age": 30, "city": "New York"}
15 for key in person.keys():
16 print(f"{key}:")
17
大纲
时间线
main*
0 0
行 16，列 19
空格: 4
UTF-8
CRLF
Python
3.12.7 ('base': conda)
Aide 消耗


MINGW64:/c/Users/16386/rep
l
l
o
0
1
2
3
4
(week06)
16386@□□ □□□□□□ MINGW64 ~/repo/week06 (main)
$ python flow_controls.py
apple, ok
banana, ok
cherry, ok
H
e
l
l
o
0
1
2
3
4
name:
age:
city:
(week06)
16386@□□ □□□□□□ MINGW64 ~/repo/week06 (main)
$

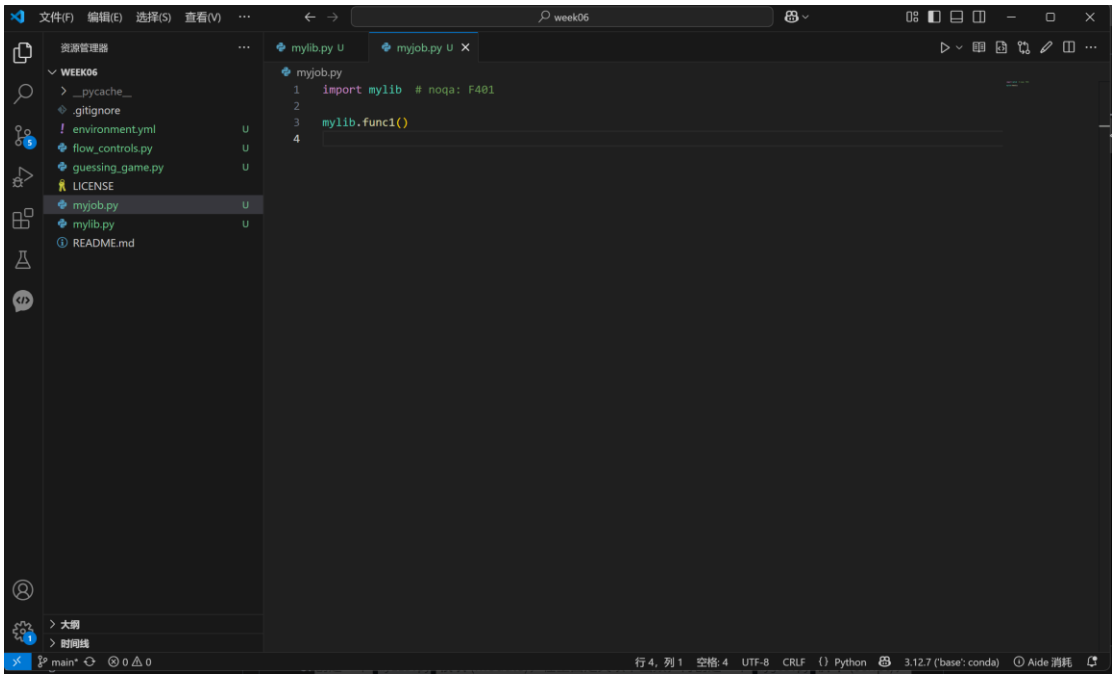
While:条件循环


文件(F) 编辑(E) 选择(S) 查看(V)
week06
资源管理器
WEEK06
.gitignore
environment.yml
flow_controls.py
guessing_game.py
LICENSE
README.md
environment.yml U
guessing_game.py U
flow_controls.py U
flow_controls.py > ...
1 fruits = ["apple", "banana", "cherry"]
2 for fruit in fruits:
3 fruit = fruit + ", ok"
4 print(fruit)
5
6
7 message = "Hello"
8 for char in message:
9 print(char)
10
11 for i in range(5):
12 print(i)
13
14 person = {"name": "John", "age": 30, "city": "New York"}
15 for key in person.keys():
16 print(f"{key}:")
17
18 count = 1
19 while count <= 5:
20 print(count)
21 count = count + 1
22
大纲
时间线
main*
0 0
行 1，列 39
空格: 4
UTF-8
CRLF
Python
3.12.7 ('base': conda)
Aide 消耗


MINGW64:/c/Users/16386/rep
name:
age:
city:
(week06)
16386@□□ □□□□□□ MINGW64 ~/repo/week06 (main)
$ python flow_controls.py
apple, ok
banana, ok
cherry, ok
H
e
l
l
o
0
1
2
3
4
name:
age:
city:
1
2
3
4
5
(week06)
16386@□□ □□□□□□ MINGW64 ~/repo/week06 (main)
$

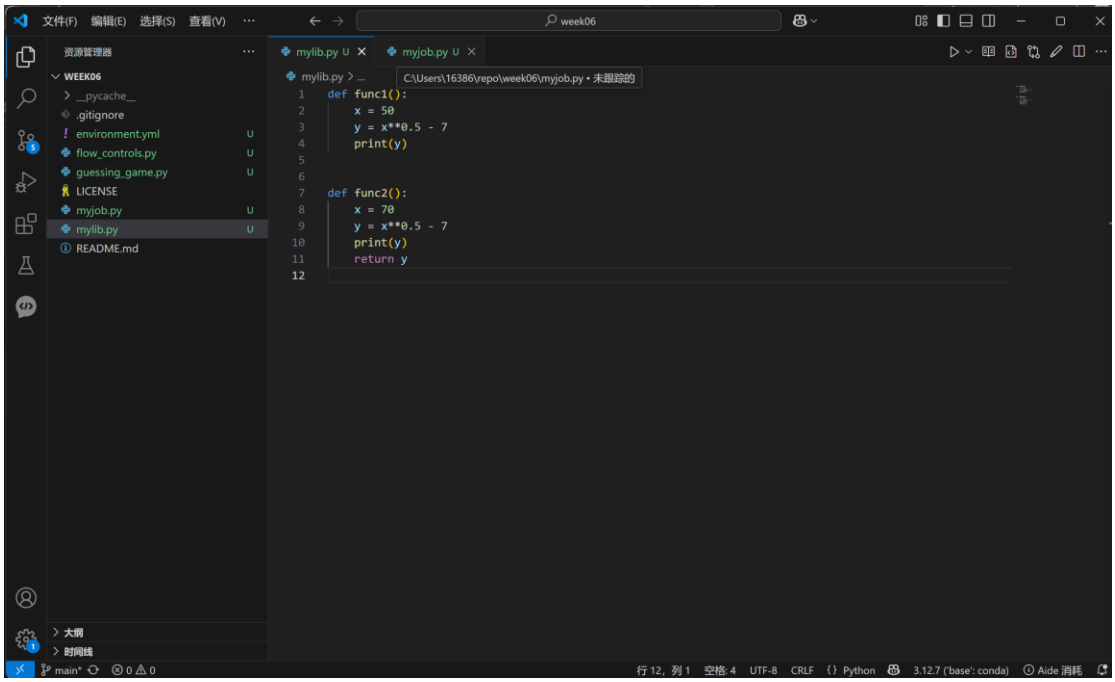


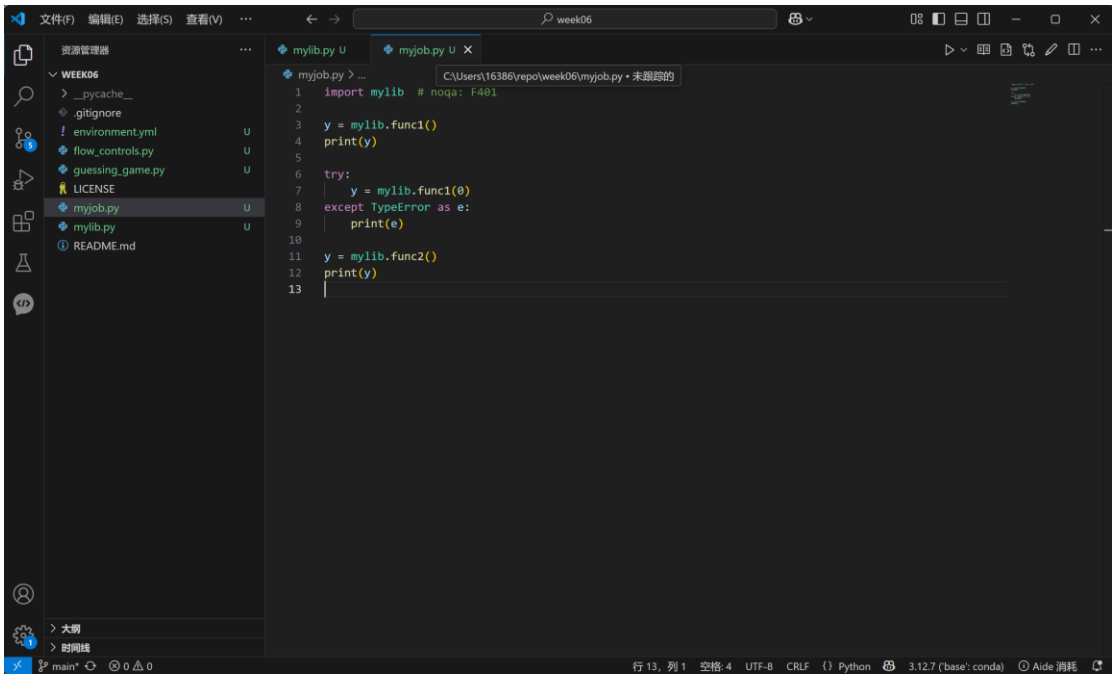
3、创建 mylib.py 模块,再创建 myjob.py 脚本，从 mylib.py 导入函数并尝试调用定义函数 func1，没有形参，没有返回值

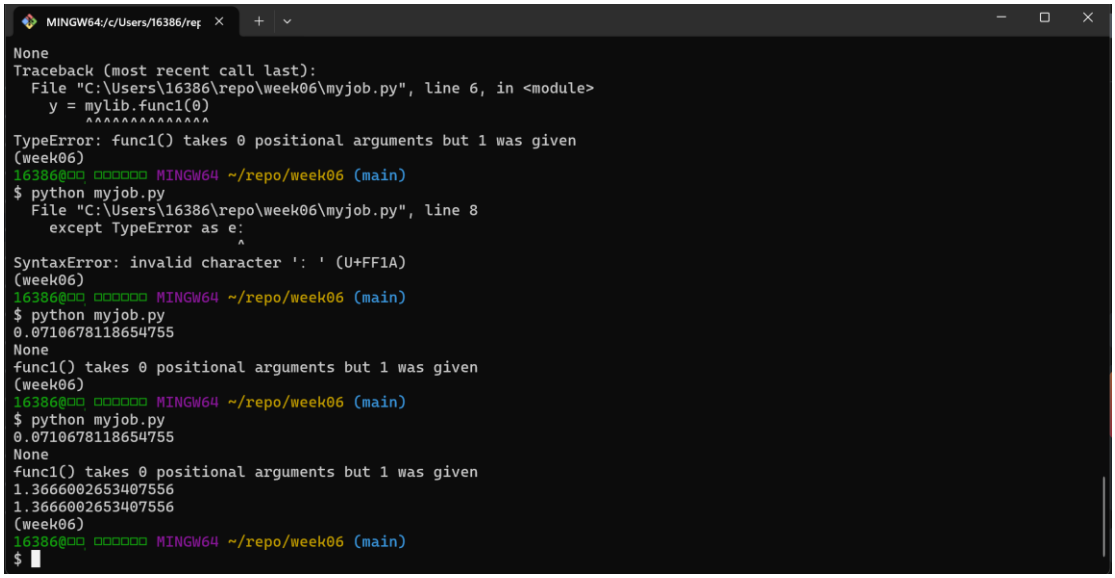


```
MINGW64:/c/Users/16386/rep
$ python -m pdb myjob.py
> c:\users\16386\repo\week06\myjob.py(1)<module>()
-> import mylib  # noqa: F401
(Pdb) n
> c:\users\16386\repo\week06\myjob.py(3)<module>()
-> breakpoint()
(Pdb) l
  1     import mylib  # noqa: F401
  2
  3  -> breakpoint()
[EOF]
(Pdb) p mylib
<module 'mylib' from 'C:\\Users\\16386\\repo\\week06\\mylib.py'>
(Pdb) import wat
(Pdb) wat / mylib
------------------------------------------------------------
value: <module 'mylib' from 'C:\\Users\\16386\\repo\\week06\\mylib.py'>
type: module

Public attributes:
  def func1()
------------------------------------------------------------
(Pdb) q
(week06)
16386@□□ □□□□□□ MINGW64 ~/repo/week06 (main)
$ python myjob.py
0.0710678118654755
(week06)
16386@□□ □□□□□□ MINGW64 ~/repo/week06 (main)
$
```

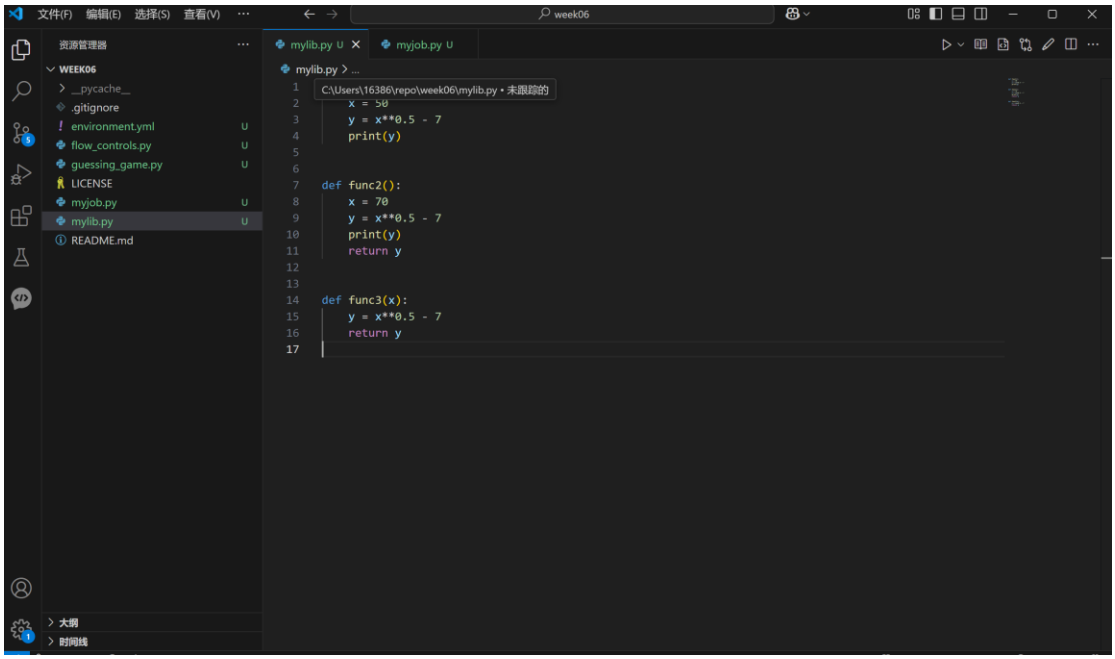
定义函数 func2，没有形参，有返回值

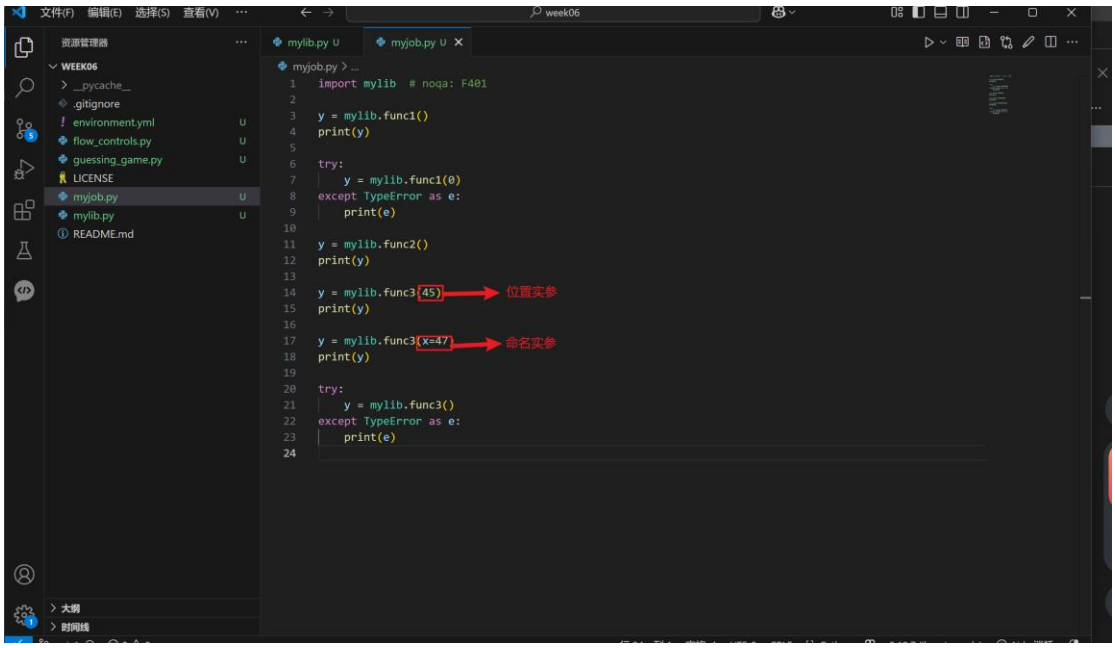




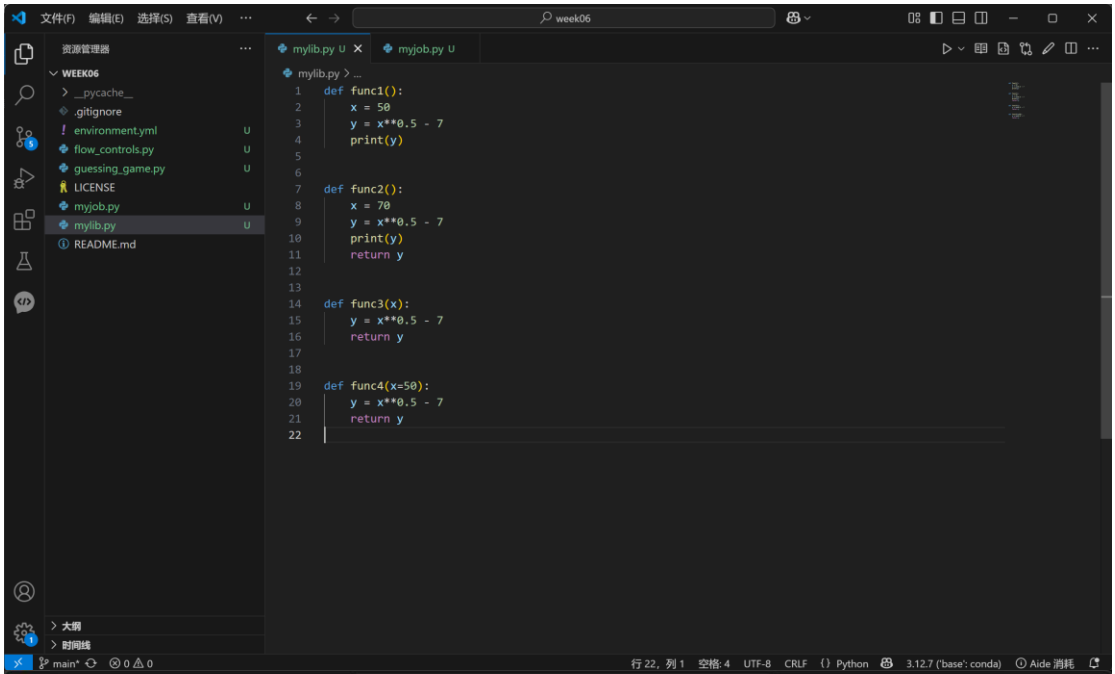


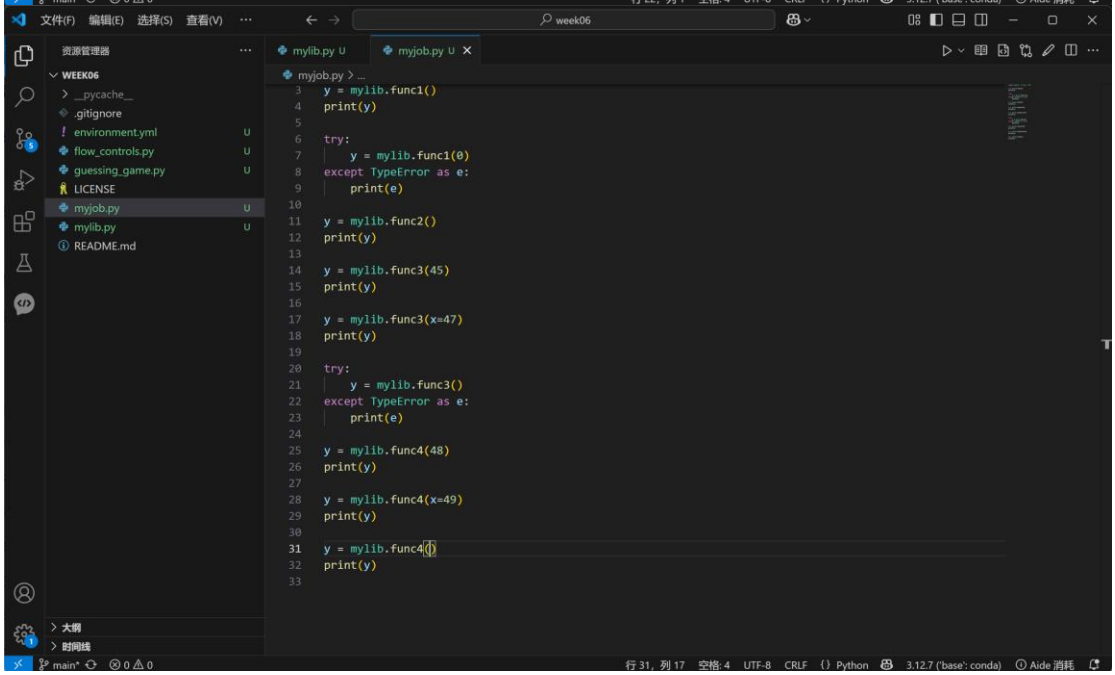
定义函数 func3，只有一个位置形参，先尝试传入位置实参调用，再尝试传入命名实参调用，再尝试不传实参(会报错)





定义函数 func4，只有一个命名形参，先传入位置实参调用，再传入命名实参调用，再尝试不传实参 (取默认值)


文件(F) 编辑(E) 选择(S) 查看(V)
week06
资源管理器
WEEK06
__pycache__
.gitignore
environment.yml U
flow_controls.py U
guessing_game.py U
LICENSE
myjob.py U
mylib.py U
README.md
mylib.py U
myjob.py U
mylib.py > ...
1 def func1():
2 x = 50
3 y = x**0.5 - 7
4 print(y)
5
6
7 def func2():
8 x = 70
9 y = x**0.5 - 7
10 print(y)
11 return y
12
13
14 def func3(x):
15 y = x**0.5 - 7
16 return y
17
18
19 def func4(x=50):
20 y = x**0.5 - 7
21 return y
22
大纲
时间线
main* 0 0
行 22，列 1 空格: 4 UTF-8 CRLF Python 3.12.7 ('base': conda) Aide 消耗


文件(F) 编辑(E) 选择(S) 查看(V)
week06
资源管理器
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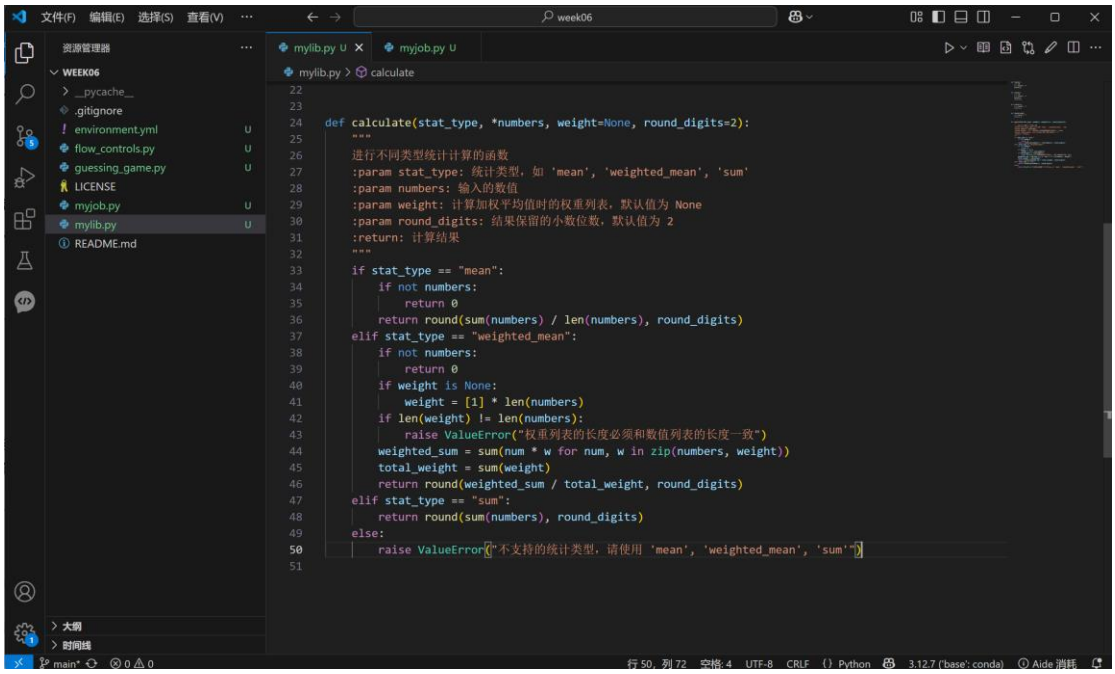
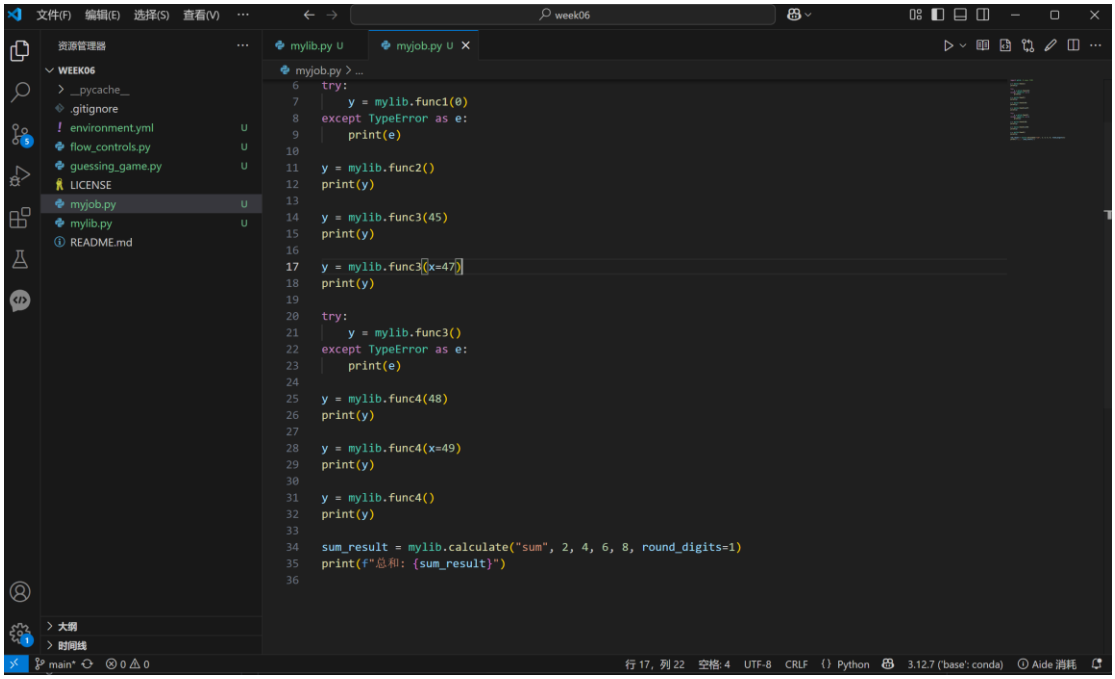
.gitignore
environment.yml U
flow_controls.py U
guessing_game.py U
LICENSE
myjob.py U
mylib.py U
README.md
mylib.py U
myjob.py U
myjob.py > ...
3 y = mylib.func1()
4 print(y)
5
6 try:
7 y = mylib.func1(0)
8 except TypeError as e:
9 print(e)
10
11 y = mylib.func2()
12 print(y)
13
14 y = mylib.func3(45)
15 print(y)
16
17 y = mylib.func3(x=47)
18 print(y)
19
20 try:
21 y = mylib.func3()
22 except TypeError as e:
23 print(e)
24
25 y = mylib.func4(48)
26 print(y)
27
28 y = mylib.func4(x=49)
29 print(y)
30
31 y = mylib.func4()
32 print(y)
33
大纲
时间线
main* 0 0
行 31，列 17 空格: 4 UTF-8 CRLF Python 3.12.7 ('base': conda) Aide 消耗

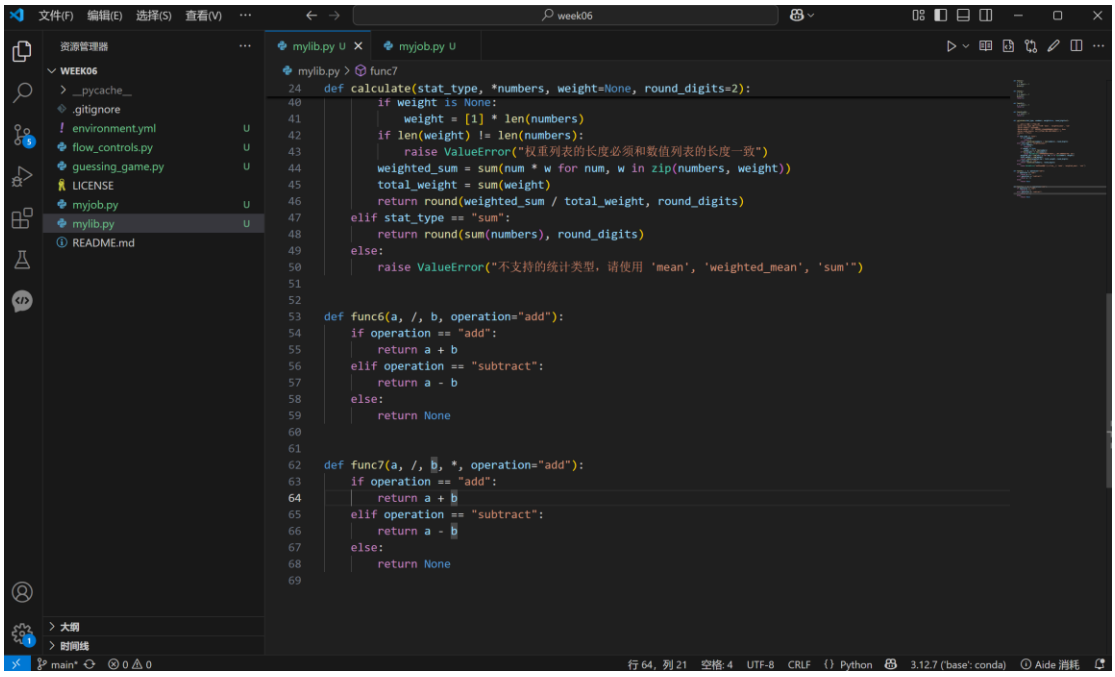
```
MINGW64:/c/Users/16386/rep
(week06)
16386@□□ □□□□□□ MINGW64 ~/repo/week06 (main)
$ python myjob.py
0.0710678118654755
None
func1() takes 0 positional arguments but 1 was given
1.3666002653407556
1.3666002653407556
-0.2917960675006306
-0.1443453995989561
func3() missing 1 required positional argument: 'x'
-0.07179676972449123
0.0
(week06)
16386@□□ □□□□□□ MINGW64 ~/repo/week06 (main)
$ python myjob.py
0.0710678118654755
None
func1() takes 0 positional arguments but 1 was given
1.3666002653407556
1.3666002653407556
-0.2917960675006306
-0.1443453995989561
func3() missing 1 required positional argument: 'x'
-0.07179676972449123
0.0
0.0710678118654755
(week06)
16386@□□ □□□□□□ MINGW64 ~/repo/week06 (main)
$
```

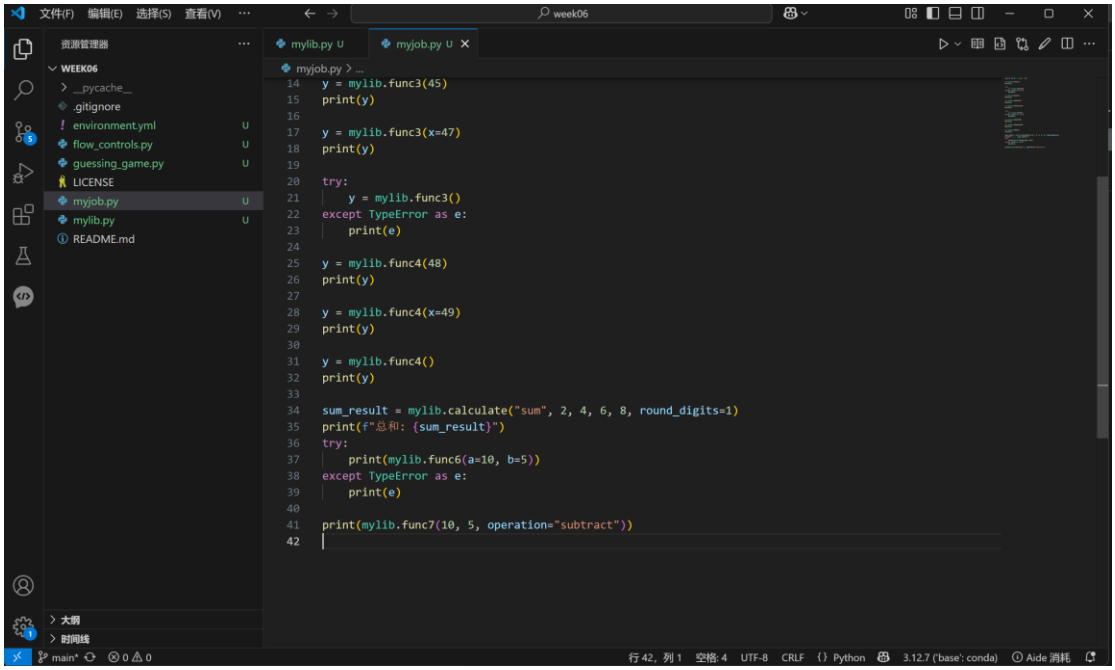
定义函数 func5，接受多个位置形参和命名形参，尝试以位置/命名各种不同方式传入实参，注意位置参数必须排在命名参数之前

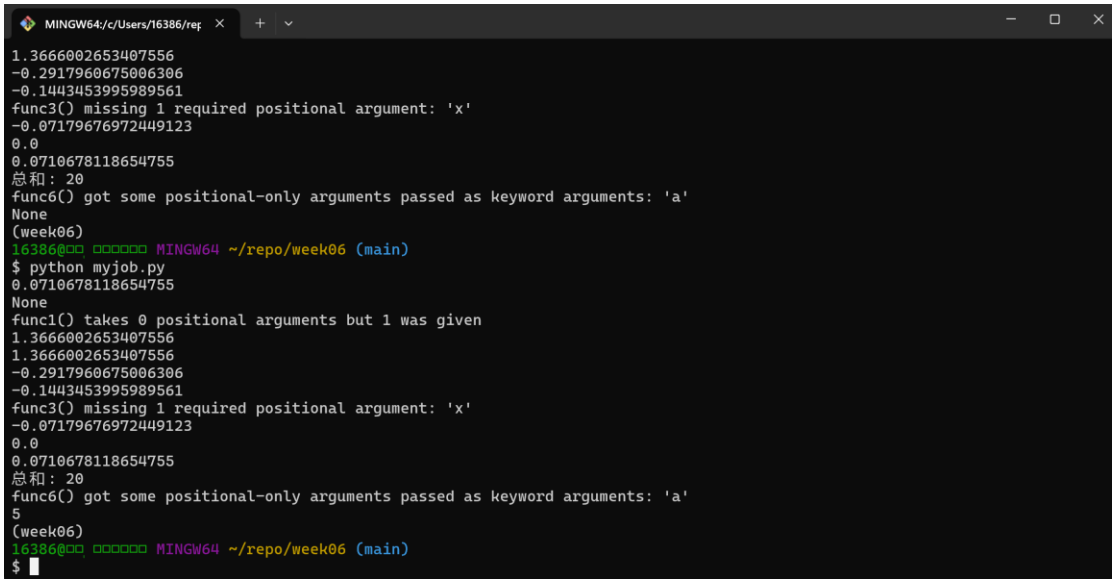




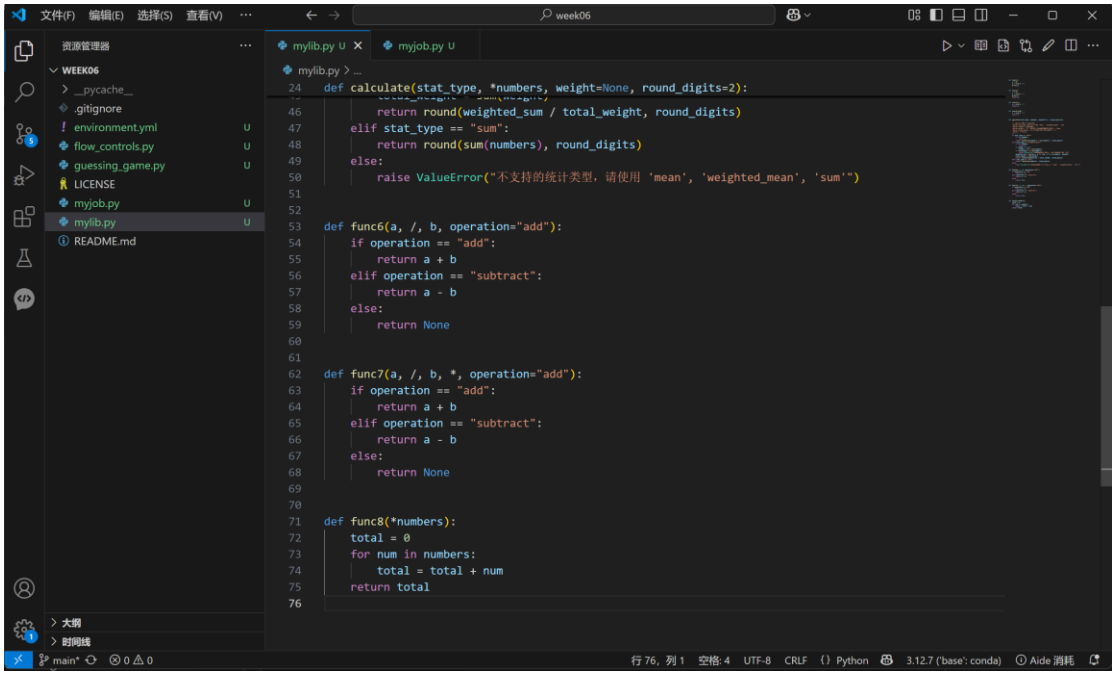
定义函数 func6 、func7，在形参列表中使用 / 、*来限定只接受位置实参、命名实参的形参







定义函数 func8，在位置形参的最后，在形参名称前使用 * 允许传入任意数量的位置实参


文件(F) 编辑(E) 选择(S) 查看(V)
week06
资源管理器
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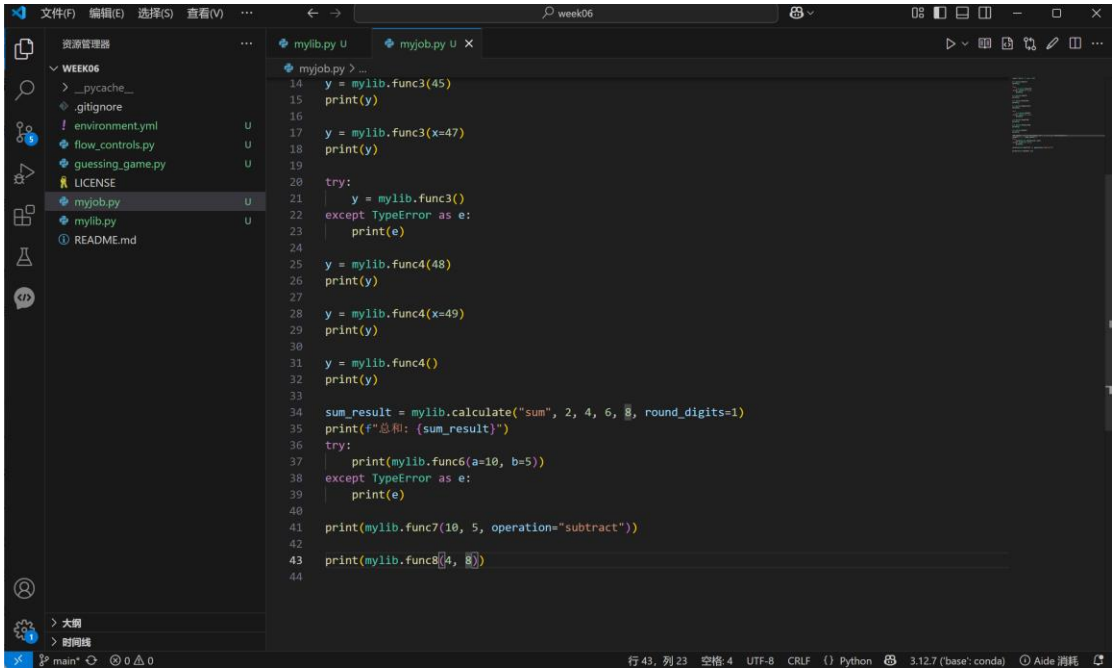
.gitignore
environment.yml
flow_controls.py
guessing_game.py
LICENSE
myjob.py
mylib.py
README.md
mylib.py U
myjob.py U
mylib.py > ...
def calculate(stat_type, *numbers, weight=None, round_digits=2):
return round(weighted_sum / total_weight, round_digits)
elif stat_type == "sum":
return round(sum(numbers), round_digits)
else:
raise ValueError("不支持的统计类型，请使用 'mean', 'weighted_mean', 'sum'")
def func6(a, /, b, operation="add"):
if operation == "add":
return a + b
elif operation == "subtract":
return a - b
else:
return None
def func7(a, /, b, *, operation="add"):
if operation == "add":
return a + b
elif operation == "subtract":
return a - b
else:
return None
def func8(*numbers):
total = 0
for num in numbers:
total = total + num
return total
大纲
时间线
main*
0 0
行 76，列 1 空格: 4 UTF-8 CRLF Python 3.12.7 ('base': conda) Aide 消耗


文件(F) 编辑(E) 选择(S) 查看(V)
week06
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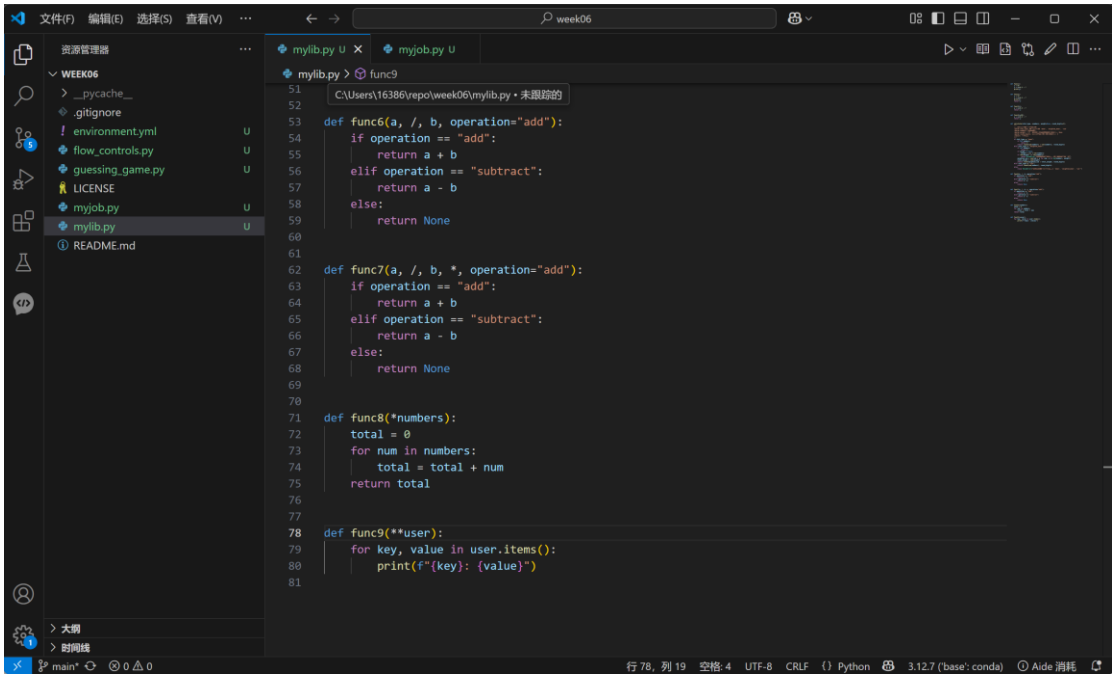
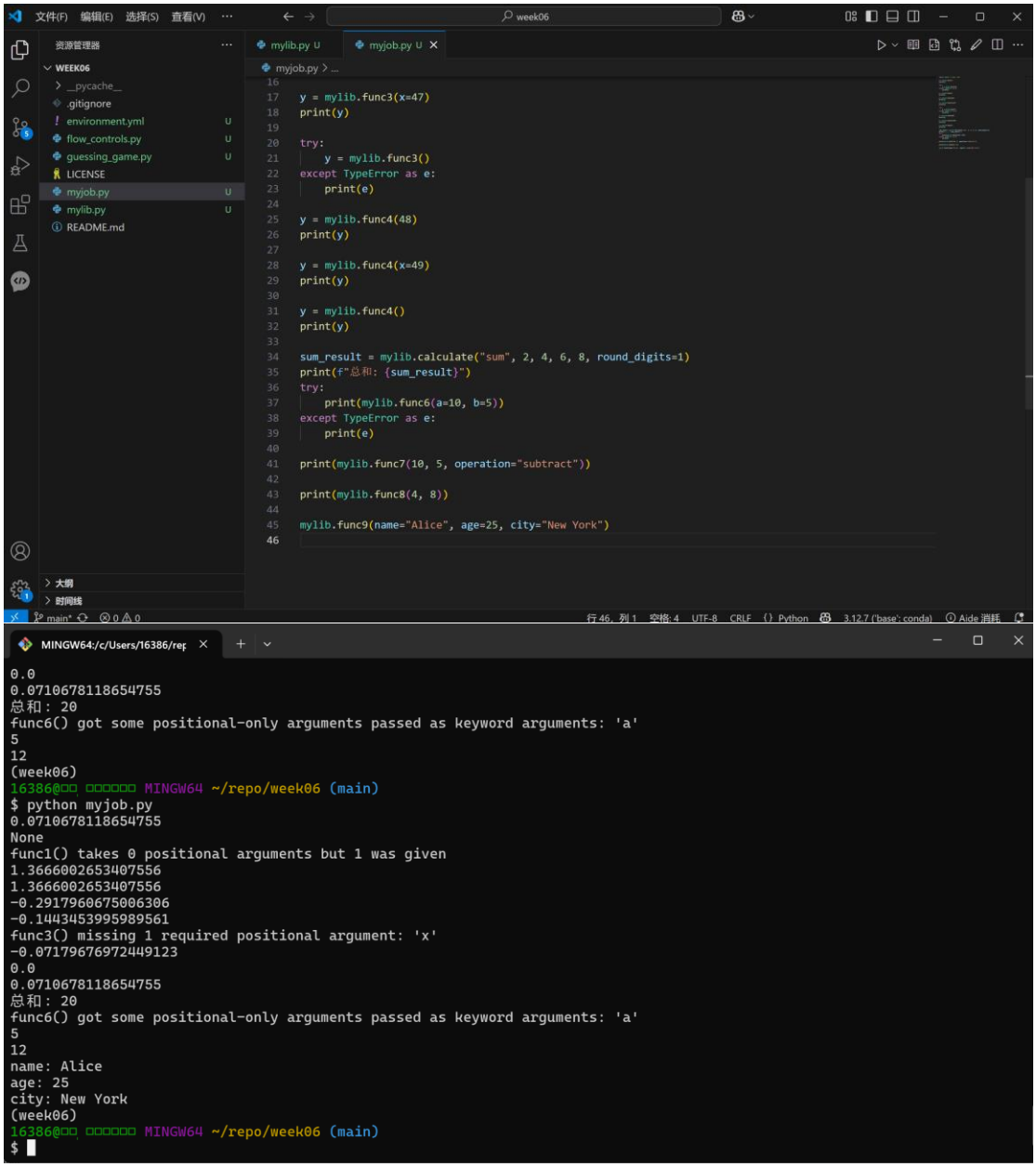
myjob.py
mylib.py
README.md
mylib.py U
myjob.py U
myjob.py > ...
y = mylib.func3(45)
print(y)
y = mylib.func3(x=47)
print(y)
try:
y = mylib.func3()
except TypeError as e:
print(e)
y = mylib.func4(48)
print(y)
y = mylib.func4(x=49)
print(y)
y = mylib.func4()
print(y)
sum_result = mylib.calculate("sum", 2, 4, 6, 8, round_digits=1)
print(f"总和: {sum_result}")
try:
print(mylib.func6(a=10, b=5))
except TypeError as e:
print(e)
print(mylib.func7(10, 5, operation="subtract"))
print(mylib.func8(4, 8))
大纲
时间线
main*
0 0
行 43，列 23 空格: 4 UTF-8 CRLF Python 3.12.7 ('base': conda) Aide 消耗

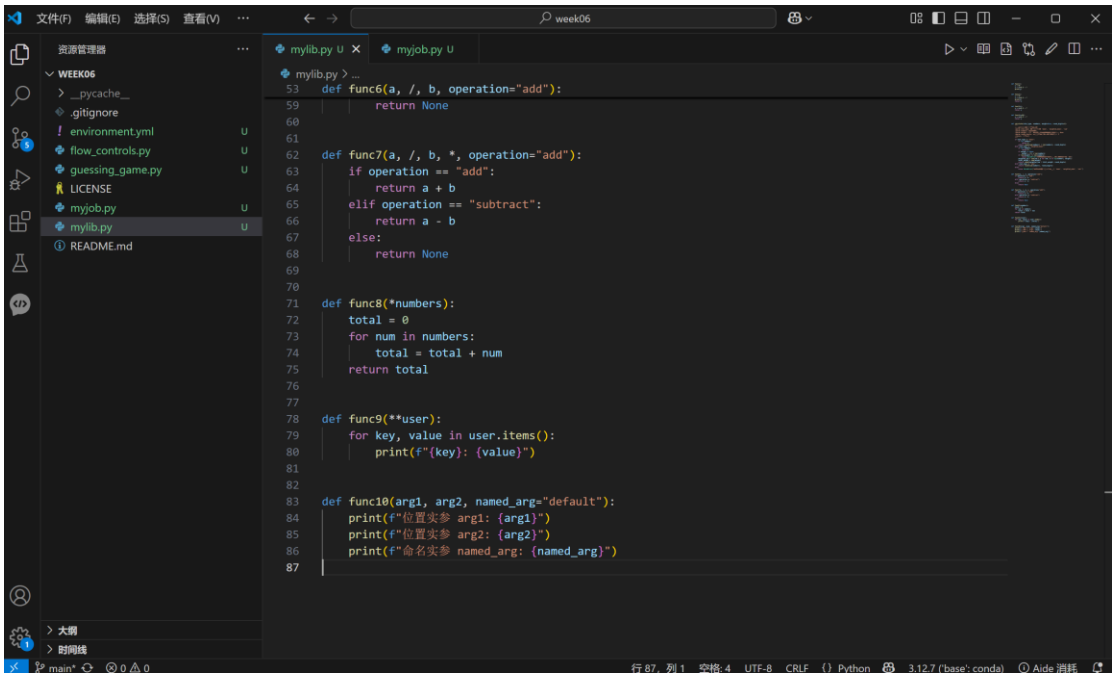
```
MINGW64:/c/Users/16386/re
-0.2917960675006306
-0.1443453995989561
func3() missing 1 required positional argument: 'x'
-0.07179676972449123
0.0
0.0710678118654755
总和： 20
func6() got some positional-only arguments passed as keyword arguments: 'a'
5
(week06)
16386@□□ □□□□□□ MINGW64 ~/repo/week06 (main)
$ python myjob.py
0.0710678118654755
None
func1() takes 0 positional arguments but 1 was given
1.3666002653407556
1.3666002653407556
-0.2917960675006306
-0.1443453995989561
func3() missing 1 required positional argument: 'x'
-0.07179676972449123
0.0
0.0710678118654755
总和： 20
func6() got some positional-only arguments passed as keyword arguments: 'a'
5
12
(week06)
16386@□□ □□□□□□ MINGW64 ~/repo/week06 (main)
$
```

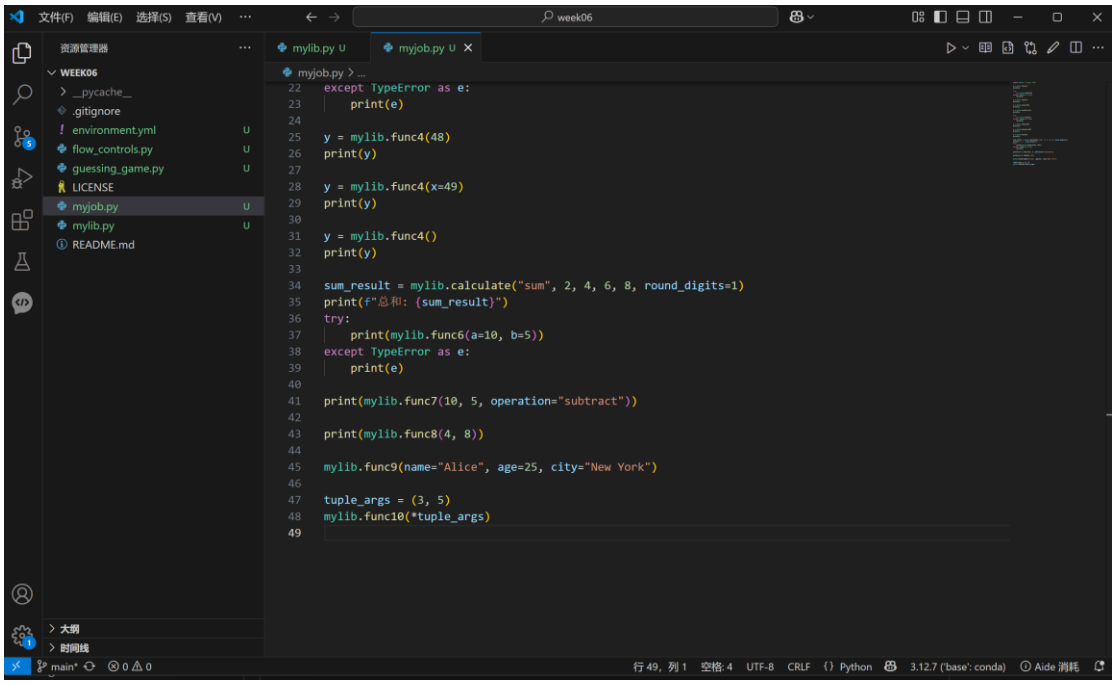
定义函数 func9，在命名形参的最后，在形参名称前使用 ** 允许传入任意数量的命名实参



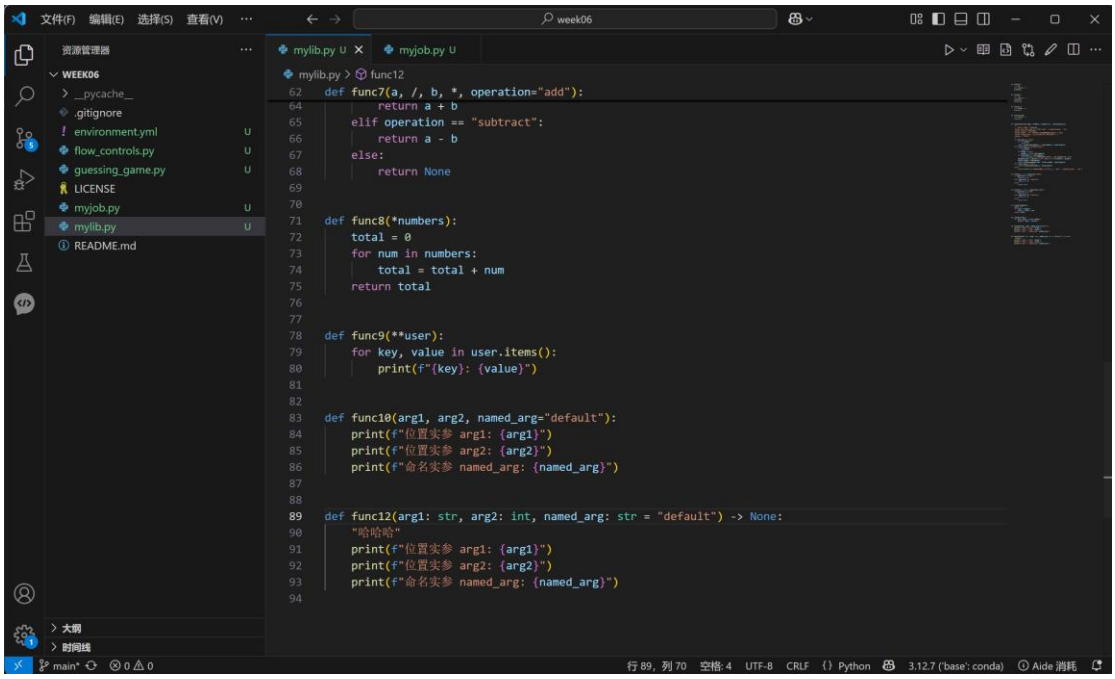


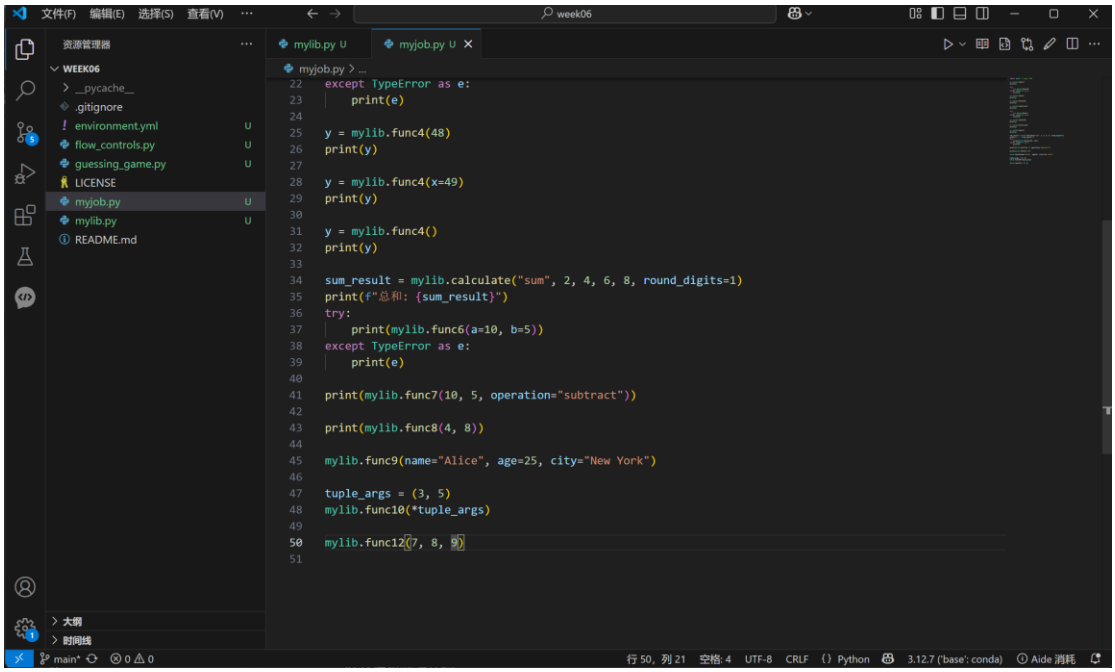
定义函数 func10，接受两个位置形参，一个命名形参，尝试在调用时使用 * 将可迭代对象自动解包，按位置实参传入



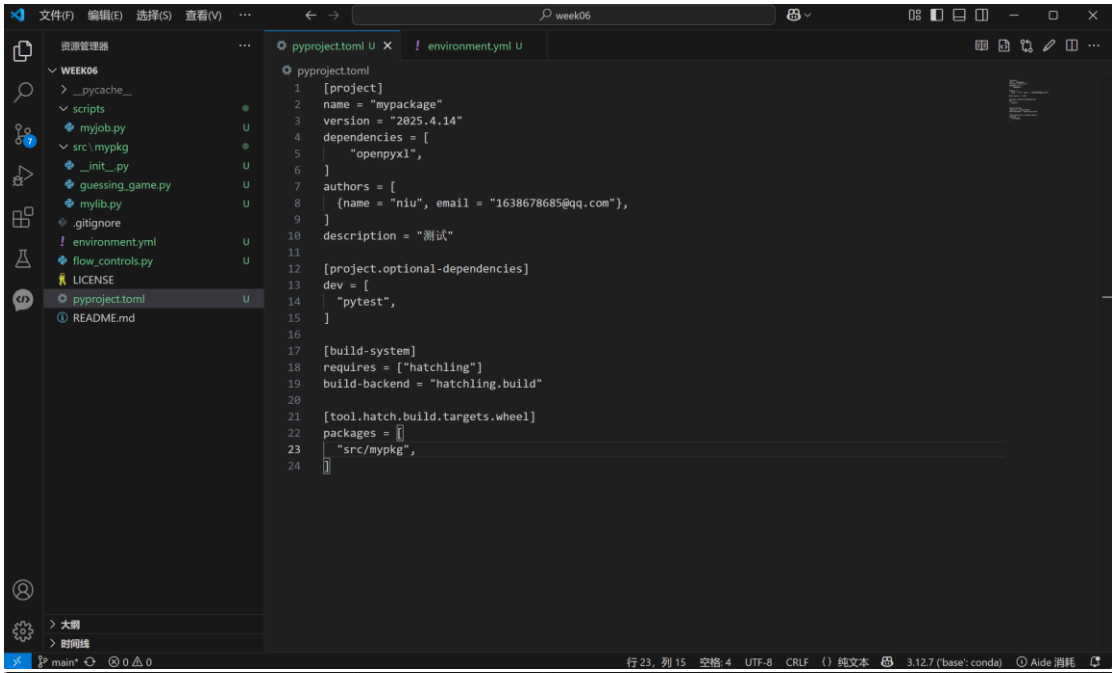


定义函数 func12，给函数添加内嵌文档，给形参和返回值添加类型注解





4、把 mylib 模块转变为软件包安装进当前的 Conda 环境


文件(F) 编辑(E) 选择(S) 查看(V)
week06
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WEEK06
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src \ mypkg
__init__.py
guessing_game.py
mylib.py
.gitignore
environment.yml
flow_controls.py
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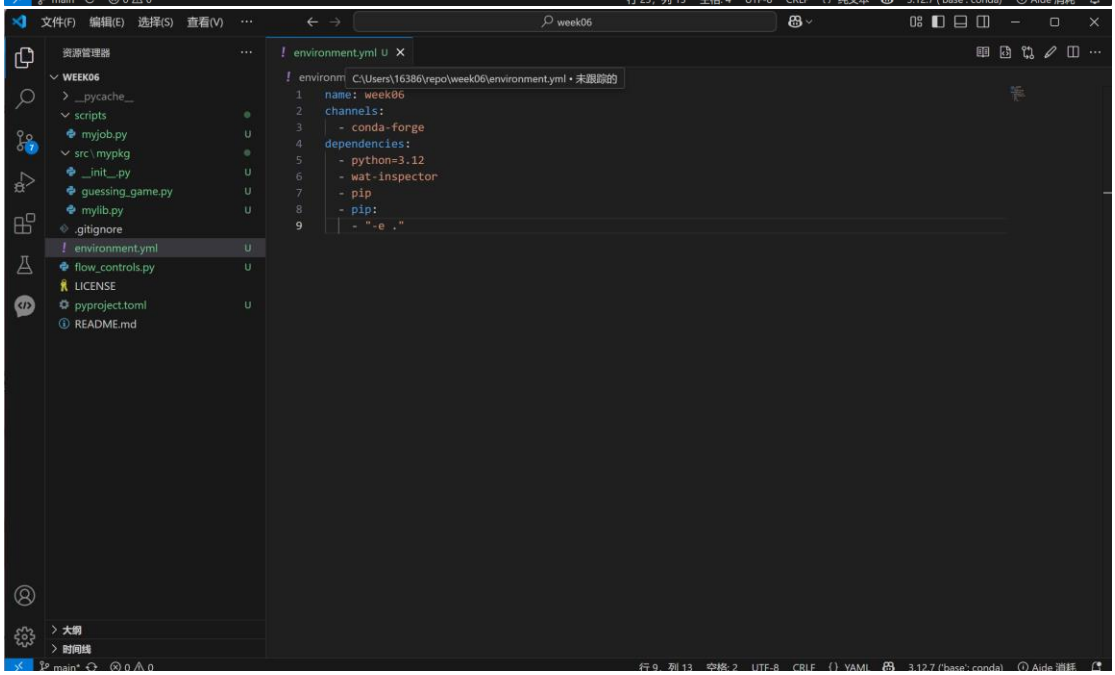
pyproject.toml
README.md
pyproject.toml U
environment.yml U
pyproject.toml
[project]
name = "mypackage"
version = "2025.4.14"
dependencies = [
"openpyxl",
]
authors = [
{name = "niu", email = "1638678685@qq.com"},
]
description = "测试"
[project.optional-dependencies]
dev = [
"pytest",
]
[build-system]
requires = ["hatchling"]
build-backend = "hatchling.build"
[tool.hatch.build.targets.wheel]
packages = [
"src/mypkg",
]
大纲
时间线
main*
行 23，列 15 空格: 4 UTF-8 CRLF 纯文本 3.12.7 ('base': conda) Aide 消耗


文件(F) 编辑(E) 选择(S) 查看(V)
week06
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src \ mypkg
__init__.py
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mylib.py
.gitignore
environment.yml
flow_controls.py
LICENSE
pyproject.toml
README.md
environment.yml U
C:\Users\16386\repo\week06\environment.yml • 未跟踪的
name: week06
channels:
- conda-forge
dependencies:
- python=3.12
- wat-inspector
- pip
- pip:
- "-e ."
大纲
时间线
main*
行 9，列 13 空格: 2 UTF-8 CRLF YAML 3.12.7 ('base': conda) Aide 消耗