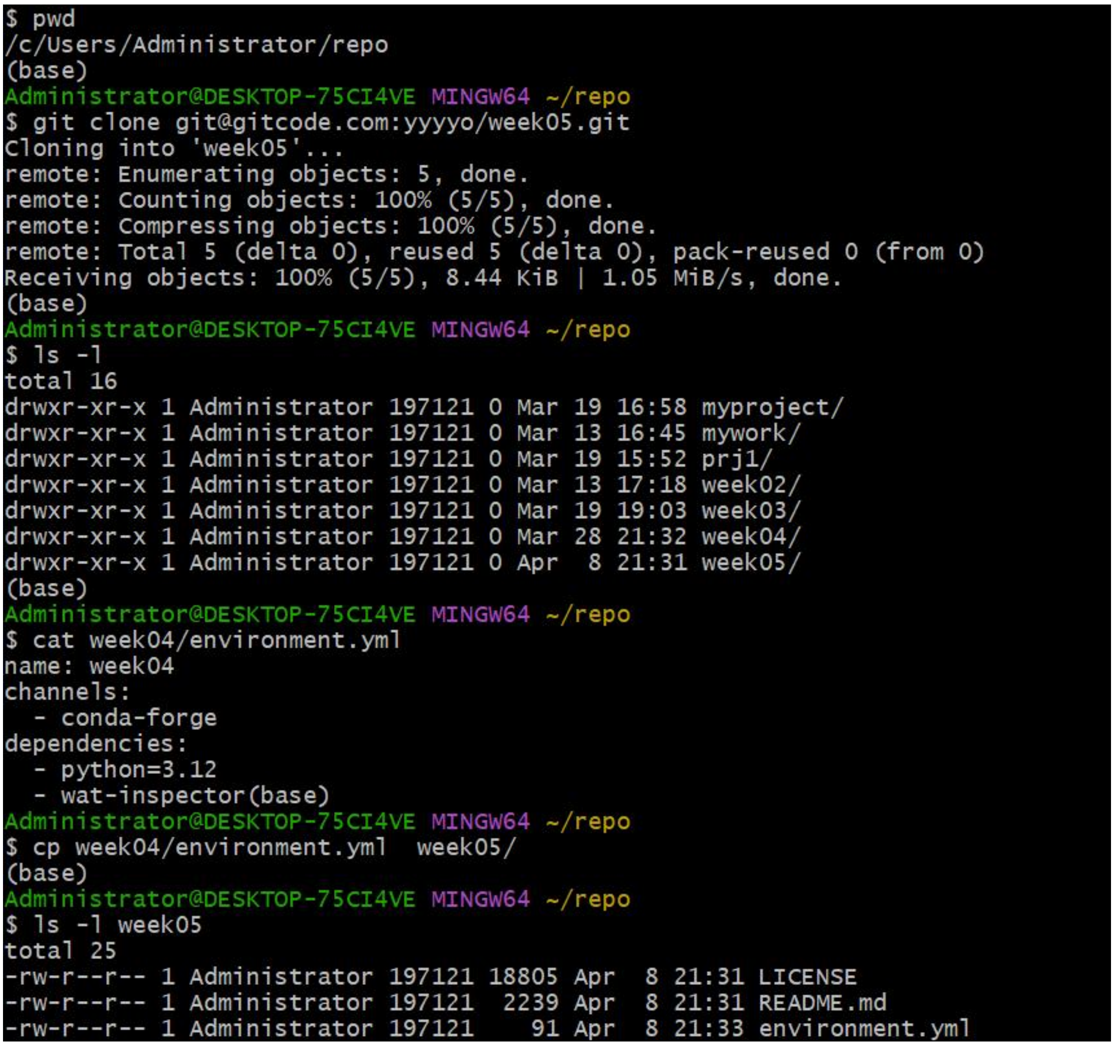
Python 对象练习

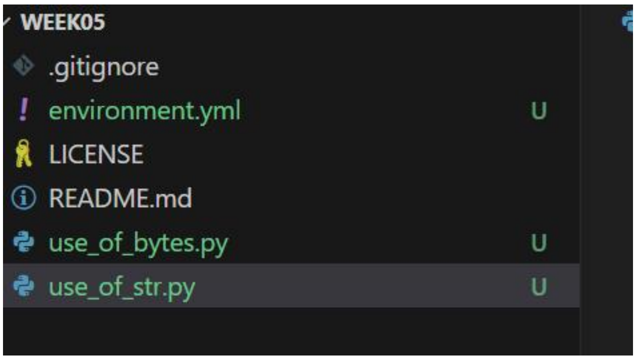
1.Fork 第 05 周打卡 仓库至你的名下，然后将你名下的这个仓库 Clone 到你的本地计算机

2.用 VS Code 打开项目目录，新建一个 environment.yml 文件，指定安装 Python 3.12，然后运行 conda env create 命令创建 Conda 环境。

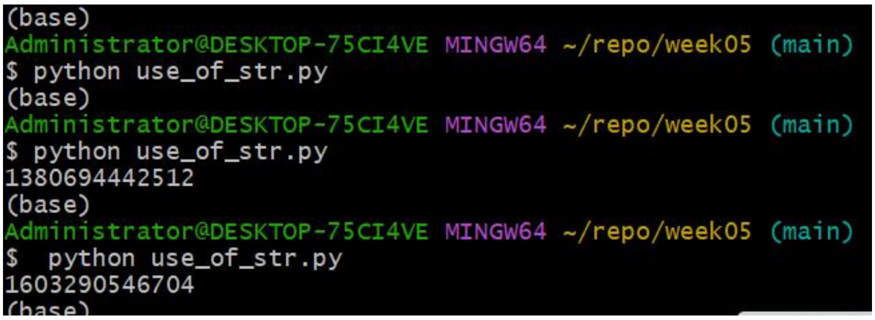


```
$ pwd
/c/Users/Administrator/repo
(base)
Administrator@DESKTOP-75CI4VE MINGW64 ~/repo
$ git clone git@gitcode.com:yyyyo/week05.git
Cloning into 'week05'...
remote: Enumerating objects: 5, done.
remote: Counting objects: 100% (5/5), done.
remote: Compressing objects: 100% (5/5), done.
remote: Total 5 (delta 0), reused 5 (delta 0), pack-reused 0 (from 0)
Receiving objects: 100% (5/5), 8.44 KiB | 1.05 MiB/s, done.
(base)
Administrator@DESKTOP-75CI4VE MINGW64 ~/repo
$ ls -l
total 16
drwxr-xr-x 1 Administrator 197121 0 Mar 19 16:58 myproject/
drwxr-xr-x 1 Administrator 197121 0 Mar 13 16:45 mywork/
drwxr-xr-x 1 Administrator 197121 0 Mar 19 15:52 prj1/
drwxr-xr-x 1 Administrator 197121 0 Mar 13 17:18 week02/
drwxr-xr-x 1 Administrator 197121 0 Mar 19 19:03 week03/
drwxr-xr-x 1 Administrator 197121 0 Mar 28 21:32 week04/
drwxr-xr-x 1 Administrator 197121 0 Apr  8 21:31 week05/
(base)
Administrator@DESKTOP-75CI4VE MINGW64 ~/repo
$ cat week04/environment.yml
name: week04
channels:
  - conda-forge
dependencies:
  - python=3.12
  - wat-inspector(base)
Administrator@DESKTOP-75CI4VE MINGW64 ~/repo
$ cp week04/environment.yml  week05/
(base)
Administrator@DESKTOP-75CI4VE MINGW64 ~/repo
$ ls -l week05
total 25
-rw-r--r-- 1 Administrator 197121 18805 Apr  8 21:31 LICENSE
-rw-r--r-- 1 Administrator 197121  2239 Apr  8 21:31 README.md
-rw-r--r-- 1 Administrator 197121    91 Apr  8 21:33 environment.yml
```

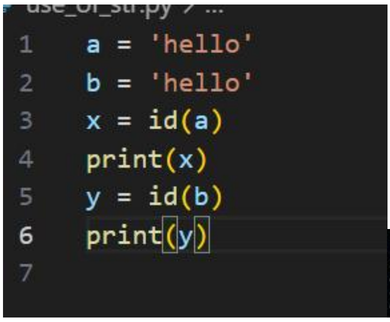
3. 逐个 创建 use_of_{name}.py 文件，其中 {name} 替换为上述要求掌握的对象类型，例如 use_of_str.py:



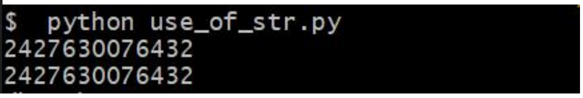
```
WEEK05
.gitignore
environment.yml      U
LICENSE
README.md
use_of_bytes.py      U
use_of_str.py        U
```



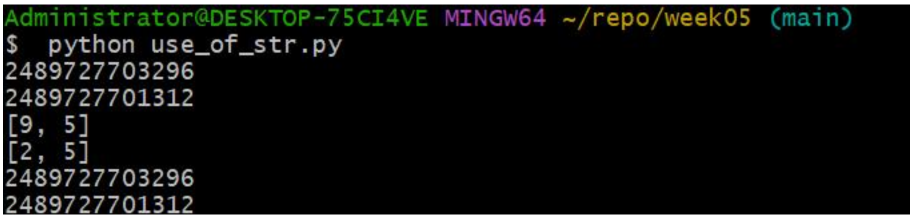
```
(base)
Administrator@DESKTOP-75CI4VE MINGW64 ~/repo/week05 (main)
$ python use_of_str.py
(base)
Administrator@DESKTOP-75CI4VE MINGW64 ~/repo/week05 (main)
$ python use_of_str.py
1380694442512
(base)
Administrator@DESKTOP-75CI4VE MINGW64 ~/repo/week05 (main)
$  python use_of_str.py
1603290546704
(base)
```



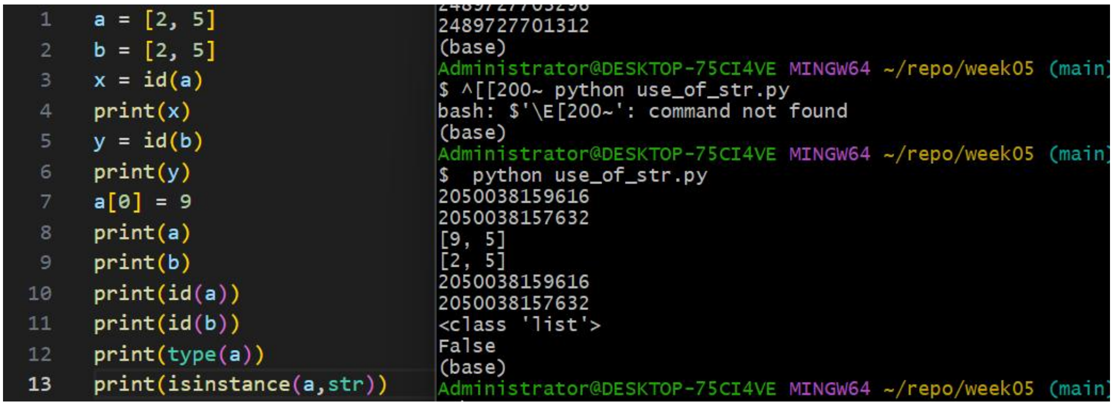
```
use_of_str.py > ...
a = 'hello'
b = 'hello'
x = id(a)
print(x)
y = id(b)
print(y)
```



```
$  python use_of_str.py
2427630076432
2427630076432
```

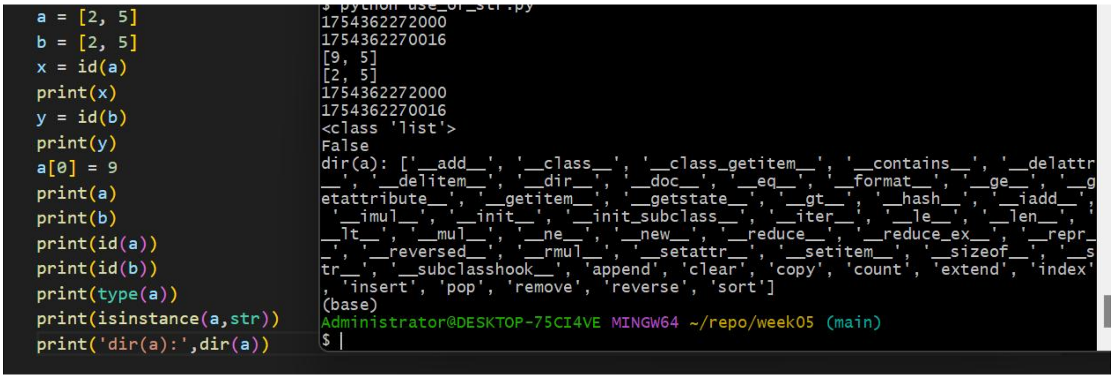


```
Administrator@DESKTOP-75CI4VE MINGW64 ~/repo/week05 (main)
$  python use_of_str.py
2489727703296
2489727701312
[9, 5]
[2, 5]
2489727703296
2489727701312
```



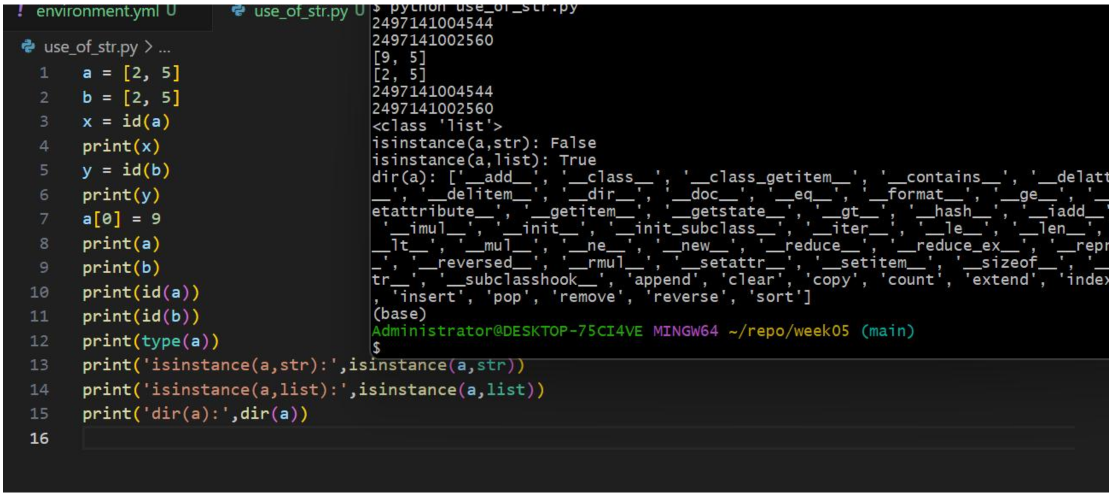
```
a = [2, 5]
b = [2, 5]
x = id(a)
print(x)
y = id(b)
print(y)
a[0] = 9
print(a)
print(b)
print(id(a))
print(id(b))
print(type(a))
print(isinstance(a,str))
```

```
2489727703296
2489727701312
(base)
Administrator@DESKTOP-75CI4VE MINGW64 ~/repo/week05 (main)
$ ^[[200~ python use_of_str.py
bash: $'\E[200~': command not found
(base)
Administrator@DESKTOP-75CI4VE MINGW64 ~/repo/week05 (main)
$  python use_of_str.py
2050038159616
2050038157632
[9, 5]
[2, 5]
2050038159616
2050038157632
<class 'list'>
False
(base)
Administrator@DESKTOP-75CI4VE MINGW64 ~/repo/week05 (main)
```



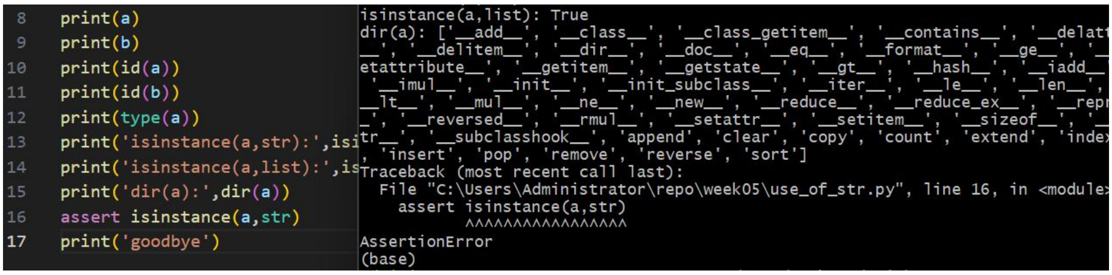
```
a = [2, 5]
b = [2, 5]
x = id(a)
print(x)
y = id(b)
print(y)
a[0] = 9
print(a)
print(b)
print(id(a))
print(id(b))
print(type(a))
print(isinstance(a,str))
print('dir(a):',dir(a))
```

```
$ python use_of_str.py
1754362272000
1754362270016
[9, 5]
[2, 5]
1754362272000
1754362270016
<class 'list'>
False
dir(a): ['__add__', '__class__', '__class_getitem__', '__contains__', '__delattr
__', '__delitem__', '__dir__', '__doc__', '__eq__', '__format__', '__ge__', '__g
etattribute__', '__getitem__', '__getstate__', '__gt__', '__hash__', '__iadd__',
 '__imul__', '__init__', '__init_subclass__', '__iter__', '__le__', '__len__', '
__lt__', '__mul__', '__ne__', '__new__', '__reduce__', '__reduce_ex__', '__repr_
_', '__reversed__', '__rmul__', '__setattr__', '__setitem__', '__sizeof__', '__s
tr__', '__subclasshook__', 'append', 'clear', 'copy', 'count', 'extend', 'index'
, 'insert', 'pop', 'remove', 'reverse', 'sort']
(base)
Administrator@DESKTOP-75CI4VE MINGW64 ~/repo/week05 (main)
$ |
```



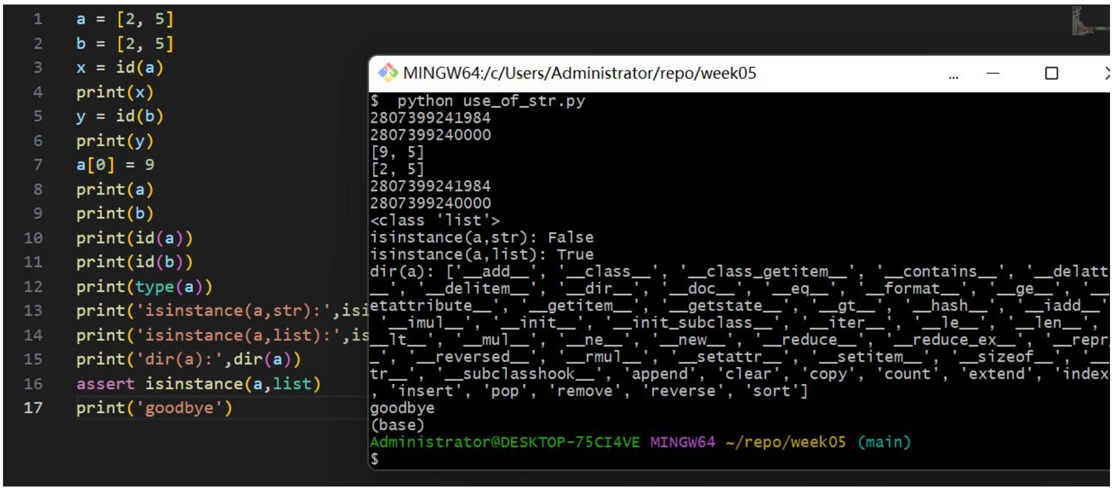
```python
a = [2, 5]
b = [2, 5]
x = id(a)
print(x)
y = id(b)
print(y)
a[0] = 9
print(a)
print(b)
print(id(a))
print(id(b))
print(type(a))
print('isinstance(a,str):',isinstance(a,str))
print('isinstance(a,list):',isinstance(a,list))
print('dir(a):',dir(a))

```

```
$ python use_of_str.py
2497141004544
2497141002560
[9, 5]
[2, 5]
2497141004544
2497141002560
<class 'list'>
isinstance(a,str): False
isinstance(a,list): True
dir(a): ['__add__', '__class__', '__class_getitem__', '__contains__', '__delatt
__', '__delitem__', '__dir__', '__doc__', '__eq__', '__format__', '__ge__', '__
etattribute__', '__getitem__', '__getstate__', '__gt__', '__hash__', '__iadd__'
 '__imul__', '__init__', '__init_subclass__', '__iter__', '__le__', '__len__',
__lt__', '__mul__', '__ne__', '__new__', '__reduce__', '__reduce_ex__', '__repr
_', '__reversed__', '__rmul__', '__setattr__', '__setitem__', '__sizeof__', '__
tr__', '__subclasshook__', 'append', 'clear', 'copy', 'count', 'extend', 'index
, 'insert', 'pop', 'remove', 'reverse', 'sort']
(base)
Administrator@DESKTOP-75CI4VE MINGW64 ~/repo/week05 (main)
$
```



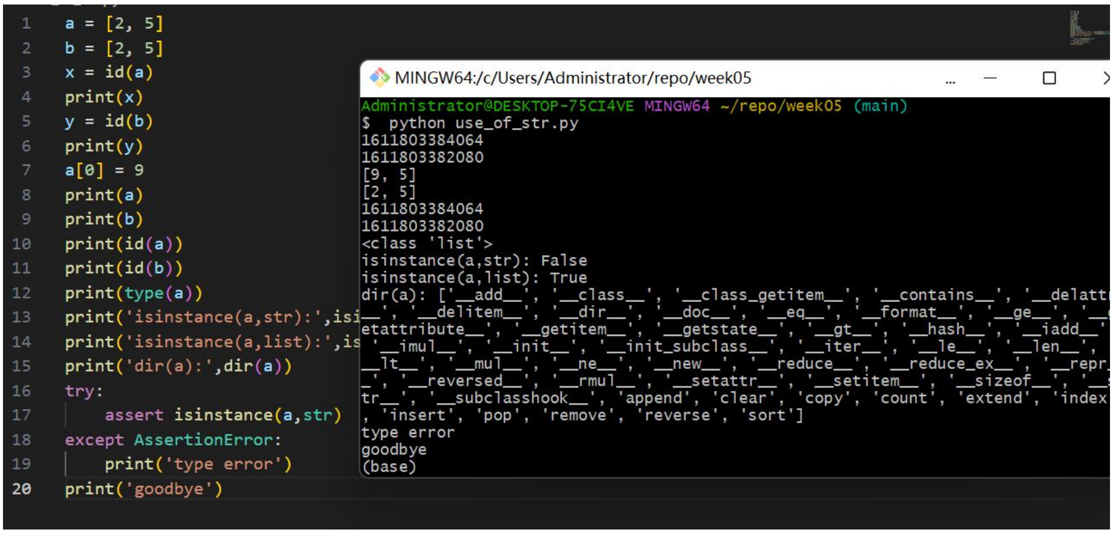
```python
print(a)
print(b)
print(id(a))
print(id(b))
print(type(a))
print('isinstance(a,str):',isi
print('isinstance(a,list):',is
print('dir(a):',dir(a))
assert isinstance(a,str)
print('goodbye')
```

```
isinstance(a,list): True
dir(a): ['__add__', '__class__', '__class_getitem__', '__contains__', '__delatt
__', '__delitem__', '__dir__', '__doc__', '__eq__', '__format__', '__ge__', '__
etattribute__', '__getitem__', '__getstate__', '__gt__', '__hash__', '__iadd__'
 '__imul__', '__init__', '__init_subclass__', '__iter__', '__le__', '__len__',
__lt__', '__mul__', '__ne__', '__new__', '__reduce__', '__reduce_ex__', '__repr
_', '__reversed__', '__rmul__', '__setattr__', '__setitem__', '__sizeof__', '__
tr__', '__subclasshook__', 'append', 'clear', 'copy', 'count', 'extend', 'index
, 'insert', 'pop', 'remove', 'reverse', 'sort']
Traceback (most recent call last):
  File "C:\Users\Administrator\repo\week05\use_of_str.py", line 16, in <module>
    assert isinstance(a,str)
           ^^^^^^^^^^^^^^^^^^
AssertionError
(base)
```



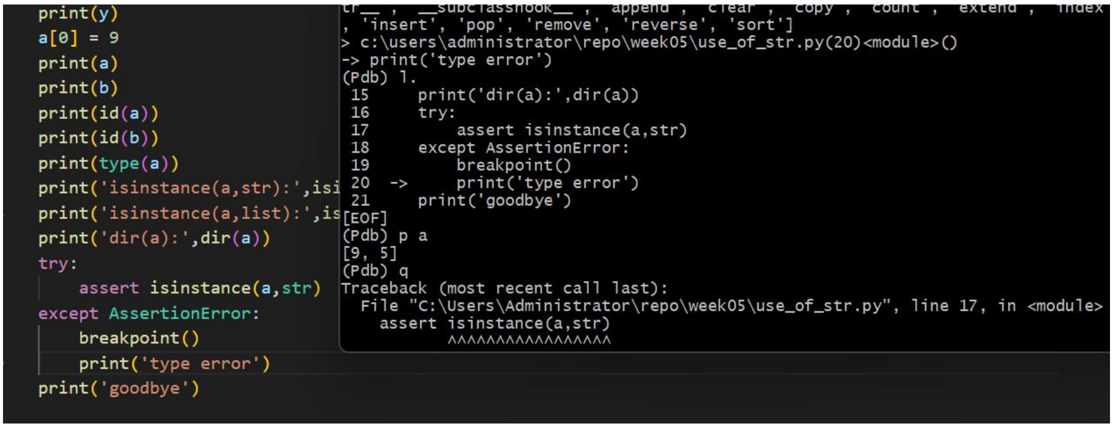
```python
a = [2, 5]
b = [2, 5]
x = id(a)
print(x)
y = id(b)
print(y)
a[0] = 9
print(a)
print(b)
print(id(a))
print(id(b))
print(type(a))
print('isinstance(a,str):',isi
print('isinstance(a,list):',is
print('dir(a):',dir(a))
assert isinstance(a,list)
print('goodbye')
```

```
$  python use_of_str.py
2807399241984
2807399240000
[9, 5]
[2, 5]
2807399241984
2807399240000
<class 'list'>
isinstance(a,str): False
isinstance(a,list): True
dir(a): ['__add__', '__class__', '__class_getitem__', '__contains__', '__delatt
__', '__delitem__', '__dir__', '__doc__', '__eq__', '__format__', '__ge__', '__
etattribute__', '__getitem__', '__getstate__', '__gt__', '__hash__', '__iadd__'
 '__imul__', '__init__', '__init_subclass__', '__iter__', '__le__', '__len__',
__lt__', '__mul__', '__ne__', '__new__', '__reduce__', '__reduce_ex__', '__repr
_', '__reversed__', '__rmul__', '__setattr__', '__setitem__', '__sizeof__', '__
tr__', '__subclasshook__', 'append', 'clear', 'copy', 'count', 'extend', 'index
, 'insert', 'pop', 'remove', 'reverse', 'sort']
goodbye
(base)
Administrator@DESKTOP-75CI4VE MINGW64 ~/repo/week05 (main)
$
```



```python
a = [2, 5]
b = [2, 5]
x = id(a)
print(x)
y = id(b)
print(y)
a[0] = 9
print(a)
print(b)
print(id(a))
print(id(b))
print(type(a))
print('isinstance(a,str):',isi
print('isinstance(a,list):',is
print('dir(a):',dir(a))
try:
    assert isinstance(a,str)
except AssertionError:
    print('type error')
print('goodbye')
```

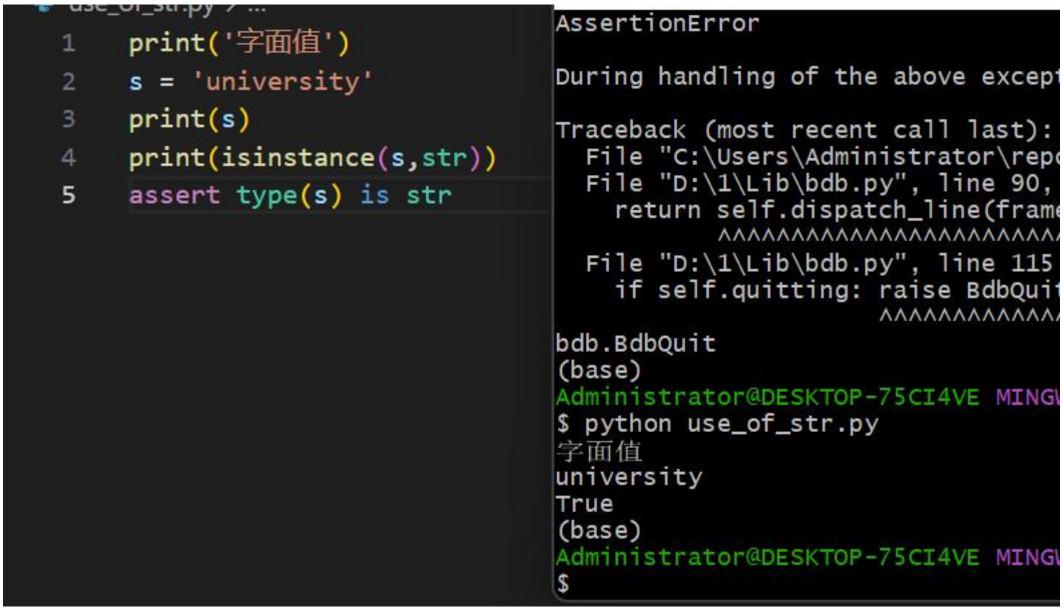
```
Administrator@DESKTOP-75CI4VE MINGW64 ~/repo/week05 (main)
$  python use_of_str.py
1611803384064
1611803382080
[9, 5]
[2, 5]
1611803384064
1611803382080
<class 'list'>
isinstance(a,str): False
isinstance(a,list): True
dir(a): ['__add__', '__class__', '__class_getitem__', '__contains__', '__delatt
__', '__delitem__', '__dir__', '__doc__', '__eq__', '__format__', '__ge__', '__
etattribute__', '__getitem__', '__getstate__', '__gt__', '__hash__', '__iadd__'
 '__imul__', '__init__', '__init_subclass__', '__iter__', '__le__', '__len__',
__lt__', '__mul__', '__ne__', '__new__', '__reduce__', '__reduce_ex__', '__repr
_', '__reversed__', '__rmul__', '__setattr__', '__setitem__', '__sizeof__', '__
tr__', '__subclasshook__', 'append', 'clear', 'copy', 'count', 'extend', 'index
, 'insert', 'pop', 'remove', 'reverse', 'sort']
type error
goodbye
(base)
```



```python
print(y)
a[0] = 9
print(a)
print(b)
print(id(a))
print(id(b))
print(type(a))
print('isinstance(a,str):',isi
print('isinstance(a,list):',is
print('dir(a):',dir(a))
try:
    assert isinstance(a,str)
except AssertionError:
    breakpoint()
    print('type error')
print('goodbye')
```

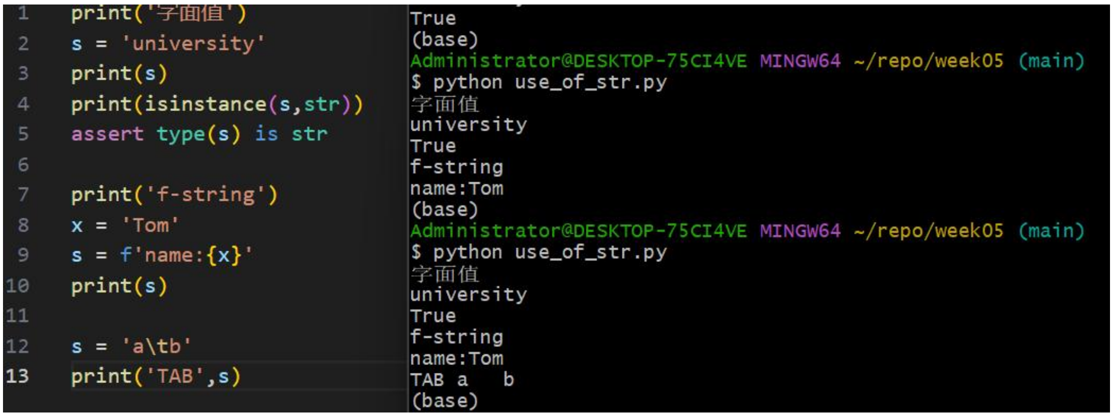
```
tr__', '__subclasshook__', 'append', 'clear', 'copy', 'count', 'extend', 'index
, 'insert', 'pop', 'remove', 'reverse', 'sort']
> c:\users\administrator\repo\week05\use_of_str.py(20)<module>()
-> print('type error')
(Pdb) l.
 15         print('dir(a):',dir(a))
 16         try:
 17             assert isinstance(a,str)
 18         except AssertionError:
 19             breakpoint()
 20  ->         print('type error')
 21         print('goodbye')
[EOF]
(Pdb) p a
[9, 5]
(Pdb) q
Traceback (most recent call last):
  File "C:\Users\Administrator\repo\week05\use_of_str.py", line 17, in <module>
    assert isinstance(a,str)
           ^^^^^^^^^^^^^^^^^^
```

4.对于 每一个 上述要求掌握的对象类型 (将来遇到新的对象类型也应该如此)，我们首先应该熟悉如何通过 表达式(expression) 得到他们的 实例 (instance)，一般包括以下途径:



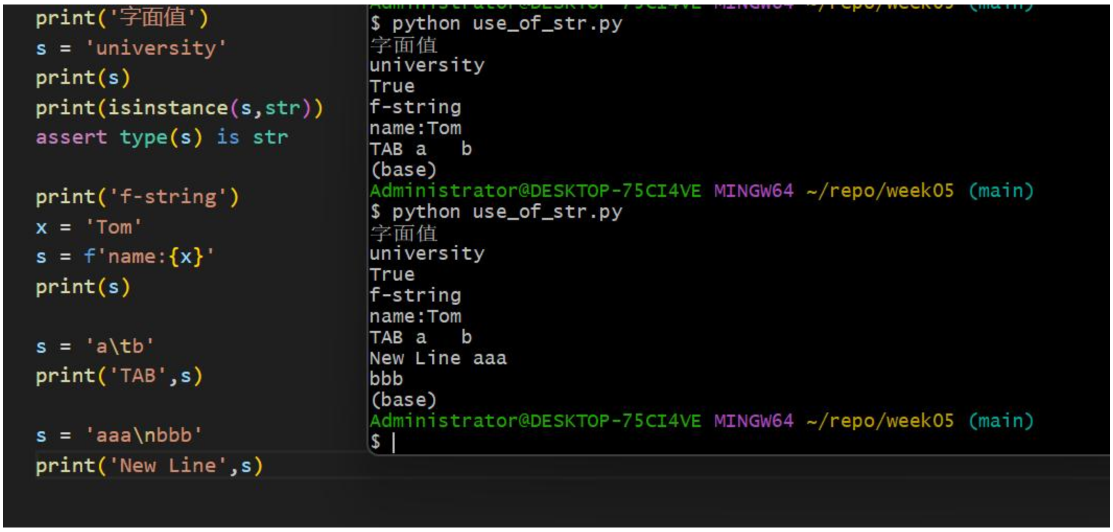
```python
print('字面值')
s = 'university'
print(s)
print(isinstance(s,str))
assert type(s) is str
```

```
AssertionError

During handling of the above except

Traceback (most recent call last):
  File "C:\Users\Administrator\repo
  File "D:\1\Lib\bdb.py", line 90,
    return self.dispatch_line(frame
           ^^^^^^^^^^^^^^^^^^^^^^^^
  File "D:\1\Lib\bdb.py", line 115
    if self.quitting: raise BdbQuit
                      ^^^^^^^^^^^^^
bdb.BdbQuit
(base)
Administrator@DESKTOP-75CI4VE MINGW
$ python use_of_str.py
字面值
university
True
(base)
Administrator@DESKTOP-75CI4VE MINGW
$
```



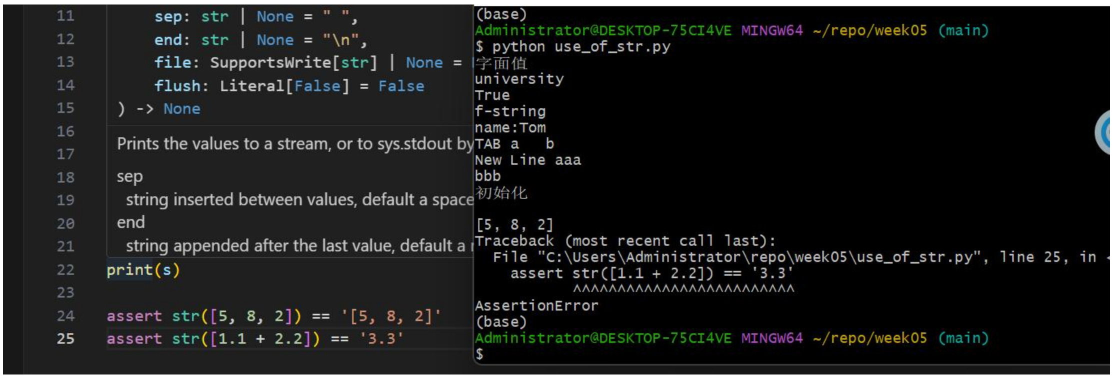
```python
print('字面值')
s = 'university'
print(s)
print(isinstance(s,str))
assert type(s) is str

print('f-string')
x = 'Tom'
s = f'name:{x}'
print(s)

s = 'a\tb'
print('TAB',s)
```

```
True
(base)
Administrator@DESKTOP-75CI4VE MINGW64 ~/repo/week05 (main)
$ python use_of_str.py
字面值
university
True
f-string
name:Tom
(base)
Administrator@DESKTOP-75CI4VE MINGW64 ~/repo/week05 (main)
$ python use_of_str.py
字面值
university
True
f-string
name:Tom
TAB a    b
(base)
```



```python
print('字面值')
s = 'university'
print(s)
print(isinstance(s,str))
assert type(s) is str

print('f-string')
x = 'Tom'
s = f'name:{x}'
print(s)

s = 'a\tb'
print('TAB',s)

s = 'aaa\nbbb'
print('New Line',s)
```

```
Administrator@DESKTOP-75CI4VE MINGW64 ~/repo/week05 (main)
$ python use_of_str.py
字面值
university
True
f-string
name:Tom
TAB a    b
(base)
Administrator@DESKTOP-75CI4VE MINGW64 ~/repo/week05 (main)
$ python use_of_str.py
字面值
university
True
f-string
name:Tom
TAB a    b
New Line aaa
bbb
(base)
Administrator@DESKTOP-75CI4VE MINGW64 ~/repo/week05 (main)
$ |
```



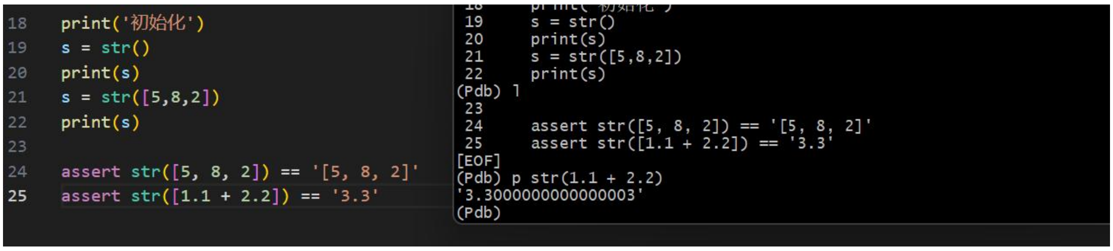
```python
        sep: str | None = " ",
        end: str | None = "\n",
        file: SupportsWrite[str] | None =
        flush: Literal[False] = False
    ) -> None
```

Prints the values to a stream, or to sys.stdout by

sep
  string inserted between values, default a space
end
  string appended after the last value, default a r

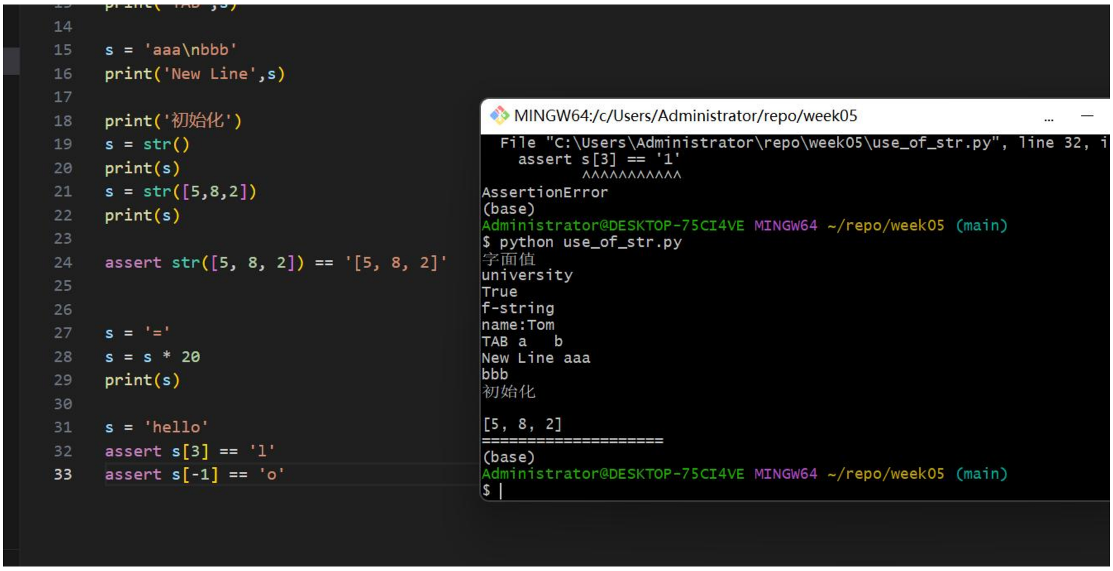
```python
print(s)

assert str([5, 8, 2]) == '[5, 8, 2]'
assert str([1.1 + 2.2]) == '3.3'
```

```
(base)
Administrator@DESKTOP-75CI4VE MINGW64 ~/repo/week05 (main)
$ python use_of_str.py
字面值
university
True
f-string
name:Tom
TAB a    b
New Line aaa
bbb
初始化

[5, 8, 2]
Traceback (most recent call last):
  File "C:\Users\Administrator\repo\week05\use_of_str.py", line 25, in
    assert str([1.1 + 2.2]) == '3.3'
           ^^^^^^^^^^^^^^^^^^^^^^^^^
AssertionError
(base)
Administrator@DESKTOP-75CI4VE MINGW64 ~/repo/week05 (main)
$
```



```python
print('初始化')
s = str()
print(s)
s = str([5,8,2])
print(s)

assert str([5, 8, 2]) == '[5, 8, 2]'
assert str([1.1 + 2.2]) == '3.3'
```

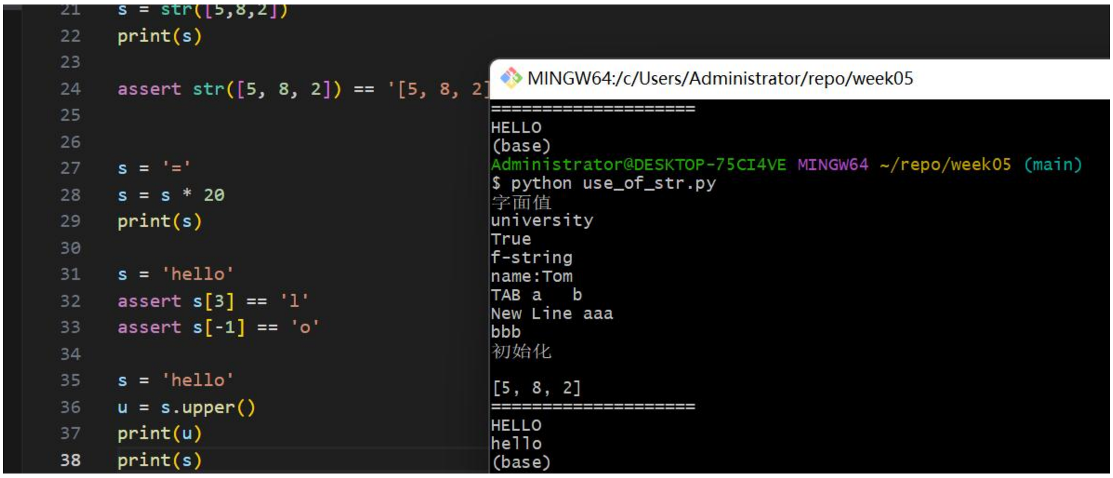
```
 18         print('初始化')
 19         s = str()
 20         print(s)
 21         s = str([5,8,2])
 22         print(s)
(Pdb) l
 23
 24         assert str([5, 8, 2]) == '[5, 8, 2]'
 25         assert str([1.1 + 2.2]) == '3.3'
[EOF]
(Pdb) p str(1.1 + 2.2)
'3.3000000000000003'
(Pdb)
```



```python
print('TAB',s)

s = 'aaa\nbbb'
print('New Line',s)

print('初始化')
s = str()
print(s)
s = str([5,8,2])
print(s)

assert str([5, 8, 2]) == '[5, 8, 2]'


s = '='
s = s * 20
print(s)

s = 'hello'
assert s[3] == 'l'
assert s[-1] == 'o'
```

MINGW64:/c/Users/Administrator/repo/week05

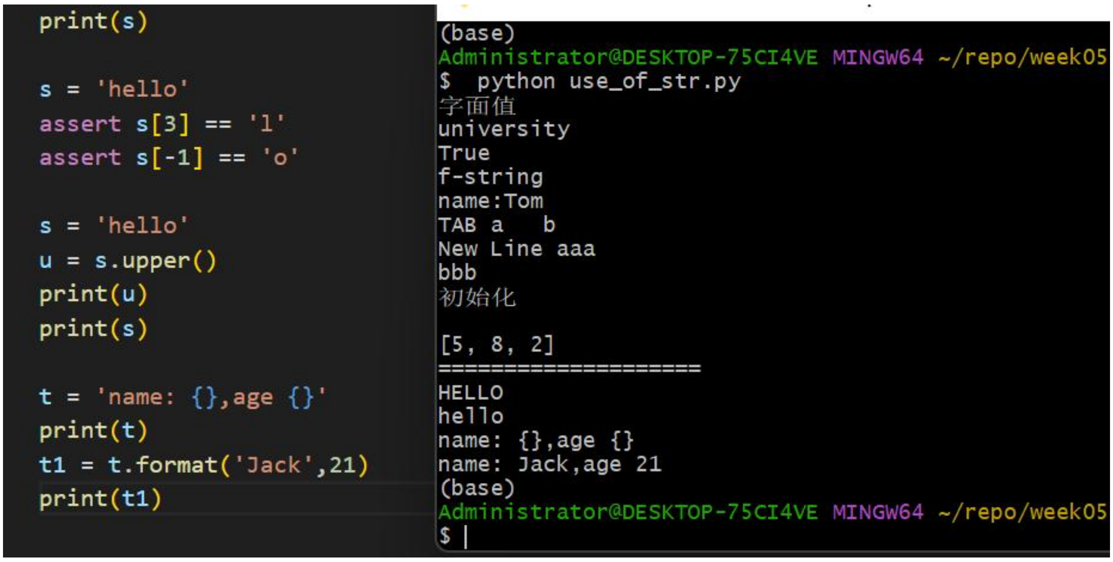
```
  File "C:\Users\Administrator\repo\week05\use_of_str.py", line 32, i
    assert s[3] == '1'
           ^^^^^^^^^^^
AssertionError
(base)
Administrator@DESKTOP-75CI4VE MINGW64 ~/repo/week05 (main)
$ python use_of_str.py
字面值
university
True
f-string
name:Tom
TAB a    b
New Line aaa
bbb
初始化

[5, 8, 2]
====================
(base)
Administrator@DESKTOP-75CI4VE MINGW64 ~/repo/week05 (main)
$ |
```



```python
s = str([5,8,2])
print(s)

assert str([5, 8, 2]) == '[5, 8, 2]


s = '='
s = s * 20
print(s)

s = 'hello'
assert s[3] == 'l'
assert s[-1] == 'o'

s = 'hello'
u = s.upper()
print(u)
print(s)
```

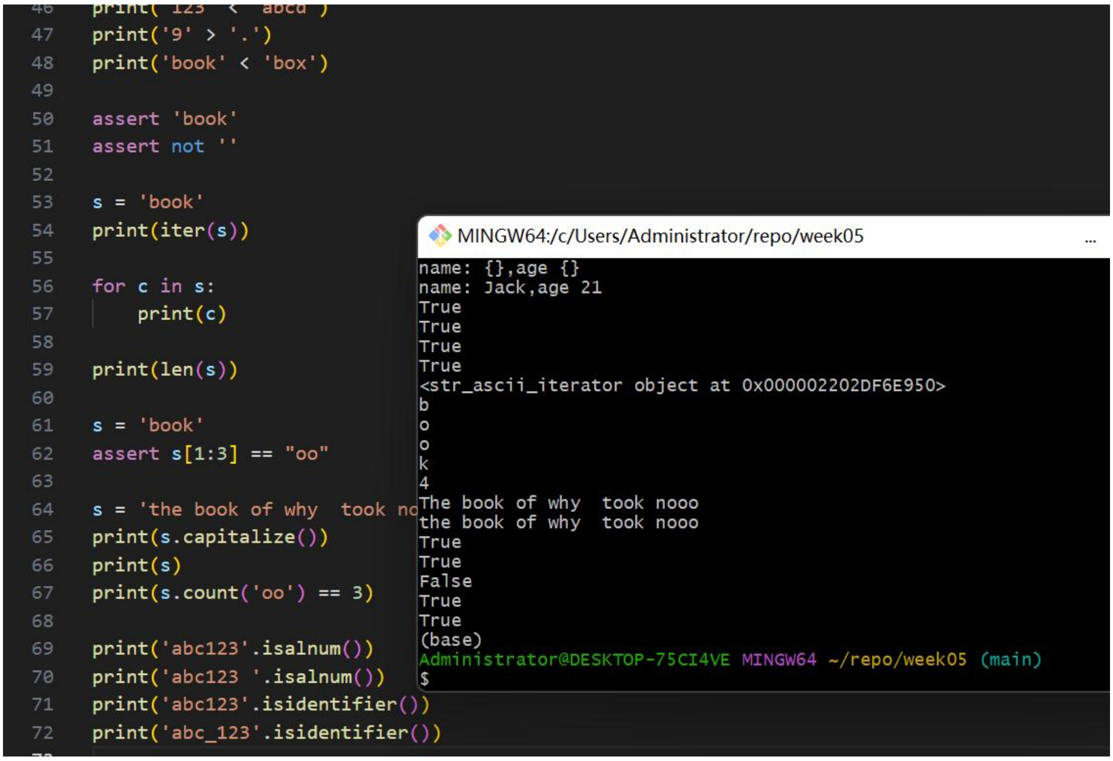
MINGW64:/c/Users/Administrator/repo/week05

```
====================
HELLO
(base)
Administrator@DESKTOP-75CI4VE MINGW64 ~/repo/week05 (main)
$ python use_of_str.py
字面值
university
True
f-string
name:Tom
TAB a    b
New Line aaa
bbb
初始化

[5, 8, 2]
====================
HELLO
hello
(base)
```



```python
print(s)

s = 'hello'
assert s[3] == 'l'
assert s[-1] == 'o'

s = 'hello'
u = s.upper()
print(u)
print(s)

t = 'name: {},age {}'
print(t)
t1 = t.format('Jack',21)
print(t1)
```

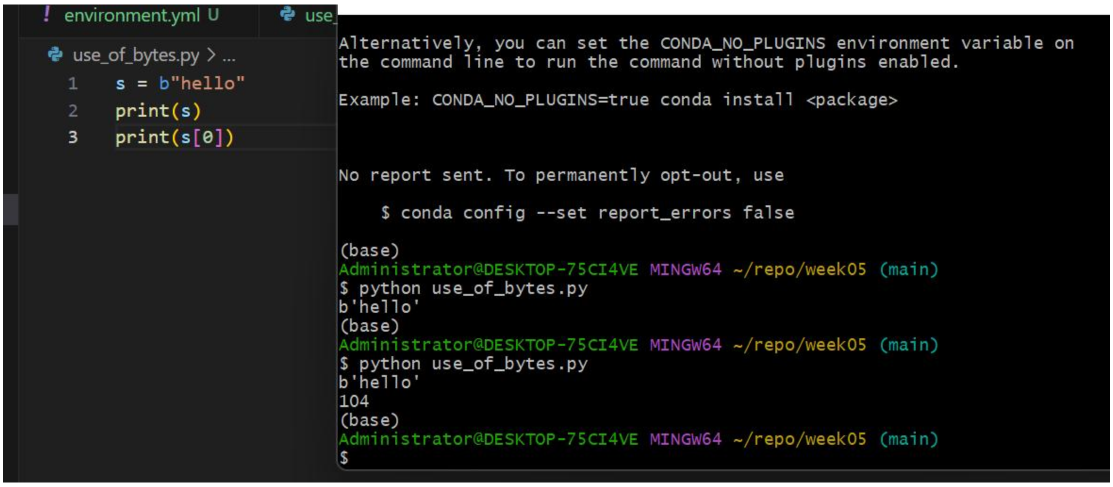
```
(base)
Administrator@DESKTOP-75CI4VE MINGW64 ~/repo/week05
$  python use_of_str.py
字面值
university
True
f-string
name:Tom
TAB a    b
New Line aaa
bbb
初始化

[5, 8, 2]
====================
HELLO
hello
name: {},age {}
name: Jack,age 21
(base)
Administrator@DESKTOP-75CI4VE MINGW64 ~/repo/week05
$ |
```



```python
print('123' < 'abcd')
print('9' > '.')
print('book' < 'box')

assert 'book'
assert not ''

s = 'book'
print(iter(s))

for c in s:
    print(c)

print(len(s))

s = 'book'
assert s[1:3] == "oo"

s = 'the book of why  took no
print(s.capitalize())
print(s)
print(s.count('oo') == 3)

print('abc123'.isalnum())
print('abc123 '.isalnum())
print('abc123'.isidentifier())
print('abc_123'.isidentifier())
```

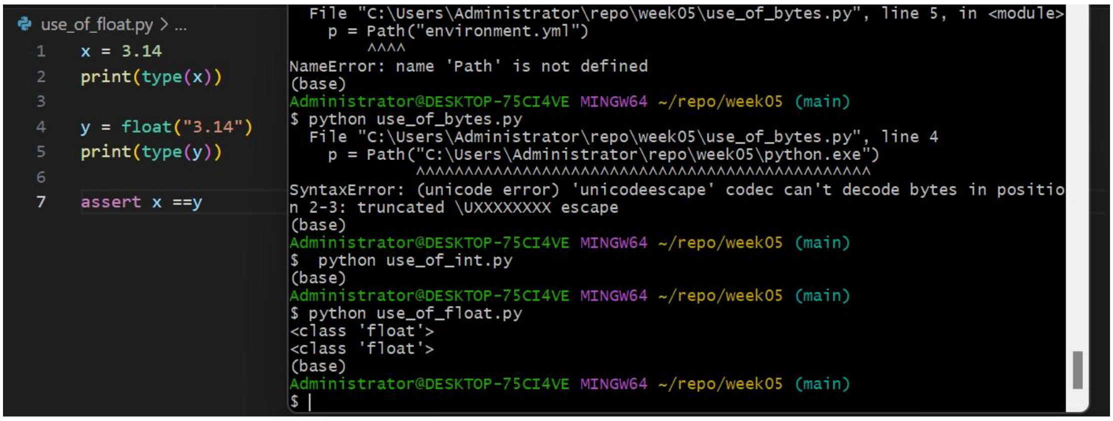
MINGW64:/c/Users/Administrator/repo/week05

```
name: {},age {}
name: Jack,age 21
True
True
True
True
<str_ascii_iterator object at 0x000002202DF6E950>
b
o
o
k
4
The book of why  took nooo
the book of why  took nooo
True
True
False
True
True
(base)
Administrator@DESKTOP-75CI4VE MINGW64 ~/repo/week05 (main)
$
```



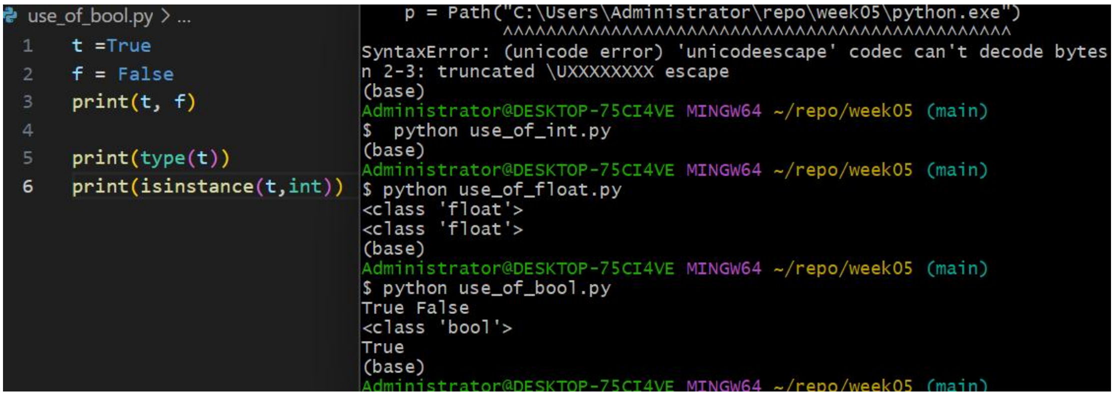
```python
s = b"hello"
print(s)
print(s[0])
```

```
Alternatively, you can set the CONDA_NO_PLUGINS environment variable on
the command line to run the command without plugins enabled.

Example: CONDA_NO_PLUGINS=true conda install <package>


No report sent. To permanently opt-out, use

    $ conda config --set report_errors false

(base)
Administrator@DESKTOP-75CI4VE MINGW64 ~/repo/week05 (main)
$ python use_of_bytes.py
b'hello'
(base)
Administrator@DESKTOP-75CI4VE MINGW64 ~/repo/week05 (main)
$ python use_of_bytes.py
b'hello'
104
(base)
Administrator@DESKTOP-75CI4VE MINGW64 ~/repo/week05 (main)
$
```



```python
x = 3.14
print(type(x))

y = float("3.14")
print(type(y))

assert x ==y
```

```
  File "C:\Users\Administrator\repo\week05\use_of_bytes.py", line 5, in <module>
    p = Path("environment.yml")
        ^^^^
NameError: name 'Path' is not defined
(base)
Administrator@DESKTOP-75CI4VE MINGW64 ~/repo/week05 (main)
$ python use_of_bytes.py
  File "C:\Users\Administrator\repo\week05\use_of_bytes.py", line 4
    p = Path("C:\Users\Administrator\repo\week05\python.exe")
             ^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^
SyntaxError: (unicode error) 'unicodeescape' codec can't decode bytes in positio
n 2-3: truncated \UXXXXXXXX escape
(base)
Administrator@DESKTOP-75CI4VE MINGW64 ~/repo/week05 (main)
$  python use_of_int.py
(base)
Administrator@DESKTOP-75CI4VE MINGW64 ~/repo/week05 (main)
$ python use_of_float.py
<class 'float'>
<class 'float'>
(base)
Administrator@DESKTOP-75CI4VE MINGW64 ~/repo/week05 (main)
$ |
```



```python
t =True
f = False
print(t, f)

print(type(t))
print(isinstance(t,int))
```

```
    p = Path("C:\Users\Administrator\repo\week05\python.exe")
             ^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^
SyntaxError: (unicode error) 'unicodeescape' codec can't decode bytes
n 2-3: truncated \UXXXXXXXX escape
(base)
Administrator@DESKTOP-75CI4VE MINGW64 ~/repo/week05 (main)
$  python use_of_int.py
(base)
Administrator@DESKTOP-75CI4VE MINGW64 ~/repo/week05 (main)
$ python use_of_float.py
<class 'float'>
<class 'float'>
(base)
Administrator@DESKTOP-75CI4VE MINGW64 ~/repo/week05 (main)
$ python use_of_bool.py
True False
<class 'bool'>
True
(base)
Administrator@DESKTOP-75CI4VE MINGW64 ~/repo/week05 (main)
```