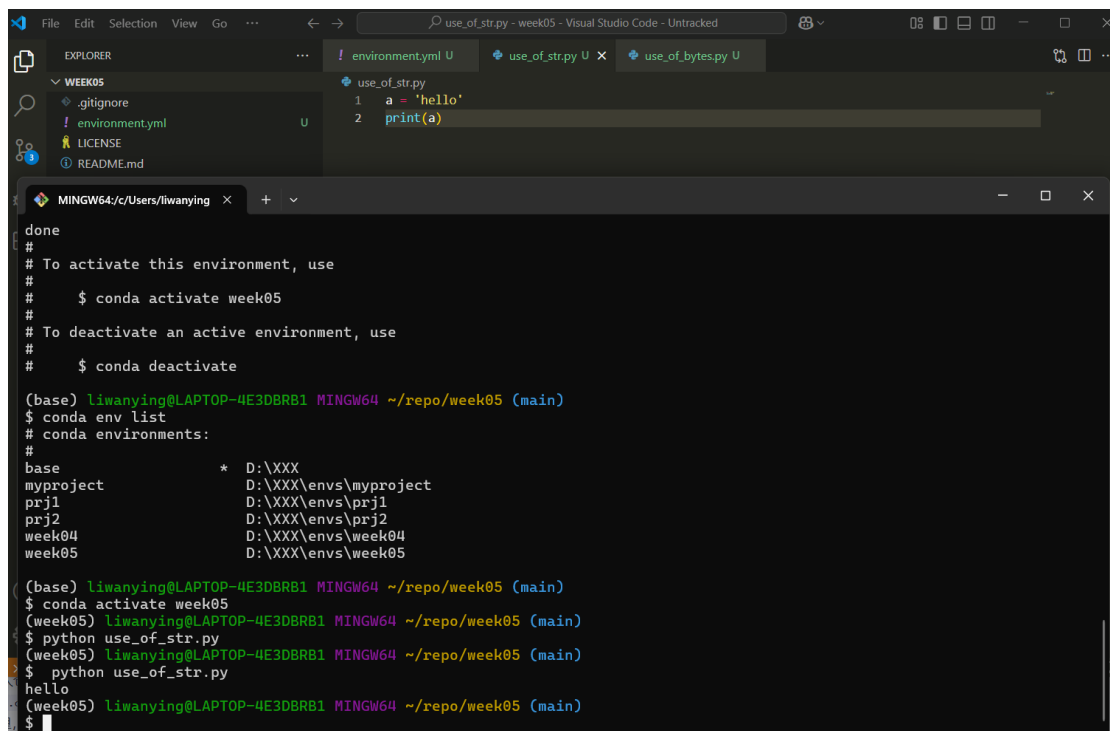


学习笔记

```
remote: Total 5 (delta 0), reused 0 (delta 0), pack-reused 5 (from 1)
Receiving objects: 100% (5/5), 8.44 KiB | 4.22 MiB/s, done.
(base) liwanying@LAPTOP-4E3DBRB1 MINGW64 ~/repo
$ ls -l
total 12
drwxr-xr-x 1 liwanying 197121 0 3月 23 20:53 myproject/
drwxr-xr-x 1 liwanying 197121 0 3月 15 23:21 mywork/
drwxr-xr-x 1 liwanying 197121 0 3月 23 19:31 prj1/
-rw-r--r-- 1 liwanying 197121 0 3月 9 23:18 script1.py
drwxr-xr-x 1 liwanying 197121 0 3月 12 23:35 week01/
drwxr-xr-x 1 liwanying 197121 0 3月 15 23:55 week02/
drwxr-xr-x 1 liwanying 197121 0 4月 10 18:43 week04/
drwxr-xr-x 1 liwanying 197121 0 4月 10 22:02 week05/
(base) liwanying@LAPTOP-4E3DBRB1 MINGW64 ~/repo
$ cat week04/environment.yml
name: week04
channels:
  - conda-forge
dependencies:
  - python=3.12
  - wat-inspector(base) liwanying@LAPTOP-4E3DBRB1 MINGW64 ~/repo
$ cp week04/environment.yml week05/
(base) liwanying@LAPTOP-4E3DBRB1 MINGW64 ~/repo
$ ls -l week05
total 25
-rw-r--r-- 1 liwanying 197121 91 4月 10 22:05 environment.yml
-rw-r--r-- 1 liwanying 197121 18805 4月 10 22:02 LICENSE
-rw-r--r-- 1 liwanying 197121 2239 4月 10 22:02 README.md
(base) liwanying@LAPTOP-4E3DBRB1 MINGW64 ~/repo
$
```



The screenshot shows the Visual Studio Code interface with the Explorer view on the left showing the file structure of the 'week05' directory, including '.gitignore', 'environment.yml', 'LICENSE', and 'README.md'. The main editor area shows the 'environment.yml' file with the following content:

```
1 a = 'hello'
2 print(a)
```

Below the editor, a terminal window is open, showing the following commands and output:

```
done
#
# To activate this environment, use
#
#     $ conda activate week05
#
# To deactivate an active environment, use
#
#     $ conda deactivate

(base) liwanying@LAPTOP-4E3DBRB1 MINGW64 ~/repo/week05 (main)
$ conda env list
# conda environments:
#
base                  * D:\XXX
myproject              D:\XXX\envs\myproject
prj1                   D:\XXX\envs\prj1
prj2                   D:\XXX\envs\prj2
week04                 D:\XXX\envs\week04
week05                 D:\XXX\envs\week05

(base) liwanying@LAPTOP-4E3DBRB1 MINGW64 ~/repo/week05 (main)
$ conda activate week05
(week05) liwanying@LAPTOP-4E3DBRB1 MINGW64 ~/repo/week05 (main)
$ python use_of_str.py
(week05) liwanying@LAPTOP-4E3DBRB1 MINGW64 ~/repo/week05 (main)
$ python use_of_str.py
hello
(week05) liwanying@LAPTOP-4E3DBRB1 MINGW64 ~/repo/week05 (main)
$
```

The screenshot shows a Visual Studio Code window with a terminal at the bottom. The terminal is running a series of commands to set up and test a conda environment. The environment is named 'week05' and is based on 'base'. The terminal output shows the following commands and their results:

```
(base) liwanying@LAPTOP-4E3DBRB1 MINGW64 ~/repo/week05 (main)
$ conda env list
# conda environments:
#
base                  * D:\XXX
myproject              D:\XXX\envs\myproject
prj1                   D:\XXX\envs\prj1
prj2                   D:\XXX\envs\prj2
week04                 D:\XXX\envs\week04
week05                 D:\XXX\envs\week05

(base) liwanying@LAPTOP-4E3DBRB1 MINGW64 ~/repo/week05 (main)
$ conda activate week05
(world05) liwanying@LAPTOP-4E3DBRB1 MINGW64 ~/repo/week05 (main)
$ python use_of_str.py
(world05) liwanying@LAPTOP-4E3DBRB1 MINGW64 ~/repo/week05 (main)
$ python use_of_str.py
hello
(world05) liwanying@LAPTOP-4E3DBRB1 MINGW64 ~/repo/week05 (main)
$ python use_of_str.py
2290497117312
(world05) liwanying@LAPTOP-4E3DBRB1 MINGW64 ~/repo/week05 (main)
$ python use_of_str.py
1728778034304
(world05) liwanying@LAPTOP-4E3DBRB1 MINGW64 ~/repo/week05 (main)
$ python use_of_str.py
2422027279488
(world05) liwanying@LAPTOP-4E3DBRB1 MINGW64 ~/repo/week05 (main)
$ python use_of_str.py
2422027279488
(world05) liwanying@LAPTOP-4E3DBRB1 MINGW64 ~/repo/week05 (main)
$
```

The Explorer pane on the left shows the file structure of the 'week05' environment, including 'environment.yml', 'LICENSE', and 'use_of_str.py'. The 'use_of_str.py' file is open in the editor, showing the following code:

```
1 a = 'hello'
2 b = 'hello'
3 x = id(a)
```

The screenshot shows a Visual Studio Code window with a terminal at the bottom. The terminal is running a series of commands to test the 'use_of_str.py' script. The environment is named 'week05' and is based on 'base'. The terminal output shows the following commands and their results:

```
(base) liwanying@LAPTOP-4E3DBRB1 MINGW64 ~/repo/week05 (main)
$ python use_of_str.py
(world05) liwanying@LAPTOP-4E3DBRB1 MINGW64 ~/repo/week05 (main)
$ python use_of_str.py
hello
(world05) liwanying@LAPTOP-4E3DBRB1 MINGW64 ~/repo/week05 (main)
$ python use_of_str.py
2290497117312
(world05) liwanying@LAPTOP-4E3DBRB1 MINGW64 ~/repo/week05 (main)
$ python use_of_str.py
1728778034304
(world05) liwanying@LAPTOP-4E3DBRB1 MINGW64 ~/repo/week05 (main)
$ python use_of_str.py
2422027279488
(world05) liwanying@LAPTOP-4E3DBRB1 MINGW64 ~/repo/week05 (main)
$ python use_of_str.py
2422027279488
(world05) liwanying@LAPTOP-4E3DBRB1 MINGW64 ~/repo/week05 (main)
$ python use_of_str.py
2626920126720
(world05) liwanying@LAPTOP-4E3DBRB1 MINGW64 ~/repo/week05 (main)
$ python use_of_str.py
2377715489024
(world05) liwanying@LAPTOP-4E3DBRB1 MINGW64 ~/repo/week05 (main)
$ python use_of_str.py
1167182993664
(world05) liwanying@LAPTOP-4E3DBRB1 MINGW64 ~/repo/week05 (main)
$ python use_of_str.py
1167182991680
(world05) liwanying@LAPTOP-4E3DBRB1 MINGW64 ~/repo/week05 (main)
$ python use_of_str.py
[9, 5]
(world05) liwanying@LAPTOP-4E3DBRB1 MINGW64 ~/repo/week05 (main)
$ python use_of_str.py
[2, 5]
(world05) liwanying@LAPTOP-4E3DBRB1 MINGW64 ~/repo/week05 (main)
$
```

The Explorer pane on the left shows the file structure of the 'week05' environment, including 'environment.yml', 'LICENSE', and 'use_of_str.py'. The 'use_of_str.py' file is open in the editor, showing the following code:

```
1 a = [2, 5]
2 b = [2, 5]
3 x = id(a)
4 print(x)
5 y = id(b)
6 print(y)
7 a[0] = 9
8 print(a)
9 print(b)
```

The 'Recent Files' pane on the right shows a list of recent files, including 'use_of_str.py' and 'environment.yml'.

```
use_of_str.py - week05
environment.yml U
use_of_str.py
1 a = [2, 5]
2 b = [2, 5]
3 x = id(a)
4 print(x)
5 y = id(b)
6 print(y)
7 a[0] = 9
8 print(a)
9 print(b)
10 print(id(a))
11 print(id(b))
12 print(type(a))

MINGW64:/c/Users/liwanying
2626920124736
MingW64: ~/repo/week05 (main)
$ python use_of_str.py
2377715489024
2377715487040
MingW64: ~/repo/week05 (main)
$ python use_of_str.py
1167182993664
1167182991680
[9, 5]
[2, 5]
MingW64: ~/repo/week05 (main)
$ python use_of_str.py
2017293506816
2017293504832
[9, 5]
[2, 5]
2017293506816
2017293504832
MingW64: ~/repo/week05 (main)
$ python use_of_str.py
2290598746368
2290598744384
[9, 5]
[2, 5]
2290598746368
2290598744384
<class 'list'>
MingW64: ~/repo/week05 (main)
$
```

```
use_of_str.py - week05
environment.yml U
use_of_str.py
1 a = [2, 5]
2 b = [2, 5]
3 x = id(a)
4 print(x)
5 y = id(b)
6 print(y)
7 a[0] = 9
8 print(a)
9 print(b)
10 print(id(a))
11 print(id(b))
12 print(type(a))
13 print(isinstance(a, str))

MINGW64:/c/Users/liwanying
[2, 5]
MingW64: ~/repo/week05 (main)
$ python use_of_str.py
2017293506816
2017293504832
[9, 5]
[2, 5]
2017293506816
2017293504832
MingW64: ~/repo/week05 (main)
$ python use_of_str.py
2290598746368
2290598744384
[9, 5]
[2, 5]
2290598746368
2290598744384
<class 'list'>
MingW64: ~/repo/week05 (main)
$ python use_of_str.py
1437991704832
1437991702848
[9, 5]
[2, 5]
1437991704832
1437991702848
<class 'list'>
False
MingW64: ~/repo/week05 (main)
$
```

```
environment.yml  use_of_str.py X  MINGW64/c/Users/liwanying X + -
! use_of_str.py
1 a = [2, 5]
2 b = [2, 5]
3 x = id(a)
4 print(x)
5 y = id(b)
6 print(y)
7 a[0] = 9
8 print(a)
9 print(b)
10 print(id(a))
11 print(id(b))
12 print(type(a))
13 print(isinstance(a, str))
14 print('dir(a):', dir(a))

<class 'list'>
False
2911066593536
$ python
Python 3.12.9 | packaged by conda-forge | (main, Mar 4 2025, 22:37:18) [MSC v.1943 64 bi
t (AMD64)] on win32
Type "help", "copyright", "credits" or "license" for more information.
>>> print(1, 2, 6, 10)
1 2 6 10
>>> quit()
2911066593536
$ python use_of_str.py
2911066593536
2911066591552
<class 'list'>
False
dir(a): ['__add__', '__class__', '__class_getitem__', '__contains__', '__delattr__', '__d
elitem__', '__dir__', '__doc__', '__eq__', '__format__', '__ge__', '__getattr__', '__
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__', '__str__', '__subclasshook__', 'append', 'clear', 'copy',
'count', 'extend', 'index', 'insert', 'pop', 'remove', 'reverse', 'sort']
2911066593536
$
```

```
2911066593536
2911066591552
<class 'list'>
False
dir(a): ['__add__', '__class__', '__class_getitem__', '__contains__', '__delattr__', '__d
elitem__', '__dir__', '__doc__', '__eq__', '__format__', '__ge__', '__getattr__', '__
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__', '__str__', '__subclasshook__', 'append', 'clear', 'copy',
'count', 'extend', 'index', 'insert', 'pop', 'remove', 'reverse', 'sort']
2911066593536
$ python
Python 3.12.9 | packaged by conda-forge | (main, Mar 4 2025, 22:37:18) [MSC v.1943 64 bi
t (AMD64)] on win32
Type "help", "copyright", "credits" or "license" for more information.
>>> print(32)
32
>>> print(str(32))
32
>>>
```

```
environment.yml  use_of_str.py X  use_of_bytes.py U  MINGW64/c/Users/liwanying X + -
! use_of_str.py
1 a = [2, 5]
2 b = [2, 5]
3 x = id(a)
4 print(x)
5 y = id(b)
6 print(y)
7 a[0] = 9
8 print(a)
9 print(b)
10 print(id(a))
11 print(id(b))
12 print(type(a))
13 print('isinstance(a, str):', isinstance(a, str))
14 print('isinstance(a, list):', isinstance(a, list))
15 print('dir(a):', dir(a))

$ python
Python 3.12.9 | packaged by conda-forge | (main, Mar 4 2025, 22:37:18) [MSC v.1943 64 bi
t (AMD64)] on win32
Type "help", "copyright", "credits" or "license" for more information.
>>> print(32)
32
>>> print(str(32))
32
>>> quit()
2911066593536
$ python use_of_str.py
2373617916160
2373617914176
[9, 5]
[2, 5]
2373617916160
2373617914176
<class 'list'>
isinstance(a, str): False
isinstance(a, list): True
dir(a): ['__add__', '__class__', '__class_getitem__', '__contains__', '__delattr__', '__d
elitem__', '__dir__', '__doc__', '__eq__', '__format__', '__ge__', '__getattr__', '__
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__', '__str__', '__subclasshook__', 'append', 'clear', 'co
py', 'count', 'extend', 'index', 'insert', 'pop', 'remove', 'reverse', 'sort']
2911066593536
$
```

```
use_of_str.py - week05 - Visual Studio Code - Untracked
environment.yml U use_of_str.py U use_of_bytes.py U
use_of_str.py
1 a = [2, 5]
2 b = [2, 5]
3 x = id(a)
4 print(x)
5 y = id(b)
6 print(y)
7 a[0] = 9
8 print(a)
9 print(b)
10 print(id(a))
11 print(id(b))
12 print(type(a))
13 print('isinstance(a, str):', isinstance(a, str))
14 print('isinstance(a, list):', isinstance(a, list))
15 print('dir(a):', dir(a))
16 assert isinstance(a, list)
17 print('goodbye')
```

```
MINGW64/c/Users/liwanying
--, '_reduce_', '_reduce_ex_', '_repr_', '_reversed_', '_rmul_', '_setattr_',
'_setitem_', '_sizeof_', '_str_', '_subclasshook_', 'append', 'clear', 'copy',
'count', 'extend', 'index', 'insert', 'pop', 'remove', 'reverse', 'sort']
Traceback (most recent call last):
  File "C:\Users\liwanying\repo\week05\use_of_str.py", line 16, in <module>
    assert isinstance(a, str)
    ^^^^^^^^^^^^^^^^^^^^^
AssertionError
(week05) liwanying@LAPTOP-4E3DBRB1 MINGW64 ~/repo/week05 (main)
$ python use_of_str.py
2393009166592
2393009164608
[9, 5]
[2, 5]
2393009166592
2393009164608
<class 'list'>
isinstance(a, str): False
isinstance(a, list): True
dir(a): ['__add__', '__class__', '__class_getitem__', '__contains__', '__delattr__', '__d
elitem__', '__dir__', '__doc__', '__eq__', '__format__', '__ge__', '__getattr__', '__g
etitem__', '__getstate__', '__gt__', '__hash__', '__iadd__', '__imul__', '__init__', '__
init_subclass__', '__iter__', '__le__', '__len__', '__lt__', '__mul__', '__ne__', '__new
__', '__reduce__', '_reduce_ex_', '_repr_', '_reversed_', '_rmul_', '_setattr_', '_se
titem_', '_sizeof_', '_str_', '_subclasshook_', 'append', 'clear', 'copy',
'count', 'extend', 'index', 'insert', 'pop', 'remove', 'reverse', 'sort']
goodbye
(week05) liwanying@LAPTOP-4E3DBRB1 MINGW64 ~/repo/week05 (main)
$
```

```
use_of_str.py - week05 - Visual Studio Code - Untracked
environment.yml U use_of_str.py U use_of_bytes.py U
use_of_str.py
1 a = [2, 5]
2 b = [2, 5]
3 x = id(a)
4 print(x)
5 y = id(b)
6 print(y)
7 a[0] = 9
8 print(a)
9 print(b)
10 print(id(a))
11 print(id(b))
12 print(type(a))
13 print('isinstance(a, str):', isinstance(a, str))
14 print('isinstance(a, list):', isinstance(a, list))
15 print('dir(a):', dir(a))
16 try:
17     assert isinstance(a, str)
18 except AssertionError:
19     print('type error')
20 print('goodbye')
```

```
MINGW64/c/Users/liwanying
elitem_', '_dir_', '_doc_', '_eq_', '_format_', '_ge_', '_getattr_', '_in
getitem_', '_getstate_', '_gt_', '_hash_', '_iadd_', '_imul_', '_in
_init_subclass_', '_iter_', '_le_', '_len_', '_lt_', '_mul_', '_ne
_', '_reduce_', '_reduce_ex_', '_repr_', '_reversed_', '_rmul_', '_se
titem_', '_sizeof_', '_str_', '_subclasshook_', 'append', 'clear',
'count', 'extend', 'index', 'insert', 'pop', 'remove', 'reverse', 'sort']
goodbye
(week05) liwanying@LAPTOP-4E3DBRB1 MINGW64 ~/repo/week05 (main)
$ python use_of_str.py
1250883082496
1250883080512
[9, 5]
[2, 5]
1250883082496
1250883080512
<class 'list'>
isinstance(a, str): False
isinstance(a, list): True
dir(a): ['__add__', '__class__', '__class_getitem__', '__contains__', '__delattr_',
elitem_', '_dir_', '_doc_', '_eq_', '_format_', '_ge_', '_getattr_', '_in
getitem_', '_getstate_', '_gt_', '_hash_', '_iadd_', '_imul_', '_in
_init_subclass_', '_iter_', '_le_', '_len_', '_lt_', '_mul_', '_ne
_', '_reduce_', '_reduce_ex_', '_repr_', '_reversed_', '_rmul_', '_se
titem_', '_sizeof_', '_str_', '_subclasshook_', 'append', 'clear',
'count', 'extend', 'index', 'insert', 'pop', 'remove', 'reverse', 'sort']
type error
goodbye
(week05) liwanying@LAPTOP-4E3DBRB1 MINGW64 ~/repo/week05 (main)
$
```

```
use_of_str.py - week05 - Visual Studio Code - Untracked
environment.yml U use_of_str.py U use_of_bytes.py U
use_of_str.py
1 print('字面值')
2 s = 'university'
3 print(isinstance(s, str))
4 assert type(s) is str
```

```
MINGW64/c/Users/liwanying
-> print('type error')
(Pdb) p isinstance(a, str)
False
(Pdb) q
Traceback (most recent call last):
  File "C:\Users\liwanying\repo\week05\use_of_str.py", line 17, in
    assert isinstance(a, str)
    ^^^^^^^^^^^^^^^^^^^^^
AssertionError

During handling of the above exception, another exception occurred

Traceback (most recent call last):
  File "C:\Users\liwanying\repo\week05\use_of_str.py", line 20, in
    print('type error')
    ^^^^^^^^^^^^^^^^^
File "D:\XXX\envs\week05\Lib\bdb.py", line 100, in trace_dispatch
    return self.dispatch_line(frame)
    ^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^
File "D:\XXX\envs\week05\Lib\bdb.py", line 125, in dispatch_line
    if self.quitting: raise BdbQuit
    ^^^^^^^^^^^^^^^^^
bdb.BdbQuit
(week05) liwanying@LAPTOP-4E3DBRB1 MINGW64 ~/repo/week05 (main)
$ python use_of_str.py
字面值
True
(week05) liwanying@LAPTOP-4E3DBRB1 MINGW64 ~/repo/week05 (main)
$
```

```
use_of_str.py - week05 - Visual Studio Code - Untracked
environment.yml U use_of_str.py X use_of_bytes.py U
1 print('字符串')
2 s = 'university'
3 print(s)
4 print(isinstance(s, str))
5 assert type(s) is str
6
7 print(f-string)
8 x = 'Tom'
9 s = f'name: {x}'
10 print(s)

Traceback (most recent call last):
  File "C:\Users\liwanying\repo\week05\use_of_str.py", line 20, in <module>
    print('type error')
    ^^^^^
  File "D:\XXX\envs\week05\Lib\bdb.py", line 100, in trace_dispatch
    return self.dispatch_line(frame)
    ^^^^^^^^^^^^^^^^^^^^^^^^^^^^^
  File "D:\XXX\envs\week05\Lib\bdb.py", line 125, in dispatch_line
    if self.quitting: raise BdbQuit
    ^^^^^^^^^^^^^
bdb.BdbQuit
(week05) liwanying@LAPTOP-4E3DBRB1 MINGW64 ~/repo/week05 (main)
$ python use_of_str.py
字符串
True
(week05) liwanying@LAPTOP-4E3DBRB1 MINGW64 ~/repo/week05 (main)
$ python use_of_str.py
字符串
university
True
(week05) liwanying@LAPTOP-4E3DBRB1 MINGW64 ~/repo/week05 (main)
$ python use_of_str.py
字符串
university
True
f-string
name: Tom
(week05) liwanying@LAPTOP-4E3DBRB1 MINGW64 ~/repo/week05 (main)
$
```

```
environment.yml U use_of_str.py
1 print('字符串')
2 s = 'university'
3 print(s)
4 print(isinstance(s, str))
5 assert type(s) is str
6
7 print(f-string)
8 x = 'Tom'
9 s = f'name: {x}'
10 print(s)
11
12 s = 'a\tb'
13 print('TAB', s)

if self.quitting: raise BdbQuit
    ^^^^^^^^^^^^^
bdb.BdbQuit
(week05) liwanying@LAPTOP-4E3DBRB1 MINGW64 ~/repo/week05 (main)
$ python use_of_str.py
字符串
True
(week05) liwanying@LAPTOP-4E3DBRB1 MINGW64 ~/repo/week05 (main)
$ python use_of_str.py
字符串
university
True
(week05) liwanying@LAPTOP-4E3DBRB1 MINGW64 ~/repo/week05 (main)
$ python use_of_str.py
字符串
university
True
f-string
name: Tom
(week05) liwanying@LAPTOP-4E3DBRB1 MINGW64 ~/repo/week05 (main)
$ python use_of_str.py
字符串
university
True
f-string
name: Tom
TAB a b
(week05) liwanying@LAPTOP-4E3DBRB1 MINGW64 ~/repo/week05 (main)
f
```

```
environment.yml U use_of_str.py
use_of_str.py
1 print('字面值')
2 s = 'university'
3 print(s)
4 print(isinstance(s, str))
5 assert type(s) is str
6
7 print('f-string')
8 x = 'Tom'
9 s = f'name: {x}'
10 print(s)
11
12 s = 'aaa\nbbb'
13 print('New Line', s)
14
15 s = """xyz
16 abc
17 | eee
18 aaa
19 """
20 print(s)
21

True
f-string
name: Tom
TAB a b
(word05) liwanying@LAPTOP-4E3DBRB1 MINGW64 ~/repo/week05 (main)
$ python use_of_str.py
字面值
university
True
f-string
name: Tom
New Line aaa
bbb
(word05) liwanying@LAPTOP-4E3DBRB1 MINGW64 ~/repo/week05 (main)
$ python use_of_str.py
字面值
university
True
f-string
name: Tom
New Line aaa
bbb
xyz
abc
eee
aaa
(word05) liwanying@LAPTOP-4E3DBRB1 MINGW64 ~/repo/week05 (main)
$
```

```
environment.yml X use_of_str.py
use_of_str.py
1 print('字面值')
2 s = 'university'
3 print(s)
4 print(isinstance(s, str))
5 assert type(s) is str
6
7 print('f-string')
8 x = 'Tom'
9 s = f'name: {x}'
10 print(s)
11
12 s = 'aaa\nbbb'
13 print('New Line', s)
14
15 s = """xyz
16 abc
17 | eee
18 aaa
19 """
20 print(s)
21
22 print('初始化')
23 s = str()
24 print(s)
25 s = str([5, 8, 2])
26 print(s)

name: Tom
New Line aaa
bbb
xyz
abc
eee
aaa
初始化
(word05) liwanying@LAPTOP-4E3DBRB1 MINGW64 ~/repo/week05 (main)
$ python use_of_str.py
字面值
university
True
f-string
name: Tom
New Line aaa
bbb
xyz
abc
eee
aaa
初始化
[5, 8, 2]
(word05) liwanying@LAPTOP-4E3DBRB1 MINGW64 ~/repo/week05 (main)
$ a
```

```
environment.yml U use_of_str.py U MINGW64/c/Users/liwanying x + v
use_of_str.py
3 print(s)
4 print(isinstance(s, str))
5 assert type(s) is str
6
7 print(f-string)
8 x = 'Tom'
9 s = f'name: {x}'
10 print(s)
11
12 s = 'aaa\nbbb'
13 print('New Line', s)
14
15 s = """xyz
16 abc
17 eee
18 aaa
19 """
20 print(s)
21
22 print('初始化')
23 s = str()
24 print(s)
25 s = str([5, 8, 2])
26 print(s)
27
28 assert str([5, 8, 2]) == '[5, 8, 2]'
29 assert str(1.1 + 2.2) == '3.3'
```

```
[5, 8, 2]
Traceback (most recent call last):
  File "D:\XXX\envs\week05\Lib\pdb.py", line 1960, in main
    pdb._run(target)
  File "D:\XXX\envs\week05\Lib\pdb.py", line 1754, in _run
    self.run(target.code)
  File "D:\XXX\envs\week05\Lib\bdb.py", line 627, in run
    exec(cmd, globals, locals)
  File "<string>", line 1, in <module>
  File "C:\Users\liwanying\repo\week05\use_of_str.py", line 29, in <module>
    assert str(1.1 + 2.2) == '3.3'
    ^^^^^^^^^^^^^^^^^^^^^^^^^^^^^
AssertionError
Uncaught exception. Entering post mortem debugging
Running 'cont' or 'step' will restart the program
> c:\users\liwanying\repo\week05\use_of_str.py(29)<module>()
-> assert str(1.1 + 2.2) == '3.3'
(Pdb) l
24     print(s)
25     s = str([5, 8, 2])
26     print(s)
27
28     assert str([5, 8, 2]) == '[5, 8, 2]'
29 -> assert str(1.1 + 2.2) == '3.3'
[EOF]
(Pdb) p str(1.1 + 2.2)
'3.3000000000000003'
(Pdb)
```

```
environment.yml U use_of_str.py U MINGW64/c/Users/liwanying x + v
use_of_str.py
9 s = f'name: {x}'
10 print(s)
11
12 s = 'aaa\nbbb'
13 print('New Line', s)
14
15 s = """xyz
16 abc
17 eee
18 aaa
19 """
20 print(s)
21
22 print('初始化')
23 s = str()
24 print(s)
25 s = str([5, 8, 2])
26 print(s)
27
28 assert str([5, 8, 2]) == '[5, 8, 2]'
29 assert str(1.1 + 2.2) != '3.3'
30
31 assert str() == ''
32
33 s = '='
34 s = s * 20
35 print(s)
```

```
xyz
abc
   eee
aaa

初始化

[5, 8, 2]
20
(week05) liwanying@LAPTOP-4E3DBR81 MINGW64 ~/repo/week05 (main)
$ python use_of_str.py
字面值
university
True
f-string
name: Tom
New Line aaa
bbb
xyz
abc
   eee
aaa

初始化

[5, 8, 2]
=====
(week05) liwanying@LAPTOP-4E3DBR81 MINGW64 ~/repo/week05 (main)
$
```



```
environment.yml U use_of_str.py U
use_of_str.py
13 print('New Line', s)
14
15 s = ""xyz
16 abc
17 | eee
18 aaa
19 ""
20 print(s)
21
22 print('初始化')
23 s = str()
24 print(s)
25 s = str([5, 8, 2])
26 print(s)
27
28 assert str([5, 8, 2]) == '[5, 8, 2]'
29 assert str(1.1 + 2.2) != '3.3'
30
31 assert str() == ''
32
33 s = '='
34 x = id(s)
35 s = s * 20
36 y = id(s)
37 print(s)
38 assert x != y

now
mins
mins
mins
```

```
MINGW64/c/Users/liwanying
s = s * 20
aaaaa
File "D:\XXX\envs\week05\Lib\bdb.py", line 100, in trace_dispatch
return self.dispatch_line(frame)
aaaaaaaaaaaaaaaaaaaaaaaaaaaaa
File "D:\XXX\envs\week05\Lib\bdb.py", line 125, in dispatch_line
if self.quitting: raise BdbQuit
aaaaaaaaaaaaa
bdb.BdbQuit
(week05) liwanying@LAPTOP-4E3DBRB1 MINGW64 ~/repo/week05 (main)
$ python use_of_str.py
字面值
university
True
f-string
name: Tom
New Line aaa
bbb
xyz
abc
eee
aaa
初始化
[5, 8, 2]
=====
(week05) liwanying@LAPTOP-4E3DBRB1 MINGW64 ~/repo/week05 (main)
$
```

```
environment.yml U use_of_str.py U
use_of_str.py
15 s = ""xyz
16 abc
17 | eee
18 aaa
19 ""
20 print(s)
21
22 print('初始化')
23 s = str()
24 print(s)
25 s = str([5, 8, 2])
26 print(s)
27
28 assert str([5, 8, 2]) == '[5, 8, 2]'
29 assert str(1.1 + 2.2) != '3.3'
30
31 assert str() == ''
32
33 s = '='
34 x = id(s)
35 s = s * 20
36 y = id(s)
37 print(s)
38 assert x != y
39
40 s = 'hello'
41 assert s[3] == 'l'

now
38 secs
2 mins
5 mins
```

```
MINGW64/c/Users/liwanying
初始化
[5, 8, 2]
=====
Traceback (most recent call last):
  File "C:\Users\liwanying\repo\week05\use_of_str.py", line 41, in <module>
    assert s[3] == 'l'
    ^^^^^^^^^^^^^
AssertionError
(week05) liwanying@LAPTOP-4E3DBRB1 MINGW64 ~/repo/week05 (main)
$ python use_of_str.py
字面值
university
True
f-string
name: Tom
New Line aaa
bbb
xyz
abc
eee
aaa
初始化
[5, 8, 2]
=====
(week05) liwanying@LAPTOP-4E3DBRB1 MINGW64 ~/repo/week05 (main)
$
```

```
environment.yml U use_of_str.py X MINGW64/c/Users/liwanying X
use_of_str.py
20 print(s)
21
22 print('初始化')
23 s = str()
24 print(s)
25 s = str([5, 8, 2])
26 print(s)
27
28 assert str([5, 8, 2]) == '[5, 8, 2]'
29 assert str(1.1 + 2.2) != '3.3'
30
31 assert str() == ''
32
33 s = '='
34 x = id(s)
35 s = s * 20
36 y = id(s)
37 print(s)
38 assert x != y
39
40 s = 'hello'
41 assert s[3] == 'l'
42 assert s[-1] == 'o'
43 assert s[:3] == 'hel'
44 try:
45     s[5]
46 except IndexError as e:
47     print(e)
```

```
abc
eee
aaa
初始化
[5, 8, 2]
=====
(weather05) liwanying@LAPTOP-4E3DBRB1 MINGW64 ~/repo/week05 (main)
$ python use_of_str.py
字符串
university
True
f-string
name: Tom
New Line aaa
bbb
xyz
abc
eee
aaa
初始化
[5, 8, 2]
=====
string index out of range
(weather05) liwanying@LAPTOP-4E3DBRB1 MINGW64 ~/repo/week05 (main)
$
```

```
environment.yml U use_of_str.py X MINGW64/c/Users/liwanying X
use_of_str.py
25 s = str([5, 8, 2])
26 print(s)
27
28 assert str([5, 8, 2]) == '[5, 8, 2]'
29 assert str(1.1 + 2.2) != '3.3'
30
31 assert str() == ''
32
33 s = '='
34 x = id(s)
35 s = s * 20
36 y = id(s)
37 print(s)
38 assert x != y
39
40 s = 'hello'
41 assert s[3] == 'l'
42 assert s[-1] == 'o'
43 assert s[:3] == 'hel'
44 try:
45     s[5]
46 except IndexError as e:
47     print(e)
48
49 s = 'hello'
50 u = s.upper()
51 print(u)
```

```
aaa
初始化
[5, 8, 2]
=====
string index out of range
(weather05) liwanying@LAPTOP-4E3DBRB1 MINGW64 ~/repo/week05 (main)
$ python use_of_str.py
字符串
university
True
f-string
name: Tom
New Line aaa
bbb
xyz
abc
eee
aaa
初始化
[5, 8, 2]
=====
string index out of range
HELLO
(weather05) liwanying@LAPTOP-4E3DBRB1 MINGW64 ~/repo/week05 (main)
$
```

```
environment.yml U use_of_str.py U X MINGW64/c/Users/liwanying X +
use_of_str.py
29 assert str(1+1+1) == '3'
30
31 assert str() == ''
32
33 s = '='
34 x = id(s)
35 s = s * 20
36 y = id(s)
37 print(s)
38 assert x != y
39
40 s = 'hello'
41 assert s[3] == 'l'
42 assert s[-1] == 'o'
43 assert s[:3] == 'hel'
44 try:
45     s[5]
46 except IndexError as e:
47     print(e)
48
49 s = 'hello'
50 u = s.upper()
51 print(u)
52
53 t = 'name: {}, age {}'
54 print(t)
55 t1 = t.format('Jack', 21)
56 print(t1)

[5, 8, 2]
=====
string index out of range
HELLO
name: {}, age {}
(name05) liwanying@LAPTOP-4E3DBRB1 MINGW64 ~/repo/week05 (main)
$ python use_of_str.py
字面值
university
True
f-string
name: Tom
New Line aaa
bbb
xyz
abc
eee
aaa
初始化
[5, 8, 2]
=====
string index out of range
HELLO
name: {}, age {}
name: Jack, age 21
(name05) liwanying@LAPTOP-4E3DBRB1 MINGW64 ~/repo/week05 (main)
$
```

```
environment.yml U use_of_str.py U X MINGW64/c/Users/liwanying X +
use_of_str.py
41 assert s[3] == 'l'
42 assert s[-1] == 'o'
43 assert s[:3] == 'hel'
44 try:
45     s[5]
46 except IndexError as e:
47     print(e)
48
49 s = 'hello'
50 u = s.upper()
51 print(u)
52
53 t = 'name: {}, age {}'
54 print(t)
55 t1 = t.format('Jack', 21)
56 print(t1)
57
58 s1 = 'abc'
59 s2 = 'ghi'
60 s = s1 + s2
61 assert s == 'abcghi'
62 print(s2 + s1)
63
64 try:
65     print(s2 - s1)
66 except TypeError as e:
67     print(e)

print(e)
NameError: name 'e' is not defined
(name05) liwanying@LAPTOP-4E3DBRB1 MINGW64 ~/repo/week05 (main)
$ python use_of_str.py
字面值
university
True
f-string
name: Tom
New Line aaa
bbb
xyz
abc
eee
aaa
初始化
[5, 8, 2]
=====
string index out of range
HELLO
name: {}, age {}
name: Jack, age 21
ghiabc
unsupported operand type(s) for -: 'str' and 'str'
(name05) liwanying@LAPTOP-4E3DBRB1 MINGW64 ~/repo/week05 (main)
$
```

```
environment.yml U use_of_str.py U x MINGW64/c/Users/liwanying x + v
week05
use_of_str.py
51 print(u)
52
53 t = 'name: {}, age {}'
54 print(t)
55 t1 = t.format('Jack', 21)
56 print(t1)
57
58 s1 = 'abc'
59 s2 = 'ghi'
60 s = s1 + s2
61 assert s == 'abcghi'
62 print(s2 + s1)
63
64 try:
65     print(s2 - s1)
66 except TypeError as e:
67     print(e)
68
69 s = 'aaaa'
70 try:
71     s = s / 2
72 except TypeError as e:
73     print(e)
74
75 assert s == 'aaaa'
76
77 print('abc' > 'ABC')
```

```
unsupported operand type(s) for /: 'str' and 'int'
(week05) liwanying@LAPTOP-4E3DBRB1 MINGW64 ~/repo/week05 (main)
$ python use_of_str.py
字面值
university
True
f-string
name: Tom
New Line aaa
bbb
xyz
abc
eee
aaa

初始化

[5, 8, 2]
=====
string index out of range
HELLO
name: {}, age {}
name: Jack, age 21
ghiabc
unsupported operand type(s) for -: 'str' and 'str'
unsupported operand type(s) for /: 'str' and 'int'
True
(week05) liwanying@LAPTOP-4E3DBRB1 MINGW64 ~/repo/week05 (main)
$
```

```
environment.yml U use_of_str.py U x MINGW64/c/Users/liwanying x + v
week05
use_of_str.py
53 t = 'name: {}, age {}'
54 print(t)
55 t1 = t.format('Jack', 21)
56 print(t1)
57
58 s1 = 'abc'
59 s2 = 'ghi'
60 s = s1 + s2
61 assert s == 'abcghi'
62 print(s2 + s1)
63
64 try:
65     print(s2 - s1)
66 except TypeError as e:
67     print(e)
68
69 s = 'aaaa'
70 try:
71     s = s / 2
72 except TypeError as e:
73     print(e)
74
75 assert s == 'aaaa'
76
77 print('abc' > 'ABC')
78 print('9' > '.')
79 print('9' < ":",)
```

```
$ python use_of_str.py
字面值
university
True
f-string
name: Tom
New Line aaa
bbb
xyz
abc
eee
aaa

初始化

[5, 8, 2]
=====
string index out of range
HELLO
name: {}, age {}
name: Jack, age 21
ghiabc
unsupported operand type(s) for -: 'str' and 'str'
unsupported operand type(s) for /: 'str' and 'int'
True
True
True
(week05) liwanying@LAPTOP-4E3DBRB1 MINGW64 ~/repo/week05 (main)
$
```

```
environment.yml X use_of_str.py X MINGW64/c/Users/liwanying X +
use_of_str.py
57
58 s1 = 'abc'
59 s2 = 'ghi'
60 s = s1 + s2
61 assert s == 'abcghi'
62 print(s2 + s1)
63
64 try:
65     print(s2 - s1)
66 except TypeError as e:
67     print(e)
68
69 s = 'aaaa'
70 try:
71     s = s / 2
72 except TypeError as e:
73     print(e)
74
75 assert s == 'aaaa'
76
77 print('abc' > 'ABC')
78 print('9' > '.')
79 print('9' < ":")
80 print('book' < 'box')
81
82 assert 'book'
83 assert ''

New Line aaa
bbb
xyz
abc
eee
aaa

初始化

[5, 8, 2]
=====
string index out of range
HELLO
name: {}, age {}
name: Jack, age 21
ghiabc
unsupported operand type(s) for -: 'str' and 'str'
unsupported operand type(s) for /: 'str' and 'int'
True
True
True
True
Traceback (most recent call last):
  File "C:\Users\liwanying\repo\week05\use_of_str.py", line 83, in <module>
    assert ''
    ^^
AssertionError
(weather05) liwanying@LAPTOP-4E3DBRB1 MINGW64 ~/repo/week05 (main)
$
```

```
environment.yml X use_of_str.py X MINGW64/c/Users/liwanying X +
use_of_str.py
60 s = s1 + s2
61 assert s == 'abcghi'
62 print(s2 + s1)
63
64 try:
65     print(s2 - s1)
66 except TypeError as e:
67     print(e)
68
69 s = 'aaaa'
70 try:
71     s = s / 2
72 except TypeError as e:
73     print(e)
74
75 assert s == 'aaaa'
76
77 print('abc' > 'ABC')
78 print('9' > '.')
79 print('9' < ":")
80 print('book' < 'box')
81
82 assert 'book'
83 assert not ''
84
85 s = 'book'
86 print(iter(s))

university
True
f-string
name: Tom
New Line aaa
bbb
xyz
abc
eee
aaa

初始化

[5, 8, 2]
=====
string index out of range
HELLO
name: {}, age {}
name: Jack, age 21
ghiabc
unsupported operand type(s) for -: 'str' and 'str'
unsupported operand type(s) for /: 'str' and 'int'
True
True
True
True
<str_ascii_iterator object at 0x00000250335DCDF0>
(weather05) liwanying@LAPTOP-4E3DBRB1 MINGW64 ~/repo/week05 (main)
$
```

```
environment.yml U use_of_str.py U x MINGW64/c/Users/liwanying x + v
use_of_str.py
62 print(s2 - s1)
63
64 try:
65     print(s2 - s1)
66 except TypeError as e:
67     print(e)
68
69 s = 'aaaa'
70 try:
71     s = s / 2
72 except TypeError as e:
73     print(e)
74
75 assert s == 'aaaa'
76
77 print('abc' > 'ABC')
78 print('9' > '.')
79 print('9' < ":")
80 print('book' < 'box')
81
82 assert 'book'
83 assert not ''
84
85 s = 'book'
86 print(iter(s))
87
88 breakpoint()
89 for c in s:
90     print(c)
```

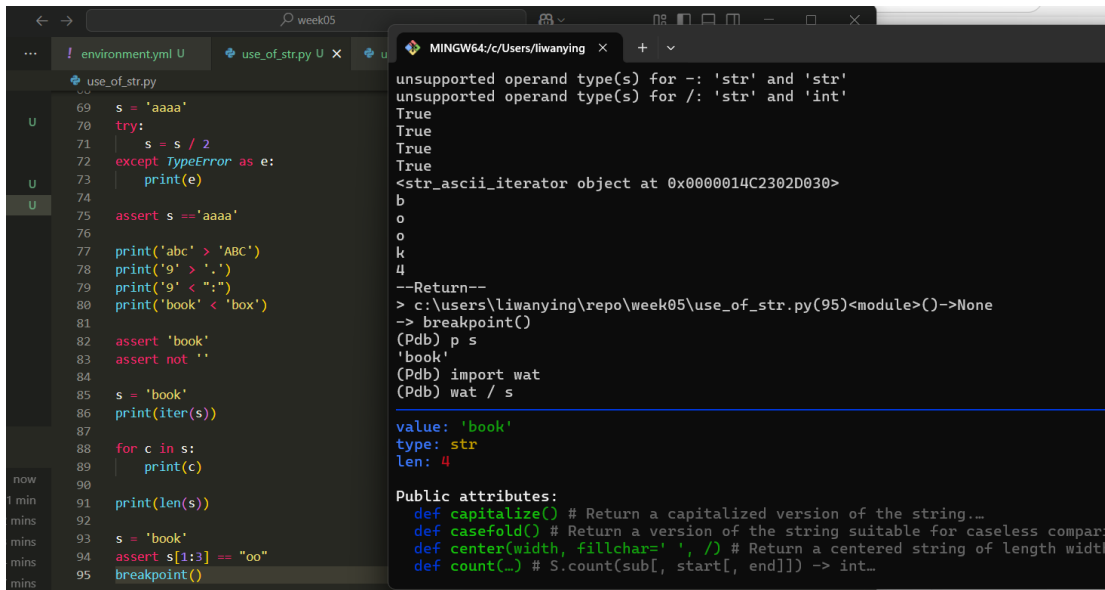
```
string index out of range
HELLO
name: {}, age {}
name: Jack, age 21
ghiabc
unsupported operand type(s) for -: 'str' and 'str'
unsupported operand type(s) for /: 'str' and 'int'
True
True
True
True
True
<str_ascii_iterator object at 0x000001813E4ACEB0>
> c:\users\liwanying\repo\week05\use_of_str.py(89)<module>()
-> for c in s:
(Pdb) l
84
85     s = 'book'
86     print(iter(s))
87
88     breakpoint()
89 -> for c in s:
90     print(c)
[EOF]
(Pdb) g = iter(s)
(Pdb) p g
<str_ascii_iterator object at 0x000001813E4AD3F0>
(Pdb) p next(g)
'b'
(Pdb)
```

```
environment.yml U use_of_str.py U x MINGW64/c/Users/liwanying x + v
use_of_str.py
64 try:
65     print(s2 - s1)
66 except TypeError as e:
67     print(e)
68
69 s = 'aaaa'
70 try:
71     s = s / 2
72 except TypeError as e:
73     print(e)
74
75 assert s == 'aaaa'
76
77 print('abc' > 'ABC')
78 print('9' > '.')
79 print('9' < ":")
80 print('book' < 'box')
81
82 assert 'book'
83 assert not ''
84
85 s = 'book'
86 print(iter(s))
87
88 for c in s:
89     print(c)
90
91 print(len(s))
```

```
bbb
xyz
abc
eee
aaa

初始化

[5, 8, 2]
=====
string index out of range
HELLO
name: {}, age {}
name: Jack, age 21
ghiabc
unsupported operand type(s) for -: 'str' and 'str'
unsupported operand type(s) for /: 'str' and 'int'
True
True
True
True
True
<str_ascii_iterator object at 0x000001FEE32FCEE0>
b
o
o
k
4
(week05) liwanying@LAPTOP-4E3DBRB1 MINGW64 ~/repo/week05 (main)
$
```



```
environment.yml U use_of_str.py U x u MINGW64:/c/Users/liwanying x + v
use_of_str.py
82 assert 'book'
83 assert not ''
84
85 s = 'book'
86 print(iter(s))
87
88 for c in s:
89     print(c)
90
91 print(len(s))
92
93 s = 'book'
94 assert s[1:3] == "oo"
95 breakpoint()
```

```
def title() # Return a version of the string where each word is title
def translate(table, /) # Replace each character in the string using
ion table...
def upper() # Return a copy of the string converted to uppercase.
def zfill(width, /) # Pad a numeric string with zeros on the left, to
he given width...

(Pdb) wat / s.translate

value: <built-in method translate of str object at 0x0000014C2302CAE0>
type: builtin_function_or_method
signature: def translate(table, /)
"""
Replace each character in the string using the given translation table.

table
    Translation table, which must be a mapping of Unicode ordinals to
    Unicode ordinals, strings, or None.

The table must implement lookup/indexing via __getitem__, for instance
dictionary or list. If this operation raises LookupError, the character
left untouched. Characters mapped to None are deleted.
"""

(Pdb) p s
'book'
(Pdb) p s.translate({'o': 'x'})
'book'
(Pdb) 
```

```
environment.yml U use_of_str.py U x u MINGW64:/c/Users/liwanying x + v
use_of_str.py
82 assert 'book'
83 assert not ''
84
85 s = 'book'
86 print(iter(s))
87
88 for c in s:
89     print(c)
90
91 print(len(s))
92
93 s = 'book'
94 assert s[1:3] == "oo"
95
96 s = 'the book of why'
97 print(s.capitalize())
98 print(s)
```

```
abc
eee
aaa

初始化

[5, 8, 2]
=====
string index out of range
HELLO
name: {}, age {}
name: Jack, age 21
ghiabc
unsupported operand type(s) for -: 'str' and 'str'
unsupported operand type(s) for /: 'str' and 'int'
True
True
True
True
True
<str_ascii_iterator object at 0x0000026C22DFD090>
b
o
o
k
4
The book of why
the book of why
(week05) liwanying@LAPTOP-4E3DBRB1 MINGW64 ~/repo/week05 (main)
$ 
```



```
environment.yml U use_of_str.py U x MINGW64/c/Users/liwanying x + -
use_of_str.py
82 assert 'book'
83 assert not ''
84
85 s = 'book'
86 print(iter(s))
87
88 for c in s:
89     print(c)
90
91 print(len(s))
92
93 s = 'book'
94 assert s[1:3] == "oo"
95
96 s = 'the book of why took nooo'
97 print(s.capitalize())
98 print(s)
99 print(s.count('oo') == 3)
100 breakpoint()
```

初始化
[5, 8, 2]
=====
string index out of range
HELLO
name: {}, age {}
name: Jack, age 21
ghiabc
unsupported operand type(s) for -: 'str' and 'str'
unsupported operand type(s) for /: 'str' and 'int'
True
True
True
True
<str_ascii_iterator object at 0x000002BB6925D1B0>
b
o
o
k
4
The book of why took nooo
the book of why took nooo
True
--Return--
> c:\users\liwanying\repo\week05\use_of_str.py(100)<module>()->None
-> breakpoint()
(Pdb)

```
environment.yml U use_of_str.py U x MINGW64/c/Users/liwanying x + -
use_of_str.py
82 assert 'book'
83 assert not ''
84
85 s = 'book'
86 print(iter(s))
87
88 for c in s:
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93 s = 'book'
94 assert s[1:3] == "oo"
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96 s = 'the book of why took nooo'
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HELLO
name: {}, age {}
name: Jack, age 21
ghiabc
unsupported operand type(s) for -: 'str' and 'str'
unsupported operand type(s) for /: 'str' and 'int'
True
True
True
True
<str_ascii_iterator object at 0x000002BB6925D1B0>
b
o
o
k
4
The book of why took nooo
the book of why took nooo
True
--Return--
> c:\users\liwanying\repo\week05\use_of_str.py(100)<module>()->None
-> breakpoint()
(Pdb) p s
'the book of why took nooo'
(Pdb) p s.endswith('why')
False
(Pdb) p s.endswith('nooo')
True
(Pdb)


```
... ! environment.yml U use_of_str.py U x MINGW64/c/Users/liwanying x + v
use_of_str.py
82 assert 'book'
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95
96 s = 'the book of why took nooo'
97 print(s.capitalize())
98 print(s)
99 print(s.count('oo') == 3)
100
101 print('abc123'.isalnum())
102 print('abc123 '.isalnum())
103 print('abc123'.isidentifier())
104
105 q = ['rose', 'jack', 'bob']
106 print('.'.join(q))

[5, 8, 2]
=====
string index out of range
HELLO
name: {}, age {}
name: Jack, age 21
ghiabc
unsupported operand type(s) for -: 'str' and 'str'
unsupported operand type(s) for /: 'str' and 'int'
True
True
True
True
True
<str_ascii_iterator object at 0x0000027CD2EFD570>
b
o
o
k
4
The book of why took nooo
the book of why took nooo
True
True
False
True
rose:jack:bob
(week05) liwanying@LAPTOP-4E3DBRB1 MINGW64 ~/repo/week05 (main)
$
```