第五周学习笔记

本周内容较多，故而有的课上内容未及时截图，但含有自我实践内容并且课程所有代码均在文件夹中

以下为课后实践内容

```python
lst = [1, 2, 3]                    # 列表字面值
dct = {'a': 1, 'b': 2}            # 字典字面值
st = {1, 2, 3}                    # 集合字面值
s = "hello"                       # 字符串字面值
num = 42                          # 整数面值

lst = [x**2 for x in range(5)]

dct = {k: v*2 for k, v in {'a': 1, 'b': 2}.items()}

st = {x%2 for x in [1, 2, 3, 4]}

lst = list()                      # 空列表
lst = list((1, 2, 3))            # 从元组转换
dct = dict(a=1, b=2)             # 键值对初始化
st = set([1, 2, 2, 3])           # 去重初始化
s = str(42)                       # 从整数转换为字符串
num = int("42")                   # 从字符串转换为整数

lst = [1, 2] + [3, 4]
lst = [0] * 3

s = "hello" + "world"
s = "a" * 3

num = 2 + 3 * 4

lst = [1, 2, 3, 4]
sub_lst = lst[1:3]

dct = {'a': 1, 'b': 2}
new_dct = {k: v for k, v in dct.items() if v > 1}

lst = list(range(5))
dct = dict.fromkeys(['a', 'b'], 0)

s = "  hello  ".strip()
```

```
(base) wdhwl@wcx MINGW64 ~/hello
$ cat week04/environment.yml
name: week04
channels:
  - conda-forge
dependencies:
  - python=3.12
  - wat-inspector(base) wdhwl@wcx MINGW64 ~/hello
$ cp week04/environment.yml week05/
(base) wdhwl@wcx MINGW64 ~/hello
$ ls -l week05
total 25
-rw-r--r-- 1 wdhwl 197609    91  4月 13 22:10 environment.yml
-rw-r--r-- 1 wdhwl 197609 18805  4月 13 22:06 LICENSE
-rw-r--r-- 1 wdhwl 197609  2239  4月 13 22:06 README.md
(base) wdhwl@wcx MINGW64 ~/hello
$ cd week05
```

```
(week05) wdhwl@wcx MINGW64 ~/hello/week05 (main)
$ python use_of_str.py
1997762205952
1997762203968
[9, 5]
[2, 5]
1997762205952
1997762203968
<class 'list'>
isinstance(a,str): False
isinstance(a,list): True
True
dir(a): ['__add__', '__class__', '__class_getitem__', '__contains__', '__delattr__', '__delitem__', '__dir__', '__doc__'
, '__eq__', '__format__', '__ge__', '__getattribute__', '__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']
type error
goodbye

(week05) wdhwl@wcx MINGW64 ~/hello/week05 (main)
$ python use_of_str.py
2842868783360
2842868781376
[9, 5]
[2, 5]
2842868783360
2842868781376
<class 'list'>
isinstance(a,str): False
isinstance(a,list): True
True
dir(a): ['__add__', '__class__', '__class_getitem__', '__contains__', '__delattr__', '__delitem__', '__dir__', '__doc__'
, '__eq__', '__format__', '__ge__', '__getattribute__', '__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']
> c:\users\wdhwl\hello\week05\use_of_str.py(21)<module>()
-> print('type error')
(Pdb) l
 16         print('dir(a):',dir(a))
 17         try:
 18             assert isinstance(a,str)
 19         except AssertionError:
 20             breakpoint()
 21  ->         print('type error')
 22         print('goodbye')
[EOF]
(Pdb) p a
[9, 5]
(Pdb) p isinstance(a,str)
False
(Pdb)
```

```python
use_of_str0.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 = 'a\tb'
 13    print('TAB', s)
 14
 15    s = 'aaa\nbbb'
 16    print('New Line', s)
 17
 18    # raw - string, translate, multi - line
 19    s = """xyz
 20    abc
 21    eee
 22    aaa"""
 23    print(s)
 24
 25    print('初始化')
 26    s = str()
 27    print(s)
 28    s = str([5, 8, 2])
 29    print(s)
 30
 31    assert str([5, 8, 2]) == '[5, 8, 2]'
 32    assert str(1.1 + 2.2) != '3.3'
 33
 34    assert str() == ''
 35
 36    s = '-'
 37    x = id(s)
 38    s = s * 20
 39    y = id(s)
 40    print(s)
 41    assert x != y
```

```python
41    assert x != y
42
43    s = 'hello'
44    assert s[3] == 'l'
45    assert s[-1] == 'o'
46    assert s[:3] == 'hel'
47    assert s[4] == s[-1]
48    try:
49        s[5]
50    except IndexError as e:
51        print(e)
52
53    s = 'hello'
54    u = s.upper()
55    print(u)
56    print(s)
57
58    t = 'name: {}, age {}'
59    print(t)
60    t1 = t.format('Jack', 21)
61    print(t1)
62
63    s1 = 'abc'
64    s2 = 'ghi'
65    s = s1 + s2
66    assert s == 'abcghi'
67    print(s2 + s1)
68
69    try:
70        print(s2 - s1)
71    except TypeError as e:
72        print(e)
73
74    s = '=*='
75    s = s * 10
76    print(s)
77
78    s = 'aaaa'
79    s = s / 2
```

```
True
f-string
name: Tom
TAB a     b
New Line aaa
bbb
xyz
abc
eee
aaa
初始化

[5, 8, 2]
--------------------
string index out of range
HELLO
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
True
<str_ascii_iterator object at 0x00000221DAD6DE40>
b
o
o
k
4
The book of why took nooo
the book of why took nooo
True
True
False
True
False
True
False
rose:jack:bob
['rose', 'jack', 'bob']
```

Files panel:
```
        use_of_str.py          U
X       use_of_str0.py         U
        use_of_str1.py         U
        use_of_bytes.py        U
WEEK05
  .gitignore
  ! environment.yml            U
  LICENSE
  README.md
  use_of_bytes.py              U
  use_of_str.py                U
  use_of_str0.py               U
  use_of_str1.py               U
```

```python
78   s = 'aaaa'
79   try:
80       s = s / 2
81   except TypeError as e:
82       print(e)
83
84   assert s == 'aaaa'
85
86   print('abc' > 'ABC')
87   print('123' < 'abcd')
88   print('9' > '.')
89   print('9' < ":")
90   print('book' < 'box')
91   print('book' < '{')
92   assert 'book'
93   assert not ''
94   s = 'book'
95   print(iter(s))
96   for c in s:
97       print(c)
98   print(len(s))
99   s = 'book'
100  assert s[1:3] == "oo"
101  s = 'the book of why took nooo'
102  print(s.capitalize())
103  print(s)
104  print(s.count('oo') == 3)
105  print('abc123'.isalnum())
106  print('abc123 '.isalnum())
107  print('abc123'.isidentifier())
108  print('123abc'.isidentifier())
109  print('abc_123'.isidentifier())
110  print('abc-123'.isidentifier())
111  q = ['rose', 'jack', 'bob']
112  print(':'.join(q))
113  s = 'rose:jack:bob'
114  print(s.split(":"))
115  assert s.partition(':') == ("rose", ":", "jack:bob")
```

```python
use_of_bytes.py > ...
1    from pathlib import Path
2
3    s = b"hello"
4    print(s)
5    print(s[0])
6
7    p = Path("C:\\Users\\qiang\\anaconda3\\envs\\week05\\python.exe")
8    s = p.read_bytes()
9    print(len(s))
10
11   p = Path("environment.yml")
12   b = p.read_bytes()
13   print(b[0])
14
15   s = b.decode()
16   assert isinstance(s, str)
17   b2 = s.encode()
18   assert isinstance(b2, bytes)
19   assert b2 == b
20
21   s = "你好"
22   b1 = s.encode("utf-8")
23   print(b1)
24   b2 = s.encode("gbk")
25   print(b2)
26
27   s = "abc你好😊"
28   print(s)
29   b = s.encode()
30   breakpoint()
```

```
EXPLORER                          se_of_str.py U    use_of_str0.py U    use_of_str1.py U    use_of_bytes.py U    use_of_int.py U  ✕

∨ OPEN EDITORS                     use_of_int.py > ...
    ! environment.yml        U     1    i = 42
    🐍 use_of_str.py          U     2    x = 5
    🐍 use_of_str0.py         U     3    y = 7
    🐍 use_of_str1.py         U     4    z = x + y
    🐍 use_of_bytes.py        U     5
  ✕ 🐍 use_of_int.py          U     6    x = 5
∨ WEEK05                           7    y = 17
  ◈ .gitignore                     8    assert y // x == 3
  ! environment.yml          U     9    assert y % x == 2
  🔒 LICENSE                        10
  ⓘ README.md                      11   assert 5
  🐍 use_of_bytes.py         U     12
  🐍 use_of_int.py           U     13   try:
  🐍 use_of_str.py           U     14       assert 0
  🐍 use_of_str0.py          U     15   except AssertionError as e:
  🐍 use_of_str1.py          U     16       print(type(e))
                                   17
                                   18   x = 65534
                                   19   breakpoint()
```

```python
import random

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

x = 5 / 3
print(x, type(x))

x = random.random()
print(x)

assert not 0.0

nan = float("nan")
print(nan + 3)
print(nan > 3)
print(nan < 3)
print(nan == 3)

pinf = float("inf")
print(3.14 - 2)
print(pinf > 1e200)
print(pinf > pinf)
print(pinf == pinf)

ninf = float("-inf")
print(ninf)
```