02.11-sets

February 21, 2020

1

set
   Python

1.1

```
set()
```

```
In [1]: a = set()
        type(a)
```

```
Out[1]: set
```

```
In [2]: a = set([1, 2, 3, 1])
        a
```

```
Out[2]: {1, 2, 3}
```

    1
   {}{}

```
In [3]: a = {1, 2, 3, 1}
        a
```

```
Out[3]: {1, 2, 3}
```

   setPython{}

```
In [4]: s = {}
        type(s)
```

```
Out[4]: dict
```

1.2

```
In [5]: a = {1, 2, 3, 4}
        b = {3, 4, 5, 6}
```

1.2.1

```
a.union(b) a | b
```

In [6]: a.union(b)

Out[6]: {1, 2, 3, 4, 5, 6}

In [7]: b.union(a)

Out[7]: {1, 2, 3, 4, 5, 6}

In [8]: a | b

Out[8]: {1, 2, 3, 4, 5, 6}

1.2.2

```
a.intersection(b) a & b
```

In [9]: a.intersection(b)

Out[9]: {3, 4}

In [10]: b.intersection(a)

Out[10]: {3, 4}

In [11]: a & b

Out[11]: {3, 4}

In [12]: print(a & b)

{3, 4}

printset

1.2.3

a b a b
```
a.difference(b) a - b
```

In [13]: a.difference(b)

Out[13]: {1, 2}

In [14]: a - b

```
Out[14]: {1, 2}
```

    a - b b - a b - a b a

```
In [15]: b.difference(a)

Out[15]: {5, 6}

In [16]: b - a

Out[16]: {5, 6}
```

1.2.4

a b a b a b
    a.symmetric_difference(b) a ^ b

```
In [17]: a.symmetric_difference(b)

Out[17]: {1, 2, 5, 6}

In [18]: b.symmetric_difference(a)

Out[18]: {1, 2, 5, 6}

In [19]: a ^ b

Out[19]: {1, 2, 5, 6}
```

1.2.5

```
In [20]: a = {1, 2, 3}
         b = {1, 2}
```

    b a b.issubset(a) b <= a

```
In [21]: b.issubset(a)

Out[21]: True

In [22]: b <= a

Out[22]: True
```

    a.issuperset(b) a >= b

```
In [23]: a.issuperset(b)

Out[23]: True
```

```
In [24]: a >= b

Out[24]: True


In [25]: a <= a

Out[25]: True


In [26]: a < a

Out[26]: False
```

1.3

1.3.1 add

append

s.add(a)

    a s

```
In [27]: t = {1, 2, 3}
         t.add(5)
         t

Out[27]: {1, 2, 3, 5}


In [28]: t.add(3)
         t

Out[28]: {1, 2, 3, 5}
```

1.3.2 update

extend

s.update(seq)

    seqs

```
In [29]: t.update([5, 6, 7])
         t

Out[29]: {1, 2, 3, 5, 6, 7}
```

1.3.3 remove

`s.remove(ob)`

sob

```
In [30]: t.remove(1)
         t

Out[30]: {2, 3, 5, 6, 7}

In [31]: t.remove(10)


         ---------------------------------------------------------------------------

         KeyError                                  Traceback (most recent call last)

         <ipython-input-31-c0ded720561a> in <module>
    ----> 1 t.remove(10)


         KeyError: 10
```

1.3.4 pop

pop

```
In [32]: t.pop()

Out[32]: 2

In [33]: print (t)

{3, 5, 6, 7}


In [34]: s = set()
         #
         s.pop()


         ---------------------------------------------------------------------------

         KeyError                                  Traceback (most recent call last)

         <ipython-input-34-9af808d05936> in <module>
           1 s = set()
           2 #
```

```
----> 3 s.pop()
```

```
KeyError: 'pop from an empty set'
```

1.3.5 discard

```
remove
```

```
In [35]: t.discard(3)
```

```
In [36]: t
```

```
Out[36]: {5, 6, 7}
```

```
In [37]: t.discard(20)
```

```
In [38]: t
```

```
Out[38]: {5, 6, 7}
```

1.3.6 difference_update

```
a.difference_update(b)
```

ab