

# Set

## Set comprehension

```
>>> a = [1, 2, 5, 6, 6, 6, 7]
>>> s = {x for x in a}
>>> s
set([1, 2, 5, 6, 7])
>>> s = {x for x in a if x > 3}
>>> s
set([5, 6, 7])
>>> s = {x if x > 3 else -1 for x in a}
>>> s
set([6, 5, -1, 7])
```

## Uniquify a List

```
>>> a = [1, 2, 2, 2, 3, 4, 5, 5]
>>> a
[1, 2, 2, 2, 3, 4, 5, 5]
>>> ua = list(set(a))
>>> ua
[1, 2, 3, 4, 5]
```

## Union Two Sets

```
>>> a = set([1, 2, 2, 2, 3])
>>> b = set([5, 5, 6, 6, 7])
>>> a | b
set([1, 2, 3, 5, 6, 7])
>>> # or
>>> a = [1, 2, 2, 2, 3]
>>> b = [5, 5, 6, 6, 7]
>>> set(a + b)
set([1, 2, 3, 5, 6, 7])
```

## Append Items to a Set

```
>>> a = set([1, 2, 3, 3, 3])
>>> a.add(5)
>>> a
set([1, 2, 3, 5])
>>> # or
>>> a = set([1, 2, 3, 3, 3])
>>> a |= set([1, 2, 3, 4, 5, 6])
>>> a
set([1, 2, 3, 4, 5, 6])
```

## Intersection Two Sets

```
>>> a = set([1, 2, 2, 2, 3])
>>> b = set([1, 5, 5, 6, 6, 7])
>>> a & b
set([1])
```

## Common Items from Sets

```
>>> a = [1, 1, 2, 3]
>>> b = [1, 3, 5, 5, 6, 6]
>>> com = list(set(a) & set(b))
```

```
>>> com  
[1, 3]
```

## Contain

b contains a

```
>>> a = set([1, 2])  
>>> b = set([1, 2, 5, 6])  
>>> a <= b  
True
```

a contains b

```
>>> a = set([1, 2, 5, 6])  
>>> b = set([1, 5, 6])  
>>> a >= b  
True
```

## Set Diff

```
>>> a = set([1, 2, 3])  
>>> b = set([1, 5, 6, 7, 7])  
>>> a - b  
set([2, 3])
```

## Symmetric diff

```
>>> a = set([1,2,3])  
>>> b = set([1, 5, 6, 7, 7])  
>>> a ^ b  
set([2, 3, 5, 6, 7])
```