# Python Sets

## Set

A set is a collection which is unordered and unindexed. In Python, sets are written with curly brackets.

### Example

Create a Set:

thisset = {"apple", "banana", "cherry"}  
print(thisset)

****Note:**** Sets are unordered, so you cannot be sure in which order the items will appear.

## Access Items

You cannot access items in a set by referring to an index or a key.

But you can loop through the set items using a for loop, or ask if a specified value is present in a set, by using the in keyword.

### Example

Loop through the set, and print the values:

thisset = {"apple", "banana", "cherry"}  
  
for x in thisset:  
  print(x)

### Example

Check if "banana" is present in the set:

thisset = {"apple", "banana", "cherry"}  
  
print("banana" in thisset)

## Change Items

Once a set is created, you cannot change its items, but you can add new items.

## Add Items

To add one item to a set use the add() method.

To add more than one item to a set use the update() method.

### Example

Add an item to a set, using the add() method:

thisset = {"apple", "banana", "cherry"}  
  
thisset.add("orange")  
  
print(thisset)

### Example

Add multiple items to a set, using the update() method:

thisset = {"apple", "banana", "cherry"}  
  
thisset.update(["orange", "mango", "grapes"])  
  
print(thisset)

## Get the Length of a Set

To determine how many items a set has, use the len() method.

### Example

Get the number of items in a set:

thisset = {"apple", "banana", "cherry"}  
  
print(len(thisset))

## Remove Item

To remove an item in a set, use the remove(), or the discard() method.

### Example

Remove "banana" by using the remove() method:

thisset = {"apple", "banana", "cherry"}  
  
thisset.remove("banana")  
  
print(thisset)

****Note:**** If the item to remove does not exist, remove() will raise an error.

### Example

Remove "banana" by using the discard() method:

thisset = {"apple", "banana", "cherry"}  
  
thisset.discard("banana")  
  
print(thisset)

****Note:**** If the item to remove does not exist, discard() will ****NOT**** raise an error.

You can also use the pop(), method to remove an item, but this method will remove the last item. Remember that sets are unordered, so you will not know what item that gets removed.

The return value of the pop() method is the removed item.

### Example

Remove the last item by using the pop() method:

thisset = {"apple", "banana", "cherry"}  
  
x = thisset.pop()  
  
print(x)  
  
print(thisset)

****Note:**** Sets are unordered, so when using the pop() method, you will not know which item that gets removed.

### Example

The clear() method empties the set:

thisset = {"apple", "banana", "cherry"}  
  
thisset.clear()  
  
print(thisset)

### Example

The del keyword will delete the set completely:

thisset = {"apple", "banana", "cherry"}  
  
del thisset  
  
print(thisset)

## Join Two Sets

There are several ways to join two or more sets in Python.

You can use the union() method that returns a new set containing all items from both sets, or the update() method that inserts all the items from one set into another:

### Example

The union() method returns a new set with all items from both sets:

set1 = {"a", "b" , "c"}  
set2 = {1, 2, 3}  
  
set3 = set1.union(set2)  
print(set3)

### Example

The update() method inserts the items in set2 into set1:

set1 = {"a", "b" , "c"}  
set2 = {1, 2, 3}  
  
set1.update(set2)  
print(set1)

****Note:**** Both union() and update() will exclude any duplicate items.

There are other methods that joins two sets and keeps ONLY the duplicates, or NEVER the duplicates, check the full list of set methods in the bottom of this page.

## The set() Constructor

It is also possible to use the set() constructor to make a set.

### Example

Using the set() constructor to make a set:

thisset = set(("apple", "banana", "cherry")) # note the double round-brackets  
print(thisset)