

# Python Data Structures Cheat Sheet

## List

Package/Method	Description	Code Example
append()	The `append()` method is used to add an element to the end of a list.	Syntax: <pre>list_name.append(element)</pre> Example: <pre>fruits = ["apple", "banana", "orange"] fruits.append("mango") print(fruits)</pre>
copy()	The `copy()` method is used to create a shallow copy of a list.	Example 1: <pre>my_list = [1, 2, 3, 4, 5] new_list = my_list.copy() print(new_list) # Output: [1, 2, 3, 4, 5]</pre>
count()	The `count()` method is used to count the number of occurrences of a specific element in a list in Python.	Example: <pre>my_list = [1, 2, 2, 3, 4, 2, 5, 2] count = my_list.count(2) print(count) # Output: 4</pre>
Creating a list	A list is a built-in data type that represents an ordered and mutable collection of elements. Lists are enclosed in square brackets [] and elements are separated by commas.	Example: <pre>fruits = ["apple", "banana", "orange", "mango"]</pre>
del	The `del` statement is used to remove an element from list. `del` statement removes the element at the specified index.	Example: <pre>my_list = [10, 20, 30, 40, 50] del my_list[2] # Removes the element at index 2 print(my_list) # Output: [10, 20, 40, 50]</pre>
extend()	The `extend()` method is used to add multiple elements to a list. It takes an iterable (such as another list, tuple, or string) and appends each element of the iterable to the original list.	Syntax: <pre>list_name.extend(iterable)</pre> Example: <pre>fruits = ["apple", "banana", "orange"] more_fruits = ["mango", "grape"] fruits.extend(more_fruits) print(fruits)</pre>
Indexing	Indexing in a list allows you to access individual elements by their position. In Python, indexing starts from 0 for the first element and goes up to `length_of_list - 1`.	Example: <pre>my_list = [10, 20, 30, 40, 50] print(my_list[0]) # Output: 10 (accessing the first element) print(my_list[-1]) # Output: 50 (accessing the last element using negative indexing)</pre>
insert()	The `insert()` method is used to insert an element.	Syntax: <pre>list_name.insert(index, element)</pre> Example: <pre>my_list = [1, 2, 3, 4, 5] my_list.insert(2, 6) print(my_list)</pre>
Modifying a list	You can use indexing to modify or assign new values to specific elements in the list.	Example: <pre>my_list = [10, 20, 30, 40, 50] my_list[1] = 25 # Modifying the second element print(my_list) # Output: [10, 25, 30, 40, 50]</pre>

pop()	<code>`pop()`</code> method is another way to remove an element from a list in Python. It removes and returns the element at the specified index. If you don't provide an index to the <code>`pop()`</code> method, it will remove and return the last element of the list by default	<p>Example 1:</p> <pre>my_list = [10, 20, 30, 40, 50] removed_element = my_list.pop(2) # Removes and returns the element at index 2 print(removed_element) # Output: 30 print(my_list) # Output: [10, 20, 40, 50]</pre> <p>Example 2:</p> <pre>my_list = [10, 20, 30, 40, 50] removed_element = my_list.pop() # Removes and returns the last element print(removed_element) # Output: 50 print(my_list) # Output: [10, 20, 30, 40]</pre>
remove()	To remove an element from a list. The <code>`remove()`</code> method removes the first occurrence of the specified value.	<p>Example:</p> <pre>my_list = [10, 20, 30, 40, 50] my_list.remove(30) # Removes the element 30 print(my_list) # Output: [10, 20, 40, 50]</pre>
reverse()	The <code>`reverse()`</code> method is used to reverse the order of elements in a list	<p>Example 1:</p> <pre>my_list = [1, 2, 3, 4, 5] my_list.reverse() print(my_list) # Output: [5, 4, 3, 2, 1]</pre>
Slicing	You can use slicing to access a range of elements from a list.	<p>Syntax:</p> <pre>list_name[start:end:step]</pre> <p>Example:</p> <pre>my_list = [1, 2, 3, 4, 5] print(my_list[1:4]) # Output: [2, 3, 4] (elements from index 1 to 3) print(my_list[:3]) # Output: [1, 2, 3] (elements from the beginning up to index 2) print(my_list[2:]) # Output: [3, 4, 5] (elements from index 2 to the end) print(my_list[::-2]) # Output: [1, 3, 5] (every second element)</pre>
sort()	The <code>`sort()`</code> method is used to sort the elements of a list in ascending order. If you want to sort the list in descending order, you can pass the <code>`reverse=True`</code> argument to the <code>`sort()`</code> method.	<p>Example 1:</p> <pre>my_list = [5, 2, 8, 1, 9] my_list.sort() print(my_list) # Output: [1, 2, 5, 8, 9]</pre> <p>Example 2:</p> <pre>my_list = [5, 2, 8, 1, 9] my_list.sort(reverse=True) print(my_list) # Output: [9, 8, 5, 2, 1]</pre>

Tuple

Package/Method	Description	Code Example
count()	The count() method for a tuple is used to count how many times a specified element appears in the tuple.	<p>Syntax:</p> <pre>tuple.count(value)</pre> <p>Example:</p> <pre>fruits = ("apple", "banana", "apple", "orange") print(fruits.count("apple")) #Counts the number of times apple is found in tuple. #Output: 2</pre>
index()	The index() method in a tuple is used to find the first occurrence of a specified value and returns its position (index). If the value is not found, it raises a ValueError.	<p>Syntax:</p> <pre>tuple.index(value)</pre> <p>Example:</p> <pre>fruits = ("apple", "banana", "orange") print(fruits[1]) #Returns the value at which apple is present. #Output: banana</pre>
sum()	The sum() function in Python can be used to calculate the sum of all elements in a tuple, provided that the elements are numeric (integers or floats).	<p>Syntax:</p> <pre>sum(tuple)</pre> <p>Example:</p> <pre>numbers = (10, 20, 5, 30) print(sum(numbers)) #Output: 65</pre>

min() and max()	Find the smallest (min()) or largest (max()) element in a tuple.	Example:  numbers = (10, 20, 5, 30) print(min(numbers)) #Output: 5 print(max(numbers)) #Output: 30
len()	Get the number of elements in the tuple using len().	Syntax:  len(tuple)  Example:  fruits = ("apple", "banana", "orange") print(len(fruits)) #Returns length of the tuple. #Output: 3

