

Cheat Sheet: Python Data Structures Part-2

Dictionaries

Package/ Method	Description	Code Example
Creating a Dictionary	A dictionary is a built-in data type that represents a collection of key-value pairs. Dictionaries are enclosed in curly braces <code>{ }</code> .	Example: <pre>1 dict_name = {} #Creates an empty dictionary 2 person = { "name": "John", "age": 30, "city": "New York"}</pre>
Accessing Values	You can access the values in a dictionary using their corresponding <code>keys</code> .	Syntax: <pre>1 Value = dict_name["key_name"]</pre> Example: <pre>1 name = person["name"] 2 age = person["age"]</pre>
Add or modify	Inserts a new key-value pair into the dictionary. If the key already exists, the value will be updated; otherwise, a new entry is created.	Syntax: <pre>1 dict_name[key] = value</pre> Example: <pre>1 person["Country"] = "USA" # A new entry will be created. 2 person["city"] = "chicago" # Update the existing value for the same</pre>
del	Removes the specified key-value pair from the dictionary. Raises a <code>KeyError</code> if the key does not exist.	Syntax: <pre>1 del dict_name[key]</pre> Example: <pre>1 del person["Country"]</pre>
update()	The <code>update()</code> method merges the provided dictionary into the existing dictionary, adding or updating key-value pairs.	Syntax: <pre>1 dict_name.update({key: value})</pre> Example: <pre>1 person.update({"Profession": "Doctor"})</pre>
clear()	The <code>clear()</code> method empties the dictionary, removing all key-value pairs within it. After this operation, the dictionary is still accessible and can be used further.	Syntax: <pre>1 dict_name.clear()</pre> Example: <pre>1 grades.clear()</pre>
key existence	You can check for the existence of a key in a dictionary using the <code>in</code> keyword	Example: <pre>1 if "name" in person: 2 print("Name exists in the dictionary.")</pre>
copy()	Creates a shallow copy of the dictionary. The new dictionary contains the same key-value pairs as the original, but they remain distinct objects in memory.	Syntax: <pre>1 new_dict = dict_name.copy()</pre> Example: <pre>1 new_person = person.copy() 2 new_person = dict(person) # another way to create a copy of dictionary.</pre>
keys()	Retrieves all keys from the dictionary and converts them into a list. Useful for iterating or processing keys using list methods.	Syntax: <pre>1 keys_list = list(dict_name.keys())</pre> Example: <pre>1 person_keys = list(person.keys())</pre>
values()	Extracts all values from the dictionary and converts them into a list. This list can be used for further processing or analysis.	Syntax: <pre>1 values_list = list(dict_name.values())</pre> Example: <pre>1 person_values = list(person.values())</pre>
items()	Retrieves all key-value pairs as tuples and converts them into a list of tuples. Each tuple consists of a key and its corresponding value.	Syntax: <pre>1 items_list = list(dict_name.items())</pre> Example: <pre>1 info = list(person.items())</pre>

Sets

Package/ Method	Description	Code Example
add()	Elements can be added to a set using the `add()` method. Duplicates are automatically removed, as sets only store unique values.	Syntax: <pre>1 set_name.add(element)</pre> Example: <pre>1 fruits.add("mango")</pre>
clear()	The `clear()` method removes all elements from the set, resulting in an empty set. It updates the set in-place.	Syntax: <pre>1 set_name.clear()</pre> Example: <pre>1 fruits.clear()</pre>
copy()	The `copy()` method creates a shallow copy of the set. Any modifications to the copy won't affect the original set.	Syntax: <pre>1 new_set = set_name.copy()</pre> Example: <pre>1 new_fruits = fruits.copy()</pre>
Defining Sets	A set is an unordered collection of unique elements. Sets are enclosed in curly braces `{}`. They are useful for storing distinct values and performing set operations.	Example: <pre>1 empty_set = set() #Creating an Empty Set 2 Set fruits = {"apple", "banana", "orange"}</pre>
discard()	Use the `discard()` method to remove a specific element from the set. Ignores if the element is not found.	Syntax: <pre>1 set_name.discard(element)</pre> Example: <pre>1 fruits.discard("apple")</pre>
issubset()	The `issubset()` method checks if the current set is a subset of another set. It returns True if all elements of the current set are present in the other set, otherwise False.	Syntax: <pre>1 is_subset = set1.issubset(set2)</pre> Example: <pre>1 is_subset = fruits.issubset(colors)</pre>
issuperset()	The `issuperset()` method checks if the current set is a superset of another set. It returns True if all elements of the other set are present in the current set, otherwise False.	Syntax: <pre>is_superset = set1.issuperset(set2)</pre> Example: <pre>1 is_superset = colors.issuperset(fruits)</pre>
pop()	The `pop()` method removes and returns an arbitrary element from the set. It raises a `KeyError` if the set is empty. Use this method to remove elements when the order doesn't matter.	Syntax: <pre>1 removed_element = set_name.pop()</pre> Example: <pre>1 removed_fruit = fruits.pop()</pre>
remove()	Use the `remove()` method to remove a specific element from the set. Raises a `KeyError` if the element is not found.	Syntax: <pre>1 set_name.remove(element)</pre> Example: <pre>1 fruits.remove("banana")</pre>
Set Operations	Perform various operations on sets: `union`, `intersection`, `difference`, `symmetric difference`.	Syntax: <pre>1 union_set = set1.union(set2) 2 intersection_set = set1.intersection(set2) 3 difference_set = set1.difference(set2) 4 sym_diff_set = set1.symmetric_difference(set2)</pre> Example: <pre>1 combined = fruits.union(colors) 2 common = fruits.intersection(colors) 3 unique_to_fruits = fruits.difference(colors) 4 sym_diff = fruits.symmetric_difference(colors)</pre>
update()	The `update()` method adds elements from another iterable into the set. It maintains the uniqueness of elements.	Syntax: <pre>1 set_name.update(iterable)</pre> Example: <pre>1 fruits.update(["kiwi", "grape"])</pre>