

# 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 {}.	Example:  dict_name = {} #Creates an empty dictionary person = { "name": "John", "age": 30, "city": "New York"}
Accessing Values	You can access the values in a dictionary using their corresponding keys.	Syntax:  Value = dict_name["key_name"]  Example:  name = person["name"] age = person["age"]
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:  dict_name[key] = value  Example:  person["Country"] = "USA" # A new entry will be created. person["city"] = "Chicago" # Update the existing value for the same key
del	Removes the specified key-value pair from the dictionary. Raises a KeyError if the key does not exist.	Syntax:  del dict_name[key]

		<p>Example:</p> <pre>del person["Country"]</pre>
update()	<p>The <code>update()</code> method merges the provided dictionary into the existing dictionary, adding or updating key-value pairs.</p>	<p>Syntax:</p> <pre>dict_name.update({key: value})</pre> <p>Example:</p> <pre>person.update({"Profession": "Doctor"})</pre>
clear()	<p>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.</p>	<p>Syntax:</p> <pre>dict_name.clear()</pre> <p>Example:</p> <pre>grades.clear()</pre>
key existence	<p>You can check for the existence of a key in a dictionary using the <code>in</code> keyword</p>	<p>Example:</p> <pre>if "name" in person:     print("Name exists in the dictionary.")</pre>
copy()	<p>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.</p>	<p>Syntax:</p> <pre>new_dict = dict_name.copy()</pre>

Example:

```
new_person = person.copy()
new_person = dict(person) # another way to create a copy of dictionary
```

keys()

Retrieves all keys from the dictionary and converts them into a list. Useful for iterating or processing keys using list methods.

Syntax:

```
keys_list = list(dict_name.keys())
```

Example:

```
person_keys = list(person.keys())
```

values()

Extracts all values from the dictionary and converts them into a list. This list can be used for further processing or analysis.

Syntax:

```
values_list = list(dict_name.values())
```

Example:

```
person_values = list(person.values())
```

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:

```
items_list = list(dict_name.items())
```

Example:

```
info = list(person.items())
```

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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>set_name.add(element)</pre> Example: <pre>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>set_name.clear()</pre> Example: <pre>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>new_set = set_name.copy()</pre>  Example: <pre>new_fruits = fruits.copy()</pre>

Defining Sets	<p>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.</p>	<p>Example:</p> <pre>empty_set = set() #Creating an Empty Set fruits = {"apple", "banana", "orange"} colors = ("orange", "red", "green")</pre> <p><b>Note:</b> These two sets will be used in the examples that follow.</p>
discard()	<p>Use the `discard()` method to remove a specific element from the set. Ignores if the element is not found.</p>	<p>Syntax:</p> <pre>set_name.discard(element)</pre> <p>Example:</p> <pre>fruits.discard("apple")</pre>
issubset()	<p>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.</p>	<p>Syntax:</p> <pre>is_subset = set1.issubset(set2)</pre> <p>Example:</p> <pre>is_subset = fruits.issubset(colors)</pre>
issuperset()	<p>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.</p>	<p>Syntax:</p> <pre>is_superset = set1.issuperset(set2)</pre> <p>Example:</p> <pre>is_superset = colors.issuperset(fruits)</pre>

pop()	<p>The <code>pop()</code> method removes and returns an arbitrary element from the set. It raises a <code>KeyError</code> if the set is empty. Use this method to remove elements when the order doesn't matter.</p>	<p>Syntax:</p> <pre>removed_element = set_name.pop()</pre> <p>Example:</p> <pre>removed_fruit = fruits.pop()</pre>
remove()	<p>Use the <code>remove()</code> method to remove a specific element from the set. Raises a <code>KeyError</code> if the element is not found.</p>	<p>Syntax:</p> <pre>set_name.remove(element)</pre> <p>Example:</p> <pre>fruits.remove("banana")</pre>
Set Operations	<p>Perform various operations on sets: <code>'union'</code>, <code>'intersection'</code>, <code>'difference'</code>, <code>'symmetric difference'</code>.</p>	<p>Syntax:</p> <pre>union_set = set1.union(set2) intersection_set = set1.intersection(set2) difference_set = set1.difference(set2) sym_diff_set = set1.symmetric_difference(set2)</pre> <p>Example:</p> <pre>combined = fruits.union(colors) common = fruits.intersection(colors) unique_to_fruits = fruits.difference(colors) 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.	<p>Syntax:</p> <pre>set_name.update(iterable)</pre> <p>Example:</p> <pre>fruits.update(["kiwi", "grape"])</pre>

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