Module 2 Cheatsheet: 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:
		1 2
		`dict_name = {} #Creates an empty dictionary`
		`person = { "name": "John",  "age": 30, "city": "New York"}`
		Copied!
		Syntax:
		1
		`Value = dict_name["key_name"]`
		Copied!

Accessing Values	You can access the values in a dictionary using their corresponding `keys`.	Example:
		1 2
		`name = person["name"]`
		`age = person["age"]`
		Copied!

Add or modify	Inserts a new key-value pair into the dictionary. If the key already exists, the	Syntax:

	value will be updated; otherwise, a new entry is created.	1. 1 1. dict_name[key] = value Copied! Example: 1. 1 2. 2 1. person["Country"] = "USA" # A new entry will be created. 2. person["city"] = "Chicago" # Update the existing value for the same key Copied!
del	Removes the specified key-value pair from the dictionary. Raises a `KeyError` if the key does not exist.	Syntax: 1. 1 1. del dict_name[key] Copied! Example: 1. 1 1. del person["Country"] Copied!
update()	`update()` method merges the provided dictionary into the existing dictionary, adding or updating key-value pairs.	Syntax: 1. 1 1. dict_name.update({key: value}) Copied! Example: 1. 1 1. person.update({"Profession": "Doctor"}) Copied!

clear()	`clear()` 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:
		`1. 1`
		`1. dict_name.clear()`
		Copied!
		Example:
		`1. 1`
		`1. grades.clear()`
		Copied!

key existence	You can check for the existence of a key in a dictionary using the `in` keyword	Example:
		`1. 1`
		`2. 2`
		`1. if "name" in person:`
		`2.  print("Name exists in the dictionary.")`
		Copied!

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:
		`1. 1`
		`1. new_dict = dict_name.copy()`
		Copied!
		Example:
		`1. 1`
		`2. 2`
		`1. new_person = person.copy()`
		`2. new_person = dict(person) # another way to create a copy of dictionary`
		Copied!

keys()	Retrieves all keys from the dictionary and converts them into a list. Useful for iterating or processing keys using list methods.	Syntax:
		`1. 1`
		`1. keys_list = list(dict_name.keys())`

		Copied! Example: 1. 1 1. person_keys = list(person.keys()) Copied! Syntax: 1. 1 1. values_list = list(dict_name.values())
values()	Extracts all values from the dictionary and converts them into a list. This list can be used for further processing or analysis.	Copied! Example: 1. 1 1. person_values = list(person.values()) Copied! Syntax: 1. 1 1. items_list = list(dict_name.items())
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.	Copied! Example: 1. 1 1. info = list(person.items()) Copied!

Sets

Defining Sets	A set is an unordered collection of unique elements. Sets are enclosed in curly braces	Example: 1. 1 2. 2

	`{}`. They are useful for storing distinct values and performing set operations.	1. `empty_set = set() #Creating an Empty Set` 2. `fruits = {"apple", "banana", "orange"}` Copied! Syntax: 1. `1` 1. `set_name.add(element)` Copied!
add()	Elements can be added to a set using the `add()` method. Duplicates are automatically removed, as sets only store unique values.	Example: 1. `1` 1. `fruits.add("mango")` Copied!
remove()	Use the `remove()` method to remove a specific element from the set. Raises a `KeyError` if the element is not found.	Syntax: 1. `1` 1. `set_name.remove(element)` Copied! Example: 1. `1` 1. `fruits.remove("banana")` Copied!
discard()	Use the `discard()` method to remove a specific element from the set. ignores if not the element is not found.	Syntax: 1. `1` 1. `set_name.discard(element)` Copied! Example: 1. `1`

		1. fruits.discard("apple") Copied! Syntax: 1. 1 1. set_name.update(iterable) Copied!
update()	The `update()` method adds elements from another iterable into the set. It maintains the uniqueness of elements.	Example: 1. 1 1. fruits.update(["kiwi", "grape"]) Copied!
clear()	The `clear()` method removes all elements from the set, resulting in an empty set. It updates the set in-place.	Syntax: 1. 1 1. set_name.clear() Copied! Example: 1. 1 1. fruits.clear() Copied!
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: 1. 1 1. removed_element = set_name.pop() Copied! Example: 1. 1

```
1. removed_fruit = fruits.pop()
```

Copied!

Syntax:

```
1. 1
```

```
1. new_set = set_name.copy()
```

copy()	The `copy()` method creates a shallow copy of the set. Any modifications to the copy won't affect the original set.	Copied!
		Example:
		`1. 1`
		`1. new_fruits = fruits.copy()`
		Copied!
		Syntax:
		`1. 1`
		`2. 2`
		`3. 3`
		`4. 4`
		`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)`

Set Operations	Perform various operations on sets: `union`, `intersection`, `difference`, `symmetric difference`.	Copied!
		Example:
		`1. 1`
		`2. 2`
		`3. 3`
		`4. 4`
		`1. combined = fruits.union(colors)`
		`2. common = fruits.intersection(colors)`
		`3. unique_to_fruits = fruits.difference(colors)`
		`4. sym_diff = fruits.symmetric_difference(colors)`
		Copied!

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: 1. 1 1. is_subset = set1.issubset(set2) Copied! Example: 1. 1 1. is_subset = fruits.issubset(colors) Copied!
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: 1. 1 1. is_superset = set1.issuperset(set2) Copied! Example: 1. 1 1. is_superset = colors.issuperset(fruits) Copied!

Author(s)

Pooja Patel

Other Contributor(s)

Malika Singla

Changelog

Date	Version	Changed by	Change Description
2023-17-10	0.2	Malika	Updated cheatsheet
2023-17-10	0.1	Pooja Patel	Initial version created