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: ```1. 1 2. 2 1. dict_name = {} #Creates an empty dictionary 2. person = { "name": "John", "age": 30, "city": "New York"}``` Copied!
Accessing Values	You can access the values in a dictionary using their corresponding `keys`.	Syntax: ```1. 1 1. Value = dict_name["key_name"]``` Copied! Example: ```1. 1 2. 2 1. name = person["name"] 2. age = person["age"]``` Copied!
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: ```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()	The `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()	The `clear()` method empties the dictionary, removing all key-value pairs within it. After this	Syntax: ```1. 1```

	operation, the dictionary is still accessible and can be used further.	`dict_name.clear()`
		Copied!
		Example:
		`1`
		`grades.clear()`
		Copied!

key existence	You can check for the existence of a key in a dictionary using the `in` keyword	Example:
		`1`
		`2`
		`if "name" in person:`
		`    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`
		`new_dict = dict_name.copy()`
		Copied!
		Example:
		`1`
		`2`
		`new_person = person.copy()`
		`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`
		`keys_list = list(dict_name.keys())`
		Copied!
		Example:
		`1`
		`person_keys = list(person.keys())`
		Copied!

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

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:
		`1`
		`items_list = list(dict_name.items())`
		Copied!
		Example:
		`1`
		`info = list(person.items())`
		Copied!

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:
		`1. 1`
		`1. set_name.add(element)`
		Copied!
		Example:
		`1. 1`
		`1. fruits.add("mango")`
		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()</td>`
		Copied!

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

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:
		`1. 1`
		`2. 2`
		`1. empty_set = set() #Creating an Empty`
		`2. Set fruits = {"apple", "banana", "orange"}`
		Copied!

discard()	Use the `discard()` method to remove a specific element from the set. Ignores if the element is not found.	Syntax:
		`1. 1`
		`1. set_name.discard(element)`
		Copied!
		Example:
		`1. 1`
		`1. fruits.discard("apple")`
		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: is_superset = set1.issuperset(set2)

		Example: ``` 1. 1 ``` ``` 1. is_superset = colors.issuperset(fruits) ``` 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!
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!
Set Operations	Perform various operations on sets: `union`, `intersection`, `difference`, `symmetric difference`.	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) ``` 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!
update()	The `update()` method adds elements from another iterable into the set. It maintains the uniqueness of elements.	Syntax: ``` 1. 1 ``` ``` 1. set_name.update(iterable) ``` Copied! Example: ``` 1. 1 ``` ``` 1. fruits.update(["kiwi", "grape"]) ``` Copied!

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