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: ```\n1. 1\n2. 2\n\n1. dict_name = {} #Creates an empty dictionary\n2. person = { "name": "John", "age": 30, "city": "New York"}\n``` Copied!

Accessing Values	You can access the values in a dictionary using their corresponding `keys`.	Syntax:
		
		```\n1. 1\n\n1. Value = dict_name["key_name"]\n```
		Copied!
		
		Example:
		
		```\n1. 1\n2. 2\n\n1. name = person["name"]\n2. age = person["age"]\n```
		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:
		
		```\n1. 1\n\n1. dict_name[key] = value\n```
		Copied!
		
		Example:
		
		```\n1. 1\n2. 2\n\n1. person["Country"] = "USA" # A new entry will be created.\n2. person["city"] = "Chicago" # Update the existing value for the same key\n```
		Copied!

del	Removes the specified key-value pair from the dictionary. Raises a `KeyError` if the key does not exist.	Syntax:
		
		```\n1. 1\n\n1. del dict_name[key]\n```
		Copied!
		
		Example:
		
		```\n1. 1\n\n1. del person["Country"]\n```
		Copied!

update()	The `update()` method merges the provided dictionary into the existing dictionary, adding or updating key-value pairs.	Syntax:
		
		```\n1. 1\n\n1. dict_name.update({key: value})\n```
		Copied!
		
		Example:
		
		```\n1. 1\n\n1. person.update({"Profession": "Doctor"})\n```
		Copied!

clear()	The `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: ```\n1. 1\n\n1. dict_name.clear()\n``` Copied!

Package/Method	Description	Code Example
		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!
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. 1 ``` ``` 1. values_list = list(dict_name.values()) ``` Copied! Example: ``` 1. 1 ``` ``` 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. 1 ``` ``` 1. items_list = list(dict_name.items()) ``` Copied! Example: ``` 1. 1 ``` ``` 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!`
		
		Syntax:
		
		1. 1
		
		   1. `set_name.clear()`
		
		`Copied!`

clear()	The `clear()` method removes all elements from the set, resulting in an empty set. It updates the set in-place.	Example:
		
		1. 1
		
		   1. `fruits.clear()</td>`
		
		`Copied!`
		
		Syntax:
		
		1. 1
		
		   1. `new_set = set_name.copy()`
		
		`Copied!`

copy()	The `copy()` method creates a shallow copy of the set. Any modifications to the copy won't affect the original set.	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!`
		
		Syntax:
		
		1. 1
		
		   1. `set_name.discard(element)`
		
		`Copied!`

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

Example:

```
1. 1

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

Syntax:

```
1. 1

1. set_name.remove(element)
```

remove()	Use the `remove()` method to remove a specific element from the set. Raises a `KeyError` if the element is not found.	

Example:

```
1. 1

1. fruits.remove("banana")
```

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`.	

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)
```

Syntax:

```
1. 1

1. set_name.update(iterable)
```

Example:

```
1. 1

1. fruits.update(["kiwi", "grape"])
```

update()	The `update()` method adds elements from another iterable into the set. It maintains the uniqueness of elements.	

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