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\n2. 2```
		
		```1. dict_name = {} #Creates an empty dictionary\n2. 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\n2. 2```
		
		```1. name = person["name"]\n2. 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\n2. 2```
		
		```1. person["Country"] = "USA" # A new entry will be created.\n2. 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 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!

Example:

```
1. 1
2. 2
```

```
1. if "name" in person:
2.     print("Name exists in the dictionary.")
```

key existence	You can check for the existence of a key in a dictionary using the in keyword	(see above)

Copied!

Syntax:

```
1. 1
```

```
1. new_dict = dict_name.copy()
```

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.	(see below)

Example:

```
1. 1
2. 2
```

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

Copied!

Syntax:

```
1. 1
```

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

Copied!

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

Example:

```
1. 1
```

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

Copied!

Syntax:

```
1. 1
```

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

Copied!

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

Example:

```
1. 1
```

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

Copied!

Syntax:

```
1. 1
```

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

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.	(see below)

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!

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!

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!

Example:

1. 1
2. 2

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

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.	

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!

Syntax:

1. 1

1. `removed_element = set_name.pop()`

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.	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!`

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!`

| Set Operations | Perform various operations on sets: `union`, `intersection`, `difference`, `symmetric difference`. |

Syntax:

1. 1

1. `set_name.update(iterable)`

`Copied!`

Example:

1. 1

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

`Copied!`

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

Skills Network