

Cheat Sheet: Python Data Structures Part-2

Dictionaries

Package/Method	Description	Code Example
Creating a Dictionary	<p>A dictionary is a built-in data type that represents a collection of key-value pairs. Dictionaries are enclosed in curly braces {}.</p>	<p>Example:</p> <pre>1. 1 2. 2</pre> <pre>1. dict_name = {} #Creates an empty dictionary 2. person = { "name": "John", "age": 30, "city": "New York"}</pre> <div>Copied!</div>
Accessing Values	<p>You can access the values in a dictionary using their corresponding keys.</p>	<p>Syntax:</p> <pre>1. 1 1. Value = dict_name["key_name"]</pre> <div>Copied!</div> <p>Example:</p> <pre>1. 1 2. 2</pre> <pre>1. name = person["name"] 2. age = person["age"]</pre> <div>Copied!</div>
Add or modify	<p>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.</p>	<p>Syntax:</p> <pre>1. 1 1. dict_name[key] = value</pre> <div>Copied!</div> <p>Example:</p> <pre>1. 1 2. 2</pre> <pre>1. person["Country"] = "USA" # A new entry will be created. 2. person["city"] = "Chicago" # Update the existing value for the same key</pre> <div>Copied!</div>
del	<p>Removes the specified key-value pair from the dictionary. Raises a</p>	<p>Syntax:</p> <pre>1. 1 1. del dict_name[key]</pre> <div>Copied!</div>

KeyError if the key does not exist.

Example:

1. 1

1. del person["Country"]

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Syntax:

The update() method merges the provided dictionary into the existing dictionary, adding or updating key-value pairs.

1. 1

1. dict_name.update({key: value})

Copied!

update()

Example:

1. 1

1. person.update({"Profession": "Doctor"})

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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!

clear()

Example:

1. 1

1. grades.clear()

Copied!

You can check for the existence of a key in a dictionary using the in keyword

key existence

Example:

1. 1

2. 2

1. if "name" in person:

2. print("Name exists in the dictionary.")

Copied!

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()

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

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Syntax:

keys()

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

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

Example:

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

Copied!

Syntax:

values()

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

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

Example:

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

Copied!

Syntax:

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.

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

Example:

```
1. 1
1. 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.	<p>Syntax:</p> <pre>1. 1 1. set_name.add(element)</pre> <p>Example:</p> <pre>1. 1 1. fruits.add("mango")</pre>

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Syntax:

```
1. 1
1. set_name.clear()
```

Copied!

Example:

```
1. 1
1. fruits.clear()
```

Copied!

Syntax:

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

Copied!

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"}
```

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Syntax:

```
1. 1
1. set_name.discard(element)
```

Copied!

Example:

```
1. 1
1. fruits.discard("apple")
```

Copied!

Syntax:

```
1. 1
1. is_subset = set1.issubset(set2)
```

Copied!

Example:

clear()

The `clear()` method removes all elements from the set, resulting in an empty set. It updates the set in-place.

copy()

The `copy()` method creates a shallow copy of the set. Any modifications to the copy won't affect the original set.

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.

discard()

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

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`.

```
1. 1

1. is_subset = fruits.issubset(colors)
```

Copied!

Syntax:

```
is_superset = set1.issuperset(set2)
```

Example:

```
1. 1

1. is_superset = colors.issuperset(fruits)
```

Copied!

Syntax:

```
1. 1

1. removed_element = set_name.pop()
```

Copied!

Example:

```
1. 1

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

Copied!

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)
```

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Example:

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

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`.

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.

remove()

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

Set Operations

Perform various operations on sets: `'union'`, `'intersection'`, `'difference'`, `'symmetric difference'`.

```
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!

Syntax:

```
1. 1
```

```
1. set_name.update(iterable)
```

Copied!

Example:

```
1. 1
```

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

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update()

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