

Python Collections – Complete Methods Reference

This document contains **all commonly used methods** for **list, tuple, set, and dictionary** in Python, organized clearly for learning, revision, and interviews.

1. LIST (Mutable, Ordered, Allows Duplicates)

List Methods

Method	What it does
append(x)	Adds an element to the end
extend(iterable)	Adds multiple elements
insert(i, x)	Inserts at specific index
remove(x)	Removes first occurrence of value
pop(i)	Removes & returns element (default last)
clear()	Removes all elements
index(x)	Returns index of value
count(x)	Counts occurrences
sort()	Sorts the list
reverse()	Reverses the list
copy()	Returns a shallow copy

List Characteristics

- Supports indexing & slicing
 - Can store mixed data types
 - Dynamic size
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2. TUPLE (Immutable, Ordered, Allows Duplicates)

Tuple Methods (Only 2)

Method	What it does
count(x)	Counts occurrences

Method	What it does
index(x)	Returns index of value

Tuple Characteristics

- Cannot modify after creation
- Faster than lists
- Used for fixed data

3. SET (Mutable, Unordered, No Duplicates)

Set Methods

Method	What it does
add(x)	Adds an element
update(iterable)	Adds multiple elements
remove(x)	Removes element (error if missing)
discard(x)	Removes element (no error)
pop()	Removes random element
clear()	Removes all elements
copy()	Returns copy

Set Operations

Method	Meaning
union()	All elements from both sets
intersection()	Common elements
difference()	Elements in one set only
symmetric_difference()	Elements not common
issubset()	Checks subset
issuperset()	Checks superset
isdisjoint()	No common elements

Set Characteristics

- No indexing

- Fast membership testing

4. DICTIONARY (Mutable, Ordered*, Key-Value Pair)

Dictionary Methods

Method	What it does
get(key)	Returns value (safe access)
keys()	Returns all keys
values()	Returns all values
items()	Returns key-value pairs
update(dict)	Updates dictionary
pop(key)	Removes key & returns value
popitem()	Removes last inserted pair
clear()	Removes all items
copy()	Returns shallow copy
setdefault(key, default)	Gets value or inserts default

Dictionary Characteristics

- Keys must be unique
- Keys must be immutable
- Fast lookup

Comparison Summary

Type	Ordered	Mutable	Duplicates	Indexed
List	✓	✓	✓	✓
Tuple	✓	✗	✓	✓
Set	✗	✓	✗	✗
Dict	✓*	✓	Keys ✗	Keys ✗

(Ordered from Python 3.7+)



Interview Tips

- Use **list** for dynamic ordered data
 - Use **tuple** for fixed data
 - Use **set** to remove duplicates
 - Use **dict** for fast lookups & mappings
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