

List operations

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In [1]: # Creating a list
my_list = [1, 2, 3, 4, 5]
print("Initial list:", my_list)

# Adding an element to the list
my_list.append(6)
print("List after adding an element:", my_list)

# Removing an element from the list
my_list.remove(3)
print("List after removing an element:", my_list)

# Modifying an element in the list
my_list[2] = 10
print("List after modifying an element:", my_list)
```

Initial list: [1, 2, 3, 4, 5]
List after adding an element: [1, 2, 3, 4, 5, 6]
List after removing an element: [1, 2, 4, 5, 6]
List after modifying an element: [1, 2, 10, 5, 6]

Dictionary operations

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In [2]: # Creating a dictionary
my_dict = {'a': 1, 'b': 2, 'c': 3}
print("\nInitial dictionary:", my_dict)

# Adding a key-value pair to the dictionary
my_dict['d'] = 4
print("Dictionary after adding a key-value pair:", my_dict)

# Removing a key-value pair from the dictionary
del my_dict['b']
print("Dictionary after removing a key-value pair:", my_dict)

# Modifying a value in the dictionary
my_dict['a'] = 10
print("Dictionary after modifying a value:", my_dict)
```

Initial dictionary: {'a': 1, 'b': 2, 'c': 3}
Dictionary after adding a key-value pair: {'a': 1, 'b': 2, 'c': 3, 'd': 4}
Dictionary after removing a key-value pair: {'a': 1, 'c': 3, 'd': 4}
Dictionary after modifying a value: {'a': 10, 'c': 3, 'd': 4}

Set operations

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In [3]: # Creating a set
my_set = {1, 2, 3, 4, 5}
print("\nInitial set:", my_set)

# Adding an element to the set
my_set.add(6)
print("Set after adding an element:", my_set)

# Removing an element from the set
my_set.remove(3)
print("Set after removing an element:", my_set)

# Modifying an element in the set
# Note: Sets do not support direct modification of elements.
# We need to remove the old element and add the new element.
my_set.remove(4)
my_set.add(10)
print("Set after modifying an element:", my_set)
```

Initial set: {1, 2, 3, 4, 5}
Set after adding an element: {1, 2, 3, 4, 5, 6}
Set after removing an element: {1, 2, 4, 5, 6}
Set after modifying an element: {1, 2, 5, 6, 10}

