Task 5 - Lists

Definition: A list in Python is a collection of items (elements) that can hold a variety of data types. Lists are ordered, changeable (mutable), and allow duplicate elements.

Creating Lists: Lists are created by placing all the items (elements) inside square brackets **[ ]**, separated by commas.

```
# Creating a list
fruits = ["apple", "banana", "cherry"]
numbers = [1, 2, 3, 4, 5]
mixed = ["text", 100, 3.14, True]

print("Fruits:", fruits)
print("Numbers:", numbers)
print("Mixed:", mixed)
```

List Methods and Functions

1. `append()`

```
fruits.append("orange")
print("After append:", fruits)
```

2. `extend()`

```
fruits.extend(["grape", "watermelon"])
print("After extend:", fruits)
```

3. `insert()`

```
fruits.insert(1, "kiwi")
print("After insert:", fruits)
```

4. `remove()`

```
fruits.remove("banana")
print("After remove:", fruits)
```

5. `pop()`

```
popped_fruit = fruits.pop()
print("Popped fruit:", popped_fruit)
print("After pop:", fruits)
```

6. `clear()`

```
fruits.clear()
print("After clear:", fruits)
```


7. `index()`

```
fruits = ["apple", "banana", "cherry", "apple"]
index = fruits.index("apple")
print("Index of 'apple':", index)
```

8. `count()`

```
apple_count = fruits.count("apple")
print("Count of 'apple':", apple_count)
```

9. `sort()`

```python
numbers = [4, 2, 8, 1, 5]
numbers.sort()
print("Sorted numbers:", numbers)

numbers.sort(reverse=True)
print("Sorted numbers (descending):", numbers)
```

10. `reverse()`

```python
numbers.reverse()
print("Reversed numbers:", numbers)
```

11. `copy()`

```python
new_fruits = fruits.copy()
print("Copied list:", new_fruits)
```

12. `len()`

```python
length = len(fruits)
print("Number of fruits:", length)
```

Task 5: Write a program to create, append, and remove lists in python

```python
my_list = [1, 2, 3]
print("Initial list:", my_list)

# Append an item to the list
my_list.append(4)
print("After appending 4:", my_list)

# Append multiple items to the list
my_list.extend([5, 6])
print("After appending 5 and 6:", my_list)

# Remove an item from the list by value
my_list.remove(2)
print("After removing 2:", my_list)

# Remove an item from the list by index
del my_list[0]  # Removes the first element
print("After removing the first element:", my_list)

# Clear the entire list
my_list.clear()
print("After clearing the list:", my_list)
```