8. Method Overloading and Overriding

❖Method overloading: defining multiple methods with the same name but different parameters.

Method overloading means defining multiple methods with the same name but different parameters (number or type). It is a way to perform different tasks using the same method name.

- A single method name is defined multiple times in the same class.
- Each definition has different parameters (number, type, or order).
- The correct method is called based on the arguments passed.

Note: **Python does not support true method overloading** by default

❖Method overriding: redefining a parent class method in the child class.

Method overriding occurs when a child (subclass) provides a specific implementation of a method that is already defined in its parent (superclass).

- The method in the child class must have the same name, return type, and parameters as in the parent.
- It allows a subclass to provide a specific behavior for a method that is already defined in a more general superclass.
- It's used to achieve runtime polymorphism (especially in Java, C#, and similar languages).

Syntax:

```
class Animal:
    def sound(self):
        print("Animal makes a sound")
class Dog(Animal):
    def sound(self):
        print("Dog barks")

a = Dog()
a.sound()
```