

## Lesson: Inheritance

Description: Learn how inheritance enables code reuse and organization.

Inheritance is a mechanism in OOP that allows one class (child or derived class) to acquire the properties and methods of another class (parent or base class). This promotes code reuse and helps in organizing code in a hierarchical structure.

### Benefits of Inheritance:

1. Reduces code redundancy.
2. Enables better organization and readability of code.
3. Facilitates the creation of reusable components.

Types of Inheritance:

- **Single Inheritance**: A child class inherits from a single parent class.
- **Multiple Inheritance**: A child class inherits from multiple parent classes.
- **Multilevel Inheritance**: A class inherits from another derived class.

Example:

```
class Animal:
    def eat(self):
        print("This animal eats food.")
```

```
class Dog(Animal):
    def bark(self):
        print("The dog barks.")
```

```
my_dog = Dog()
my_dog.eat()
my_dog.bark()
```

Exercises:

1. Implement a class hierarchy for a library system with a parent class `Book` and child classes like `Ebook` and `PrintedBook`.
2. Create a multilevel inheritance structure for vehicles.