

## Types of Inheritance

1. **Single Inheritance** → One parent, one child.
2. **Multiple Inheritance** → One child, multiple parents.
3. **Multilevel Inheritance** → Inheritance chain (Grandparent → Parent → Child).
4. **Hierarchical Inheritance** → One parent, multiple children.

### 1. Single Inheritance

A child class inherits from a single parent class.

```
class Parent:
    def display(self):
        print("This is the parent class")

class Child(Parent):
    pass

obj = Child()
obj.display() # Inherits method from Parent
```

### 2. Multiple Inheritance

A child class inherits from multiple parent classes.

```
class Parent1:
    def show1(self):
        print("Parent1 method")

class Parent2:
    def show2(self):
        print("Parent2 method")

class Child(Parent1, Parent2): # Inherits from both Parent1 and Parent2
    pass

obj = Child()
obj.show1()
obj.show2()
```

### 3. Multilevel Inheritance

A child class inherits from another child class (forming a chain).

```
class Grandparent:
    def showG(self):
        print("Grandparent method")

class Parent(Grandparent):
    def showP(self):
        print("Parent method")

class Child(Parent):
    def showC(self):
        print("Child method")

obj = Child()
obj.showG() # Inherits from Grandparent
obj.showP() # Inherits from Parent
obj.showC() # Own method
```

### 4. Hierarchical Inheritance

Multiple child classes inherit from a single parent class.

```
class Parent:
    def display(self):
        print("Parent class method")

class Child1(Parent):
    pass

class Child2(Parent):
    pass

obj1 = Child1()
obj2 = Child2()

obj1.display() # Inherited from Parent
obj2.display() # Inherited from Parent
```

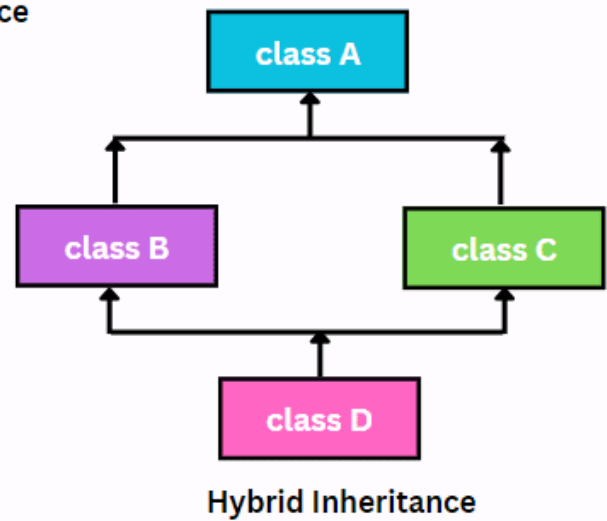
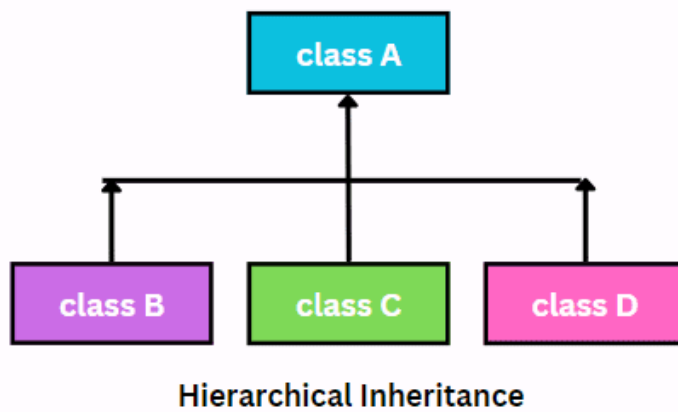
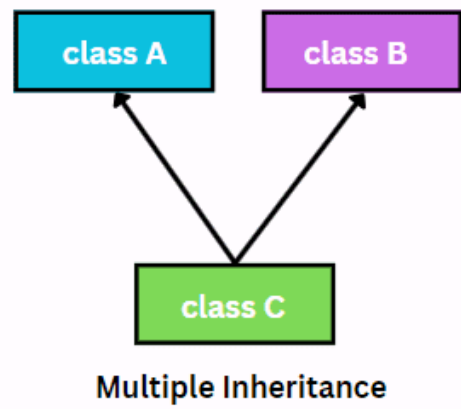
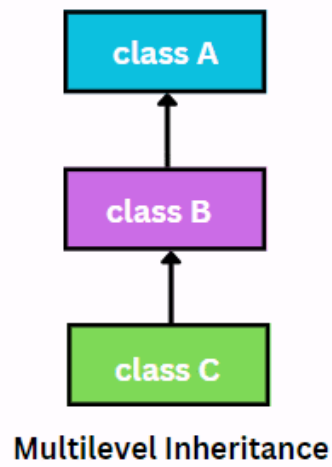
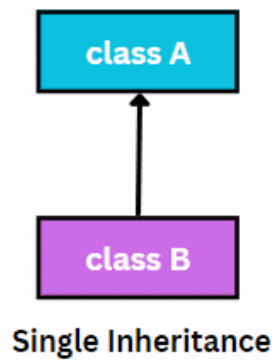


Fig: Types of inheritance in Python