

# Polymorphism

## Class Polymorphism

Polymorphism is often used in Class methods, where we can have multiple classes with the same method name.

For example, say we have three classes: `Car`, `Boat`, and `Plane`, and they all have a method called `move()`:

Different classes with the same method:

```
class Car:
    def __init__(self, brand, model):
        self.brand = brand
        self.model = model

    def move(self):
        print("Drive!")

class Boat:
    def __init__(self, brand, model):
        self.brand = brand
        self.model = model

    def move(self):
        print("Sail!")

class Plane:
    def __init__(self, brand, model):
        self.brand = brand
        self.model = model

    def move(self):
        print("Fly!")

car1 = Car("Ford", "Mustang")    #Create a Car class
```

```
boat1 = Boat("Ibiza", "Touring 20") #Create a Boat class
plane1 = Plane("Boeing", "747")    #Create a Plane class

for x in (car1, boat1, plane1):
    x.move()
```

## Inheritance Class Polymorphism

What about classes with child classes with the same name? Can we use polymorphism there?

Yes. If we use the example above and make a parent class called `Vehicle`, and make `Car`, `Boat`, `Plane` child classes of `Vehicle`, the child classes inherits the `Vehicle` methods, but can override them:

```
class Vehicle:
    def __init__(self, brand, model):
        self.brand = brand
        self.model = model

    def move(self):
        print("Move!")

class Car(Vehicle):
    pass

class Boat(Vehicle):
    def move(self):
        print("Sail!")

class Plane(Vehicle):
    def move(self):
        print("Fly!")

car1 = Car("Ford", "Mustang") #Create a Car object
boat1 = Boat("Ibiza", "Touring 20") #Create a Boat object
plane1 = Plane("Boeing", "747") #Create a Plane object

for x in (car1, boat1, plane1):
    print(x.brand)
    print(x.model)
    x.move()
```

---

Revision #2

Created 26 February 2024 01:48:07 by victor

Updated 1 April 2024 03:27:25 by victor