Python Object Oriented

class Parrot:

# class attribute

species = "bird"

# instance attribute

def \_\_init\_\_(self, name, age):

self.name = name

self.age = age

# instantiate the Parrot class

blu = Parrot("Blu", 10)

woo = Parrot("Woo", 15)

# access the class attributes

print("Blu is a {}".format(blu.\_\_class\_\_.species))

print("Woo is also a {}".format(woo.\_\_class\_\_.species))

# access the instance attributes

print("{} is {} years old".format( blu.name, blu.age))

print("{} is {} years old".format( woo.name, woo.age))

class Parrot:

# instance attributes

def \_\_init\_\_(self, name, age):

self.name = name

self.age = age

# instance method

def sing(self, song):

return "{} sings {}".format(self.name, song)

def dance(self):

return "{} is now dancing".format(self.name)

# instantiate the object

blu = Parrot("Blu", 10)

# call our instance methods

print(blu.sing("'Happy'"))

print(blu.dance())

**Inheritance**

# parent class

class Bird:

def \_\_init\_\_(self):

print("Bird is ready")

def whoisThis(self):

print("Bird")

def swim(self):

print("Swim faster")

# child class

class Penguin(Bird):

def \_\_init\_\_(self):

# call super() function

super().\_\_init\_\_()

print("Penguin is ready")

def whoisThis(self):

print("Penguin")

def run(self):

print("Run faster")

peggy = Penguin()

peggy.whoisThis()

peggy.swim()

peggy.run()

**Encapsulation**

we can restrict access to methods and variables. This prevent data from direct modification which is called encapsulation.

class Computer:

def \_\_init\_\_(self):

self.\_\_maxprice = 900

def sell(self):

print("Selling Price: {}".format(self.\_\_maxprice))

def setMaxPrice(self, price):

self.\_\_maxprice = price

c = Computer()

c.sell()

# change the price

c.\_\_maxprice = 1000

c.sell()

# using setter function

c.setMaxPrice(1000)

c.sell()

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class Parrot:

def fly(self):

print("Parrot can fly")

def swim(self):

print("Parrot can't swim")

class Penguin:

def fly(self):

print("Penguin can't fly")

def swim(self):

print("Penguin can swim")

# common interface

def flying\_test(bird):

bird.fly()

#instantiate objects

blu = Parrot()

peggy = Penguin()

# passing the object

flying\_test(blu)

flying\_test(peggy)