CHAPTER 13: OBJECT-ORIENTED PROGRAMMING

13.1 CLASSES AND OBJECTS

13.1.1 Defining Classes

<PYTHON>

```
class Person:
 def __init__(self, name, age):
 self.name = name # Property
 self.age = age # Property

 def get_name(self): # Method
 return self.name
```

```
 def set_name(self, name):
```

13.1.2 Creating Objects

<PYTHON>

```
person1 = Person("John", 25)
person2 = Person("Jane", 30)

print(person1.get_name()) # Output: John
person1.set_name("Bob")
```

13.2 INHERITANCE

13.2.1 Basic Inheritance

<PYTHON>

```
class Person:
 def __init__(self, name, age):
 self.name = name
 self.age = age
```

13.2.2 Polymorphism

<PYTHON>

```
class Animal:
 def speak(self):
 pass

class Dog(Animal):
 def speak(self):
 return "Woof"

class Cat(Animal):
 def speak(self):
 return "Meow"
```

13.3 ENCAPSULATION

```
for animal in animals:
```

13.3.1 Private Attributes

<PYTHON>

```
class BankAccount:
 def __init__(self, balance):
 self.__balance = balance # Private (double underscore)

 def get_balance(self):
```

13.4 GETTERS AND SETTERS

13.4.1 Purpose

Control access to private attributes.

<PYTHON>

```
class Person:
 def __init__(self, name):
 self.__name = name

 def get_name(self): # Getter
 return self.__name

 def set_name(self, name): # Setter
 self.__name = name
```

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