



Object Oriented Programming using Python (II)

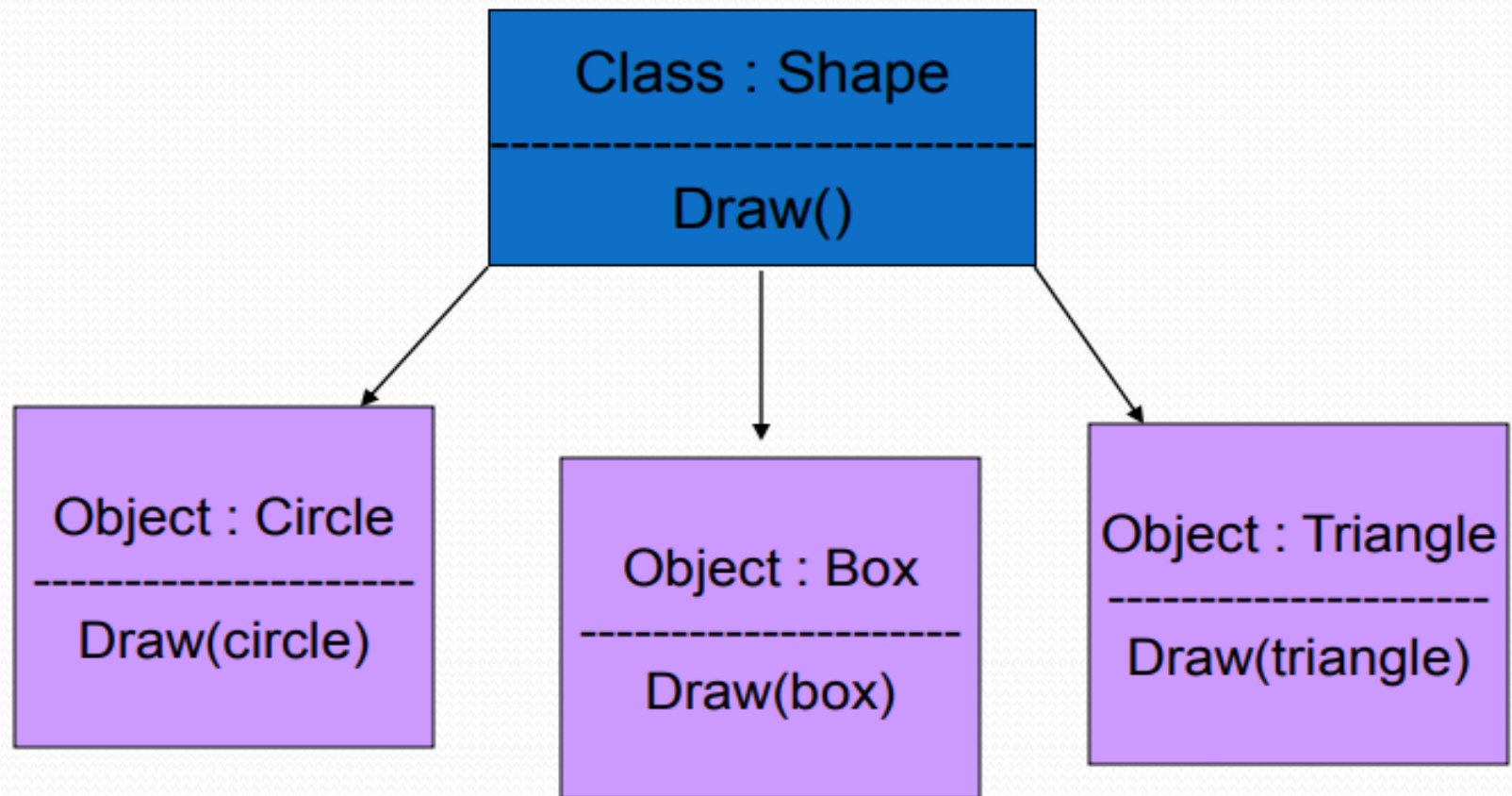
Lecture(2) Polymorphism

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Polymorphism

- Polymorphism means ability to take more than one form
- Poly refers to many
- This is an operation may exhibit different behavior in different instances

Polymorphism



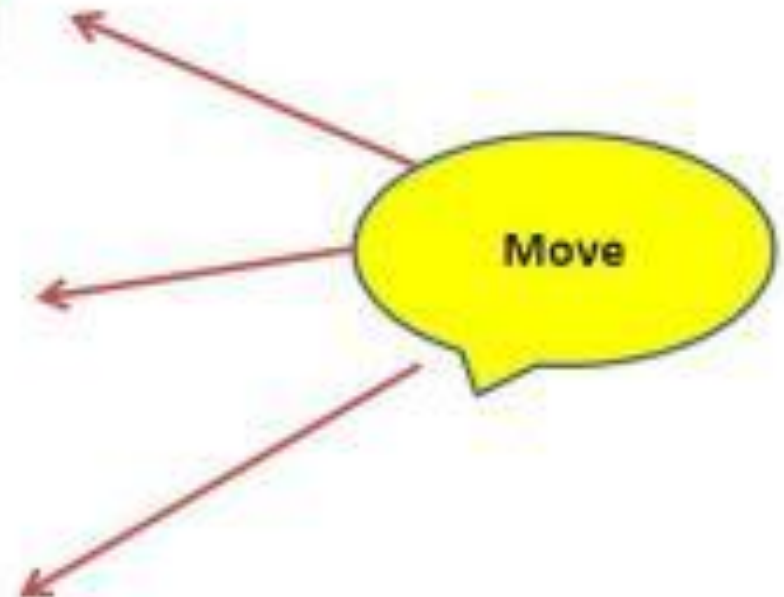
Car



Ford



Honda



- Car uses normal engine to move
- Ford uses V engine to move
- Honda uses i-vtec technology to move

```
class car():
    def move(self):
        print("car use normal engine")
class ford():
    def move(self):
        print("ford use V engine")
class honda():
    def move(self):
        print("Honda car use i-vetec engine")
car1=car()
car2=ford()
car3=honda()
car1.move()
car2.move()
car3.move()
```

Polymorphism

- *Polymorphism* simply means that we can call the same method name with parameters, and depending on the parameters, it will do different things. For example:

```
>>> print(6 * 5)
```

```
>>> print("Hello" * 5)
```

```
30
```

```
HelloHelloHelloHelloHello
```

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

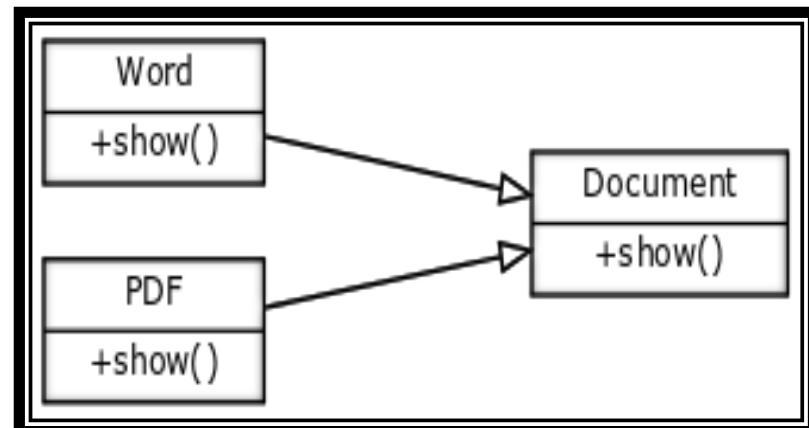
    def show(self):
        pass

class Pdf(Document):
    def show(self):
        return 'Show pdf contents!'

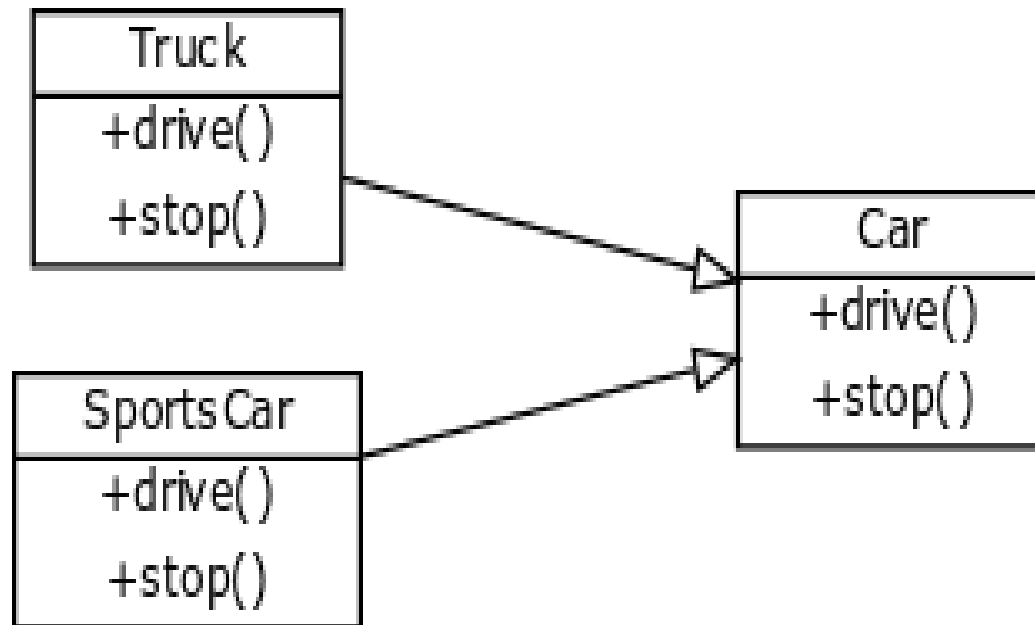
class Word(Document):
    def show(self):
        return 'Show word contents!'

documents = [Pdf('Document1'),
Pdf('Document2'),
Word('Document3')]

for i in documents:
    print (i.name + ': ' + i.show())
```



Write python program that represent the UML diagram




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

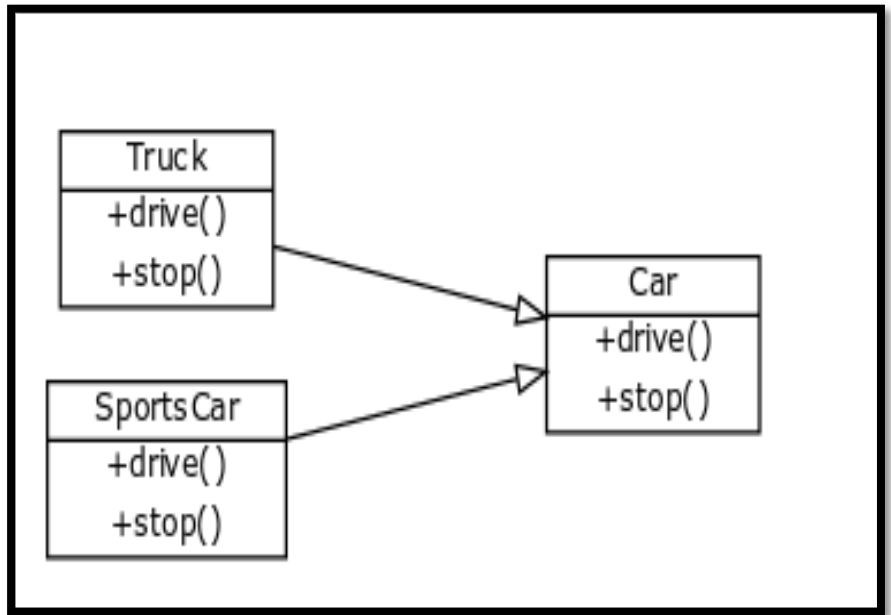
class Sportscar(Car):
    def drive(self):
        return 'Sportscar driving!'

    def stop(self):
        return 'Sportscar braking!'

class Truck(Car):
    def drive(self):
        return 'Truck driving slowly because heavily loaded.'

    def stop(self):
        return 'Truck braking!'

cars = [Truck('GMC'),
Truck('Hiway Hauler'),
Sportscar('Z3'), Sportscar('Lotus Elise')]
```



Polymorphism example

Write python program that represent the following UML diagram (the program need to install **play sound** package)

