Inheritance

In [2]:
```
# Python program to demonstrate single inheritance
# Base class
class Parent:
    def func1(self):
        print("This function is in parent class.")

# Derived class
class Child(Parent):
    def func2(self):
        print("This function is in child class.")

# Driver's code
object = Child()
object.func1()
object.func2()
```

```
This function is in parent class.
This function is in child class.
```

In [3]:
```
# Python program to demonstrate multiple inheritance

# Base class1
class Mother:
    mothername = ""

    def mother(self):
        print(self.mothername)

# Base class2


class Father:
    fathername = ""

    def father(self):
        print(self.fathername)

# Derived class


class Son(Mother, Father):
    def parents(self):
        print("Father :", self.fathername)
        print("Mother :", self.mothername)


# Driver's code
s1 = Son()
s1.fathername = "RAM"
```

```
s1.mothername = "SITA"
s1.parents()
```

```
Father : RAM
Mother : SITA
```

In [1]:
```
# Python program to demonstrate multilevel inheritance

# Base class
class Grandfather:
    def __init__(self, grandfathername):
        self.grandfathername = grandfathername

# Intermediate class
class Father(Grandfather):
    def __init__(self, fathername, grandfathername):
        self.fathername = fathername

        # invoking constructor of Grandfather class
        Grandfather.__init__(self, grandfathername)

# Derived class
class Son(Father):
    def __init__(self, sonname, fathername, grandfathername):
        self.sonname = sonname

        # invoking constructor of Father class
        Father.__init__(self, fathername, grandfathername)

    def print_name(self):
        print('Grandfather name :', self.grandfathername)
        print("Father name :", self.fathername)
        print("Son name :", self.sonname)


#  Driver code
s1 = Son('Prince', 'Rampal', 'Lal mani')
print(s1.grandfathername)
s1.print_name()
```

```
Lal mani
Grandfather name : Lal mani
Father name : Rampal
Son name : Prince
```

In [2]:
```
# Python program to demonstrate Hierarchical inheritance


# Base class
class Parent:
    def func1(self):
        print("This function is in parent class.")

# Derived class1


class Child1(Parent):
```

```
    def func2(self):
        print("This function is in child 1.")

# Derivied class2


class Child2(Parent):
    def func3(self):
        print("This function is in child 2.")


# Driver's code
object1 = Child1()
object2 = Child2()
object1.func1()
object1.func2()
object2.func1()
object2.func3()
```

```
This function is in parent class.
This function is in child 1.
This function is in parent class.
This function is in child 2.
```

In [ ]:

Polymorphism

In [1]:
```
class Tiger():
    def nature(self):
        print('I am a Tiger and I am dangerous.')

    def color(self):
        print('Tigers are orange with black strips')

class Elephant():
    def nature(self):
        print('I am an Elephant and I am calm and harmless')

    def color(self):
        print('Elephants are grayish black')

obj1 = Tiger()
obj2 = Elephant()

for animal in (obj1, obj2): # creating a loop to iterate through the obj1 and obj2
    animal.nature()
    animal.color()
```

```
I am a Tiger and I am dangerous.
Tigers are orange with black strips
I am an Elephant and I am calm and harmless
Elephants are grayish black
```