Data Attributes of Class and Object

```python
class Animal(object):
    age=3
    name= "Jelly"


myanimal = Animal(3,"Jelly")
print(myanimal.age)
print(myanimal.name)
```

```python
class Animal(object):

    def __init__(self, age, name):
        self.age = age
        self.name = name


myanimal = Animal(3,"Jelly")
print(myanimal.age)
print(myanimal.name)
```

Class attributes

Instance attributes

Data Attributes of Class and Object

- Generally speaking, data attributes in a class fall under one of two categories:

  ➢ Class attributes, which are shared by all instances, can be directly initialized in class definition

  ➢ Instance attributes, which are unique to a specific instance and can be initialized by `__init__()`

Data Attributes of Class and Object

- Class attribute is immutable data type

```
class Dog:
    kind = 'canine' # class data
    def __init__(self, name):
        self.name = name # instance data
d = Dog('Fido')
e = Dog('Buddy')
print(d.kind) # shared by all dogs
print(e.kind) # shared by all dogs
d.kind="Cathy"
print(d.kind) # shared by all dogs
print(e.kind) # shared by all dogs
print(d.name) # unique to d 'Fido'
print(e.name) # unique to e 'Buddy'
```

```
canine
canine
Cathy
canine
Fido
Buddy
```

Data Attributes of Class

- Class attribute is mutable data type

```python
class Dog:
    tricks=[] # mutable class variable
    def __init__(self, name):
        self.name = name
    def add_trick(self,trick):
        self.tricks.append(trick)
d = Dog('Fido')
e = Dog('Buddy')
d.add_trick('roll over')
e.add_trick('play dead')
print(d.tricks)
```

```
['roll over', 'play dead']
```

Variables within classes

- To fix this issue, make the mutable attribute as an instance variable instead.

```python
class Dog:
    def __init__(self, name):
        self.name = name
        self.tricks=[]
    def add_trick(self,trick):
        self.tricks.append(trick)
d = Dog('Fido')
e = Dog('Buddy')
d.add_trick('roll over')
e.add_trick('play dead')
print(d.tricks)
print(e.tricks)
```

```
['roll over']
['play dead']
```