Assignment No 09 :(Class)

Aim: Write a program to build the animal shelter (holding cats, dogs, and rabbit) operations using Python class. People can adopt the animals based on their admission time. Create a data structure to perform various operations such as - new entry in the shelter, adopt a dog, adopt a cat, adopt a rabbit, adopt any animal, display the shelter information

Theory: Python Classes/Objects:

Almost everything in Python is an object, with its properties and methods. A Class is like an object constructor, or a "blueprint" for creating objects.

Create a Class

To create a class, use the keyword `class`:

Example

Create a class named MyClass, with a property named x:

class MyC1ass:

x=5

Create Object

Now we can use the class named MyClass to create objects:

Example

Create an object named pl, and print the value of x:

p1 = MyC1ass()

print(p1.x)

CODE:

File 1:

```
from AnimalShelterServiceImpl import AnimalShelterServiceImpl
class Animal:

    def __init__(self, aid, name, age, type, owner):
        self.animal_id = aid
        self.name = name
        self.age = age
```

```
        self.type = type
        self.owner = owner

    def __str__(self):
        return f'id : {self.animal_id}, name : {self.name}, age : {self.age},
type:{self.type},' \
               f'owner : {self.owner}'


a1 = Animal(1, "Tommy",  4, "dog", "")
a2 = Animal(2, "Max",  2, "cat", "")
a3 = Animal(3, "Tiger",  1, "dog", "")
a4 = Animal(4, "Mani",  1.2, "cat", "")
a5 = Animal(5, "Peter",  4, "rabbit", "")
a6 = Animal(6, "Roger",  0.6, "rabbit", "")
a7 = Animal(7, "Anaya",  3, "cow", "")
a8 = Animal(8, "Devi",  10, "cow", "")

impl = AnimalShelterServiceImpl()
impl.add_animal(a1)
impl.add_animal(a2)
impl.add_animal(a3)
impl.add_animal(a4)
impl.add_animal(a5)
impl.add_animal(a6)
impl.add_animal(a7)
impl.add_animal(a8)

impl.show_all_animals()

impl.adopt_dog("Prince")
impl.adopt_cat("Raju")
impl.adopt_rabbit("Smita")
impl.adopt_other_animals("Vishwa")
print("_____________________________________________________________________________
")
print("_____________________________________________________________________________
")
impl.show_all_animals()
```

file 2:

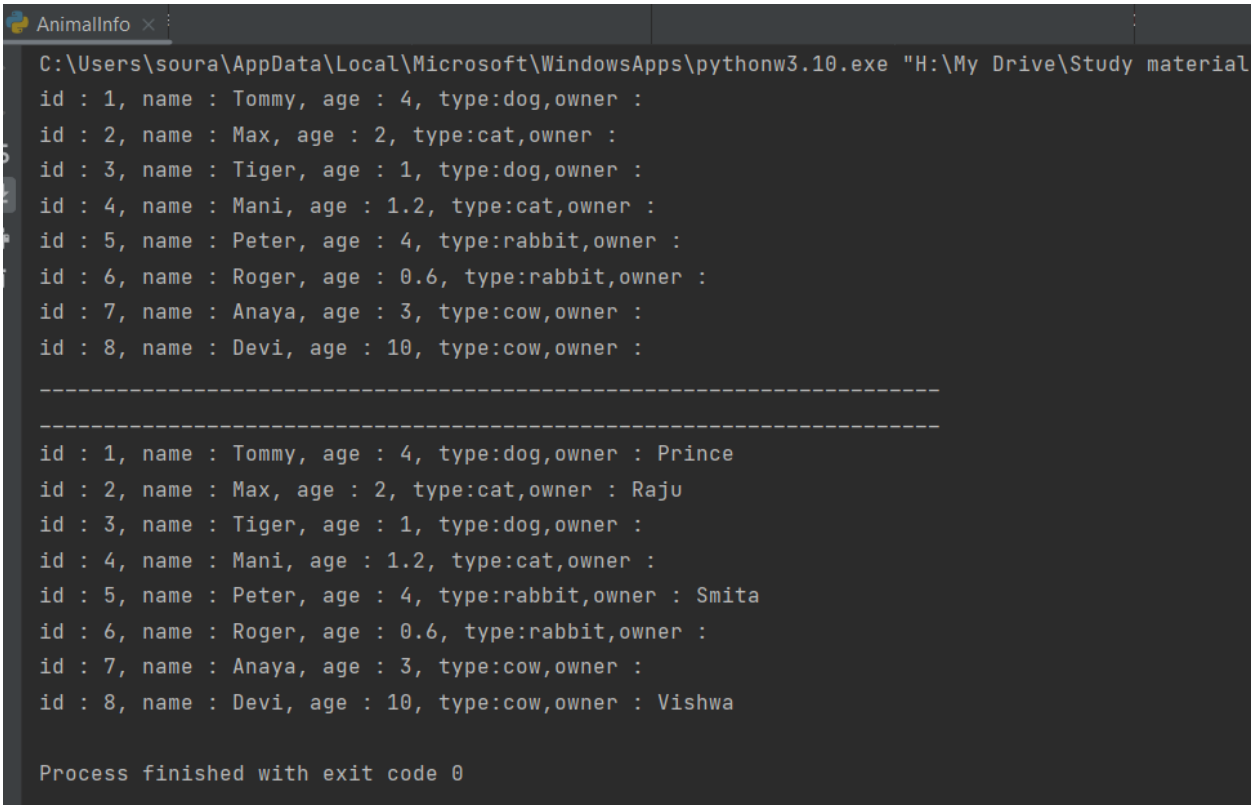
```
from abc import ABC, abstractmethod

class AnimalShelterService(ABC):

    @abstractmethod
    def add_animal(self, animal):
        pass

    @abstractmethod
    def adopt_dog(self, owner):
        pass

    @abstractmethod
```

```
    def adopt_cat(self, owner):
        pass

    @abstractmethod
    def adopt_rabbit(self, owner):
        pass

    @abstractmethod
    def adopt_other_animals(self, owner):
        pass

    @abstractmethod
    def show_all_animals(self):
        pass
```

file 3:

```
from AnimalShelterService import AnimalShelterService

class AnimalShelterServiceImpl(AnimalShelterService):

    list_of_animal = []
    def add_animal(self, animal):
        self.list_of_animal.append(animal)

    def adopt_dog(self, owner):
        for i in self.list_of_animal:
            if i.type == 'dog' and i.age >= 3:
                i.owner = owner

    def adopt_cat(self, owner):
        for i in self.list_of_animal:
            if i.type == 'cat' and i.age >= 2:
                i.owner = owner

    def adopt_rabbit(self, owner):
        for i in self.list_of_animal:
            if i.type == 'rabbit' and i.age >= 1:
                i.owner = owner

    def adopt_other_animals(self, owner):
        for i in self.list_of_animal:
            if i.type == 'cow' and i.age >= 5:
                i.owner = owner

    def show_all_animals(self):
        for i in self.list_of_animal:
            print(i)
```

OUTPUT:



Conclusion: Hence, we have learned the implementation of Class and OOP in python.