

Lab Exercise 4

Write a Python program to implement the object-oriented concepts of multiple, Multilevel and Hierarchical Inheritances using your domain applications.

In []: *# Python program to demonstrate multiple inheritance*

```
class Zoo:
    zooName = "Bannerghatta National Zoo"

    def zoos(self):
        print(self.zooName)

class Animals:
    animalID = ""
    animalName = ""
    animalGender = ""
    animalAge = ""
    animalSpecies = ""

    def animalDetails(self):
        print(self.animalID)
        print(self.animalName)
        print(self.animalGender)
        print(self.animalAge)
        print(self.animalSpecies)

class AddAnimalData(Zoo, Animals):
    def data(self):
        print("Zoo name :", self.zooName)
        print("Animal ID :", self.animalID)
        print("Animal Name :", self.animalName)
        print("Animal Species :", self.animalSpecies)
        print("Animal Gender :", self.animalGender)
        print("Animal Age :", self.animalAge)

div1 = AddAnimalData()
div1.animalID = 101
div1.animalName = "Jane"
div1.animalSpecies = "Elephant Herbivore"
div1.animalAge = 10
div1.animalGender = "F"

div1.data()
```

Zoo name : Bannerhatta National Zoo
Animal ID : 101
Animal Gender : F
Animal Age : 10
Animal Name : Jane
Animal Species : Elephant Herbivore

In []: *# Python program to demonstrate multilevel inheritance*

```
class Zoo:

    def __init__(self, zooName):
        self.zooName = zooName

class Animals(Zoo):
    def __init__(self, animalSpecies, zooName):
        self.animalSpecies = animalSpecies

        Zoo.__init__(self, zooName)

class AddAnimalData(Animals):
    def __init__(self, animalName, animalSpecies, zooName):
        self.animalName = animalName

        Animals.__init__(self, animalSpecies, zooName)

    def showData(self):
        print('Zoo name :', self.zooName)
        print("Animal species :", self.animalSpecies)
        print("Animal name :", self.animalName)

output = AddAnimalData('Mani', 'Elephant Herbivore', 'Bannerhatta National Zoo')
print(output.animalName)
output.showData()
```

Mani
Zoo name : Bannerhatta National Zoo
Animal species : Elephant Herbivore
Animal name : Mani

In []: *# Python program to demonstrate Hierarchical inheritance*

```
class Zoo:
    def __init__(self):
        self.__id="<No Id>"
        self.__name="<No Name>"
        self.__gender="<No Gender>"

    def setData(self,id,name,gender):
        self.__id=id
        self.__name=name
        self.__gender=gender
```

```

def showData(self):
    print("Id: ",self.__id)
    print("Name: ", self.__name)
    print("Gender: ", self.__gender)

class Animal(Zoo): #Inheritance
    def __init__(self):
        self.__legs="<No Legs>"

    def setAnimalData(self,id,name,gender,legs):
        self.setData(id,name,gender)
        self.__legs=legs

    def showAnimalData(self):
        self.showData()
        print("Legs: ", self.__legs)

class Bird(Zoo): #Inheritance
    def __init__(self):
        self.__canFly="<No>"

    def setAnimalData(self,id,name,gender,fly):
        self.setData(id,name,gender)
        self.__canFly=fly

    def showAnimalData(self):
        self.showData()
        print("Can Fly? : ", self.__canFly)

def main():
    print("Anima Object")
    a=Animal()
    a.setAnimalData(1,"Elephant","Male","4")
    a.showAnimalData()
    print("\nBird Object")
    b = Bird()
    b.setAnimalData(1,"Macow","Male","Yes")
    b.showAnimalData()

if __name__=="__main__":
    main()

```

Anima Object
 Id: 1
 Name: Elephant
 Gender: Male
 Legs: 4

Bird Object
 Id: 1
 Name: Macow
 Gender: Male
 Can Fly? : Yes