Aarya Arban

S11-07

Assignment No. 10 – Polymorphism

Code:

Single inheritance

```python
class Details:
    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\t\t:",self.__id)
        print("Name\t\t:", self.__name)
        print("Gender\t\t:", self.__gender)

class Employee(Details):
    def __init__(self):
        self.__company="<No Company>"
        self.__dept="<No Dept>"
    def setEmployee(self,id,name,gender,comp,dept):
        self.setData(id,name,gender)
        self.__company=comp
```

```python
        self.__dept=dept
    def showEmployee(self):
        self.showData()
        print("Company\t\t:", self.__company)
        print("Department\t:", self.__dept)


def main():
    e=Employee()
    e.setEmployee(7,"Aarya Arban","Male","Mumbai",400022)
    e.showEmployee()


if __name__=="__main__":
    main()

class Employee:
    def getEmployeeInfo(self):
        self.__id=input("Enter Employee Id:")
        self.__name=input("Enter Name:")
        self.__salary=int(input("Enter Employee Salary:"))

    def printEmployeeInfo(self):
        print("ID : ", self.__id," , name : ", self.__name, ", Basic Salary : ", self.__salary)

    def getSalary(self):
        return(self.__salary)

class Perks(Employee):
    def getPerks(self):
```

```python
        self.getEmployeeInfo()
        sal=self.getSalary()
        self.__da=sal*35/100
        self.__hra = sal * 17 / 100

    def printPerks(self):
        self.printEmployeeInfo()
        print("Total Salary ", (self.getSalary() + self.__da + self.__hra ) )

S=Perks()
S.getPerks()

print("Employee information ")
S.printPerks()

# Single inheritance with two child classes

class Details:
    def __init__(self):
        self.__id=0
        self.__name=""
        self.__gender=""
    def setDetails(self):
        self.__id=int(input("Enter Id: "))
        self.__name=input("Enter Name: ")
        self.__gender=input("Enter gender: ")
    def showDetails(self):
        print("Id: ",self.__id)
        print("Name: ",self.__name)
```

```python
            print("Gender: ",self.__gender)


class Employee(Details):
    def __init__(self):
        self.__company=""
        self.__desig=""
    def setEmployee(self):
        self.setDetails()
        self.__company=input("Enter Compmany Name: ")
        self.__desig=input("Enter Designation: ")
    def showEmployee(self):
        self.showDetails()
        print("Company: ",self.__company)
        print("Designation: ",self.__desig)


class Doctor(Details):
    def __init__(self):
        self.__hospital=""
        self.__dept=""
    def setDoctor(self):
        self.setDetails()
        self.__hospital=input("Enter Hospital Name: ")
        self.__dept=input("Enter Department: ")
    def showDoctor(self):
        self.showDetails()
        print("Hospital: ",self.__hospital)
        print("Department",self.__dept)


def main():
```

```python
        print("Employee Object: ")
        e = Employee()
        e.setEmployee()
        e.showEmployee()
        print("\nDoctor Object: ")
        d=Doctor()
        d.setDoctor()
        d.showDoctor()


if __name__=="__main__":
    main()


# Multiple inheritance

class Personel:
    def __init__(self):
        self.__id=0
        self.__name=""
        self.__gender=""
    def setPersonel(self):
        self.__id=int(input("Enter Id: "))
        self.__name = input("Enter Name: ")
        self.__gender = input("Enter Gender: ")
    def showPersonel(self):
        print("Id: ",self.__id)
        print("Name: ",self.__name)
        print("Gender: ",self.__gender)

class Educational:
```

```python
    def __init__(self):
        self.__stream=""
        self.__year=""
    def setEducational(self):
        self.__stream=input("Enter Stream: ")
        self.__year = input("Enter Year: ")
    def showEducational(self):
        print("Stream: ",self.__stream)
        print("Year: ",self.__year)


class Student(Personel,Educational):
    def __init__(self):
        self.__address = ""
        self.__contact = ""
    def setStudent(self):
        self.setPersonel()
        self.__address = input("Enter Address: ")
        self.__contact = input("Enter Contact: ")
        self.setEducational()

    def showStudent(self):
        self.showPersonel()
        print("Address: ",self.__address)
        print("Contact: ",self.__contact)
        self.showEducational()


def main():
    s=Student()
    s.setStudent()
```

```python
        s.showStudent()
if __name__=="__main__":
    main()


# Multilevel inheritance

class Details1:
    def __init__(self):
        self.__id=0
    def setId(self):
        self.__id=int(input("Enter Id: "))
    def showId(self):
        print("Id: ",self.__id)

class Details2(Details1):
    def __init__(self):
        self.__name=""
    def setName(self):
        self.setId()
        self.__name=input("Enter Name: ")
    def showName(self):
        self.showId()
        print("Name: ",self.__name)

class Details3(Details2):
    def __init__(self):
        self.__gender=""
    def setGender(self):
        self.setName()
```

```python
        self.__gender=input("Enter Gender: ")
    def showGender(self):
        self.showName()
        print("Gender: ",self.__gender)




class Employee(Details3):
    def __init__(self):
        self.__desig=""
        self.__dept=""
    def setEmployee(self):
        self.setGender()
        self.__desig=input("Enter Designation: ")
        self.__dept= input("Enter Department: ")
    def showEmployee(self):
        self.showGender()
        print("Designation: ",self.__desig)
        print("Department: ",self.__dept)

def main():
    e = Employee()
    e.setEmployee()
    e.showEmployee()



if __name__=="__main__":
    main()
```

Output:

Id   : 7
Name   : Aarya Arban
Gender   : Male
Company   : Mumbai
Department   : 400022
Enter Employee Id:7
Enter Name:Aarya Arban
Enter Employee Salary:50000
Employee information
ID : 7 , name : Aarya Arban , Basic Salary : 50000
Total Salary 76000.0
Employee Object:
Enter Id: 7
Enter Name: Aarya
Enter gender: Male
Enter Compmany Name: Google
Enter Designation: CEO
Id: 7
Name: Aarya
Gender: Male
Company: Google
Designation: CEO

Doctor Object:
Enter Id: 1
Enter Name: Sarthak Joshi
Enter gender: Male
Enter Hospital Name: Global
Enter Department: Neuy   Cardiology
Id: 1
Name: Sarthak Joshi
Gender: Male
Hospital: Global
Department Cardiology
Enter Id: 10
Enter Name: Soham
Enter Gender: Male
Enter Address: Kalyan
Enter Contact: 999   004367123
Enter Stream: Science
Enter Year: 2
Id: 10

Name: Soham
Gender: Male
Address: Kalyan
Contact: 9004367123
Stream: Science
Year: 2
Enter Id: 9
Enter Name: Jorden
Enter Gender: Male
Enter Designation: Project Head
Enter Department: Technical
Id: 9
Name: Jorden
Gender: Male
Designation: Project Head
Department: Technical