imaumrudh@Aumrudh-PC:~/java/ex3/pgm1$ cat Test.java

import java.util.Scanner;

class Student{

/\*\* The student calss has field rollnumber and name.

\* It has Getter and setter methods

\* @author aumrudh

\* @since 2020-01-02

\*/

private int rollNumber;

private String name;

//getter and setter methods for rollNumber

public int getNumber(){

return rollNumber;

}

public void putNumber(int rollNumber){

this.rollNumber=rollNumber;

}

//getter and setter methods for name

public String getName(){

return name;

}

public void putName(String name){

this.name=name;

}

}

class Exam extends Student{

/\*\* The exam class is inherited from student . It has Addtional

\* field as 6 subject marks.

\*/

private int mark[]=new int[6];

//getter and setter methods for mark

public int getMark(int i){

return mark[i];

}

public void putMark(int[] mark){

this.mark=mark;

}

}

class Result extends Exam{

/\*\* The result class has total\_marks as field and

\* a method for calculating total mark.

\*/

private int totalMark;

public void calculateTotal(Result obj){

for(int i=0;i<6;i++){

totalMark+=obj.getMark(i);

}

}

//getter method for total\_marks

public int getTotalMark(){

return totalMark;

}

}

public class Test{

/\*\* The main method is available here .\*/

public static void main(String args[]){

Scanner ip=new Scanner(System.in);

System.out.print("Enter Number of Students : ");

int n=ip.nextInt();

Result obj[]=new Result[n];

for(int i=0;i<n;i++){

obj[i]=new Result();

System.out.print("Enter Roll Number of student : ");

int rn=ip.nextInt();

obj[i].putNumber(rn);

System.out.print("Enter Name of student : ");

String na=ip.next();

obj[i].putName(na);

int m[]=new int[6];

System.out.print("Enter 6 Subject Marks : ");

for(int j=0;j<6;j++){

m[j]=ip.nextInt();

}

obj[i].putMark(m);

obj[i].calculateTotal(obj[i]);

}

int tot[]=new int[n];

System.out.println("RollNumber\tName\tMark\t\tTotalmark");

for(int i=0;i<n;i++){

tot[i]=obj[i].getTotalMark();

System.out.print(+obj[i].getNumber()+"\t\t"+obj[i].getName()+"\t\t");

for(int j=0;j<6;j++){

System.out.print(+obj[i].getMark(j)+" ");

}

System.out.println("\t"+obj[i].getTotalMark());

}

}

}

imaumrudh@Aumrudh-PC:~/java/ex3/pgm1$ javac Test.java

imaumrudh@Aumrudh-PC:~/java/ex3/pgm1$ java Test

Enter Number of Students : 2

Enter Roll Number of student : 25

Enter Name of student : lal

Enter 6 Subject Marks : 100 100 100 100 100 100

Enter Roll Number of student : 34

Enter Name of student : kumar

Enter 6 Subject Marks : 99 99 99 99 99 99

RollNumber Name Mark Totalmark

25 lal 100 100 100 100 100 100 600

34 kumar 99 99 99 99 99 99 594

imaumrudh@Aumrudh-PC:~/java/ex3/pgm1$

PGM@

imaumrudh@Aumrudh-PC:~/java/ex3/pgm2$ cat Test.java

import java.util.Scanner;

class Sphere{

/\*\* The class sphere has radius and coordinates as field names.

\* It will calculate surface area and volume of sphere.

\* It has constructor to initialize.

\* @author aumrudh

\* @since 2020-01-02

\*/

private double rad;

private double x,y,z;

public Sphere(double rad,double x,double y,double z){

this.rad=rad;

this.x=x;

this.y=y;

this.z=z;

}

public double surfaceArea(){

return 4\*3.14\*rad\*rad;

}

public double volume(){

return 4\*0.33\*3.14\*rad\*rad\*rad;

}

public double getrad(){

return rad;

}

}

class HemiSphere extends Sphere{

/\*\* The hemisphere class is extension of class sphere .

\* Here the surface area , volume and density is calculated.

\* Additional field name is mass.

\*/

private double mass;

double ra=getrad();

public double surfaceArea1(){

return 2\*3.14\*ra\*ra;

}

public double volume1(){

return 2\*0.33\*3.14\*ra\*ra\*ra;

}

public double density(double vol){

return mass/(vol);

}

public HemiSphere(double rad,double x,double y,double z,double mass){

super(rad,x,y,z);

this.mass=mass;

}

}

public class Test{

/\*\* This is an test class to check the working of derived class\*/

public static void main(String args[]){

Scanner ip=new Scanner(System.in);

System.out.print("Enter the three center coordinates of sphere : ");

double a=ip.nextDouble();

double b=ip.nextDouble();

double c=ip.nextDouble();

System.out.print("Enter radius of Sphere : ");

double r=ip.nextFloat();

System.out.print("Enter mass of Sphere : ");

double m=ip.nextFloat();

HemiSphere obj = new HemiSphere(r,a,b,c,m);

Sphere sobj=new Sphere(r,a,b,c);

while(true){

System.out.print("1-Sphere\n2-Hemisphere\nEnter your choice : ");

int ch=ip.nextInt();

if(ch==1){

double sa=sobj.surfaceArea();

double v=sobj.volume();

System.out.println("Surface Area : "+sa);

System.out.println("Volume : "+v);

}

else if(ch==2){

double sa=obj.surfaceArea1();

double v=obj.volume1();

double d=obj.density(v);

System.out.println("Surface Area : "+sa);

System.out.println("Volume : "+v);

System.out.println("Density : "+d);

}

else{

System.out.print("Wrong choice\n");

}

}

}

}

imaumrudh@Aumrudh-PC:~/java/ex3/pgm2$ java Test

Enter the three center coordinates of sphere : 1 2 3

Enter radius of Sphere : 5

Enter mass of Sphere : 10

1-Sphere

2-Hemisphere

Enter your choice : 1

Surface Area : 314.0

Volume : 518.1

1-Sphere

2-Hemisphere

Enter your choice : 2

Surface Area : 157.0

Volume : 259.05

Density : 0.03860258637328701

PGM3

imaumrudh@Aumrudh-PC:~/java/ex3/pgm3$ cat Test.java

import java.util.Scanner;

class Product{

/\*\* This class is the Base class. Has no and name and getter and setter methods.

\* @author aumrudh

\* @since 2020-01-02

\*/

private int no;

private String name;

public void putNo(int no){

this.no=no;

}

public void putName(String name){

this.name=name;

}

public int getNo(){

return no;

}

public String getName(){

return name;

}

}

class Book extends Product{

/\*\* This class is extension of product class and has publisher as field name.

\* Has getter and setter methods.

\*/

private String publisher;

public void putPublisher(String publisher){

this.publisher=publisher;

}

public String getPublisher(){

return publisher;

}

}

class Cd extends Product{

/\*\* This class is extension of product class and has capacity as field name.

\* Has getter and setter methods

\*/

private int capacity;

public void putCapacity(int capacity){

this.capacity=capacity;

}

public int getCapacity(){

return capacity;

}

}

class Scientific extends Book{

/\*\* Extension of book class. Has Category as extra field name.

\*/

private String category;

public void putCategory(String category){

this.category=category;

}

public String getCategory(){

return category;

}

}

public class Test{

/\*\* Driver class\*/

public static void main(String args[]){

Cd cobj=new Cd();

Scientific sobj=new Scientific();

Scanner ip=new Scanner(System.in);

System.out.print("Enter product no. : ");

int pn=ip.nextInt();

System.out.print("Enter product name : ");

String n=ip.next();

System.out.print("Enter capacity of CD : ");

int cap=ip.nextInt();

cobj.putNo(pn);

cobj.putName(n);

cobj.putCapacity(cap);

System.out.println("PdtNo\tName\tCapacity");

System.out.println(+cobj.getNo()+"\t"+cobj.getName()+"\t"+cobj.getCapacity());

System.out.print("Enter product no. : ");

pn=ip.nextInt();

System.out.print("Enter product name : ");

n=ip.next();

System.out.print("Enter publisher name : ");

String pu=ip.next();

System.out.print("Enter category name : ");

String cat=ip.next();

sobj.putNo(pn);

sobj.putName(n);

sobj.putPublisher(pu);

sobj.putCategory(cat);

System.out.println("Pdtno\tName\tPublisher\tCategory");

System.out.println(+sobj.getNo()+"\t"+sobj.getName()+"\t"+sobj.getPublisher()+"\t"+sobj.getCategory());

}

}

imaumrudh@Aumrudh-PC:~/java/ex3/pgm3$ java Test

Enter product no. : 5

Enter product name : sony\_cd

Enter capacity of CD : 700

PdtNo Name Capacity

5 sony\_cd 700

Enter product no. : 25

Enter product name : stories\_never\_tell

Enter publisher name : penguine

Enter category name : non\_fiction

Pdtno Name Publisher Category

25 stories\_never\_tell penguine non\_fiction

imaumrudh@Aumrudh-PC:~/java/ex3/pgm3$

PGM 4

imaumrudh@Aumrudh-PC:~/java/ex3/pgm4$ cat Test.java

import java.util.Scanner;

class MotorVehicle{

/\*\* This is base class class and has three data members and one method display

\* @author aumrudh

\* @since 2020-01-02

\*/

private int modelNumber;

private String modelName;

private int modelPrice;

public MotorVehicle(int modelNumber,String modelName,int modelPrice){

this.modelNumber=modelNumber;

this.modelName=modelName;

this.modelPrice=modelPrice;

}

public void display(){

System.out.println("Model Number : "+modelNumber);

System.out.println("Model Name : "+modelName);

System.out.println("Model Price : "+modelPrice);

}

public int getModelPrice(){

return modelPrice;

}

}

class Car extends MotorVehicle{

/\*\* Extends MotorVehicle class .

\* Has Discout rate and method to calculte discount

\*/

private int discountRate;

public Car(int modelNumber,String modelName,int modelPrice,int discountRate){

super(modelNumber,modelName,modelPrice);

this.discountRate=discountRate;

}

public void display(){

super.display();

System.out.println("Discount Rate : "+discountRate);

}

public int discount(){

int mp=getModelPrice();

return mp-discountRate;

}

}

public class Test{

/\*\* Driver class\*/

public static void main(String args[]){

Scanner ip=new Scanner(System.in);

System.out.print("Enter model number : " );

int n=ip.nextInt();

System.out.print("Enter model name : " );

String na=ip.next();

System.out.print("Enter model price : " );

int p=ip.nextInt();

System.out.print("Enter discount rate : " );

int d=ip.nextInt();

Car obj=new Car(n,na,p,d);

obj.display();

int ans=obj.discount();

System.out.println("Final Price : "+ans);

}

}

imaumrudh@Aumrudh-PC:~/java/ex3/pgm4$ java Test

Enter model number : 400

Enter model name : honda\_city

Enter model price : 400000

Enter discount rate : 5000

Model Number : 400

Model Name : honda\_city

Model Price : 400000

Discount Rate : 5000

Final Price : 395000

PGM 5

imaumrudh@Aumrudh-PC:~/java/ex3/pgm5$ cat Test.java

import java.util.Scanner;

class Employee{

/\*\* Base class . Has name,address,age,gender as attributes.

\* Has constructors and display method

\* @author aumrudh

\* @since 2020-01-02

\*/

private String name;

private String address;

private int age;

private String gender;

public Employee(String name,String address,int age,String gender){

this.name=name;

this.address=address;

this.age=age;

this.gender=gender;

}

public void display(){

System.out.println("Name : "+name);

System.out.println("Age : "+age);

System.out.println("Address : "+address);

System.out.println("Gender : "+gender);

}

}

class FullTimeEmployee extends Employee{

/\*\* Derived class. Has salary and designation as attributes.

\* Has constructor and display method.

\*/

private int salary;

private String designation;

public FullTimeEmployee(String name,String address,int age,String gender,int salary,String designation){

super(name,address,age,gender);

this.salary=salary;

this.designation=designation;

}

public void display(){

super.display();

System.out.println("Salary : "+salary);

System.out.println("Designation : "+designation);

}

}

class PartTimeEmployee extends Employee{

/\*\* Derived class . Has Workinghour and rate per hour as fields.

\* Has constructor and calculate and display method

\*/

private int workingHour;

private int ratePerHour;

public PartTimeEmployee(String name,String address,int age,String gender,int workingHour,int ratePerHour){

super(name,address,age,gender);

this.workingHour=workingHour;

this.ratePerHour=ratePerHour;

}

public void display(){

super.display();

System.out.println("WorkingHour : "+workingHour);

System.out.println("RatePerHour : "+ratePerHour);

}

public int calculate(){

return workingHour\*ratePerHour;

}

}

public class Test{

public static void main(String args[]){

Scanner ip=new Scanner(System.in);

System.out.print("Enter Name : ");

String n=ip.next();

System.out.print("Enter address : ");

String a=ip.next();

System.out.print("Enter age : ");

int ag=ip.nextInt();

System.out.print("Enter Gender : ");

String g=ip.next();

System.out.print("Enter Salary : ");

int s=ip.nextInt();

System.out.print("Enter Designation : ");

String d=ip.next();

FullTimeEmployee Fobj=new FullTimeEmployee(n,a,ag,g,s,d);

Fobj.display();

System.out.print("Enter WorkingHour : ");

int w=ip.nextInt();

System.out.print("Enter rate : ");

int r=ip.nextInt();

PartTimeEmployee Pobj=new PartTimeEmployee(n,a,ag,g,w,r);

Pobj.display();

int ans=Pobj.calculate();

System.out.println("Pay Rs : "+ans);

}

}

imaumrudh@Aumrudh-PC:~/java/ex3/pgm5$ java Test

Enter Name : tj

Enter address : mahal\_area

Enter age : 18

Enter Gender : male

Enter Salary : 70000

Enter Designation : hr

Name : tj

Age : 18

Address : mahal\_area

Gender : male

Salary : 70000

Designation : hr

Enter WorkingHour : 25

Enter rate : 700

Name : tj

Age : 18

Address : mahal\_area

Gender : male

WorkingHour : 25

RatePerHour : 700

Pay Rs : 17500