/\* 1. Write a java program with a class named ‘Box’ with three parameters length, width and depth.

Inherit a class named ‘BoxWeight’ from ‘Box’ with an additional member weight of the box. Inherit

‘BoxShipment’ from ‘BoxWeight’ with an additional member shipmentcost. Calculate the volume

and cost for the box on shipment.\*/

class Box{

double length;

double width;

double depth;

Box(double x,double y,double z){

length=x;width=y;depth=z;

}

}

class BoxWeight extends Box{

double weight;

BoxWeight(double x, double y,double z,double w){

super(x,y,z);

weight=w;

}

double getLength(){return super.length;}

double getWidth(){return super.width;}

double getDepth(){return super.depth;}

}

class BoxShipment extends BoxWeight{

double shipmentCost;

BoxShipment(double x, double y,double z,double w){

super(x,y,z,w);

}

void calcCost(double rate){

double vol= super.getLength() \* super.getWidth() \* super.getDepth();

shipmentCost=vol\*rate;

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

System.out.println("Cost :"+shipmentCost);

}

}

public class BoxWork{

public static void main(String args[]){

BoxShipment BS=new BoxShipment(10.0,20.0,30.0,40.0);

BS.calcCost(2.50);

}

}

/\*Output:

Volume :6000.0

Cost :15000.0

\*/

/\*2. Develop a Java application with Employee class with Emp\_name, Emp\_id, Address, Mail\_id,

Mobile\_no as members. Inherit the classes, Programmer, Assistant Professor, Associate Professor

and Professor from employee class. Add Basic Pay (BP) as the member of all the inherited classes

with 97% of BP as DA, 10 % of BP as HRA, 12% of BP as PF, 0.1% of BP for staff club fund.

Generate pay slips for the employees with their gross and net salary.\*/

import java.util.Scanner;

class Employee{

String Emp\_name;

int Emp\_id;

String Address;

String Mail\_id;

String Mobile\_no;

void readDetails(){

Scanner in=new Scanner(System.in);

System.out.print("Enter Name :");Emp\_name=in.nextLine();

System.out.print("Enter ID :");Emp\_id=in.nextInt();

System.out.print("Enter Address :");Address=in.nextLine(); in.nextLine();

System.out.print("Enter Mail ID :");Mail\_id=in.nextLine();

System.out.print("Enter Mobile Number :");Mobile\_no=in.nextLine();

}

void display(){

System.out.println("Name: "+Emp\_name);

System.out.println("ID: "+Emp\_id);

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

System.out.println("Mail ID: "+Mail\_id);

System.out.println("Mobile Number: "+Mobile\_no);

}

}

class Programmer extends Employee{

double BP;

double DA,GS,NS;

double HRA,PF,SCF;

Programmer(double basic){

BP=basic;

DA=0.97\*basic;HRA=0.1\*basic;

GS=BP+DA+HRA;

PF=0.12\*basic;SCF=0.001\*basic;

double Ded=PF+SCF;

NS=GS-Ded;

}

void display(){

super.display();

System.out.println("BP: "+BP);

System.out.println("DA: "+DA);

System.out.println("HRA: "+HRA);

System.out.println("Gross Salary: "+GS);

System.out.println("PF: "+PF);

System.out.println("SCF: "+SCF);

System.out.println("Net Salary: "+NS);

}

}

class AssistantProfessor extends Employee{

double BP;

double DA,GS,NS;

double HRA,PF,SCF;

AssistantProfessor(double basic){

BP=basic;

DA=0.97\*basic;HRA=0.1\*basic;

GS=BP+DA+HRA;

PF=0.12\*basic;SCF=0.001\*basic;

double Ded=PF+SCF;

NS=GS-Ded;

}

void display(){

super.display();

System.out.println("BP: "+BP);

System.out.println("DA: "+DA);

System.out.println("HRA: "+HRA);

System.out.println("Gross Salary: "+GS);

System.out.println("PF: "+PF);

System.out.println("SCF: "+SCF);

System.out.println("Net Salary: "+NS);

}

}

class AssociateProfessor extends Employee{

double BP;

double DA,GS,NS;

double HRA,PF,SCF;

AssociateProfessor(double basic){

BP=basic;

DA=0.97\*basic;HRA=0.1\*basic;

GS=BP+DA+HRA;

PF=0.12\*basic;SCF=0.001\*basic;

double Ded=PF+SCF;

NS=GS-Ded;

}

void display(){

super.display();

System.out.println("BP: "+BP);

System.out.println("DA: "+DA);

System.out.println("HRA: "+HRA);

System.out.println("Gross Salary: "+GS);

System.out.println("PF: "+PF);

System.out.println("SCF: "+SCF);

System.out.println("Net Salary: "+NS);

}

}

class Professor extends Employee{

double BP;

double DA,GS,NS;

double HRA,PF,SCF;

Professor(double basic){

BP=basic;

DA=0.97\*basic;HRA=0.1\*basic;

GS=BP+DA+HRA;

PF=0.12\*basic;SCF=0.001\*basic;

double Ded=PF+SCF;

NS=GS-Ded;

}

void display(){

super.display();

System.out.println("BP: "+BP);

System.out.println("DA: "+DA);

System.out.println("HRA: "+HRA);

System.out.println("Gross Salary: "+GS);

System.out.println("PF: "+PF);

System.out.println("SCF: "+SCF);

System.out.println("Net Salary: "+NS);

}

}

public class PaySlip{

public static void main(String args[]){

Programmer prog=new Programmer(1000.0);

AssistantProfessor asstProf=new AssistantProfessor(10000.0);

AssociateProfessor assoProf=new AssociateProfessor(50000.0);

Professor Prof=new Professor(100000.0);

System.out.println("Enter details of Programmer");

prog.readDetails();

System.out.println();

System.out.println("Enter details of Assistant Professor");

asstProf.readDetails();

System.out.println();

System.out.println("Enter details of Associate Professor");

assoProf.readDetails();

System.out.println();

System.out.println("Enter details of Professor");

Prof.readDetails();

System.out.println();

System.out.println("Payslip of Programmer ");

prog.display();

System.out.println();

System.out.println("Payslip of Assistant Professor ");

asstProf.display();

System.out.println();

System.out.println("Payslip of Associate Professor ");

assoProf.display();

System.out.println();

System.out.println("Payslip of Professor ");

Prof.display();

}

}

/\*Output:

Enter details of Programmer

Enter Name :Shiva

Enter ID :1

Enter Address :Chennai

Enter Mail ID :asdf

Enter Mobile Number :1234

Enter details of Assistant Professor

Enter Name :Sharvan

Enter ID :2

Enter Address :Chennai

Enter Mail ID :;lkj

Enter Mobile Number :2345

Enter details of Associate Professor

Enter Name :Shashu

Enter ID :3

Enter Address :gfhj

Enter Mail ID :Bessie

Enter Mobile Number :3456

Enter details of Professor

Enter Name :Mash

Enter ID :4

Enter Address :Mandaveli

Enter Mail ID :zxcv

Enter Mobile Number :4567

Payslip of Programmer

Name: Shiva

ID: 1

Address:

Mail ID: asdf

Mobile Number: 1234

BP: 1000.0

DA: 970.0

HRA: 100.0

Gross Salary: 2070.0

PF: 120.0

SCF: 1.0

Net Salary: 1949.0

Payslip of Assistant Professor

Name: Sharvan

ID: 2

Address:

Mail ID: ;lkj

Mobile Number: 2345

BP: 10000.0

DA: 9700.0

HRA: 1000.0

Gross Salary: 20700.0

PF: 1200.0

SCF: 10.0

Net Salary: 19490.0

Payslip of Associate Professor

Name: Shashu

ID: 3

Address:

Mail ID: Bessie

Mobile Number: 3456

BP: 50000.0

DA: 48500.0

HRA: 5000.0

Gross Salary: 103500.0

PF: 6000.0

SCF: 50.0

Net Salary: 97450.0

Payslip of Professor

Name: Mash

ID: 4

Address:

Mail ID: zxcv

Mobile Number: 4567

BP: 100000.0

DA: 97000.0

HRA: 10000.0

Gross Salary: 207000.0

PF: 12000.0

SCF: 100.0

Net Salary: 194900.0

\*/

/\*3. Write a Java program with a class named ‘Person’ which consists of name, age, DOB and

address. Have functions to get input and calculate\_performance. Derive a class named ‘Student’

from ‘Person’ class with additional members like department, marks, extra-curricular. Calculate

performance of Student (Outstanding, Excellent, Good, Fair) based on the grade and extra-

curricular activities. Derive a class named ‘Professor’ from ‘Person’ with additional members like

department, number of publications and funded projects. Calculate performance of Professor based

on the number of publications and funded projects. In main get ‘n’ number of Persons' information

and calculate the performance.\*/

import java.util.Scanner;

abstract class Person{

String name;

int age;

int DOB[]=new int[3];

String Address;

public void readDetails(){

Scanner in=new Scanner(System.in);

System.out.print("Enter Name :");name=in.nextLine();

System.out.print("Enter age :");age=in.nextInt();

System.out.print("Enter Address :");Address=in.nextLine(); in.nextLine();

System.out.print("Enter DOB :");DOB[0]=in.nextInt();DOB[1]=in.nextInt();DOB[2]=in.nextInt();

}

abstract void calcPerformance();

}

class Student extends Person{

String dept;

double m1,m2,m3,total;

char grade;

String extraCurricular;

public void getDetails(){

super.readDetails();

Scanner in=new Scanner(System.in);

System.out.print("Enter department :");dept=in.nextLine();

System.out.print("Enter marks :");m1=in.nextDouble();m2=in.nextDouble();m3=in.nextDouble();in.nextLine();

System.out.print("Any Extracurricular?(Yes/No)");extraCurricular=in.nextLine();

}

public void calcTotal(){

total= m1+m2+m3;

}

public void calcGrade(){

if(total>90.0)

grade='O';

else if(total>80.0)

grade='A';

else if(total>70.0)

grade='B';

else if(total>60.0)

grade='C';

else if(total>50.0)

grade='D';

else

grade='F';

}

void calcPerformance(){

if(extraCurricular.equals("Yes")){

if(grade=='O'||grade=='A')

System.out.println("Outstanding");

else if(grade=='B')

System.out.println("Excellent");

else if(grade=='C')

System.out.println("Good");

else

System.out.println("Fair");

}

else{

if(grade=='O')

System.out.println("Outstanding");

else if(grade=='A')

System.out.println("Excellent");

else if(grade=='B')

System.out.println("Good");

else

System.out.println("Fair");

}

}

}

class Professor extends Person{

String dept;

int noPub;

int noFP;

public void getDetails(){

super.readDetails();

Scanner in=new Scanner(System.in);

System.out.print("Enter department :");dept=in.nextLine();

System.out.print("Enter number of publications :");noPub=in.nextInt();

System.out.print("Enter number of funded projects :");noFP=in.nextInt();

}

void calcPerformance(){

int sum=noPub+noFP;

if(sum>15)

System.out.println("Outstanding");

else if(sum>10)

System.out.println("Excellent");

else if(sum>7)

System.out.println("Good");

else

System.out.println("Fair");

}

}

public class Judgement{

public static void main(String args[]){

int SnumLimit,PnumLimit;

Student s=new Student();

Professor p=new Professor();

Scanner in=new Scanner(System.in);

System.out.print("Enter number of students");SnumLimit=in.nextInt();

System.out.print("Enter number of professors");PnumLimit=in.nextInt();

System.out.println("Enter details of students: ");

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

s.getDetails();

s.calcPerformance();

}

System.out.println("Enter details of professors: ");

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

p.getDetails();

p.calcPerformance();

}

}

}

/\*Output:

Enter number of students3

Enter number of professors2

Enter details of students:

Enter Name :A

Enter age :1

Enter Address :as

Enter DOB :1 2 3

Enter department :CSE

Enter marks :20 30 40

Any Extracurricular?(Yes/No)yes

Fair

Enter Name :B

Enter age :2

Enter Address :sd

Enter DOB :2 3 4

Enter department :CSE

Enter marks :30 40 50

Any Extracurricular?(Yes/No)Yes

Fair

Enter Name :C

Enter age :3

Enter Address :df

Enter DOB :3 4 5

Enter department :CSE

Enter marks :40 50 60

Any Extracurricular?(Yes/No)No

Fair

Enter details of professors:

Enter Name :

Enter age :4

Enter Address :fg

Enter DOB :4 5 6

Enter department :Chem

Enter number of publications :2

Enter number of funded projects :3

Fair

Enter Name :G

Enter age :45

Enter Address :gh

Enter DOB :5 6 7

Enter department :Chem

Enter number of publications :5

Enter number of funded projects :6

Excellent

\*/