**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**

class Employee{

String Emp\_name, Emp\_id,Address, Mail\_id;

long Mob\_no;

Employee(String name,String id,String addr,String mail,long phn){

Emp\_name=name;

Emp\_id=id;

Address=addr;

Mail\_id=mail;

Mob\_no=phn;

}

}

class Assistant\_professor extends Employee{

int bp;

Assistant\_professor(String name,String id,String addr,String mail,long phn,int pay){

super(name,id,addr,mail,phn);

bp = pay;

}

void payslip(){

float da = bp\*(0.97f);

float hra = bp\*(0.10f);

float pf = bp\*(0.12f);

float sc = bp\*(0.001f);

float net\_salary = (da + hra)- (pf+sc);

float gross\_salary = (da+hra);

System.out.println("the gross salary is"+ gross\_salary);

System.out.println("the net salary is"+ net\_salary);

}

}

class Associate\_professor extends Employee{

int bp;

Associate\_professor(String name,String id,String addr,String mail,long phn,int pay){

super(name,id,addr,mail,phn);

bp = pay;

}

void payslip(){

float da = bp\*(0.97f);

float hra = bp\*(0.10f);

float pf = bp\*(0.12f);

float sc = bp\*(0.001f);

float net\_salary = (da + hra)- (pf+sc);

float gross\_salary = (da+hra);

System.out.println("the gross salary is"+ gross\_salary);

System.out.println("the net salary is"+ net\_salary);

}

}

class Professor extends Employee{

int bp;

Professor(String name,String id,String addr,String mail,int phn,int pay){

super(name,id,addr,mail,phn);

bp = pay;

}

void payslip(){

float da = bp\*(0.97f);

float hra = bp\*(0.10f);

float pf = bp\*(0.12f);

float sc = bp\*(0.001f);

float net\_salary = (da + hra)- (pf+sc);

float gross\_salary = (da+hra);

System.out.println("the gross salary is"+ gross\_salary);

System.out.println("the net salary is"+ net\_salary);

}

}

public class Main

{

public static void main(String[] args) {

Assistant\_professor ap = new Assistant\_professor("haris","uius","hosur","haru@gmail.com",8688745,225050);

Associate\_professor ap1 = new Associate\_professor("jan","juju","hosur","jan@gmail.com",8454371,315300);

Professor p = new Professor("kan","uyy","cbe","bit@gmail.com",6304321,405030);

ap.payslip();

ap1.payslip();

p.payslip();

}

}

**A data member that stores the radius of a circle A constructor function with an argument that initializes the radius A function that computes and returns are of a circle Create two derived classes Sector and Segment that inherit the Circle class. Both classes inherit radius and the function that returns the circle&#39;s area from Circle. In addition to the members inherited from Circle, Sector and Segment have some specific members as follows:**

**Sector A data member that stores the control angle of a sector(in radians) A constructor function with arguments that initialize radius and angle A function that computes and returns the area of a sector Segment A data member that stores the angle of a segment in a circle A constructor function with arguments that initialize radius and angle A function that computes and returns the area of a segment Create the main () function to instantiate an object of each class and then call appropriate memb**

**Note :Area\_of\_circle =π r 2 Area\_of\_Sector=r 2 θ/2 Area\_of\_segment= ½ \* r 2 ( θ – sin θ)**

class Circle

{

float r;

Circle(float rad)

{

r= rad;

}

float area ()

{

return 3.14f\*r\*r;

}

}

class Sector extends Circle

{

int angle;

Sector(float r , int angle)

{

super(r);

this.angle = angle;

}

float area ()

{

return 0.5f \* r \* r \* angle;

}

}

class Segment extends Circle

{

int angle;

Segment(float r , int angle )

{

super(r);

this.angle = angle;

}

float area()

{

return ((float)(0.5f\*(r\*r)\*(angle-Math.sin(angle))));

}

}

public class Main{

public static void main (String[] args) {

System.out.println("Area of :");

Circle c = new Circle(8.5f);

System.out.println("Circle = " +c.area());

Sector sec = new Sector(6.5f , 45);

System.out.println("Sector = " +sec.area());

Segment seg = new Segment(5.5f , 70);

System.out.println("Segment = " +sec.area());

}

}

**Abstract class :**

abstract class Figure{

double dim1,dim2;

Figure(double a,double b){

dim1 = a;

dim2 = b;

}

abstract double area();

}

class Rectangle extends Figure{

Rectangle(double a,double b){

super(a,b);

}

double area(){

return dim1\*dim2;

}

}

class Triangle extends Figure{

Triangle(double a,double b){

super(a,b);

}

double area(){

return (0.5\*dim1\*dim2);

}

}

public class Main

{

public static void main(String[] args) {

Rectangle r = new Rectangle(8,9);

Triangle t= new Triangle(4,8);

Figure superref;

superref = r;

System.out.println("AREA:");

System.out.println("Rectangle = "+ superref.area());

superref = t;

System.out.println("Triangle = "+ superref.area());

}

}