**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("Pavithra","4045","guntur","kolukula222@gmail.com",12562,27000);

Associate\_professor ap1 = new Associate\_professor("chinna","4444","guntur","chinna@gmail.com",45578,56500);

Professor p = new Professor("pragna","4545","chennai","pragna@gmail.com",46678,78245);

ap.payslip();

ap1.payslip();

p.payslip();

}

}

**Output**:

the gross salary is31030.0

the net salary is27521.0

the gross salary is60455.0

the net salary is53618.5

the gross salary is84578.15

the net salary is75013.7

2.**Create a Circle class with following members.**

**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)**

import java.lang.Math;

class Circle{

float radius;

public Circle(float r){

radius = r;

}

float cirArea(){

return (3.14f\*radius\*radius);

}

}

class Sector extends Circle{

float angle;

public Sector(float r,float ang){

super(r);

angle = ang;

}

float secArea(){

return (0.5f\*(radius\*radius)\*angle);

}

}

class Segment extends Circle{

float angle;

public Segment(float r,float ang){

super(r);

angle = ang;

}

float segArea(){

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

}

}

public class Main

{

public static void main(String[] args) {

Circle c = new Circle(5);

float cir = c.cirArea();

System.out.println("the circle area is "+ cir);

Sector s = new Sector(5,45);

float sec = s.secArea();

System.out.println("the sector area is "+ sec);

Segment sg = new Segment(11,35);

float seg = sg.segArea();

System.out.println("the segment area is "+ seg);

}

}

Output:

the circle area is 78.5

the sector area is 562.5

the segment area is 2143.405

[Program finished]

3. 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(5,9);

Triangle t= new Triangle(6,8);

Figure superref;

superref = r;

System.out.println("area is "+ superref.area());

superref = t;

System.out.println("area is "+ superref.area());

}

}

Output:

area is 63.0

area is 28.0

[Program finished]