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# ***Ex-3:***

1 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.

Program:

class Employee

{

String name,id,address,mail;

int phone;

Employee(String name, String id,String address,String mail,int phone)

{

this.name=name;this.address=address;this.mail=mail;this.phone=phone;

}

}

class AssistantProfessor extends Employee

{

int BP;

AssistantProfessor(String name,String id,String address ,String mail,int phone,int BP )

{

super(name,id,address,mail,phone);

this.BP=BP;

}

void paySlip()

{

float DA= BP\*0.97f;

float HRA =BP\*0.1f;

float PF=BP\*0.12F;

float club=BP\*0.01f;

float GP=BP+DA+HRA;

float NP=GP-PF-club;

System.out.println("gross salary of Assistantprofessor :"+GP);

System.out.println("Net salary of Assistanceprofessor :"+NP);

}

}

class AssociateProfessor extends Employee

{

int BP;

AssociateProfessor(String name,String id,String address ,String mail,int phone,int BP )

{

super(name,id,address,mail,phone);

this.BP=BP;

}

void paySlip()

{

float DA= BP\*0.97f;

float HRA =BP\*0.1f;

float PF=BP\*0.12F;

float club=BP\*0.01f;

float GP=BP+DA+HRA;

float NP=GP-PF-club;

System.out.println("gross salary of Associateprofessor:"+GP);

System.out.println("Net salary of Associateprofessor :"+NP);

}

}

class Professor extends Employee

{

int BP;

Professor(String name,String id,String address ,String mail,int phone,int BP )

{

super(name,id,address,mail,phone);

this.BP=BP;

}

void paySlip()

{

float DA= BP\*0.97f;

float HRA =BP\*0.1f;

float PF=BP\*0.12F;

float club=BP\*0.01f;

float GP=BP+DA+HRA;

float NP=GP-PF-club;

System.out.println("gross salary of professor :"+GP);

System.out.println("Net salary of professor :"+NP);

}

}

public class MyClass {

public static void main(String args[]) {

AssistantProfessor Assip=new AssistantProfessor("Ravi ","4137","CHIRALA ","ravi@klu.ac.in",9632587410,25000);

AssociateProfessor Assop=new AssociateProfessor("Raghu ","4333","guntur","Raghu@klu.ac.in ",7412580963,34000);

Professor p=new Professor("Ramu ","4555","Perala","4555@klu.ac.in",8855697428,36500);

Assip.paySlip();

Assop.paySlip();

p.paySlip();

}

}

output::

gross salary of Assistantprofessor :51750.0

Net salary of Assistanceprofessor :48500.0

gross salary of Associateprofessor:70380.0

Net salary of Associateprofessor :65960.0

gross salary of professor :75555.0

Net salary of professor :70810.0

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 radiusA 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

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)

Program :

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

}

}

public class Test{

public static void main(String[] args)

{

Circle c=new Circle(6);

System.out.println("Area of circle :"+c.area());

Sector sec=new Sector(22,4);

System.out.println("Area of sector :"+sec.area());

Segment seg=new Segment(6,4);

System.out.println("Area of segment :"+seg.area());

}

}

output::

Area of circle :113.04

Area of sector :968.0

Area of segment :85.622444

**3.**

**Program on abstract.**

Program :

abstract class Figure

{

float dim1,dim2;

Figure(float d1,float d2)

{

dim1=d1;

dim2=d2;

}

abstract double area();

}

class Rectangle extends Figure

{

Rectangle (float l,float b)

{

super(l,b);

}

double area()

{

return dim1\*dim2;

}

}

class Triangle extends Figure

{

Triangle(float l,float h)

{

super(l,h);

}

double area()

{

return 0.5f\*dim1\*dim2;

}

}

public class Test{

public static void main(String[] args)

{

Rectangle r=new Rectangle(3,4);

Triangle t=new Triangle(9,4);

Figure f;

f=r;

System.out.println("Area of rectangle :"+f.area());

f=t;

System.out.println("Area of Triangle : "+f.area());

}

}

Output:

Area of rectangle :35.00

Area of Triangle : 24.0

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

}

}

public class Test{

public static void main(String[] args)

{

Circle c=new Circle(6);

System.out.println("Area of circle :"+c.area());

Sector sec=new Sector(22,4);

System.out.println("Area of sector :"+sec.area());

Segment seg=new Segment(6,4);

System.out.println("Area of segment :"+seg.area());

}

}

output::

Area of circle :113.04

Area of sector :968.0

Area of segment :85.622444

**3.**

**Program on abstract.**

Program :

abstract class Figure

{

float dim1,dim2;

Figure(float d1,float d2)

{

dim1=d1;

dim2=d2;

}

abstract double area();

}

class Rectangle extends Figure

{

Rectangle (float l,float b)

{

super(l,b);

}

double area()

{

return dim1\*dim2;

}

}

class Triangle extends Figure

{

Triangle(float l,float h)

{

super(l,h);

}

double area()

{

return 0.5f\*dim1\*dim2;

}

}

public class Test{

public static void main(String[] args)

{

Rectangle r=new Rectangle(3,4);

Triangle t=new Triangle(9,4);

Figure f;

f=r;

System.out.println("Area of rectangle :"+f.area());

f=t;

System.out.println("Area of Triangle : "+f.area());

}

}

Output:

Area of rectangle: 12.0

Area of Triangle : 18.0