**1.calculate area and volume of circle using  
inheritance.  
import java.util.\*;  
class Area{  
double r,A;  
Area(double r)  
{  
this.r=r;  
}  
void cal\_area()  
{  
A=3.14\*r\*r;  
System.out.println(" area:" +A);  
}  
}**

**class volume extends Area{  
double h,V;  
volume(double r, double h)  
{  
super(r);  
this.h=h;  
}  
void cal\_vol()  
{  
V=A\*h;  
System.out.println("volume is:" +V);  
}  
}  
public class Main  
{**

**public static void main(String[] args) {  
double r,h;  
Scanner sc=new Scanner(System.in);  
System.out.println("enter the value of r  
and h:");  
r=sc.nextInt();  
h=sc.nextInt();  
volume v1=new volume(r,h);  
v1.cal\_area();  
v1.cal\_vol();  
}  
}  
Output:  
enter the value of r and h:  
3**

**2  
area:28.259999999999998  
volume is:56.519999999999996  
2.student information using inheritance.  
import java.util.\*;  
class student{  
int rollno;  
String name;  
student( int rollno ,String name )  
{  
this.rollno=rollno;  
this.name=name;  
}**

**void show()  
{  
System.out.println("name: "+name);  
System.out.println("roll: "+rollno);  
}  
}  
class x\_student extends student  
{  
String cname;  
double salary;  
x\_student(int rollno,String name,String  
cname,double salary)  
{  
super( rollno ,name);  
this.cname=cname;**

**this.salary=salary;  
}  
void display()  
{  
System.out.println("company name:"+cname);  
System.out.println("salary:"+salary);  
}  
}  
public class Main  
{  
public static void main(String[] args) {  
int rollno;  
String name ,cname;  
Double salary;**

**Scanner sc=new Scanner(System.in);  
System.out.println("enter the value of  
roll,name,cname,salary::");  
rollno=sc.nextInt();  
name=sc.next();  
cname=sc.next();  
salary=sc.nextDouble();  
x\_student v1=new  
x\_student(rollno,name,cname,salary);  
v1.show();  
v1.display();  
}  
}  
Output:  
enter the value of roll,name,cname,salary::  
1**

**irani  
infosis  
25000  
name: irani  
roll: 1  
company name:infosis  
salary:25000.0  
3.student using inheritance and array of  
object.  
import java.util.\*;  
class student{  
int rollno;  
String name;**

**student( int rollno ,String name )  
{  
this.rollno=rollno;  
this.name=name;  
}  
void show()  
{  
System.out.println("name: "+name);  
System.out.println("roll: "+rollno);  
}  
}  
class x\_student extends student  
{  
String cname;  
double salary;**

**x\_student(int rollno,String name,String  
cname,double salary)  
{  
super( rollno ,name);  
this.cname=cname;  
this.salary=salary;  
}  
void display()  
{  
System.out.println("company name:"+cname);  
System.out.println("salary:"+salary);  
}  
}  
public class Main  
{**

**public static void main(String[] args) {  
int rollno;  
String name ,cname;  
Double salary;  
Scanner sc=new Scanner(System.in);  
int i,n;  
System.out.println("enter the record");  
n=sc.nextInt();  
x\_student v1[]=new x\_student[n];  
for(i=0;i<n;i++)  
{  
System.out.println("enter the value of  
roll,name,cname,salary::");  
rollno=sc.nextInt();**

**name=sc.next();  
cname=sc.next();  
salary=sc.nextDouble();  
v1[i]=new  
x\_student(rollno,name,cname,salary);  
v1[i].show();  
v1[i].display();  
}  
}  
}  
Output:  
enter the record  
2  
enter the value of roll,name,cname,salary::  
1**

**nita  
abc  
25000  
name: nita  
roll: 1  
company name:abc  
salary:25000.0  
enter the value of roll,name,cname,salary::  
2  
nitya  
amezon  
30000  
name: nitya  
roll: 2  
company name:amezon**

**salary:30000.0  
4. Define a class “Employee” which has  
members id, name, date of birth. Define  
another class “Manager” which has members  
department name and joining date and extends  
Employee. Create n objects of the manager class.  
import java.util.\*;  
class employee{  
int id;  
String name;  
String DOB;  
employee( int id,String name , String DOB)  
{  
this.id=id;**

**this.name=name;  
this.DOB=DOB;  
}  
void show()  
{  
System.out.println("ID: "+id);  
System.out.println("name: "+name);  
System.out.println("DOB: "+DOB);  
}  
}  
class manager extends employee  
{  
String depatment;  
String date\_of\_joine;**

**manager(int id,String name,String DOB,String  
depatment,String date\_of\_joine)  
{  
super(id,name,DOB);  
this.depatment=depatment;  
this.date\_of\_joine=date\_of\_joine;  
}  
void display()  
{  
System.out.println("depatment:"+depatment);  
System.out.println("date\_of\_joine:"+date\_of\_joi  
ne);  
}  
}**

**public class Main  
{  
public static void main(String[] args) {  
int id;  
String name  
,depatment,date\_of\_joine,DOB;  
Scanner sc=new Scanner(System.in);  
System.out.println("enter the value of  
id,name,DOB,depatment,date\_of\_joine:");  
id=sc.nextInt();  
name=sc.next();  
DOB=sc.next();  
depatment=sc.next();  
date\_of\_joine=sc.next();**

**manager v1=new  
manager(id,name,DOB,depatment,date\_of\_joine);  
v1.show();  
v1.display();  
}  
}  
Output:  
enter the value of  
id,name,DOB,depatment,date\_of\_joine:  
101  
isha  
20-2-2002  
bcs  
23-9-2023  
ID: 101**

**name: isha  
DOB: 20-2-2002  
depatment:bcs  
date\_of\_joine:23-9-2023  
5.using array of object  
import java.util.\*;  
class employee{  
int id;  
String name;  
String DOB;  
employee( int id,String name , String DOB)  
{  
this.id=id;**

**this.name=name;  
this.DOB=DOB;  
}  
void show()  
{  
System.out.println("ID: "+id);  
System.out.println("name: "+name);  
System.out.println("DOB: "+DOB);  
}  
}  
class manager extends employee  
{  
String depatment;  
String date\_of\_joine;**

**manager(int id,String name,String DOB,String  
depatment,String date\_of\_joine)  
{  
super(id,name,DOB);  
this.depatment=depatment;  
this.date\_of\_joine=date\_of\_joine;  
}  
void display()  
{  
System.out.println("depatment:"+depatment);  
System.out.println("date\_of\_joine:"+date\_of\_joi  
ne);  
}  
}**

**public class Main  
{  
public static void main(String[] args) {  
int id;  
String name  
,depatment,date\_of\_joine,DOB;  
Scanner sc=new Scanner(System.in);  
int i,n;  
System.out.println("enter the record");  
n=sc.nextInt();  
manager[] m1=new manager[n];  
for(i=0;i<n;i++)  
{  
System.out.println("enter the value of  
id,name,DOB,depatment,date\_of\_joine:");**

**id=sc.nextInt();  
name=sc.next();  
DOB=sc.next();  
depatment=sc.next();  
date\_of\_joine=sc.next();  
m1[i]=new  
manager(id,name,DOB,depatment,date\_of\_joine);  
m1[i].show();  
m1[i].display();  
}  
}  
}  
Output:  
enter the record  
2**

**enter the value of  
id,name,DOB,depatment,date\_of\_joine:  
11  
meera  
20-7-2002  
bcs  
23-9-2023  
ID: 11  
name: meera  
DOB: 20-7-2002  
depatment:bcs  
date\_of\_joine:23-9-2023  
enter the value of  
id,name,DOB,depatment,date\_of\_joine:  
12  
mitali**

**21-9-2001  
bca  
21-9-2020  
ID: 12  
name: mitali  
DOB: 21-9-2001  
depatment:bca  
date\_of\_joine:21-9-2020  
6. Define an Employee class with suitable  
attributes having getsalary() method, which  
returns salary withdrawn by a particular  
employee. Write a class Manager which  
extends a class Employee, the calsal() method,  
which will return salary of manager by adding  
traveling allowance, house rent allowance etc.  
Employee(eid,ename,bs)**

**Manager(hra,ta,da,gs)  
import java.util.Scanner;  
class Emp{  
int eid;  
double bs;  
String ename;  
Emp(int eid , String ename , double bs)  
{  
this.eid=eid;  
this.ename=ename;  
this.bs=bs;  
}  
double getsalary()  
{**

**return bs;  
}  
void display()  
{  
System.out.println("Employee id is " +  
eid);  
System.out.println("Employee name is " +  
ename);  
System.out.println("Employee base salary  
is " + bs);  
}  
}  
class Manager extends Emp  
{  
double ta,da,gs,hra;  
Manager(int eid,String ename,double bs)**

**{  
super(eid,ename,bs);  
}  
double cal\_sal()  
{  
hra=bs\*0.50;  
ta=getsalary()\*0.40;  
da=getsalary()\*0.30;  
gs=getsalary()+hra+ta+da;  
return gs;  
}  
void show()  
{**

**System.out.println("Total gross salary is " +  
cal\_sal());  
}  
}  
public class Main  
{  
public static void main(String[] args)  
{  
int eid;  
String ename;  
double ta,da,gs,hra,bs;  
Scanner sc=new Scanner(System.in);  
System.out.println("Enter the employee  
id,employee name,base salary");**

**eid=sc.nextInt();  
ename=sc.next();  
bs=sc.nextDouble();  
Manager m=new Manager(eid,ename,bs);  
m.cal\_sal();  
m.show();  
m.display();  
}  
}  
Output:  
Enter the employee id,employee name,base salary  
1  
Nitya  
23000  
Total gross salary is 50600.0**

**Employee id is 1  
Employee name is nitya  
Employee base salary is 23000.0  
7.array of object  
import java.util.Scanner;  
class Emp{  
int eid;  
double bs;  
String ename;  
Emp(int eid , String ename , double bs)  
{  
this.eid=eid;  
this.ename=ename;  
this.bs=bs;**

**}  
double getsalary()  
{  
return bs;  
}  
void display()  
{  
System.out.println("Employee id is " +  
eid);  
System.out.println("Employee name is " +  
ename);  
System.out.println("Employee base salary  
is " + bs);  
}  
}  
class Manager extends Emp**

**{  
double ta,da,gs,hra;  
Manager(int eid,String ename,double bs)  
{  
super(eid,ename,bs);  
}  
double cal\_sal()  
{  
hra=bs\*0.50;  
ta=getsalary()\*0.40;  
da=getsalary()\*0.30;  
gs=getsalary()+hra+ta+da;  
return gs;  
}**

**void show()  
{  
System.out.println("Total gross salary is " +  
cal\_sal());  
}  
}  
public class Main  
{  
public static void main(String[] args)  
{  
int eid;  
String ename;  
double ta,da,gs,hra,bs;**

**int n,i;  
Scanner sc=new Scanner(System.in);  
System.out.println("enter the n:");  
n=sc.nextInt();  
Manager m[]=new Manager[n];  
for( i=0;i<n;i++);  
{  
System.out.println("Enter the employee  
id,employee name,base salary");  
eid=sc.nextInt();  
ename=sc.next();  
bs=sc.nextDouble();  
m[i]=new Manager(eid,ename,bs);  
m[i].cal\_sal();  
m[i].show();**

**m[i].display();  
}  
}  
}**