Inheritance:

**import** points.\*;

**public** **class** Inheritance {

**public** **static** **void** main(String[] args) {

**int** i;

**float** n;

**float**[] arr=**new** **float**[3];

Point3D p3=**new** Point3D(3.5f,6.5f,0.0f);

**do**

{

System.*out*.println("SELECT ONE OPTION:1.GET X 2.SET X 3.SET Y 4.GET Y 5.SET Z 6.GET Z 7.SET XY 8.GET XY 9.SET XYZ 10.GET XYZ 11.XY TOSTRING"+

" 12.XYZ TOSTRING 13.EXIT");

Scanner sc=**new** Scanner(System.*in*);

i=sc.nextInt();

**switch** (i)

{

**case** 1:

System.*out*.println("X VALUE IS:"+p3.getX());

**break**;

**case** 2:

System.*out*.println("enter a value:");

n=sc.nextFloat();

p3.setX(n);

**break**;

**case** 3:

System.*out*.println("enter a value:");

n=sc.nextFloat();

p3.setY(n);

**break**;

**case** 4:

System.*out*.println("Y VALUE IS:"+p3.getY());

**break**;

**case** 5:

System.*out*.println("enter a value:");

n=sc.nextFloat();

p3.setZ(n);

**break**;

**case** 6:

System.*out*.println("Z VALUE IS:"+p3.getZ());

**break**;

**case** 7:

p3.setXY();

**break**;

**case** 8:

arr=p3.getXY();

System.*out*.println("X,Y VALUE IS:"+"{"+arr[0]+","+arr[1]+"}");

**break**;

**case** 9:

p3.setXYZ();

**break**;

**case** 10:

arr=p3.getXYZ();

System.*out*.println("X,Y,Z VALUE IS:"+"{"+arr[0]+","+arr[1]+","+arr[2]+"}");

**break**;

**case** 11:

System.*out*.println(p3.toString());

**break**;

**case** 12:

System.*out*.println(p3.toStrings());

**break**;

**case** 13:

System.*out*.println("...........EXIT..........");

**break**;

**default**:

System.*out*.println("PLEASE ENTER A VALID OPTION");

}

}**while**(i!=13);

}

}

**package** points;

**public** **class** Point2D {

**private** **float** x=0.0f;

**private** **float** y=0.0f;

**float**[] arr=**new** **float**[3];

**public** Point2D(**float** x1,**float** y1)

{

x=x1;

y=y1;

}

**public** **float** getX() {

**return** x;

}

**public** **void** setX(**float** x) {

**this**.x = x;

}

**public** **float** getY() {

**return** y;

}

**public** **void** setY(**float** y) {

**this**.y = y;

}

**public** **void** setXY(){

**this**.arr[0]=x;

**this**.arr[1]=y;

}

**public** **float**[] getXY()

{

**return** arr;

}

**public** String toString()

{

**return** "\""+"("+x+","+y+")"+"\"";

}

}

**package** points;

**public** **class** Point3D **extends** Point2D{

**private** **float** z=0.0f;

**public** Point3D(**float** x1,**float** y1,**float** z1)

{

**super**(x1,y1);

z=z1;

}

**public** **float** getZ() {

**return** z;

}

**public** **void** setZ(**float** z) {

**this**.z = z;

}

**public** **void** setXYZ(){

**this**.arr[2]=z;

}

**public** **float**[] getXYZ()

{

**return** arr;

}

**public** String toStrings()

{

**return** "\""+"("+getX()+","+getY()+","+z+")"+"\"";

}

}

Packages:

**package** realjava.decision;

**public** **class** Max2 {

**int** n1,n2;

**public** Max2(**int** a1,**int** a2)

{

n1=a1;

n2=a2;

}

**public** **int** max2()

{

**if** (n1>n2)

**return** n1;

**else**

**return** n2;

}

}

**package** realjava.decision;

**public** **class** Max3 {

**int** n1,n2,n3;

**public** Max3(**int** a1,**int** a2,**int** a3)

{

n1=a1;

n2=a2;

n3=a3;

}

**public** **int** max3()

{

**if** (n1>n2)

{

**if** (n1>n3)

**return** n1;

**else**

**return** n3;

}

**else**

{

**if** (n2>n3)

**return** n2;

**else**

**return** n3;

}

}

}

**package** realjava.loops;

**public** **class** FactN {

**int** n,r=1;

**public** FactN(**int** a)

{

n=a;

}

**public** **int** factn()

{

**if** (n==0)

**return** 1;

**else**{

**while**(n!=0)

{

r\*=n;

--n;

}

**return** r;

}

}

}

**package** realjava.loops;

**public** **class** SumN {

**int** n,sum=0;

**public** SumN(**int** a)

{

n=a;

}

**public** **int** sumn()

{

**for**(**int** i=0;i<=n;i++)

sum+=i;

**return** sum;

}

}

**package** packageDemo;

**import** java.util.Scanner;

**import** realjava.decision.\*;

**import** realjava.loops.\*;

**public** **class** Packages {

**public** **static** **void** main(String[] args) {

Scanner sc=**new** Scanner(System.*in*);

System.*out*.print("ENTER NO.OF TERMS TO SUM:");

SumN sn=**new** SumN(sc.nextInt());

System.*out*.print("ENTER A NUMBER TO GET FACTORIAL:");

FactN fn=**new** FactN(sc.nextInt());

System.*out*.print("ENTER TWO NUMBERS:");

Max2 m2=**new** Max2(sc.nextInt(),sc.nextInt());

System.*out*.print("ENTER THREE NUMBERS:");

Max3 m3=**new** Max3(sc.nextInt(),sc.nextInt(),sc.nextInt());

System.*out*.println("SUM OF GIVEN TERMS:"+sn.sumn());

System.*out*.println("FACTORIAL OF GIVEN NUMBER:"+fn.factn());

System.*out*.println("GREATEST AMONG TWO NUMBERRS:"+m2.max2());

System.*out*.println("GREATEST AMONG THREE NUMBERS:"+m3.max3());

}

}

Abstract class:

**package** abstract\_classes;

**public** **abstract** **class** Bank {

**public** **abstract** **void** getBalance();

}

**package** abstrc\_classes;

**import** abstract\_classes.\*;

**public** **class** BankA **extends** Bank

{

**int** balance;

**public** BankA()

{

balance=100;

}

**public** **void** getBalance()

{

System.*out*.println("BALANCE IN BANKA:"+balance);

}

}

**package** abstrc\_classes;

**import** abstract\_classes.\*;

**public** **class** BankB **extends** Bank{

**int** balance;

**public** BankB()

{

balance=150;

}

**public** **void** getBalance()

{

System.*out*.println("BALANCE IN BANKB:"+balance);

}

}

**package** abstrc\_classes;

**import** abstract\_classes.\*;

**public** **class** BankC **extends** Bank{

**int** balance;

**public** BankC()

{

balance=200;

}

**public** **void** getBalance()

{

System.*out*.println("BALANCE IN BANKC:"+balance);

}

}

**package** abstract\_;

**import** abstrc\_classes.\*;

**public** **class** AbstractDemo {

**public** **static** **void** main(String[] args) {

BankA b1=**new** BankA();

BankB b2=**new** BankB();

BankC b3=**new** BankC();

b1.getBalance();

b2.getBalance();

b3.getBalance();

}

}

Multiple inheritance:

**package** multipleInheritence;

**public** **interface** Core\_Os {

**int** *keys*=101;

**public** **void** core();

**public** **void** operatingSystem();

**public** **void** cost();

**public** **void** version();

}

**package** multipleInheritence;

**public** **interface** Memory\_Outline {

**public** **void** SSD();

**public** **void** RAM();

**public** **void** flexibility();

**public** **void** colour();

}

**package** multipleInheritenceDemo;

**import** multipleInheritence.\*;

**public** **class** Laptop **implements** Core\_Os,Memory\_Outline

{

String core,os,version,colour,name;

**int** ssd,ram,cost,flexibility;

**public** Laptop( String nam,String c,String Os,String ver,String col,**int** sd,**int** rm,**int** ct,**int** flex)

{

name=nam;

core=c;

os=Os;

version=ver;

colour=col;

ssd=sd;

ram=rm;

cost=ct;

flexibility=flex;

}

**public** **void** core()

{

System.*out*.println("MY LAPTOP BRAND IS :"+name);

System.*out*.println("CORE OF MY LAPTOP IS :"+core);

}

**public** **void** operatingSystem()

{

System.*out*.println("OPERATING SYSTEM OF MY LAPTOP IS :"+os);

}

**public** **void** version()

{

System.*out*.println("CURRENT VERSION IN MY LAPTOP IS :"+version);

}

**public** **void** SSD()

{

System.*out*.println("STORAGE CAPACITY IN MY LAPTOP IS :"+ssd+"GB");

}

**public** **void** RAM()

{

System.*out*.println("PROCESSOR SPEED OF MY LAPTOP IS :"+ram+"GB RAM");

}

**public** **void** flexibility()

{

System.*out*.println("FLEXIBILITY :"+flexibility+"degres");

}

**public** **void** cost()

{

System.*out*.println("PRICE OF MY LAPTOP IS :"+cost);

}

**public** **void** colour()

{

System.*out*.println("COLOUR OF MY LAPTOP IS :"+colour);

}

}

**package** multipleInheretence;

**import** multipleInheritenceDemo.\*;

**public** **class** Lenovo {

**public** **static** **void** main(String[] args) {

Laptop lp=**new** Laptop("LENOVO","INTEL","WINDOWS","11thGENERETION","GREY",256,8,60000,90);

lp.core();

lp.operatingSystem();

lp.version();

lp.SSD();

lp.RAM();

lp.cost();

lp.colour();

lp.flexibility();

}

}