	Week-8 3
	Extra paograms
1	
1,	import java-util-scanner.
-	abstract class solid
-	E double gradier, sa, vol;
	abstract void SAC)
	abetrad void volci;
	class (110)
	Laks Cylinder extende solid
	l' double height;
	void sotDatu (double n, doubleh) & nadius: 2:
	3 height = h;
	void 8 A()
	E sa = 2x3. 14x nadivariandian 1
	E sa: 2x3.14x nadiux(nedius + height);
	void vous
	E vol-3.14 * nadine * nadine * height
	vood display()
	I system out printly ( The sworpace area of
10	the cylinder is: "+sa);
	System out printly ("The volume of the
-	ylinder is: "tvol);
-	3
	3
-	chall Come extends Polid
	L' double height;
	· Void setDalta (double 91, double h)
	E radius=r;
	q hight = h;
	void 8A()
	E & a = 3.14 + nadiu + (Math. 1 gr. + (Chuight + huight)  Heradius + na dius)) + nadius [ 3
	That we day the

void voll) vol= (3. 11) \* radius \* radius \* hught)13. void display() & System out printle (" The surface area of the corle is: "+ sa); System-out-printler (" The volume of the con w: " +vol); class sphere extends solid Void getData (double a) { radius=r; void SAC) 1 ha- 3. W x 4 x radius & radius; void voll) ( vol: 4 3.14 & radius & radius & radius)/3 void displays) Suptem out printle (" The surface area of the sphere is: "tool); des Solid Main public Static void main (8 tring args []) double on, hi Scanner sc=nue Scanner ( system in Cylinder obl= new Cylinder () Come ob2 = new Conely; Sphere ob3 = new Sphere !!

Bystem out printly ("Enter the radius and height of the cylinder"), az Vs (· next Doubles) h= scrutDouble(); ob1. 1d Data (9, h) obl. SAC); opt-volc); System out println ("Enter the gradius and height of the cone"); or= V& (. whatDouble C); h= sc. nextDouble(); obd. setData (n,h): Ob 2. SAC); 1 + SAL). Obd. Voll) obd. display(); Suptemout println (" Enter the rading of the 9 = Sc-next Double(); ob3. setData(n); 053.8AC) 1 Ob3. Voll) ob3. displayes

```
import java.util.Scanner;
abstract class Solid
 double radius, sa, vol;
 abstract void SA();
 abstract void Vol();
}
class Cylinder extends Solid
{
 double height;
 void setData(double r, double h)
 {
  radius=r;
  height=h;
 }
 void SA()
  sa=2*3.14*radius*(height+radius);
 }
 void Vol()
  vol=3.14*radius*radius*height;
 }
 void display()
 {
  System.out.println("The surface area of the cylinder is: "+sa);
  System.out.println("The volume of the cylinder is: "+vol);
 }
}
```

```
class Cone extends Solid
 double height;
 void setData(double r, double h)
  radius=r;
  height=h;
 }
 void SA()
 {
  sa=3.14*radius*(Math.sqrt((height*height)+(radius*radius))+radius);
 }
 void Vol()
  vol=(3.14*radius*radius*height)/3;
 void display()
  System.out.println("The surface area of the cone is: "+sa);
  System.out.println("The volume of the cone is: "+vol);
 }
}
class Sphere extends Solid
{
 void setData(double r)
 {
  radius=r;
 }
 void SA()
```

```
{
  sa=3.14*4*radius*radius;
 }
 void Vol()
  vol=(4*3.14*radius*radius*radius)/3;
 }
 void display()
 {
  System.out.println("The surface area of the sphere is: "+sa);
  System.out.println("The volume of the sphere is: "+vol);
 }
}
class SolidMain
 public static void main(String args[])
 {
  double r,h;
  Scanner sc=new Scanner(System.in);
  Cylinder ob1=new Cylinder();
  Cone ob2=new Cone();
  Sphere ob3=new Sphere();
  System.out.println("Enter the radius and height of the cylinder");
  r=sc.nextDouble();
  h=sc.nextDouble();
  ob1.setData(r,h);
  ob1.SA();
  ob1.Vol();
  ob1.display();
```

```
System.out.println("Enter the radius and height of the cone");
  r=sc.nextDouble();
  h=sc.nextDouble();
  ob2.setData(r,h);
  ob2.SA();
  ob2.Vol();
  ob2.display();
  System.out.println("Enter the radius of the sphere");
  r=sc.nextDouble();
  ob3.setData(r);
  ob3.SA();
  ob3.Vol();
  ob3.display();
 }
}
C:\Users\Adithi\Desktop\java prgs>java SolidMain
Enter the radius and height of the cylinder
2.4
3.9
The surface area of the cylinder is: 94.9536
The volume of the cylinder is: 70.53696
Enter the radius and height of the cone
9.4
The surface area of the cone is: 72.91338121431144
The volume of the cone is: 39.35466666666667
Enter the radius of the sphere
The surface area of the sphere is: 113.03999999999999
The volume of the sphere is: 113.04
C:\Users\Adithi\Desktop\java_prgs>
```