1BM19CS073
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EXTRA PROGRAMS

Program: Solids

```
import java.util.*;
abstract class Solid
{
	int dim1,dim2;
	abstract void printArea();
	abstract void printVolume();
	Solid(int a,int b)
	{
		dim1 = a;
		dim2 = b;
	}

}
class Cylinder extends Shape
{
	Cylinder(int a,int b)
	{
		super(a,b);
	}
	void printArea()
	{
		System.out.println("The surface area of cylinder =
"+(6.283185*(dim1*dim2)*(dim1+dim2))+" sq.units");
	}
	void printVolume()
	{
		System.out.println("The volume of the cylinder = "+(3.141592*dim1*dim1*dim2)+"
cubic units");
	}
}
class Cone extends Shape
{
	Cone(int a,int b)
	{
		super(a,b);
	}
	void printArea()
	{
		double l = Math.sqrt(dim1*dim1 + dim2*dim2);
		System.out.println("The surface area of cone  = "+(3.141592*dim1*l)+" sq. units");
	}
	void printVolume()
	{
		System.out.println("The volume of cone = "+(3.141592*dim1*dim1*dim2/3)+" cubic
units.");
	}
}
class Sphere extends Shape
{
	Sphere(int a,int b)
	{
		super(a,b);
	}
	void printArea()
	{
		double area = 4*3.141592*(dim1*dim1);
```

```
                System.out.println("The surface area of sphere = "+area+" sq.units");
        }
        void printVolume()
        {
                System.out.println("The volume of sphere = "+(4*3.141592*dim1*dim1*dim1/3)+"
cubic units");
        }
}
class SolidMain
{
        public static void main(String args[])
        {
                int a,b;
                Scanner in = new Scanner(System.in);
                System.out.println("Enter the radius and height of Cylinder");
                a = in.nextInt();
                b = in.nextInt();
                Cylinder r = new Cylinder(a,b);
                System.out.println("Enter the radius and height of Cone");
                a = in.nextInt();
                b = in.nextInt();
                Cone t = new Cone(a,b);
                System.out.println("Enter the radius of sphere");
                a = in.nextInt();
                Sphere c = new Sphere(a,a);
                r.printArea();
                r.printVolume();
                t.printArea();
                t.printVolume();
                c.printArea();
                c.printVolume();

        }
}
```

Program: Person

```
import java.util.*;
class Person
{
        int status;
        Scanner in = new Scanner(System.in);
        void inp()
        {
                System.out.println("Enter the status of person: 1. for Student and 2. for
Employee");
                status = in.nextInt();
        }
}
class Student extends Person
{
        int deg;
        Scanner in = new Scanner(System.in);
        void inp()
        {
                System.out.println("Enter the education status of person: 1. for UG and 2. for PG");
                deg = in.nextInt();
        }
```

```
}
class Employee extends Person
{
	int deg;
	Scanner in = new Scanner(System.in);
	void inp()
	{
		System.out.println("Enter the employment status of person: 1. for Teaching and 2.
for Non-teaching");
		deg = in.nextInt();
	}
}
class PersonMain
{
	public static void main(String args[])
	{
		Person p = new Person();
		p.inp();
		Student s = new Student();
		Employee e = new Employee();
		if(p.status == 1)
			s.inp();
		else
			e.inp();
		System.out.println("==============================");
		System.out.println("Details of the person:");
		if(p.status == 1)
		{
			System.out.println("Status: Student");
			if(s.deg == 1)
				System.out.println("Degree: UG");
			else
				System.out.println("Degree: PG");
		}
		else
		{
			System.out.println("Status: Employee");
			if(e.deg == 1)
				System.out.println("Profession-stream: Teaching");
			else
				System.out.println("Profession-stream: Non-Teaching");
		}
	}
}
```