

```
import java.util.Scanner;

abstract class Solid{
    Scanner sc=new Scanner(System.in);
    double a,b;
    double res;
    final double pi=3.14;
    abstract void surface_area();
    abstract void volume();
}

class cylinder extends Solid{

    void surface_area(){
        System.out.println("CYLINDER:-");
        System.out.print("radius:");
        a=sc.nextDouble();
        System.out.print("height:");
        b=sc.nextDouble();
        res=2*pi*a*b;
        System.out.format("Area:%.2f\n",res);
    }
    void volume(){
        res=pi*Math.pow(a,2)*b;
        System.out.format("Volume:%.2f\n",res);
    }
}

class cone extends Solid{
    double temp,slant_height;
    void surface_area(){
        System.out.println("CONE:-");
        System.out.print("radius:");
```

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        a=sc.nextDouble();
        System.out.print("height:");
        b=sc.nextDouble();
        temp=((a*a)+(b*b));
        slant_height=Math.sqrt(temp);
        res=pi*a*slant_height;
        System.out.format("Area:%.2f\n",res);
    }
    void volume(){
        res=0.33*pi*(a*a)*b;
        System.out.format("Volume:%.2f\n",res);
    }
}

class sphere extends Solid{

    void surface_area(){
        System.out.println("SPHERE:-");
        System.out.println("radius:");
        a=sc.nextDouble();
        res=4*pi*(a*a);
        System.out.format("Area:%.2f\n",res);
    }
    void volume(){
        res=1.33*pi*Math.pow(a,3);
        System.out.format("Volume:%.2f\n",res);
    }
}

class Testj{
    public static void main(String args[]){
        cylinder cy=new cylinder();
        cone c=new cone();
    }
}

```

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        sphere s=new sphere();

        cy.surface_area();

        cy.volume();

        c.surface_area();

        c.volume();

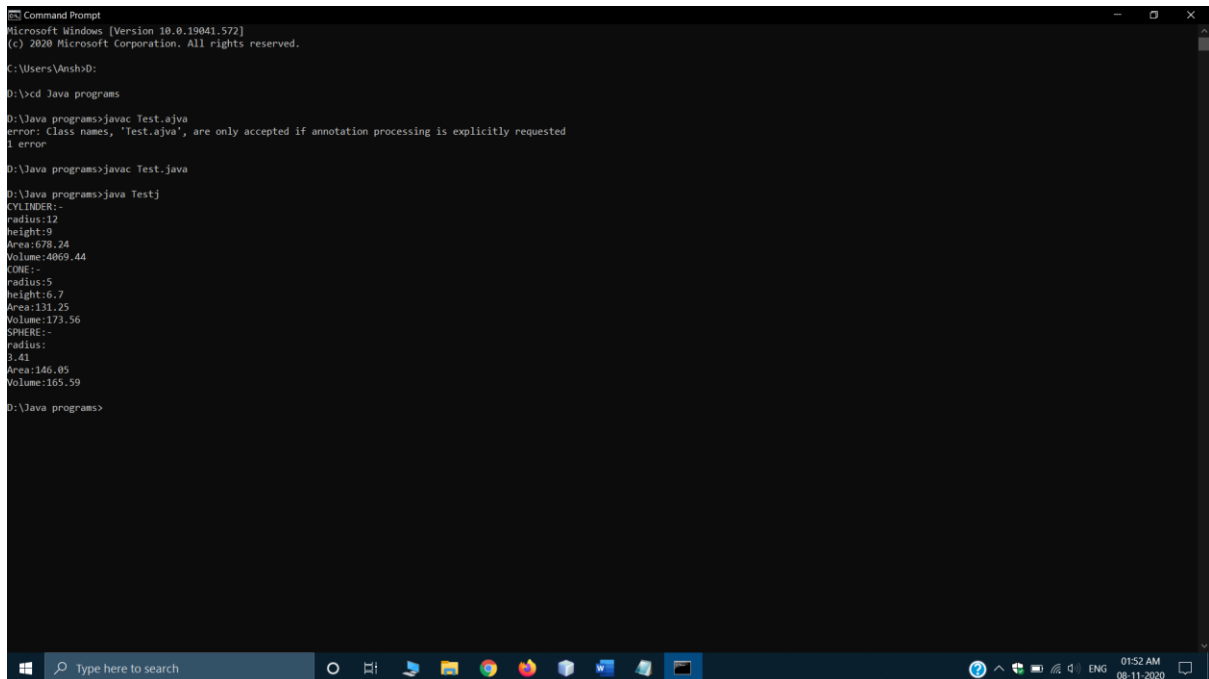
        s.surface_area();

        s.volume();

    }

}

```



```

Command Prompt
Microsoft Windows [Version 10.0.19041.572]
(c) 2020 Microsoft Corporation. All rights reserved.

C:\Users\Ansh>D:
D:\>cd Java programs
D:\Java programs>javac Test.java
error: Class names, 'Test.java', are only accepted if annotation processing is explicitly requested
1 error

D:\Java programs>java Test.java
D:\Java programs>java Testj
CYLINDER:-
radius:12
height:9
Area:678.24
Volume:4069.44
CONE:-
radius:5
height:6.7
Area:131.25
Volume:173.56
SPHERE:-
radius:
3.41
Area:146.05
Volume:165.59
D:\Java programs>

```

ANS 2:

```

import java.util.Scanner;

class person{

```

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Scanner sc=new Scanner(System.in);
String name,id;
void getd1(){
    System.out.println("NAME:");
    name=sc.nextLine();
    System.out.println("Id:");
    id=sc.next();
}
}
class employee extends person{

    double salary;
    String job;
    void getd2(){

        System.out.println("JOB(Teaching/Non-Teaching):");
        job=sc.next();
    }
}
class teaching extends employee{
    String subject;
    void getd3(){
        getd1();
        getd2();
        System.out.println("SALARY:");
        salary=sc.nextDouble();
        System.out.println("Subject taught by you:");
        subject=sc.next();
    }
    void displayd3(){
        System.out.println("NAME:"+name);
    }
}

```

```

        System.out.println("ID:"+id);
        System.out.println("JOB(Teaching/Non-Teaching):"+job);
        System.out.println("SALARY:"+salary);
        System.out.println("Subject taught:"+subject);
    }
}

class non_teaching extends employee{
    String job_type;
    void getd4(){
        getd1();
        getd2();
        System.out.println("SALARY:");
        salary=sc.nextDouble();
        System.out.println("JOB TYPE:");
        job_type=sc.next();
    }
    void displayd4(){
        System.out.println("NAME:"+name);
        System.out.println("ID:"+id);
        System.out.println("JOB(Teaching/Non-Teaching):"+job);
        System.out.println("SALARY:"+salary);
        System.out.println("JOB TYPE:"+job_type);
    }
}

class student extends person{
    String course;
    int no_of_subjects;
    void getd5(){
        System.out.println("COURSE:");
        course=sc.next();
    }
}

```

```

}

class ug extends student{

    void getd6(){

        getd1();

        getd5();

        System.out.println("NUMBER OF SUBJECTS:");

        no_of_subjects=sc.nextInt();

    }

    void displayd6(){

        System.out.println("NAME:"+name);

        System.out.println("ID:"+id);

        System.out.println("COURSE:"+course);

        System.out.println("NUMBER OF SUBJECTS:"+no_of_subjects);

    }

}

class pg extends student{

    void getd7(){

        getd1();

        getd5();

        System.out.println("NUMBER OF SUBJECTS:");

        no_of_subjects=sc.nextInt();

    }

    void displayd7(){

        System.out.println("NAME:"+name);

        System.out.println("ID:"+id);

        System.out.println("COURSE:"+course);

        System.out.println("NUMBER OF SUBJECTS:"+no_of_subjects);

    }

}

class Testj{

    public static void main(String args[]){

```

```

teaching t=new teaching();

non_teaching nt=new non_teaching();

ug u=new ug();

pg p=new pg();

t.getd3();

t.displayd3();

nt.getd4();

nt.displayd4();

u.getd6();

u.displayd6();

p.getd7();

p.displayd7();

}

}

```

```

Command Prompt
D:\Java programs>javac Test.java
D:\Java programs>java Testj
NAME:
ANSH
Id:
12
JOB(Teaching/Non-Teaching):
TEACHING
SALARY:
12000
Subject taught by you:
MATHS
NAME:ANSH
ID:12
JOB(Teaching/Non-Teaching):TEACHING
SALARY:12000.0
Subject taught:MATHS
NAME:
PAACK
Id:
23
JOB(Teaching/Non-Teaching):
NON-TEACHING
SALARY:
23000
JOB TYPE:
STAFF
NAME:PAACK
ID:23
JOB(Teaching/Non-Teaching):MON-TEACHING
SALARY:23000.0
JOB TYPE:STAFF
NAME:
VISHAL
Id:
34
COURSE:
UG
NUMBER OF SUBJECTS:
5
NAME:VISHAL
ID:34
COURSE:UG
NUMBER OF SUBJECTS:5
NAME:
VASHISHTA
Id:
56

```

```
Command Prompt
TEACHING
SALARY:
12000
Subject taught by you:
MATHS
NAME:ANSH
ID:12
JOB(Teaching/Non-Teaching):TEACHING
SALARY:12000.0
Subject taught:MATHS
NAME:
NAME:PAKK
ID:
23
JOB(Teaching/Non-Teaching):
NON-TEACHING
SALARY:
23000
JOB TYPE:
STAFF
NAME:PAKK
ID:23
JOB(Teaching/Non-Teaching):NON-TEACHING
SALARY:23000.0
JOB TYPE:STAFF
NAME:
VISHAL
ID:
34
COURSE:
PG
NUMBER OF SUBJECTS:
5
NAME:VISHAL
ID:34
COURSE:UG
NUMBER OF SUBJECTS:5
NAME:
VASHISHTA
ID:
56
COURSE:
PG
NUMBER OF SUBJECTS:
8
NAME:VASHISHTA
ID:56
COURSE:PG
NUMBER OF SUBJECTS:8
```