

c:\> Users > Appy > Desktop > java lab > Solidmain.java

```
1  import java.util.Scanner;
2  abstract class Solid{
3      float r;
4      float h;
5  }
6  class Cylinder extends Solid{
7      double area;
8      double volume;
9
10     void calAreaVolume(){
11         Scanner sc = new Scanner(System.in);
12         System.out.println("enter the value of r and h:");
13         r = sc.nextFloat();
14         h = sc.nextFloat();
15         volume = ((3.14*3.14)*r*h);
16         area = (2*(3.14)*r*(r+h));
17         System.out.println("the area of the cylinder:"+area);
18         System.out.println("the volume of the cylinder:"+volume);
19     }
20 }
21 class Sphere extends Solid{
22     double area;
23     double volume;
24     void calAreaVolume1(){
25         Scanner sc = new Scanner(System.in);
26         System.out.println("enter the value of r:");
27         r = sc.nextFloat();
28         volume = (4*3.14*r*r*r)/3;
29         area = 4*3.14*r*r;
30         System.out.println("the area of the sphere:"+area);
31         System.out.println("the volume of the sphere:"+volume);
32     }
33 }
```

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```

Solidmain.java x Personmain.java
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34 class Cone extends Solid{
35     double area;
36     double volume;
37     void calAreaVolume2(){
38         Scanner sc = new Scanner(System.in);
39         System.out.println("enter the value of r and h:");
40         r = sc.nextFloat();
41         h = sc.nextFloat();
42         volume = (3.14*r*r*h)/3;
43         area = 3.14*r*(r + Math.sqrt(r*r + h*h));
44         System.out.println("the area of the cone:"+area);
45         System.out.println("the volume of the cone:"+volume);
46     }
47 }
48 class Solidmain{
49     public static void main(String args[]){
50         int option;
51         do{
52             System.out.println("enter the option: \n1.Cylinder \n2.Sphere \n3.Cone \n4.exit \n");
53             Scanner sc = new Scanner(System.in);
54             option = sc.nextInt();
55
56             switch(option){
57                 case 1:Cylinder C = new Cylinder();
58                     C.calAreaVolume();
59                     break;
60                 case 2:Sphere S = new Sphere();
61                     S.calAreaVolume1();
62                     break;
63                 case 3:Cone C1 = new Cone();
64                     C1.calAreaVolume2();
65                     break;
66                 case 4: System.exit(0);

```

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Solidmain.java X Personmain.java

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```
59         break;
60     case 2: Sphere S = new Sphere();
61         S.calAreaVolume1();
62         break;
63     case 3: Cone C1 = new Cone();
64         C1.calAreaVolume2();
65         break;
66     case 4: System.exit(0);
67         break;
68     }
69     while (option != 4);
70 }
71 }
```

C:\WINDOWS\system32\cmd.exe

```
C:\Users\Appy\Desktop\java lab>java Solidmain
enter the option:
1.Cylinder
2.Sphere
3.Cone
4.exit

1
enter the value of r and h:
10 20
the area of the cylinder:1884.0000000000002
the volume of the cylinder:1971.92
enter the option:
1.Cylinder
2.Sphere
3.Cone
4.exit

4
```

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