



**SHRI VILEPARLE KELAVANI MANDAL'S
DWARKADAS J. SANGHVI COLLEGE OF ENGINEERING**
(Autonomous College Affiliated to the University of Mumbai)
NAAC ACCREDITED with "A" GRADE (CGPA : 3.18)



Object Oriented Programming using Java Laboratory (DJS22FEL22)

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BATCH: 1

EXPERIMENT NO – 9

Aim: To implement Abstract classes and packages

Problem Statement 1: Write an abstract class program to calculate area of circle, rectangle and triangle.

CODE:

```
import java.util.*;

abstract class Circle {
    abstract void area(int r);
    abstract void rectangle(int l, int b);
    abstract void triangle(int base, int height);
}

class Example extends Circle {
    public void area(int r) {
        System.out.println("Area Circle: " + 3.14 * r * r);
    }

    public void rectangle(int l, int b) {
        System.out.println("Area Rectangle: " + l * b);
    }

    public void triangle(int base, int height) {
        System.out.println("Area Triangle: " + ((base * height) / 2));
    }
}

class AreaAbstract {
    public static void main(String args[]) {
        Example obj1 = new Example();
        Scanner obj = new Scanner(System.in);
        System.out.println("Enter radius");
        int r = obj.nextInt();
        obj1.area(r);
        System.out.println("Enter length and breath");
        int l = obj.nextInt();
        int b = obj.nextInt();
        obj1.rectangle(l, b);
        System.out.println("Enter base and height");
        int base = obj.nextInt();
        int height = obj.nextInt();
        obj1.triangle(base, height);
    }
}
```



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```
C:\Users\ayush\Desktop\JAVA_assignment>javac AreaAbstract.java

C:\Users\ayush\Desktop\JAVA_assignment>java AreaAbstract
Enter radius
100
Area Circle: 31400.0
Enter length and breath
10 20
Area Rectangle: 200
Enter base and height
5 10
Area Triangle: 25
```



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Problem Statement 2:

WAP to create a package called vol having Cylinder class and volume (). WAP that imports this package to calculate volume of a Cylinder.

```
package volume;
public class Cylinder
{
    public void volume(int r,int h)
    {
        System.out.println("Volume of cylinder is "+(3.14*(float)
r*(float)h));
    }
}
```

```
import volume.Cylinder;
class VCylinder
{
    public static void main(String[] args)
    {
        Cylinder obj=new Cylinder();
        obj.volume(5,3);
    }
}
```

```
C:\Users\91720\OneDrive\Desktop\Anish Java\AnishPakages>javac VCylinder.java
C:\Users\91720\OneDrive\Desktop\Anish Java\AnishPakages>java VCylinder
Volume of cylinder is 47.1
```