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Branch: Information Technology   **Div: D/IT1**

Course: **Object Oriented Programming using Java**

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:

```java
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:"+(22/7)*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
{
```

```java
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);

    }

}
```

Output :

```
C:\Users\91720\OneDrive\Desktop\Anish Java>java AreaAbstract
Enter radius
7
Area Circle:147
Enter length and breath
6 7
Area Rectangle:42
Enter base and height
8
2
Area Triangle:8
```

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.

Code:

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);

       }

}

Output

```
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
```