Don Bosco Institute of Technology, Kurla(W)
Department of Electronics and Tele-Communication Engineering
ECL304 - Skill Lab: C++ and Java Programming
Sem III
2021-22

Lab Number:	**9**
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Title:

1. Write a java program to create an abstract class named Shape that contains two integers and an abstract method named printArea(). Provide three classes named Rectangle, Triangle and Circle such that each one of the classes extends the class Shape. Each one of the classes contain only the method printArea() that prints the area of the given shape.

Learning Objective:

Students will be able to implement abstract class and abstract method programs.

Learning Outcome:

- Understanding the abstraction concept and hiding of the unnecessary code.

Course Outcome:

ECL304.4	1. Implement different programming applications using packaging.

Theory:

- Explain in details about necessity of data hiding in any application / project.
- Explain abstract class and abstract methods.

Algorithm :	**1. Start** **2. Define abstract class 'Shape' with abstract method 'area'.** **3. Create class 'Circle' which inherits the class 'Shape' and implements its method 'area'.** **4. Create class 'Triangle' which inherits the class 'Shape' and implements its method 'area'.**

Faculty: Ms. Deepali Kayande

	5. Create class 'Rectangle' which inherits the class 'Shape' and implements its method 'area'. **6. In the driver class, create objects for the 3 classes and call them.** **7. Stop**
Program:	**import java.util.Scanner;abstract class Shape** **{** **abstract void area();** **}** **class Rectangle extends Shape** **{** **void area()** **{** **Scanner sc=new Scanner(System.in);** **System.out.println("Enter length"); int l=sc.nextInt();** **System.out.println("Enter breadth");int b=sc.nextInt();** **int ar=l*b;** **System.out.println(" Area of rectangle"+ar);** **}** **}** **class Triangle extends Shape** **{** **void area()**

```
{
Scanner sc=new Scanner(System.in);
System.out.println("Enter height");
int h=sc.nextInt();
System.out.println("Enter base");int
bs=sc.nextInt();
float ar2=(float)0.5*h*bs;
System.out.println(" Area of
triangle"+ar2);
}
}
class Circle extends Shape
{
void area()
{
Scanner sc=new Scanner(System.in);
System.out.println("Enter radius"); int
r=sc.nextInt();
float ar1=(float)3.14*r*r;
System.out.println(" Area of Circle"+ar1);
}
}
class Abstraction
{
public static void main(String args[])
{
Shape c=new Circle();
Shape r=new Rectangle();Shape t=new
```

	Triangle; **c.area();** **t.area();** **r.area();** **}** **}**
Input given:	**Circle** **Enter radius :5** **Triangle** **Enter height :4** **Enter base:10** **Rectangle** **Enter length : 6** **Enter breadth :8**
Output Screenshot: