LAB SHEET 07 : INHERITANCE & ABSTRACT CLASSES – ANSWERS

Exercise 01:

Class 01:

final class Student {

final int marks = 100;

final void display() {}

}

Class 02:

class Undergraduate extends Student {}

Outcome :-

 Compilation Error.

Why :-

   The display() method is declared as final, which means it cannot be overridden by any subclass. but, there is no method body provided for display. That's why the code will not compile due to the missing method body for the display() method in the Student class.

Exercise 02:

```java
abstract class Shape
{
 public abstract double calculateArea();

 public void display()
 {
 System.out.println("Shape: " + this.getClass().getSimpleName());
 System.out.println("Area: " + calculateArea());
 }
}


class Circle extends Shape
{
 private double radius;
 public Circle(double radius)
 {
 this.radius = radius;
 }
 public double calculateArea()
 {
 return Math.PI * radius * radius;
```

```java
    }
}


class Rectangle extends Shape
{
 private double length,width;
 public Rectangle(double length, double width)
 {
 this.length = length;
 this.width = width;
 }
 public double calculateArea()
 {
 return length * width;
 }
}


public class Main
{
 public static void main(String[] args)
 {
 Circle circle = new Circle(8);
```

```
Rectangle rectangle = new Rectangle(3, 2);

circle.display();

rectangle.display();

   }
}
```

Output:

Shape: Circle

Area: 201.06

Shape: Rectangle

Area: 6.0