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| Class Activity4 |
| CTU – Training Solutions  UID – User Interface Development  **Software Development**  **SWD412**  Week 4 |

Complete the following Class activity Java Exercises:

1. Polymorphism

Exercise: Create a base class Shape with a method area(). Then create two subclasses Rectangle and Circle that override the area() method to calculate the area for each shape. Write a main method to demonstrate polymorphism by calling the area() method on an array of Shape references.

2. Inheritance

Exercise: Create a base class Vehicle with properties like make and model, and a method displayInfo(). Then create a subclass Car that inherits from Vehicle and adds a property numberOfDoors. Override the displayInfo() method in Car to include the number of doors. Write a main method to demonstrate inheritance.

3. Encapsulation

Exercise: Create a class BankAccount with private fields for accountNumber and balance. Provide public methods to deposit and withdraw funds, as well as a method to check the balance. Write a main method to demonstrate encapsulation.

4. Constructors and Methods

Exercise: Create a class Book with properties for title, author, and price. Include a constructor to initialize these properties and methods to display book details and apply a discount. Write a main method to demonstrate the usage of constructors and methods.