Programming Assignment: Object-Oriented Programming in Java

1. Create a package named mypackage containing a class Greeting with a method sayHello() that prints **"Hello from mypackage!"**. Write a program to access this method from another class.

2. Create a package shapes containing a class Circle with a method area(double radius) that returns the area of a circle. Import this package into another class and compute the area of a circle with a given radius.

3. Write a Java program to create an interface Shape with the getArea() method. Create three classes Rectangle, Circle, and Triangle that implement the Shape interface. Implement the getArea() method for each of the three classes.

4. Write a Java programming to create a banking system with three classes - Bank, Account, SavingsAccount, and CurrentAccount. The bank should have a list of accounts and methods for adding them. Accounts should be an interface with methods to deposit, withdraw, calculate interest, and view balances. SavingsAccount and CurrentAccount should implement the Account interface and have their own unique methods.

5. Write a Java program to create an interface Drawable with a method draw() that takes no arguments and returns void. Create three classes Circle, Rectangle, and Triangle that implement the Drawable interface and override the draw() method to draw their respective shapes.

6. Write a Java program to create an interface Resizable with methods resizeWidth(int width) and resizeHeight(int height) that allow an object to be resized. Create a class Rectangle that implements the Resizable interface and implements the resize methods.

7. Write a Java program to create an interface Sortable with a method sort() that sorts an array of integers in ascending order. Create two classes BubbleSort and SelectionSort that implement the Sortable interface and provide their own implementations of the sort() method.

8. Write a Java program to create an interface Searchable with a method search(String keyword) that searches for a given keyword in a text document. Create class Document that implement the Searchable interface and provide their own implementations of the search() method.

9. Define an interface Vehicle with methods start() and stop(). Implement this interface in two classes: Car and Bike. Create a main method to demonstrate polymorphism by calling start() and stop() methods on objects of Car and Bike.