ABSTRACT CLASS PROGRAMS

i)

Code:

```
public class Main{
public static void main(String[] args){
Car c1=new Lam();
c1.carName("lambogini");
c1.carSpeed(122,"lambogini");
}
}

abstract class Car{
abstract void carName(String name);

abstract void carSpeed(int speed,String name);

abstract void Mileage(int fuel,double mileage);

}
class Lam extends Car{
void carName(String name){
```

```
System.out.println("Your Car name is "+name);
}
void carSpeed(int speed,String name){
System.out.println(name+" can travel at the speed of "+speed+" km/h");
}
void Mileage(int fuel,double mileage){
System.out.println("lam "+"can travel range of "+(fuel*mileage));
}

}
```

ii)

Code:

```
abstract class Vehicle{
abstract void start(String name);

abstract void stop(String name);

}
class Car extends Vehicle{
void start(String name){
```

```
System.out.println( name+" is Starting");
}
void stop(String name){
System.out.println(name+" is stopping");
}
}
class Bike extends Vehicle{
void start(String name){
System.out.println( name+" is Starting");
}
void stop(String name){
System.out.println(name+" is stopping");
}
}
public class Main2{
public static void main(String[] args){
Car v1=new Car();

 v1.start("Lambo");
 v1.stop("lambo");

Bike v2=new Bike();
```

```
 v2.start("Ducati");
 v2.stop("Ducati");
}
}
```

iii)

Code:

```
abstract class Shape {
    // Abstract method to calculate the area
    abstract double calculateArea();
}

class Square extends Shape {
    private double side;

    public Square(double side) {
        this.side = side;
    }

    @Override
```

```
    double calculateArea() {
        return side * side; // Area of square: side²
    }
}
public class Main3 {
    public static void main(String[] args) {
        Shape square = new Square(4.0);
        System.out.println("Area of the square: " +
square.calculateArea());
    }
}
```

iv)

Code:

```
abstract class Shape2D{
abstract void draw();
abstract void resize();
}
class Rectangle extends Shape2D{
void draw(){
System.out.println("you are Drawing Rectangle");
}
```

```
void resize(){
System.out.println("you can resize the lenght and breadth of rectangle");
}
}
class Circle extends Shape2D{
void draw(){
System.out.println("you are Drawing Circle");
}
void resize(){
System.out.println("you can resize the Radius of circle ");
}
}
public class Main4{
public static void main(String[] args){
Shape2D s1=new Rectangle();
s1.draw();
s1.resize();

Shape2D s2=new Circle();
s2.draw();
s2.resize();
```

```
}
}
```