

## Java Inheritance Example - Full Code

```
// Base class: Vehicle
public class Vehicle {
    private String brand;
    private int year;

    public Vehicle(String brand, int year) {
        this.brand = brand;
        this.year = year;
    }

    public void start() {
        System.out.println(brand + " is starting.");
    }

    public void stop() {
        System.out.println(brand + " is stopping.");
    }

    public String getBrand() {
        return brand;
    }

    @Override
    public String toString() {
        return "Vehicle [brand=" + brand + ", year=" + year + "]";
    }
}

// Car subclass
class Car extends Vehicle {
    private int doors;

    public Car(String brand, int year, int doors) {
        super(brand, year);
        this.doors = doors;
    }

    public void honk() {
        System.out.println(getBrand() + " car honks: Beep beep!");
    }
}
```

```

    public void wash() {
        System.out.println(getBrand() + " car is being washed.");
    }

    @Override
    public String toString() {
        return super.toString() + ", Car [doors=" + doors + "]";
    }
}

// Truck subclass
class Truck extends Vehicle {
    private double loadCapacity;

    public Truck(String brand, int year, double loadCapacity) {
        super(brand, year);
        this.loadCapacity = loadCapacity;
    }

    public void dumpLoad() {
        System.out.println(getBrand() + " truck is dumping its load.");
    }

    @Override
    public String toString() {
        return super.toString() + ", Truck [loadCapacity=" + loadCapacity + "
tons]";
    }
}

// Boat subclass
class Boat extends Vehicle {
    private boolean isMotorized;

    public Boat(String brand, int year, boolean isMotorized) {
        super(brand, year);
        this.isMotorized = isMotorized;
    }

    public void sail() {
        System.out.println(getBrand() + " boat is sailing.");
    }

    @Override
    public String toString() {

```

```

        return super.toString() + ", Boat [motorized=" + isMotorized + "]\n";
    }
}

// Demo class
public class Main {
    public static void main(String[] args) {
        Car car = new Car("Toyota", 2022, 4);
        Truck truck = new Truck("Ford", 2020, 10);
        Boat boat = new Boat("Bayliner", 2018, true);

        System.out.println(car);
        car.start();
        car.honk();
        car.wash();
        car.stop();

        System.out.println("\n" + truck);
        truck.start();
        truck.dumpLoad();
        truck.stop();

        System.out.println("\n" + boat);
        boat.start();
        boat.sail();
        boat.stop();
    }
}

```