**Adapter Pattern Implementation: Drone Control System**

**Introduction**: The Adapter Pattern is a structural design pattern that allows objects with incompatible interfaces to collaborate. This report discusses its implementation in the context of a universal drone controller designed to control drones from various manufacturers.

**Chosen Scenario**: In a world with multiple drone manufacturers, each having its unique set of controls, there's a need for a universal drone controller. This controller should be able to control any drone, regardless of the manufacturer. The Adapter Pattern provides a solution to this challenge.

**Code Implementation**:

1. **Client Interface (DroneController)**:

public interface DroneController {

void fly();

void land();

}  
  
*Explanation*: This interface represents the expected methods that any drone should have, namely **fly()** and **land()**.

2.

**Adaptee (BrandSpecificDrone)**:  
public class BrandSpecificDrone {

public void startFlying() {

System.out.println("BrandSpecificDrone is flying!");

}

public void initiateLanding() {

System.out.println("BrandSpecificDrone is landing!");

}

}

*Explanation*: This class represents a specific brand of drone with its unique methods. Instead of the generic **fly()** and **land()**, it has **startFlying()** and **initiateLanding()**.

**Adapter (DroneAdapter)**:  
public class DroneAdapter implements DroneController {

private BrandSpecificDrone drone;

public DroneAdapter(BrandSpecificDrone drone) {

this.drone = drone;

}

@Override

public void fly() {

drone.startFlying();

}

@Override

public void land() {

drone.initiateLanding();

}

}  
*Explanation*: The **DroneAdapter** class bridges the gap between the **DroneController** and **BrandSpecificDrone**. It takes a **BrandSpecificDrone** object and implements the **DroneController** interface, translating the generic methods to brand-specific ones.

**Conclusion**: The Adapter Pattern offers a robust solution for making incompatible interfaces work together. In the context of the drone control system, it enabled the creation of a universal controller that can seamlessly control drones from different manufacturers.