

## Exercise: Identifying Code Smells

Instructions: Below are 12 code snippets that contain at least two code smells discussed in Part 2 of the Code Smells presentation. Analyze each snippet and identify the code smells present.

### Snippet 1:

```
class Customer {  
    private Order order;  
  
    public String getDeliveryCity() {  
        return order.getShipping().getAddress().getCity();  
    }  
}
```

---

### Snippet 2:

```
class ReportGenerator {  
    private int tempValue;  
  
    public void generateReport() {  
        tempValue = fetchData();  
        formatData(tempValue);  
        printData(tempValue);  
    }  
}
```

**Snippet 3:**

```
interface PaymentProcessor {  
    void processPayment(double amount);  
}  
  
class PayPalProcessor {  
    public void sendMoney(double amount) {}  
}  
  
class StripeProcessor implements PaymentProcessor {  
    public void processPayment(double amount) {}  
}
```

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**Snippet 4:**

```
class DiscountCalculator {  
    public double calculateDiscount(double price, int discountType) {  
        if (discountType == 1) {  
            return price * 0.05;  
        } else if (discountType == 2) {  
            return price * 0.10;  
        } else {  
            return price;  
        }  
    }  
}
```

```
}  
}
```

#### **Snippet 5:**

```
class OrderProcessor {  
    // Retrieve the total cost of an order  
    public double getTotalCost(Order order) {  
        return order.getCart().getItems().calculateTotal();  
    }  
}
```

---

#### **Snippet 6:**

```
class UserManager {  
    public void processUser(String userId) {  
        String data = fetchUserData(userId);  
        String formattedData = formatUserData(data);  
        storeUserData(formattedData);  
    }  
}
```

---

#### **Snippet 7:**

```
class FileStorage {}  
class DatabaseStorage {}  
class FileBackup extends FileStorage {}  
class DatabaseBackup extends DatabaseStorage {}
```

**Snippet 8:**

```
class Vehicle {  
    public void drive() {}  
    public void fly() {}  
}  
  
class Car extends Vehicle {  
    // Only uses drive(), but inherits fly()  
}
```

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**Snippet 9:**

```
class Order {  
    private int discountType;  
  
    public double applyDiscount(double price) {  
        int discount = discountType == 1 ? 5 : 10;  
        return price - (price * discount / 100);  
    }  
}
```

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**Snippet 10:**

```
class ShippingService {  
    // Retrieves the estimated delivery date  
    public String getEstimatedDeliveryDate(Order order) {  
        return order.getShippingDetails().getDeliverySchedule().getDate();  
    }  
}
```

**Snippet 11:**

```
class CustomerManager {  
    public void handleOrders() {}  
    public void handlePayments() {}  
    public void manageCustomerData() {}  
}
```

---

**Snippet 12:**

```
class NotificationService {  
    public void sendEmailNotification(String email, String message) {}  
    public void sendSMSNotification(String phoneNumber, String message) {}  
    public void sendFaxNotification(String faxNumber, String message) {}  
}
```