**CMPE - 202 Code Refactoring**

Submitted By :

[Siddhant Sancheti](mailto:siddhant.sancheti@sjsu.edu)(016710421)

PROBLEM STATEMENT:

Consider the following 2 classes - BookRental and MovieRental.

a. Identify a code smell in the following Java code (2 points)

b. Explain how you will refactor the code to get rid of the code smell (4 points)

c. Write the re-factored code (14 points)

public class BookRental {

private String bookTitle;

private String author;

private Date rentDate;

private Date dueDate;

private double rentalFee;

public boolean isOverdue() {

Date now = new Date();

return dueDate.before(now);

}

}

public class MovieRental {

private String movieTitle;

private int classification;

private Date rentDate;

private Date dueDate;

private double rentalFee;

public boolean isOverdue() {

Date now = new Date();

return dueDate.before(now);

}

}

SOLUTION:

A. The code smell is that there is duplicate code in the 2 classes. Both classes have the same method isOverdue().

B. To get rid of the code smell, we can create a new abstract class Rental.

1. Move the common properties :title, rentDate, dueDate, rentalFee from the BookRental and MovieRental classes to the Rental class.
2. Removing the duplicate implementation of the isOverdue() method from the BookRental and MovieRental classes, since they have the same implementation in the Rental class.
3. Define the BookRental and MovieRental classes as subclasses of the Rental class.
4. Add the specific fields for the BookRental and MovieRental classes, author and classification respectively.
5. Apply null check for dueDate to check whether it is a null pointer exception as it returns a boolean value.

C. The re-factored code is as follows:

The solution follows the DRY principle and eliminate the duplication of code in the two classes

DRIVE LINK: [https:drive.google.com/drive/folders/1wk3qtV7Po7bJ11IJfV7s2cmKJyopCbN8?usp=share\_link](https://drive.google.com/drive/folders/1wk3qtV7Po7bJ11IJfV7s2cmKJyopCbN8?usp=share_link)

GITHUB LINK: <https://github.com/sidsanc/202_System_Engr/tree/main/Code_Refactoring>

