Experiment 2

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Subject Name: PBLJ LAB **Subject Code: 22CSH-359**

1. **Aim:** Design and implement a simple inventory control system for a small video rental store.

2. **Objective:**
   i. To learn about Classes in Java.
   ii. To learn about the concept of OOPS and its uses in Java.
   iii. Use of inheritance - for code reusability: reuse attributes and methods of an existing class when you create a new class.

3. **Problem Statement:** The goal of this project is to design and implement a simple inventory control system for a small video rental store. Define least two classes: a class Video to model a video and a class VideoStore to model the actual store.

4. **Implementation/Code:**

~ **Video.java** public

```
class Video {
    private String title;
    private boolean checkedOut;
    private double averageRating;
    private int ratingCount;

    public Video(String title) {
        this.title = title;
        this.checkedOut = false;
        this.averageRating = 0.0;
        this.ratingCount = 0;
    }
    public String getTitle() {
        return title;
    }
    public boolean isCheckedOut() {
        return checkedOut;
    }
    public void checkOut() {
        if (checkedOut == false) {
            checkedOut = true;
            System.out.println(title + " has been checked out.");
        }
```

```
            else {   System.out.println(title + " is already checked out."); }
    }
    public void returnVideo() {
        if (checkedOut == true) {
            checkedOut = false;
            System.out.println(title + " has been
        returned."); } else {
            System.out.println(title + " was not checked out.");
        }
    }
    public void receiveRating(int rating) {
        if (rating < 1 || rating > 5) {
            System.out.println("Rating must be between 1 and 5.");
            return;
        }
        averageRating = (averageRating * ratingCount + rating) / (++ratingCount);
        System.out.println("Rating added for " + title + ". New average rating: " + averageRating);
    }
    public String toString() {
      return "Title: " + title + ", Checked Out: " + checkedOut + ", Average Rating: "
+ averageRating;
    }
}
```

~VideoStore.java

```
public class VideoStore {
    private Video[] inventory;
    private int videoCount;

    public VideoStore() {
        inventory = new Video[10];
        videoCount = 0;
    }
    public void addVideo(String title) {
        if (videoCount < inventory.length) {
            inventory[videoCount++] = new Video(title);
            System.out.println("Video added: " + title);
        } else {
            System.out.println("Inventory is full. Cannot add more videos.");
        }
    }
    public void checkOut(String title) {
        Video video = findVideo(title);
        if (video != null) {
```

```
                video.checkOut();
            } else {
                System.out.println("Video not found: " + title);
            }
        }
        public void returnVideo(String title) {
            Video video = findVideo(title);
            if (video != null) {
                video.returnVideo();
            } else {
                System.out.println("Video not found: " + title);
            }
        }
        public void receiveRating(String title, int rating)
            { Video video = findVideo(title);
            if (video != null) {
                video.receiveRating(rating);
            } else {
                System.out.println("Video not found: " + title);
            }
        }
        public void listInventory() {
            System.out.println("Inventory:");
            for (int i = 0; i < videoCount; i++) {
                System.out.println(inventory[i]);
            }
        }
        private Video findVideo(String title) {
            for (int i = 0; i < videoCount; i++) {
                if (inventory[i].getTitle() == title) {
                    return inventory[i];
                }
            }
            return null;
        }
    }
```

~VideoLauncher.java

```
 public class VideoLauncher {
     public static void main(String[] args) {
         VideoStore store = new VideoStore();

         store.addVideo("The Matrix");
         store.addVideo("Godfather");
```

```
        store.addVideo("Avengers");
        store.receiveRating("The Matrix", 5);
        store.receiveRating("The Matrix", 4);
        store.receiveRating("The Matrix", 3);
        store.receiveRating("Godfather", 5);
        store.receiveRating("Godfather", 4);
        store.receiveRating("Avengers", 4);
        store.receiveRating("Avengers", 5);
        store.checkOut("The Matrix");
        store.returnVideo("The Matrix");
        store.checkOut("Godfather");

        store.listInventory();
    }
}
```

5. Output:

```
Experiment-2'; & 'C:\Program Files\Java\jdk-21\bin\java.exe'
-cp' 'D:\cu\code\.vscode\.cu experiment\java\Experiment-2\bi
Video added: The Matrix
Video added: Godfather
Video added: Avengers
Rating added for The Matrix. New average rating: 5.0
Rating added for The Matrix. New average rating: 4.5
Rating added for The Matrix. New average rating: 4.0
Rating added for Godfather. New average rating: 5.0
Rating added for Godfather. New average rating: 4.5
Rating added for Avengers. New average rating: 4.0
Rating added for Avengers. New average rating: 4.5
The Matrix has been checked out.
The Matrix has been returned.
Godfather has been checked out.
Inventory:
Title: The Matrix, Checked Out: false, Average Rating: 4.0
Title: Godfather, Checked Out: true, Average Rating: 4.5
Title: Avengers, Checked Out: false, Average Rating: 4.5
PS D:\cu\code\.vscode\.cu experiment\java\Experiment-2>
```

6. Learning Outcomes:

i. Use of getters and setters for private data members.
ii. Use of class and packages.
iii. Concept of OOPS.