Experiment-2

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

2. **Objective:** 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.

3. **Implementation/Code:**

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

    public Video(String title) {
        this.title = title;
        this.checkedOut = false;
        this.rating = 0.0;
        this.ratingCount = 0;
    }

    public String getTitle() {
```

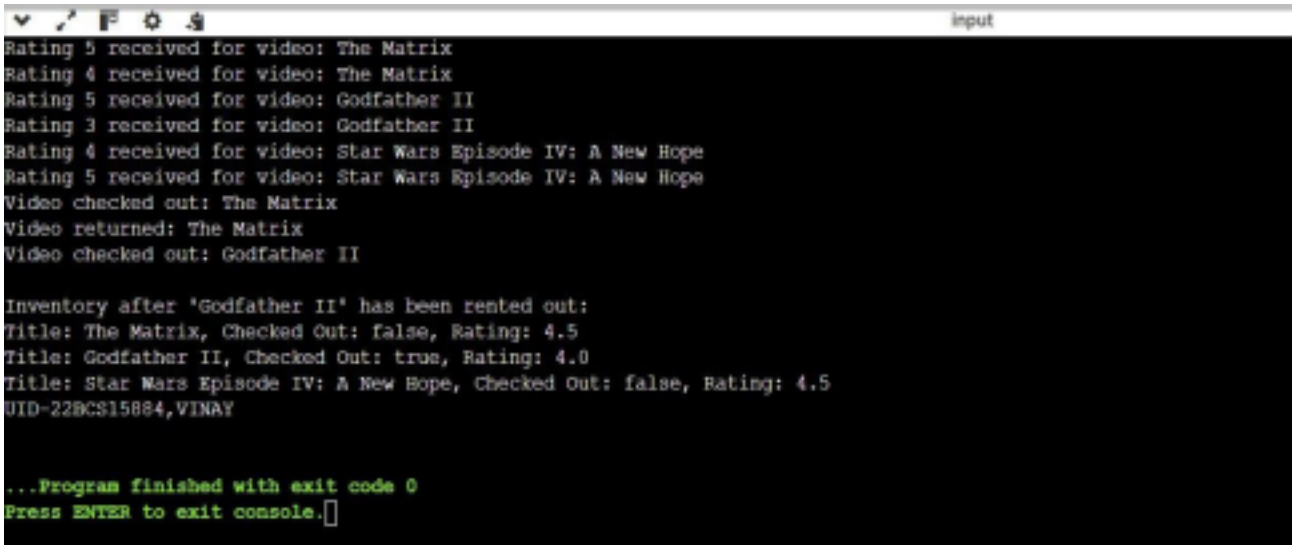
```
        return title; }

    public boolean isCheckedOut() {
        return checkedOut;
    }

    public double getRating() {
        return ratingCount > 0 ? rating / ratingCount : 0.0;
    }

    public void checkOut() {
        this.checkedOut = true;
    }

    public void returnVideo() {
        this.checkedOut = false;
    }

    public void receiveRating(int rating) {
        this.rating += rating;
        this.ratingCount++;
    }
}


class VideoStore {
    private Video[] videos;
    private int videoCount;

    public VideoStore() {
        this.videos = new Video[10];
        this.videoCount = 0;
    }
    public void addVideo(String title) {
        if (videoCount < videos.length) {
            videos[videoCount] = new Video(title);
```

```
    videoCount++;
    } else {
      System.out.println("Inventory is full! Cannot add more videos.");
    }
  }

  public void checkOut(String title) {
    Video video = findVideo(title);
    if (video != null && !video.isCheckedOut()) {
      video.checkOut();
      System.out.println("Video checked out: " + title);
    } else if (video == null) {
      System.out.println("Video not found: " + title);
    } else {
      System.out.println("Video is already checked out: " + title);
    }
  }

  public void returnVideo(String title) {
    Video video = findVideo(title);
    if (video != null && video.isCheckedOut()) {
      video.returnVideo();
      System.out.println("Video returned: " + title);
    } else if (video == null) {
      System.out.println("Video not found: " + title);
    } else {
      System.out.println("Video was not checked out: " + title);
    }
  }

  public void receiveRating(String title, int rating) {
    Video video = findVideo(title);
    if (video != null) {
      video.receiveRating(rating);
      System.out.println("Rating " + rating + " received for video: " + title);
    } else {
      System.out.println("Video not found: " + title);
    }
```

```
}

    public void listInventory() {
        for (int i = 0; i < videoCount; i++) {
            Video video = videos[i];
            System.out.println("Title: " + video.getTitle() +
                               ", Checked Out: " + video.isCheckedOut() +
                               ", Rating: " + video.getRating());
        }
    }

    private Video findVideo(String title) {
        for (int i = 0; i < videoCount; i++) {
            if (videos[i].getTitle().equals(title)) {
                return videos[i];
            }
        }
        return null;
    }
}


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

        store.addVideo("The Matrix");
        store.addVideo("Godfather II");
        store.addVideo("Star Wars Episode IV: A New Hope");

        store.receiveRating("The Matrix", 5);
        store.receiveRating("The Matrix", 4);
        store.receiveRating("Godfather II", 5);
        store.receiveRating("Godfather II", 3);
        store.receiveRating("Star Wars Episode IV: A New Hope", 4);
        store.receiveRating("Star Wars Episode IV: A New Hope", 5);

        store.checkOut("The Matrix");
```

```
        store.returnVideo("The Matrix");
        store.checkOut("Godfather II");

        System.out.println("\nInventory after 'Godfather II' has been rented out:");
        store.listInventory();
        System.out.println("UID-22BCS15886, NIDHI");
    }
}
```

4. Output



5. Learning Outcome

a) **Object-Oriented Programming (OOP) Concepts**: Understanding and applying key OOP principles such as classes, objects, encapsulation, and methods to model real world entities and their behaviors.

b) **Data Structures and Arrays**: Learning how to use arrays to store and manage collections of objects, such as the video inventory in the VideoStore class.

c) **Method Implementation**: Gaining experience in defining and implementing methods to perform specific actions, such as adding videos, checking out and returning videos, and receiving ratings.

d) **Basic User Interaction**: Designing a simple user interface through the main() method in the VideoStoreLauncher class to interact with the inventory system and perform various operations.