Experiment 1.2

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Subject Name: Project based learning in Java with Lab

Subject Code: 21CSH-319

1. Aim:

Design and implement a simple inventory control system for a small video rental store.

2. Objective:

- To learn about Classes.
- To learn about Encapsulation in java.

3. Script and Output:

Video.java

```java
package java_lab;

class Video {

    String title;
    boolean checked;
    double avg_rating;

    Video(String _title) {
        this.title = _title;
        this.checked = false;
        this.avg_rating = 0;
    }

    boolean isChecked() {
        return this.checked;
    }
```

```java
    void rent() {
        this.checked = true;
    }

    void returned() {
        this.checked = false;
    }

    void getRating(int rating) {
        if(this.avg_rating == 0) {
            this.avg_rating = rating;
        } else {
            this.avg_rating += rating;
            this.avg_rating /= 2;
        }
    }

}
```

VideoStore.java

```java
package java_lab;
import java.util.Scanner;

public class VideoStore {
    private static int i = 0;
    private Video[] v = new Video[10];

    public void addVideo(String name) {
        v[i] = new Video(name);
        i++;
    }

    public void checkOut(String name) {
        for (int j = 0; j < i; j++) {
            if (v[j].title.equals(name)) {
                v[j].rent();
                return;
            }
        }
    }

    public void returnVideo(String name) {
        for (int j = 0; j < i; j++) {
```

```java
                if (v[j].title.equals(name)) {
                    v[j].returned();
                    return;
                }
            }
        }

    public void receiveRating(String name, int rating) {
        for (int j = 0; j < i; j++) {
            if (v[j].title.equals(name)) {
                Scanner sc = new Scanner(System.in);
                int _rating = sc.nextInt();
                sc.close();
                 v[j].getRating(_rating);
                 return;
            }
        }
    }

    public void listInventory() {
        for (int j = 0; j < i; j++) {
            System.out.println(v[j].title + " | " + (v[j].isChecked() ?
"Checked out" : "Available") + " | Rating:" + v[j].avg_rating);
        }
    }
}
```

VideoStoreLauncher.java

```java
package java_lab;

import java.util.Scanner;

public class VideoStoreLauncher {
    // User credentials
    private static final String USER_USERNAME = "user";
    private static final String USER_PASSWORD = "userpass";

    // Admin credentials
    private static final String ADMIN_USERNAME = "admin";
    private static final String ADMIN_PASSWORD = "adminpass";

    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);
```

```java
        // Login
        String role = login(scanner);
        VideoStore vs = new VideoStore();

        while (true) {
            if (role.equals("user")) {
                userPanel(vs, scanner);
            } else if (role.equals("admin")) {
                adminPanel(vs, scanner);
            }

            System.out.println("Do you want to switch to another role?
(yes/no)");
            String switchChoice = scanner.next().toLowerCase();
            if (!switchChoice.equals("yes")) {
                break;
            }

            role = switchRole(scanner);
        }

        scanner.close();
    }

    private static String login(Scanner scanner) {
        String role;
        do {
            System.out.println("Enter your username:");
            String username = scanner.nextLine();
            System.out.println("Enter your password:");
            String password = scanner.nextLine();

            if (USER_USERNAME.equals(username) &&
    USER_PASSWORD.equals(password)) {
                role = "user";
            } else if (ADMIN_USERNAME.equals(username) &&
    ADMIN_PASSWORD.equals(password)) {
                role = "admin";
            } else {
                System.out.println("Invalid login credentials. Please try
again.");
                role = "";
            }
        } while (role.isEmpty());

        return role;
    }
```

```java
private static String switchRole(Scanner scanner) {
    System.out.println("Switch to which role? (user/admin)");
    return scanner.next().toLowerCase();
}

private static void userPanel(VideoStore vs, Scanner scanner) {
    int ch;
    String title, choice;
    do {
        System.out.println("=========User Panel=========");
        System.out.println("1. List Inventory");
        System.out.println("2. Rent Video");
        System.out.println("3. Enter the rating of Video");
        System.out.println("4. Return Video");
        System.out.println("Enter Your Choice");
        ch = scanner.nextInt();

        switch (ch) {
            case 1:
                vs.listInventory();
                break;
            case 2:
                vs.listInventory();
                System.out.println("Enter the video Name you want");
                scanner.nextLine();
                title = scanner.nextLine();
                vs.checkOut(title);
                break;
            case 3:
                System.out.println("Enter the video Name");
                scanner.nextLine();
                title = scanner.nextLine();
                System.out.println("Enter the rating");
                int rating = scanner.nextInt();
                vs.receiveRating(title, rating);
                break;
            case 4:
                System.out.println("Enter the video Name you want to return");

                scanner.nextLine();
                title = scanner.nextLine();
                vs.returnVideo(title);
                break;
            default:
                System.out.println("Sorry, wrong choice");
                break;
```

```java
        }

            System.out.println("Do you want to repeat? (yes/no)");
            choice = scanner.next();
        } while (choice.equalsIgnoreCase("yes"));
    }

    private static void adminPanel(VideoStore vs, Scanner scanner) {
        int ch, aCh;
        String title, choice;
        do {
            System.out.println("=========Admin Panel=========");
            System.out.println("1. List Inventory");
            System.out.println("2. Add Video");
            System.out.println("Enter Your Choice");
            ch = scanner.nextInt();

            switch (ch) {
                case 1:
                    vs.listInventory();
                    break;
                case 2:
                    System.out.println("Enter the name of Video");
                    scanner.nextLine();
                    title = scanner.nextLine();
                    vs.addVideo(title);
                    break;
                default:
                    System.out.println("Sorry, wrong choice");
                    break;
            }

            System.out.println("Do you want to repeat? (yes/no)");
            choice = scanner.next();
        } while (choice.equalsIgnoreCase("yes"));
    }
}
```

```
Problems  @ Javadoc  Declaration  Console  ✕
VideoStoreLauncher [Java Application] C:\Program Files\Java\jdk-18.0.2\bin\javaw.exe  (Feb 6, 2024, 10:42:27 PM) [pid: 19156]
Enter your username:
admin
Enter your password:
adminpass
=========Admin Panel=========
1. List Inventory
2. Add Video
Enter Your Choice
2
Enter the name of Video
TBATE
Do you want to repeat? (yes/no)
yes
=========Admin Panel=========
1. List Inventory
2. Add Video
Enter Your Choice
2
Enter the name of Video
COTE
Do you want to repeat? (yes/no)
no
Do you want to switch to another role? (yes/no)
yes
Switch to which role? (user/admin)
user
=========User Panel=========
1. List Inventory
2. Rent Video
3. Enter the rating of Video
4. Return Video
Enter Your Choice
1
TBATE | Available | Rating:0.0
COTE | Available | Rating:0.0
Do you want to repeat? (yes/no)
```