

Write a Java program to create a class called "Movie" with attributes for title, director, actors, and reviews, and methods for adding and retrieving reviews.

Sample Solution:

Java Code:

```
// Movie.java

// Import the ArrayList class from the Java utility package
import java.util.ArrayList;

// Define the Movie class
public class Movie {

    // Private fields to store the title, director, actors, and reviews of
    private String title;
    private String director;
    private ArrayList<String> actors;
    private ArrayList<Review> reviews;

    // Constructor to initialize the title, director, and actors of the movie
    public Movie(String title, String director, ArrayList<String> actors) {
        this.title = title; // Set the title field to the provided title
        this.director = director; // Set the director field to the provided director
        this.actors = actors; // Set the actors field to the provided list
        this.reviews = new ArrayList<Review>(); // Initialize the reviews list
    }

    // Method to add a review to the movie
    public void addReview(Review review) {
        this.reviews.add(review); // Add the provided review to the reviews list
    }

    // Method to get the list of all reviews for the movie
    public ArrayList<Review> getReviews() {
        return this.reviews; // Return the list of reviews
    }

    // Method to get the title of the movie
    public String getTitle() {
```

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        return this.title; // Return the value of the title field
    }

    // Method to get the director of the movie
    public String getDirector() {
        return this.director; // Return the value of the director field
    }

    // Method to get the list of actors in the movie
    public ArrayList<String> getActors() {
        return this.actors; // Return the list of actors
    }
}

```

The above Java class has instance variables for the movie's title, director, actors, and reviews. The class constructor takes in the movie's title, director, and actors as parameters, and initializes the instance variables. The class also has methods to add a review to the movie's reviews list. It can retrieve the reviews list, and the movie's title, director, and actors. The reviews list is an ArrayList of Review objects, created outside of this class. These objects are added to the reviews list using the addReview() method.

```

// Review.java

// Define the Review class
class Review {

    // Private fields to store the review text, reviewer name, and rating
    private String reviewText;
    private String reviewerName;
    private double rating;

    // Constructor to initialize the review text, reviewer name, and rating
    public Review(String reviewText, String reviewerName, double rating) {
        this.reviewText = reviewText; // Set the reviewText field to the provided reviewText
        this.reviewerName = reviewerName; // Set the reviewerName field to the provided reviewerName
        this.rating = rating; // Set the rating field to the provided rating
    }

    // Method to get the review text
    public String getReviewText() {

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        return reviewText; // Return the value of the reviewText field
    }

    // Method to get the reviewer name
    public String getReviewerName() {
        return reviewerName; // Return the value of the reviewerName field
    }

    // Method to get the rating
    public double getRating() {
        return rating; // Return the value of the rating field
    }
}

```

The Review class represents a movie review, with attributes such as the review text, the reviewer's name, and the rating given to the movie. It has a constructor that takes these attributes as parameters and sets them as instance variables. The class also has three getter methods to retrieve review text, reviewer name, and rating.

```

// Main.java
// Import the ArrayList and Arrays classes from the Java utility package
import java.util.ArrayList;
import java.util.Arrays;

// Define the Main class
public class Main {

    // The main method - the entry point of the Java application
    public static void main(String[] args) {

        // Create a movie object for "Titanic"
        Movie movie1 = new Movie("Titanic", "James Cameron",
            new ArrayList(Arrays.asList("Leonardo DiCaprio", "Kate Winslet")));

        // Create review objects
        Review review1 = new Review("Great movie!", "Irvine Rolf", 4.5);
        Review review2 = new Review("Highly recommended!", "Ashkii Karlheinz",
        Review review3 = new Review("A classic that never gets old.", "Nele At
        Review review4 = new Review("Great movie!", "Cipactli Anselma", 4.0);
        Review review5 = new Review("Highly recommended!", "Martin Nadine", 4.0
    }
}

```

```

// Add reviews to movie1
movie1.addReview(review1);
movie1.addReview(review2);
movie1.addReview(review3);
movie1.addReview(review4);

// Create a movie object for "The Godfather"
Movie movie2 = new Movie("The Godfather", "Francis Ford Coppola",
    new ArrayList(Arrays.asList("Marlon Brando", "Al Pacino", "James Caan")));

// Display all the reviews for "Titanic"
System.out.println("\nReviews for '" + movie1.getTitle() + "':");
for (Review review : movie1.getReviews()) {
    System.out.println(review.getReviewText() + " by " + review.getReviewer() + " rating: " + review.getRating());
}

// Add reviews to movie2
movie2.addReview(review1);
movie2.addReview(review4);
movie2.addReview(review5);

// Display all the reviews for "The Godfather"
System.out.println("\nReviews for '" + movie2.getTitle() + "':");
for (Review review : movie2.getReviews()) {
    System.out.println(review.getReviewText() + " by " + review.getReviewer() + " rating: " + review.getRating());
}
}
}

```

The Main class is the entry point for the program. It creates two Movie objects: movie1 and movie2. It also creates five Review objects: review1, review2, review3, review4, and review5.

movie1 represents the movie "Titanic" directed by James Cameron and starring Leonardo DiCaprio and Kate Winslet. It adds four reviews to its reviews ArrayList.

movie2 represents the movie "The Godfather" directed by Francis Ford Coppola and starring Marlon Brando, Al Pacino, and James Caan. It adds three reviews to its reviews ArrayList.

The Main class then displays all the reviews for movie1 and movie2 by iterating over their reviews ArrayList and printing out the review text, reviewer name, and rating.

Sample Output:

Reviews for 'Titanic':

Great movie! by Irvine Rolf - 4.5

Highly recommended! by Ashkii Karlheinz - 4.5

A classic that never gets old. by Nele Athol - 4.0

Great movie! by Cipactli Anselma - 4.0

Reviews for 'The Godfather':

Great movie! by Irvine Rolf - 4.5

Great movie! by Cipactli Anselma - 4.0

Highly recommended! by Martin Nadine - 4.0

Flowchart: