Turing Academy

JBE - Lab 1

Step 1:

Objective:

Create a class named Movie.

Requirements:

- Create a class named Movie
- It should have two fields:
    - String name - holds the name of the movie
    - double rating - holds the rating of the movie
- It should have getters and setters for all its fields
- It should have a constructor that initializes all its fields

Step 2:

Objective:

Create a basic menu-driven program that allows users to input the names and ratings of 3 movies, and then display those movies and their ratings.

Requirements:

- Create a menu with the following options:
    - Press 1 to input movies
    - Press 2 to display movies and ratings
    - Press 0 to exit
- When the user presses 1, allow them to input the names and ratings of 3 movies.
- When the user presses 2, display the list of movies and their ratings.

Features to Implement:

1. Create a menu interface.
2. Use an array of type Movie[] to store the movie objects.
3. Implement functionality to add 3 movies (name and rating) to the list.
4. Implement functionality to display the list of movies and their ratings.

Step 3:

Objective:

Extend the program to allow users to input any number of movies and their corresponding ratings.

Requirements:

- Add a new menu option: "Press 3 to input more movies."
- When the user presses 3, first ask them how many additional movies they want to input.
- Allow the user to input the specified number of movies and their ratings.

Features to Implement:

1. Implement functionality to add any number of additional movies to the array based on user input.

Step 4:

Objective:

Implement a feature to show statistics about the entered movies' ratings.

Requirements:

- Add a new menu option: "Press 4 to find statistics."
- When 4 is pressed, calculate and display:
    - The average rating of all movies
    - The movie with the maximum rating
    - The movie with the minimum rating

Features to Implement:

1. Calculate and display the average rating of the movies.
2. Find the movie with the maximum rating and display its name.
3. Find the movie with the minimum rating and display its name.

Step 5:

Objective:

Implement a search functionality that allows the user to find a movie by its name and display its rating.

Requirements:

- Add a menu option: "Press 5 to search for a movie."

- When 5 is pressed:
    - Prompt the user to enter the movie name they are searching for.
    - Search for the movie in the list and display its rating. If the movie is not on the list, display a message saying "Movie not found."

Features to Implement:

1. Implement a search algorithm (linear search).
2. Implement appropriate user prompts and messages.

Step 6:

Objective:

Add a feature to update the ratings of movies that are already on the list.

Requirements:

- Add a menu option: "Press 6 to update movie ratings."
- When 6 is pressed:
    - Prompt the user to enter the name of the movie whose rating they wish to update.
    - If the movie exists in the list, prompt them for the new rating and update it. If the movie is not found, display a message saying "Movie not found."

Features to Implement:

1. Implement a mechanism to find the movie in the list (you can reuse the search algorithm from Step 5).
2. Update the movie's rating if found.

Step 7:

Objective:

Add a feature to delete a movie from the list.

Requirements:

- Add a menu option: "Press 7 to delete a movie."
- When 7 is pressed:
    - Prompt the user to enter the name of the movie that you want to delete.
    - If the movie exists in the list, delete the movie from the list. If the movie is not found, display a message saying "Movie not found."
    - Make sure that after the movie is deleted, there is no empty (null) element left in the array.

Features to Implement:

1. Implement a mechanism to find the movie in the list (you can reuse the search algorithm from Step 5).
2. Delete the movie from the list if found.

Step 8: (HARD)

Objective:

Add to menu options that allow the user to sort the list of movies and display them in ascending order based on their ratings.

Requirements:

- Add a menu option: "Press 8 to sort movies."
- When 7 is pressed:
    - Sort the list of movies accordingly and display the sorted list.

Features to Implement:

1. Implement a sorting algorithm (selection or bubble sort)
2. Research any of these algorithms on the internet.