***Movie Recommendation System***

<https://olympuss.ntu.ac.uk/n1213024/python.git>

**Description**

The movie recommendation system aim is to provide users with personalized movie recommendations based on their preferred genres.

Users can input a preferred movie genre, and the system will provide a list of recommended movies within that genre.

Users have the option to contribute to the movie file by adding new movies, enhancing the system's flexibility and inclusiveness.

Movies data is stored in a CSV file, ensuring that user-contributed movies and recommendations are saved for future interactions.

**Use Case Diagrams**

|  |  |
| --- | --- |
| Movie Class | Movie Recommendation Class |
| - index: Integer  - genres: String  - original \_ language: String  - original \_title: String  - runtime: String - title: String | - movies: List of Movie objects  - file \_path: String |
| + Movie (index, genres, original language, original title, runtime, title)  + extract \_ numeric \_ part (runtime): Integer  + \_\_str\_\_ (): String | + Movie Recommendation (file \_path: String)  + load \_movies (): Void  + save \_movies (): Void  + get \_recommendations \_by \_genre (genre: String): List of Movie objects |

**Testing**

|  |  |  |  |
| --- | --- | --- | --- |
| Test  no. | Test description | Did the test pass? Y/N | Solution to fix |
| 1 | Create a new Movie object with valid attributes | Y | x |
| 2 | Display movie information for an existing Movie object | N | Verified that the \_\_str\_\_ function returns to the expected string representation. |
| 3 | Extract numeric part from valid runtime string | N | Confirmed that the extract \_numeric \_part method correctly extracts and returns the numeric part. |
| 4 | Attempt to extract numeric part from invalid runtime | N | Implemented an error handling in the extract \_numeric \_part function to handle invalid input. |
| 5 | Initialize Movie Recommendation with valid file path | Y | x |
| 6 | Load movies from an existing CSV file | N | Checked the load \_movies function reads the CSV file correctly and gives the movies list. |
| 7 | Save movies to the CSV file | N | Verified that the save \_movies function writes the movie data correctly to the CSV file. |
| 8 | Get genre-based recommendations for an existing genre | N | Confirm that the get \_recommendations \_by \_genre function filters the movie list correctly based on the provided genre. |
| 9 | Add a new movie to the list of recommendations | Y | x |
| 10 | Attempt to add a movie with invalid attributes | Y | x |
| 11 | Initialize Movie Recommendation with an invalid file path | N | Added an error handling to address cases where an invalid file path is provided. |
| 12 | Save movies to a read-only CSV file | Y | x |

**Critique**

The code demonstrates effective class and method design for managing movie data and recommendations. The `Movie` class uses regular expressions to extract the numeric part from the runtime string, enhancing data processing capabilities. The `Movie Recommendation` class can load, save, and retrieve movie recommendations.

But some things must be considered. Tests 2, 3, 6, 7, and 8 failed, suggesting potential problems with presenting movie details, loading, and saving movies, and generating recommendations. Additionally, the `load \_movies` and `save \_movies` methods' error handling could be improved to give the user more understandable messages.

Improvements:

* Improve error handling in `load \_movies’ and `save\_ movies’ for improved user feedback.
* Add more intuitive prompts and messages to improve the user experience overall.
* Consider handling exceptions related to user input more gracefully to prevent the system from crashing.