

I finished the Programming with Python course by Meta in Coursera and wish to practice my recently acquired knowledge. Please create a challenge worthy of a portfolio project, that should take me anywhere from a couple of hours to the whole day working through. The challenge should be focused on working with classes and objects, data structures (dictionaries, tuples, and sets), packages (NumPy, math, JSON), and testing.

ChatGPT Challenge: Movie Recommendation System

Build a movie recommendation system using Python that suggests movies to users based on their preferences. The system should utilize classes and objects, data structures (dictionaries, tuples, and sets), packages (NumPy, math, JSON), and testing.

Requirements:

1. Create a **class** called Movie with the following attributes: title, genre, rating, and year.
2. Implement **methods** in the Movie class to set and get the attributes.
3. Use a **dictionary** to store movie information, where the movie title is the key, and the Movie object is the value.
4. Implement a **function** to add movies to the system. The function should take movie information as input and create a Movie object, storing it in the movie dictionary.
5. Implement a **function** to recommend movies to a user based on their preferred genre. The function should take a genre as input and return a list of movies with the highest ratings in that genre.
6. Use the **NumPy** package to calculate the average rating for movies in a given genre.
7. Implement a **function** to export the movie dictionary to a JSON file.
8. Implement a **function** to import movie information from a JSON file and update the movie dictionary accordingly.
9. Write **tests** for all the implemented functions to ensure their correctness.
10. Use the **math** package to round the average ratings to two decimal places.

Suggested Steps:

1. Create the Movie class with attributes and methods.
2. Implement the function to add movies to the system.
3. Implement the function to recommend movies based on genre.
4. Use NumPy to calculate the average ratings for movies in a genre.
5. Implement the functions to export and import movie information using JSON.
6. Write tests for all the implemented functions.

Note: You can use existing movie datasets or create your own sample data for testing purposes. Feel free to enhance the system with additional features or explore other relevant packages based on your interests.

Estimated Time:

This challenge can take anywhere from a couple of hours to a full day, depending on your familiarity with the concepts and packages involved, as well as the complexity of the additional features you choose to implement.

Good luck with your project!