**VISVESVARAYA TECHNOLOGICAL UNIVERSITY**

**“Jnana Sangama”, Belagavi-590018.**

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**“Movie Recommender System”**

**INTRODUCTION TO PYTHON PROGRAMMING**

**PROJECT REPORT**

**Submitted by**

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**Under the Guidance of**

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**RV INSTITUTE OF TECHNOLOGY AND MANAGEMENT, BANGALORE-560076**

**2023-24**

**RV INSTITUTE OF TECHNOLOGY AND MANAGEMENT, BANGALORE - 560076**

**DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**

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**CERTIFICATE**

Certified that the project work titled **“Movie Recommender System”** is carried out by**Shashank Ravindra (1RF23CS152), Ananya Raghuveer (1RF23CS021), Srushti Sunil V (1RF23CS168)** who are bonafide students of RV Institute of Technology and Management, Bangalore**.**

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| **Dr.** **Mallanagouda Patil** | **Dr. Malini M Patil** | **Dr. Jayapal R** |
| Associate Professor, | Professor & Head, | Principal, |
| Department of CSE, | Department of CSE, | RVITM, Bengaluru-76 |
| RVITM, Bengaluru-76 | RVITM, Bengaluru-76 |  |

**Signature of Guide: Signature of Head of the Department: Signature of Principal:**

**DECLARATION**

We, Shashank Ravindra (1RF23CS152), Ananya Raghuveer (1RF23CS021) and Srushti Sunil V (1RF23CS168), students of second semester B.E., hereby declare that the project titled “Movie Recommender System” has been carried out by us and submitted in fulfilment of the Python Mini Project. We further declare that this work has not been carried out by any other students for the fulfilment of any other project.

**Place : Bangalore Signature**

**Date : June 2024 1. Shashank Ravindra (1RF23CS152)**

**2. Ananya Raghuveer (1RF23CS021)**

**3. Srushti Sunil V (1RF23CS168)**

**ABSTRACT**

This Python-based movie recommender system prioritizes user engagement and simplicity, employing a structured data repository to store movie details, including titles, genres, and user ratings on a scale from 1 to 5. Users contribute ratings to build a dynamic recommendation engine via a straightforward interface, facilitating personalized movie suggestions without complex user profiles. Participation involves submitting new movies and ratings, enriching the system's database for more tailored recommendations. Users can select genres and set minimum rating thresholds to receive curated lists of recommended movies, leveraging both genre preferences and user-defined criteria. This project serves as a foundation for exploring advanced recommendation algorithms like collaborative and content-based filtering, fostering a continuously evolving and sophisticated recommendation system.

**INTRODUCTION**

This mini project delves into the realm of movie recommendations, offering a user-centric system built with Python. It aims to create a collaborative environment where users can contribute their movie preferences and discover new movies based on shared tastes.

**Key Features:**

* **User-Driven Movie Database:** The system empowers users to enrich its knowledge base by adding new movies. Users can specify the title, genre, and their personal rating for each movie, fostering a dynamic and ever-evolving collection.
* **Personalized Recommendations:** Tailored movie suggestions are the heart of the system. Users can select a desired genre and set a minimum rating threshold. The system then analyses user-generated ratings and recommends movies that align with the chosen genre and meet or exceed the specified rating criteria.
* **Collaborative Filtering Potential:** This foundational system lays the groundwork for incorporating more sophisticated recommendation algorithms in the future. Techniques like collaborative filtering, which analyses the ratings of similar users, can be integrated to provide even more personalized suggestions.

**Objectives:**

* **Build a User-Friendly Platform:** The project strives to create an intuitive and user-friendly interface that allows users to seamlessly interact with the system.
* **Encourage Collaborative Exploration:** The core objective is to foster a collaborative environment where users contribute their movie preferences, enriching the database and benefiting from the collective knowledge base.
* **Provide Personalized Recommendations:** The system aims to leverage user-generated data to deliver personalized movie suggestions that cater to individual tastes and preferences.
* **Serve as a Stepping Stone:** This mini project serves as a springboard for further exploration of recommendation algorithms. By providing a foundational framework, it paves the way for incorporating more advanced techniques to create an even more robust and intelligent recommendation system.

Overall, this project offers a practical introduction to the world of movie recommendations. It highlights the power of user-driven data and lays the groundwork for exploring more intricate algorithms that can deliver increasingly personalized movie suggestions for users.

This user-friendly movie recommender system empowers you to explore the world of cinema with ease. With just a few numbers as input, you can unlock a treasure trove of personalized movie recommendations, fostering a collaborative movie discovery experience.

**CODE**

import sys  
  
  
class MovieRecommender:  
 def \_\_init\_\_(self):  
 self.movies = {} *# Dictionary to store movie information* self.genres = {1: "Action", 2: "Comedy", 3: "Documentary", 4: "Drama", 5: "Family", 6: "Fantasy", 7: "Horror",  
 8: "Sci-Fi", 9: "Romance", 10: "Thriller"} *# Genre mapping* self.populate\_movies() *# Initialize the movies dictionary with some predefined movies* def add\_movie(self, title, genre, initial\_rating):  
 *# Add a new movie with its initial rating to the movies dictionary* if title not in self.movies:  
 self.movies[title] = {'genre': genre, 'ratings': [initial\_rating]}  
 else:  
 self.movies[title]['ratings'].append(initial\_rating)  
  
 def rate\_movie(self, title, genre, rating):  
 *# Rate an existing movie or add it to the database if it doesn't exist* if title in self.movies:  
 self.movies[title]['ratings'].append(rating)  
 print(f"Rating '{rating}' added for movie '{title}'.")  
 else:  
 self.add\_movie(title, genre, rating)  
 print(f"Movie '{title}' added to the database with rating '{rating}'.")  
  
 def get\_average\_rating(self, title):  
 *# Calculate and return the average rating for a given movie* if title in self.movies:  
 ratings = self.movies[title]['ratings']  
 return sum(ratings) / len(ratings)  
 return 0  
  
 def get\_recommendations(self, genre, rating):  
 *# Recommend movies based on genre and a specific rating* recommended\_movies = []  
 for title, info in self.movies.items():  
 if info['genre'].lower() == genre.lower() and self.get\_average\_rating(title) == rating:  
 recommended\_movies.append(title)  
 return recommended\_movies  
  
 def populate\_movies(self):  
 movies = {  
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 "Lakshya (2004)": {"genre": "Action", "ratings": [5]},  
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 "Superbad (2007)": {"genre": "Comedy", "ratings": [5]},  
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 "Ferris Bueller's Day Off (1986)": {"genre": "Comedy", "ratings": [4]},  
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 "Total Dhamaal (2019)": {"genre": "Comedy", "ratings": [3]},  
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 "Movie 43 (2013)": {"genre": "Comedy", "ratings": [2]},  
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 "The Vaccine War (2023)": {"genre": "Documentary", "ratings": [5]},  
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 "Sachin: A Billion Dreams (2017)": {"genre": "Documentary", "ratings": [4]},  
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 "The Secret (2006)": {"genre": "Documentary", "ratings": [2]},  
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 "Son of the Mask (2005)": {"genre": "Family", "ratings": [1]},  
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 "The Cat in the Hat (2003)": {"genre": "Family", "ratings": [1]},  
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 *# Horror Movies* "The Exorcist (1973)": {"genre": "Horror", "ratings": [5]},  
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 "Psycho (1960)": {"genre": "Horror", "ratings": [5]},  
 "Get Out (2017)": {"genre": "Horror", "ratings": [5]},  
 "A Nightmare on Elm Street (1984)": {"genre": "Horror", "ratings": [5]},  
 "Raat (1992)": {"genre": "Horror", "ratings": [5]},  
 "Tumbbad (2018)": {"genre": "Horror", "ratings": [5]},  
 "Pari (2018)": {"genre": "Horror", "ratings": [5]},  
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 "It (2017)": {"genre": "Horror", "ratings": [4]},  
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 "Raaz 3: The Third Dimension (2012)": {"genre": "Horror", "ratings": [2]},  
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 "One Missed Call (2008)": {"genre": "Horror", "ratings": [1]},  
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 "Help (2010)": {"genre": "Horror", "ratings": [1]},  
  
 *# Sci-Fi* "Blade Runner (1982)": {"genre": "Sci-Fi", "ratings": [5]},  
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 "2001: A Space Odyssey (1968)": {"genre": "Sci-Fi", "ratings": [5]},  
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 "Robot (2010)": {"genre": "Sci-Fi", "ratings": [5]},  
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 "Aliens (1986)": {"genre": "Sci-Fi", "ratings": [4]},  
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 "Dasavathaaram (2008)": {"genre": "Sci-Fi", "ratings": [4]},  
 "A Flying Jatt (2016)": {"genre": "Sci-Fi", "ratings": [4]},  
 "Minority Report (2002)": {"genre": "Sci-Fi", "ratings": [3]},  
 "District 9 (2009)": {"genre": "Sci-Fi", "ratings": [3]},  
 "Edge of Tomorrow (2014)": {"genre": "Sci-Fi", "ratings": [3]},  
 "Prometheus (2012)": {"genre": "Sci-Fi", "ratings": [3]},  
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 "Transformers: Age of Extinction (2014)": {"genre": "Sci-Fi", "ratings": [4]},  
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 "Jupiter Ascending (2015)": {"genre": "Sci-Fi", "ratings": [2]},  
 "Love Story 2050 (2008)": {"genre": "Sci-Fi", "ratings": [2]},  
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 "La La Land (2016)": {"genre": "Romance", "ratings": [5]},  
 "Casablanca (1942)": {"genre": "Romance", "ratings": [5]},  
 "Jab We Met (2007)": {"genre": "Romance", "ratings": [5]},  
 "Barfi! (2012)": {"genre": "Romance", "ratings": [5]},  
 "Ok Jaanu (2017)": {"genre": "Romance", "ratings": [3]},  
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 "500 Days of Summer (2009)": {"genre": "Romance", "ratings": [4]},  
 "Notting Hill (1999)": {"genre": "Romance", "ratings": [4]},  
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 "Hum Dil De Chuke Sanam (1999)": {"genre": "Romance", "ratings": [4]},  
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 "Dear John (2010)": {"genre": "Romance", "ratings": [3]},  
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 "Me Before You (2016)": {"genre": "Romance", "ratings": [3]},  
 "Two States (2014)": {"genre": "Romance", "ratings": [3]},  
 "Ae Dil Hai Mushkil (2016)": {"genre": "Romance", "ratings": [3]},  
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 "Endless Love (2014)": {"genre": "Romance", "ratings": [2]},  
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 "Half Girlfriend (2017)": {"genre": "Romance", "ratings": [2]},  
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 "Jhootha Hi Sahi (2010)": {"genre": "Romance", "ratings": [2]},  
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 "Gigli (2003)": {"genre": "Romance", "ratings": [1]},  
 "All About Steve (2009)": {"genre": "Romance", "ratings": [1]},  
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 "Prem Aggan (1998)": {"genre": "Romance", "ratings": [1]},  
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 "What's Your Raashee? (2009)": {"genre": "Romance", "ratings": [1]},  
  
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 "Psycho (1960)": {"genre": "Thriller", "ratings": [5]},  
 "The Usual Suspects (1995)": {"genre": "Thriller", "ratings": [5]},  
 "The Sixth Sense (1999)": {"genre": "Thriller", "ratings": [5]},  
 "Kahaani (2012)": {"genre": "Thriller", "ratings": [5]},  
 "Drishyam (2015)": {"genre": "Thriller", "ratings": [5]},  
 "Andhadhun (2018)": {"genre": "Thriller", "ratings": [5]},  
 "Raat (1992)": {"genre": "Thriller", "ratings": [5]},  
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 "The White Tiger (2021)": {"genre": "Thriller", "ratings": [5]},  
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 "Prisoners (2013)": {"genre": "Thriller", "ratings": [4]},  
 "Gone Girl (2014)": {"genre": "Thriller", "ratings": [4]},  
 "Memento (2000)": {"genre": "Thriller", "ratings": [4]},  
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 "Kaabil (2017)": {"genre": "Thriller", "ratings": [3]},  
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 "A Wednesday (2008)": {"genre": "Thriller", "ratings": [3]},  
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 "Players (2012)": {"genre": "Thriller", "ratings": [1]},  
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 "Pan's Labyrinth (2006)": {"genre": "Fantasy", "ratings": [5]},  
 "Avatar (2009)": {"genre": "Fantasy", "ratings": [5]},  
 "The Chronicles of Narnia: The Lion, the Witch and the Wardrobe (2005)": {"genre": "Fantasy","ratings": [5]},  
 "Baahubali: The Beginning (2015)": {"genre": "Fantasy", "ratings": [5]},  
 "Koi... Mil Gaya (2003)": {"genre": "Fantasy", "ratings": [5]},  
 "Harry Potter and the Philosopher's Stone (2001)": {"genre": "Fantasy", "ratings": [5]},  
 "Mr. India (1987)": {"genre": "Fantasy", "ratings": [5]},  
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 "Fantastic Beasts and Where to Find Them (2016)": {"genre": "Fantasy", "ratings": [4]},  
 "The Jungle Book (2016)": {"genre": "Fantasy", "ratings": [4]},  
 "Baahubali 2: The Conclusion (2017)": {"genre": "Fantasy", "ratings": [4]},  
 "Rudhramadevi (2015)": {"genre": "Fantasy", "ratings": [4]},  
 "The Hobbit: An Unexpected Journey (2012)": {"genre": "Fantasy", "ratings": [4]},  
 "Enthiran (2010)": {"genre": "Fantasy", "ratings": [4]},  
 "Eega (2012)": {"genre": "Fantasy", "ratings": [4]},  
 "Harry Potter and the Goblet of Fire (2005)": {"genre": "Fantasy", "ratings": [3]},  
 "The Chronicles of Narnia: The Voyage of the Dawn Treader (2010)": {"genre": "Fantasy", "ratings": [3]},  
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 "Mohenjo Daro (2016)": {"genre": "Fantasy", "ratings": [3]},  
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 "The Hobbit: The Battle of the Five Armies (2014)": {"genre": "Fantasy", "ratings": [2]},  
 "Inkheart (2008)": {"genre": "Fantasy", "ratings": [2]},  
 "Pirates of the Caribbean: Dead Men Tell No Tales (2017)": {"genre": "Fantasy", "ratings": [2]},  
 "The BFG (2016)": {"genre": "Fantasy", "ratings": [2]},  
 "Thor: The Dark World (2013)": {"genre": "Fantasy", "ratings": [2]},  
 "Drona (2008)": {"genre": "Fantasy", "ratings": [2]},  
 "The Chronicles of Narnia: The Silver Chair (2023)": {"genre": "Fantasy", "ratings": [2]},  
 "A Wrinkle in Time (2018)": {"genre": "Fantasy", "ratings": [2]},  
 "Himmatwala (2013)": {"genre": "Fantasy", "ratings": [1]},  
 "Krrish 3 (2013)": {"genre": "Fantasy", "ratings": [1]},  
 "Joker (2012)": {"genre": "Fantasy", "ratings": [1]},  
 "Prince (2010)": {"genre": "Fantasy", "ratings": [1]},  
 "Kambakkht Ishq (2009)": {"genre": "Fantasy", "ratings": [1]},  
  
 }  
 self.movies.update(movies) *# Add the predefined movies to the movies dictionary*def main():  
 recommender = MovieRecommender() *# Create an instance of MovieRecommender* while True:  
 print("Movie Recommender System")  
 print("1. Rate a Movie")  
 print("2. Get Recommendations")  
 print("3. Exit")  
 choice = input("Enter your choice (1/2/3): ")  
  
 if choice == '1':  
 title = input("Enter the movie title: ")  
 genre = input("Enter the movie genre: ")  
 rating = int(input("Enter your rating (1-5): "))  
 recommender.rate\_movie(title, genre, rating) *# Rate the movie provided by the user* elif choice == '2':  
 print("Select a genre:")  
 for num, genre in recommender.genres.items():  
 print(f"{num}. {genre}")  
 genre\_choice = int(input("Enter the number of your choice: "))  
 genre = recommender.genres.get(genre\_choice, None) *# Get the genre based on user choice* if genre:  
 rating = int(input("Enter the rating (1-5) to filter by: "))  
 recommendations = recommender.get\_recommendations(genre, rating) *# Get movie recommendations* if recommendations:  
 print("Recommended Movies:")  
 for movie in recommendations:  
 print(f"- {movie}")  
 else:  
 print("No movies found with the specified genre and rating.")  
 else:  
 print("Invalid genre choice.")  
  
 elif choice == '3':  
 print("Exiting the Movie Recommender System. Goodbye!")  
 sys.exit() *# Exit the program* else:  
 print("Invalid choice. Please enter 1, 2, or 3.")  
  
  
if \_\_name\_\_ == "\_\_main\_\_":  
 main() *# Run the main function if this script is executed*

**OUTPUT**

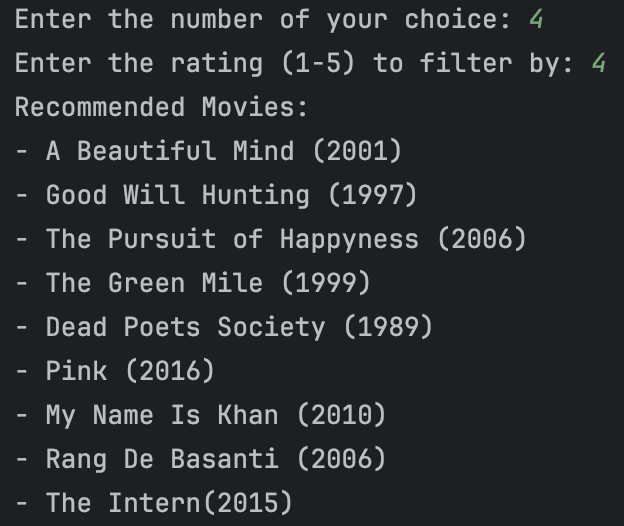
Output 1:

A screenshot of a computer program

Description automatically generated

STEPS TO EXECUTE:

* To rate a movie, select option 1 i.e., Rate a Movie.
* Enter the movie title.
* Enter the movie genre.
* Enter your rating (1-5).
* The movie is now added to the database.
* To check whether the movie appears in the recommendations, select the option 2 i.e., Get Recommendation
* Select a genre.
* Enter the number of your genre choice.
* Enter the rating 1-5 to filter by.
* Recommended movies will appear on the output screen.



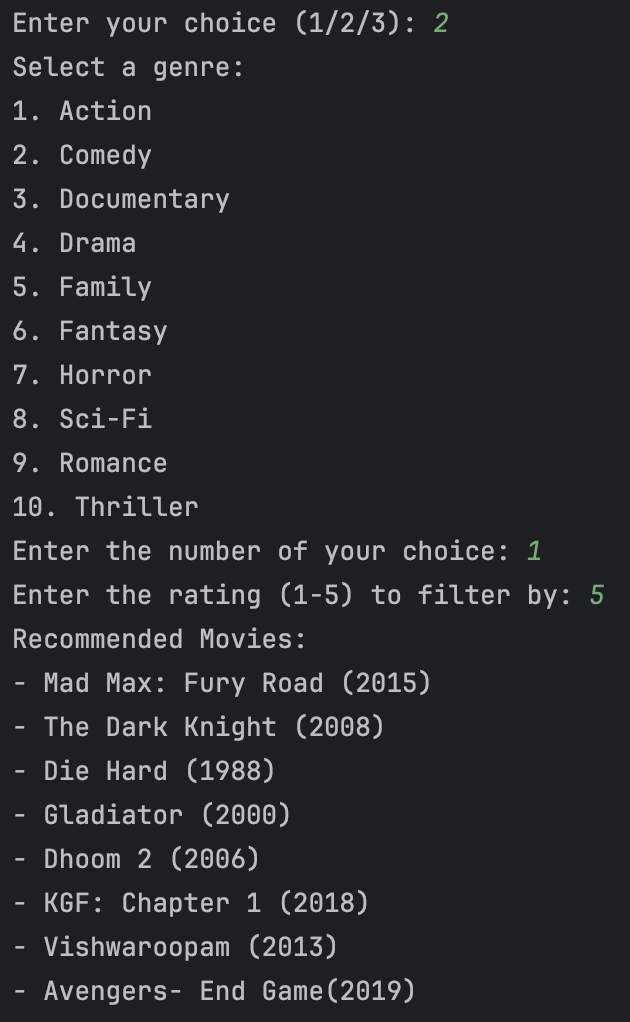
Output 2:

A screenshot of a computer

Description automatically generated

A black screen with white text

Description automatically generated



STEPS TO EXECUTE:

* To rate a movie, select option 1 i.e., Rate a Movie.
* Enter the movie title.
* Enter the movie genre.
* Enter your rating (1-5).
* The movie is now added to the database.
* To check whether the movie appears in the recommendations, select the option 2 i.e., Get Recommendation
* Select a genre.
* Enter the number of your genre choice.
* Enter the rating 1-5 to filter by.
* Recommended movies will appear on the output screen.

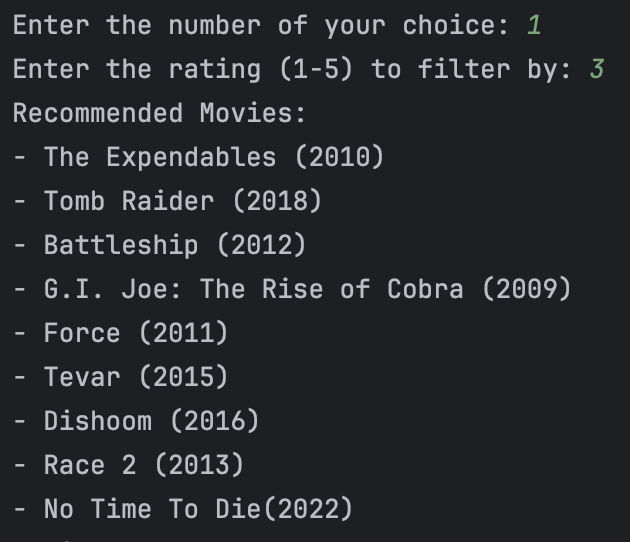
Output 3:

A screenshot of a computer program

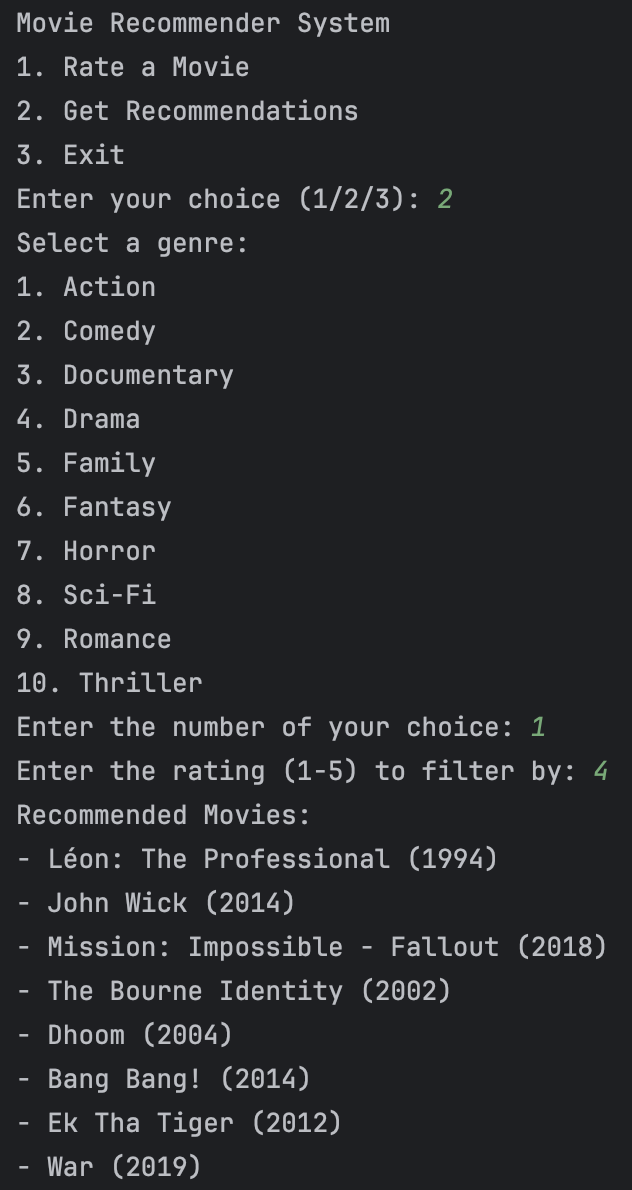
Description automatically generated

STEPS TO EXECUTE:

* To rate a movie, select option 1 i.e., Rate a Movie.
* Enter the movie title.
* Enter the movie genre.
* Enter your rating (1-5).
* The movie is now added to the database.
* To check whether the movie appears in the recommendations, select the option 2 i.e., Get Recommendation
* Select a genre.
* Enter the number of your genre choice.
* Enter the rating 1-5 to filter by.
* Recommended movies will appear on the output screen.



Output 4:



STEPS TO EXECUTE:

* To get movie recommendations, select option 2 i.e., Get recommendations.
* Select a genre.
* Enter the number of your genre choice.
* Enter your required rating 1-5 to filter by.
* Then recommended movies will appear on the output screen.

Output 5:

A screenshot of a computer program

Description automatically generated

STEPS TO EXECUTE:

* To get movie recommendations, select option 2 i.e., Get recommendations.
* Select a genre.
* Enter the number of your genre choice.
* Enter your required rating 1-5 to filter by.
* Then recommended movies will appear on the output screen.

Output 6:

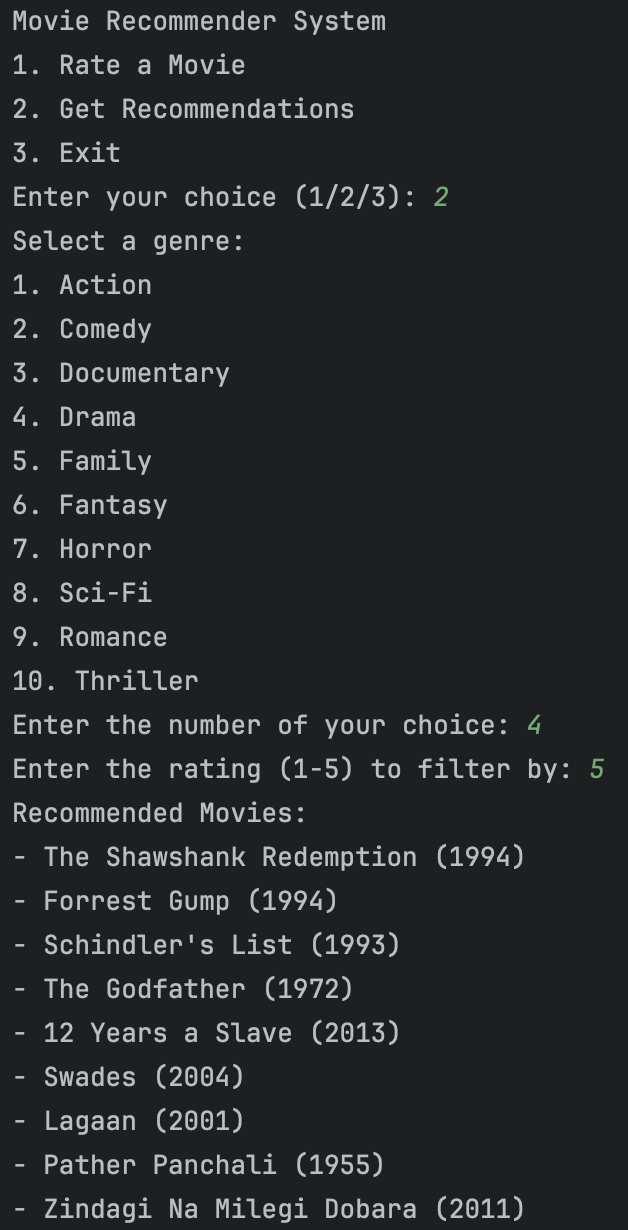
A screen shot of a computer

Description automatically generated

STEPS TO EXECUTE:

* To get movie recommendations, select option 2 i.e., Get recommendations.
* Select a genre.
* Enter the number of your genre choice.
* Enter your required rating 1-5 to filter by.
* Then recommended movies will appear on the output screen.

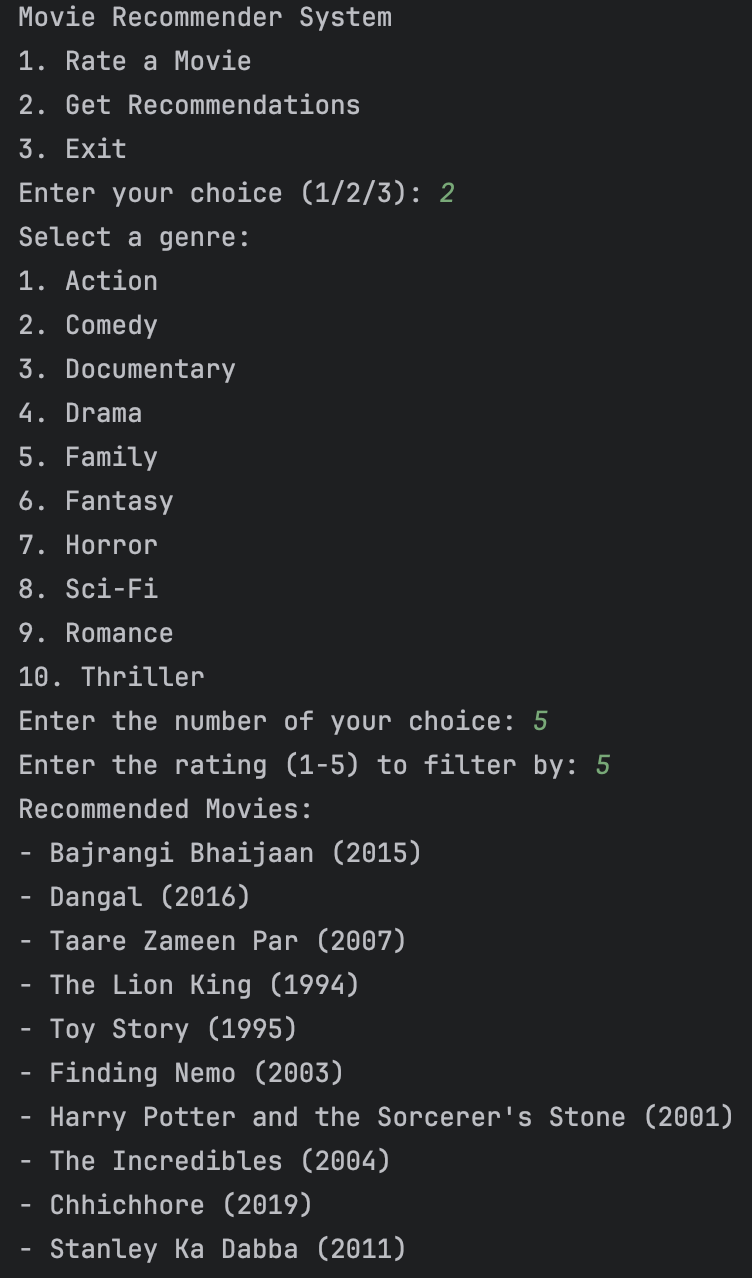
Output 7:



STEPS TO EXECUTE:

* To get movie recommendations, select option 2 i.e., Get recommendations.
* Select a genre.
* Enter the number of your genre choice.
* Enter your required rating 1-5 to filter by.
* Then recommended movies will appear on the output screen.

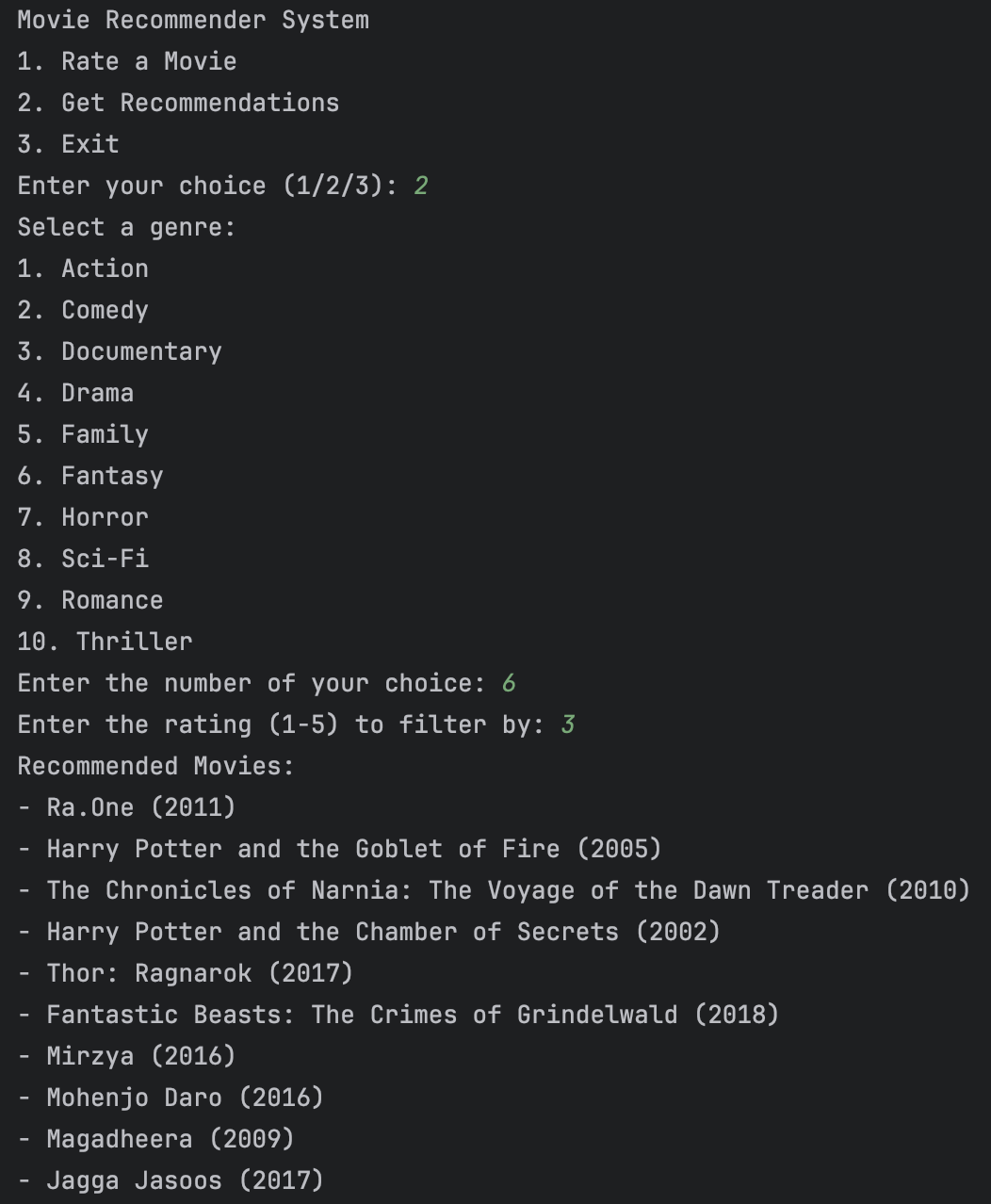
Output 8:



STEPS TO EXECUTE:

* To get movie recommendations, select option 2 i.e., Get recommendations.
* Select a genre.
* Enter the number of your genre choice.
* Enter your required rating 1-5 to filter by.
* Then recommended movies will appear on the output screen.

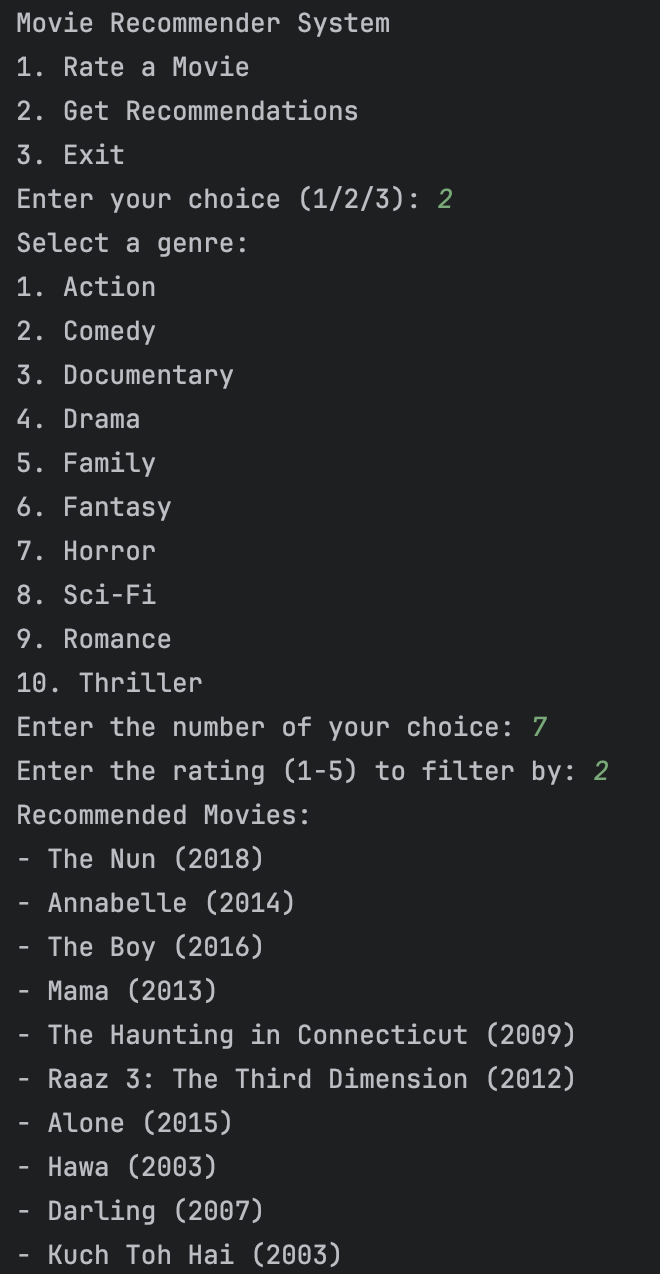
Output 9:



STEPS TO EXECUTE:

* To get movie recommendations, select option 2 i.e., Get recommendations.
* Select a genre.
* Enter the number of your genre choice.
* Enter your required rating 1-5 to filter by.
* Then recommended movies will appear on the output screen.

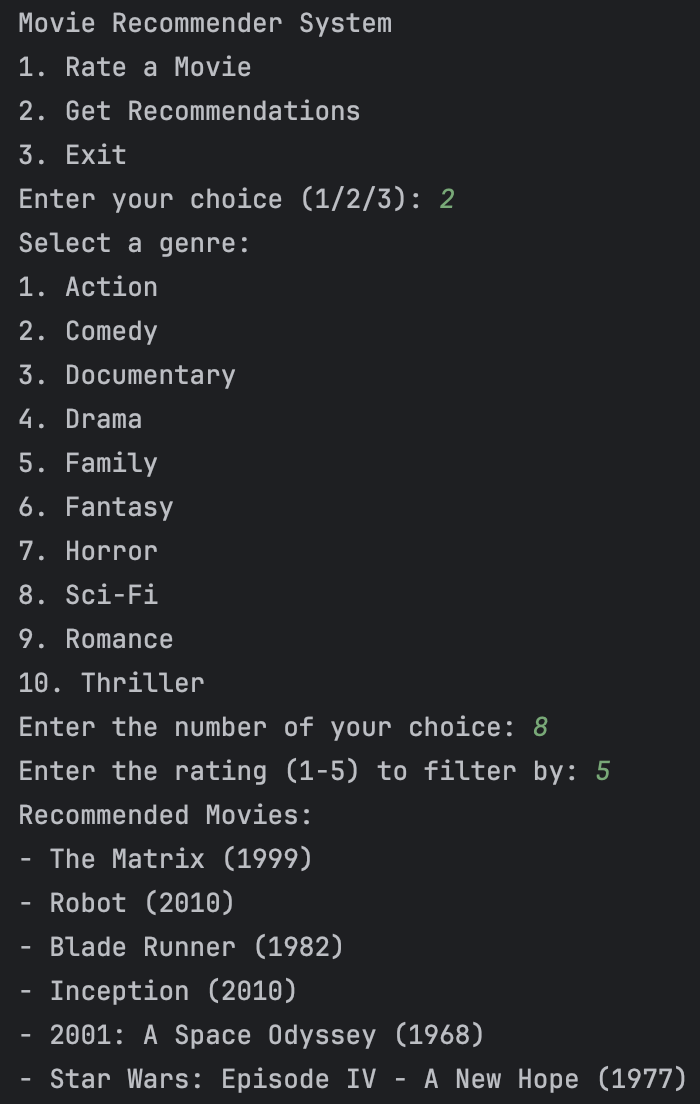
Output 10:



STEPS TO EXECUTE:

* To get movie recommendations, select option 2 i.e., Get recommendations.
* Select a genre.
* Enter the number of your genre choice.
* Enter your required rating 1-5 to filter by.
* Then recommended movies will appear on the output screen.

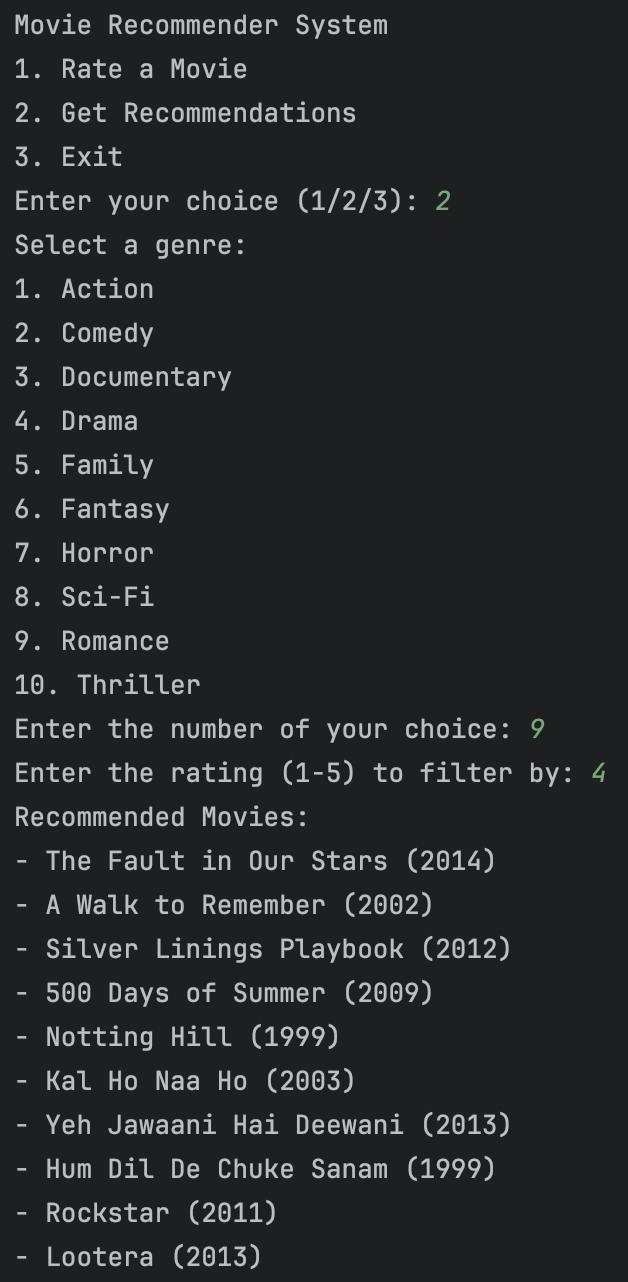
Output 11:



STEPS TO EXECUTE:

* To get movie recommendations, select option 2 i.e., Get recommendations.
* Select a genre.
* Enter the number of your genre choice.
* Enter your required rating 1-5 to filter by.
* Then recommended movies will appear on the output screen.

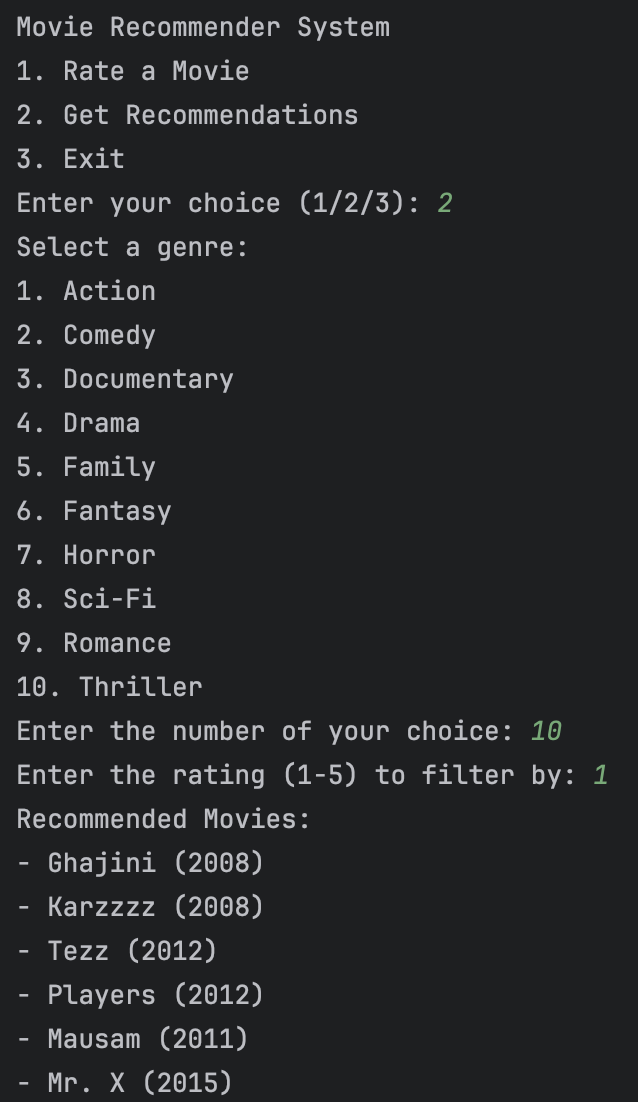
Output 12:



STEPS TO EXECUTE:

* To get movie recommendations, select option 2 i.e., Get recommendations.
* Select a genre.
* Enter the number of your genre choice.
* Enter your required rating 1-5 to filter by.
* Then recommended movies will appear on the output screen.

Output 13:



STEPS TO EXECUTE:

* To get movie recommendations, select option 2 i.e., Get recommendations.
* Select a genre.
* Enter the number of your genre choice.
* Enter your required rating 1-5 to filter by.
* Then recommended movies will appear on the output screen.

Output 14:

A screenshot of a computer program

Description automatically generated

STEPS TO EXECUTE:

* To exit the output screen, select option 3 i.e., Exit.
* This will exit the movie recommender system.

**CONCLUSION**

In conclusion, the Python code provided implements a basic movie recommender system. It allows users to rate movies, select genres, and receive recommendations based on their preferences. The system relies on a predefined dictionary of movies, each categorized by genre and initial ratings. While functional, the system could be enhanced by incorporating more advanced recommendation algorithms, expanding the movie database, and improving the user interface for a more seamless experience. Overall, it serves as a good starting point for further development and customization in the realm of recommendation systems.