

MOVIE RECOMMENDATION SYSTEM: AI-POWERED MOVIE BUDDY

Naga Buddarapu, Youbin Kim - Group 92

NC State University

NC STATE
UNIVERSITY

Movie Recommendation System

This Movie Recommender System acts like a movie buddy that knows your taste well. It analyzes movie data from TMDb and user reviews from IMDB, using cosine similarity and sentiment analysis to recommend films you'll enjoy. Just enter a movie you like, and it quickly suggests others that match your preferences. Setting it up is easy, giving you a personal movie assistant that makes spot-on recommendations!

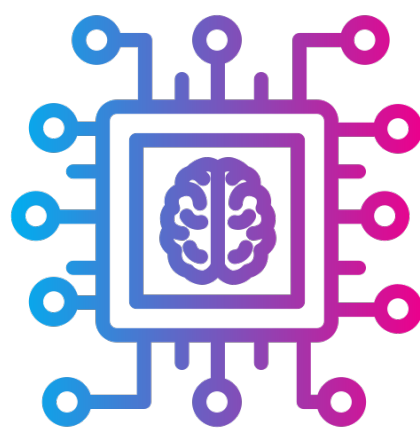
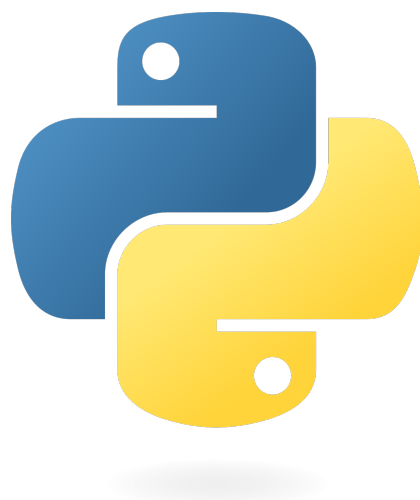
What's New?

- **Static to Dynamic:** The old system had static movie details with limited information. Now, with dynamic web scraping, we provide real-time updates like titles, cast, genres, and posters—even the latest releases are included. It's a dynamic movie experience!
- **Predictable to Sentiment-Driven:** Previously, the system suggested movies based on your preferences. Now, with sentiment analysis, it decodes reviews to offer recommendations that align with your tastes and the emotions of others. It's a more personalized movie night!
- **Interface Upgrade:** The old interface is gone. The new one features rich movie details, cast bios, birthdays, and more. It's an immersive, visually appealing movie experience!
- **From Static Posters to Interaction:** Posters were just visuals before. Now, clicking on them reveals interactive trailers, turning passive viewing into active engagement. Lights, camera, interaction!

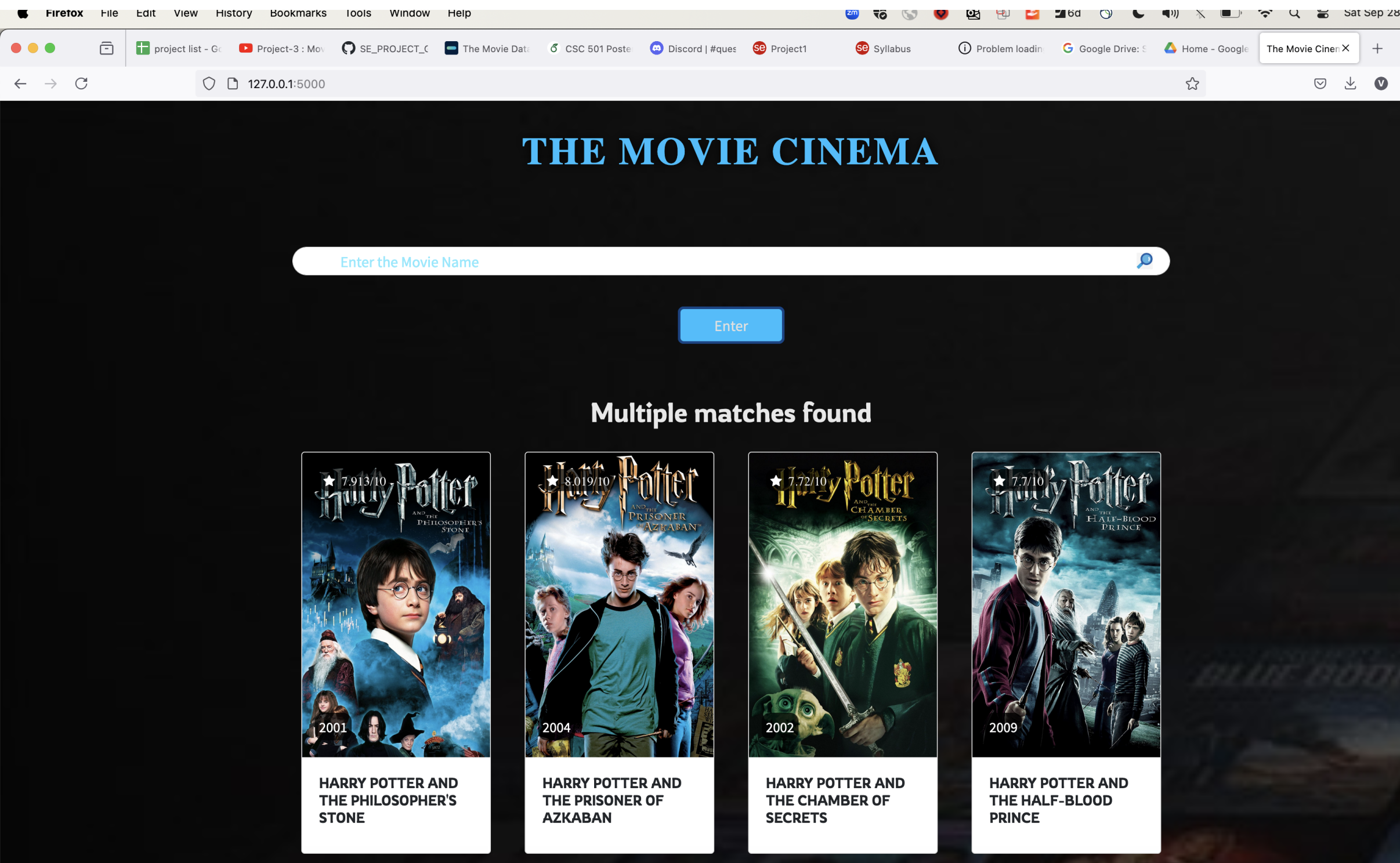
Tech Stack

The following technologies are used in this project:

- **Python:** The core programming language used for the development of the movie recommender system.
- **Flask:** A lightweight web framework for building the backend of the system.
- **Machine Learning:** Utilized for building the recommendation models, including collaborative and content-based filtering.
- **TMDb API:** Used for fetching real-time movie data, including titles, genres, cast, and more.



Running System



Future Scope

- **Login Page and Preferences:** Create a simple login page that captures basic user preferences such as favorite genres, actors, or directors.
- **Collaborative Filtering:** Implement user-user and item-item collaborative filtering to recommend movies based on similar users' preferences and liked movies.
- **Content-Based Filtering:** Recommend movies with similar genres, themes, or featuring preferred actors/directors based on user preferences.
- **Trending and Popular Movies:** Display a list of trending and popular movies, either globally or based on local trends.
- **Watchlist and Notifications:** Allow users to add movies to a watchlist and set notifications for new releases matching their preferences.
- **Nearby Movies:** Include a feature to display showtimes for nearby theaters based on the user's location.
- **Dockerizing the System:** Use Docker to containerize the application for easy deployment and scalability across different environments.
- **Test Cases:** Implement unit tests to validate recommendation algorithms and system stability. Comprehensive test cases for future releases are listed in the GitHub PDF, accessible via the QR code.

Motivation

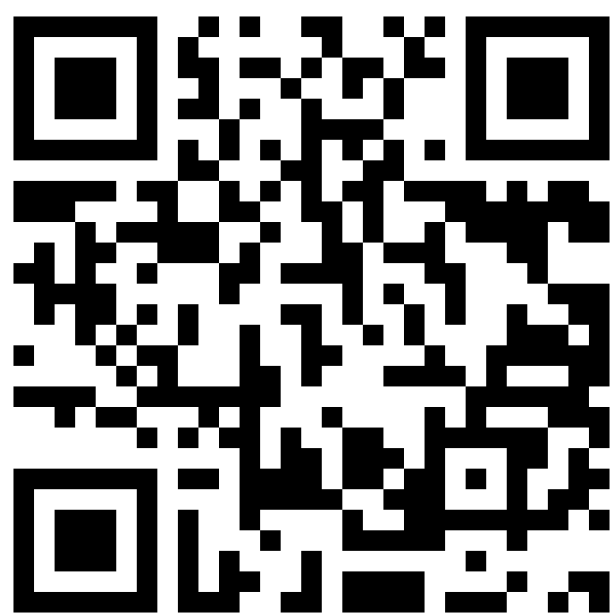
The primary objective of this project is to build a robust and intelligent Movie Recommendation System that offers highly personalized movie suggestions to users. By combining AI-driven recommendation algorithms, sentiment analysis, and collaborative filtering techniques, the system goes beyond traditional methods to deliver a more accurate and personalized movie discovery experience. Key innovations include:

- **AI-Powered Recommendations:** Leveraging advanced machine learning algorithms, the system provides tailored movie suggestions by analyzing user preferences and movie characteristics, offering recommendations that closely match individual tastes.
- **Sentiment-Driven Analysis:** Using sentiment analysis, the system interprets user reviews and the emotions they convey, refining recommendations based on emotional context and preferences.
- **Collaborative Filtering:** The system incorporates user-user and item-item collaborative filtering, learning from the behavior of similar users to provide enhanced recommendations that resonate with the user's unique movie-watching patterns.
- **Dynamic Data Sources:** Continuously updating through APIs and real-time data from platforms like TMDb and IMDB, the system ensures fresh and relevant movie suggestions, adapting to new releases and trends in the movie industry.

Ultimately, the goal of this project is to create an engaging, data-driven movie recommendation experience that meets the evolving tastes and preferences of movie enthusiasts, while seamlessly incorporating user feedback to continuously improve recommendations.

Number of test cases

There are **100** test cases, with more details available through the QR code.



QR Code

Here is a QR code that links to the repository:

