

CINEVARK

AI-POWERED MOVIE RECOMMENDATION SYSTEM

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Introduction

In today's fast-paced digital age, the overwhelming abundance of entertainment content across OTT platforms, streaming services, and movie libraries has made the simple act of choosing what to watch a surprisingly difficult task. With limited time and countless options, users often face decision fatigue unsure of what truly fits their mood or interest. This challenge inspired the creation of **Cinevark** — a smart, AI-powered movie recommendation system designed to personalize and simplify the movie selection experience. Cinevark not only takes genre preferences into account but also factors in the user's emotional state to deliver more relevant, mood-based suggestions. It further introduces a unique decision-making feature that intelligently selects the best movie from a user-provided shortlist, analyzing emotional tone, genre intensity, and overall engagement. Built with real-world data from TMDb and presented through a sleek, YouTube-inspired dark interface, Cinevark transforms content overload into an effortless, enjoyable discovery experience.

Abstract

Cinevark is a personalized AI-driven movie recommendation system that intelligently suggests films based on user moods, genre preferences, and decision scenarios. Leveraging real-world data from sources like TMDb, Cinevark adopts a hybrid approach by combining **collaborative filtering (CF)** and **content-based filtering (CBF)** to enhance recommendation accuracy. A standout feature of the system is its built-in decision-making assistant, which helps users choose the best movie from a shortlist by analyzing mood compatibility and contextual relevance. The application is built using **Python and Streamlit**, featuring a sleek, responsive user interface inspired by the dark-themed design of popular streaming platforms, offering users a smooth and engaging movie discovery experience.

Tools & Technologies Used

- ❑ **Programming Language:** Python 3
- ❑ **Data Handling:** Pandas, NumPy
- ❑ **Machine Learning:** Scikit-Learn
- ❑ **UI:** Streamlit (with custom CSS)
- ❑ **Visualization:** HTML, CSS for styled cards
- ❑ **Dataset:** TMDb 5000 Movie Dataset (Kaggle)

Steps Involved in Building Cinevark:

1. Dataset Collection & Preprocessing:

- Used TMDb 5000 dataset which includes metadata, genres, overviews, and more.
- Cleaned and extracted relevant features like genres, keywords, popularity, and overview.
- Created additional fields for genre_names and poster URLs.

2. Collaborative Filtering:

- Leveraged user-movie rating data.
- Used cosine similarity over rating vectors to find similar movies based on user interactions.

3. Content-Based Filtering:

- Implemented using genre and mood correlations.
- For a given genre and mood, filtered top-N movies based on popularity and relevance.

4. Decision-Based Suggestion System:

- A unique feature allowing users to input a list of movies and get a suggestion based on mood.
- Analyzed titles against mood-matching genres and overviews for the best fit.

5. Streamlit UI Design:

- Created an interactive front-end using Streamlit.
- Features two modes: “🔍 Recommend Me” and “😊 Help Me Choose”.
- Custom CSS inspired by YouTube dark mode theme.

Conclusion

Cinevark successfully delivers a personalized movie recommendation experience with real-world data and intuitive UI. Key outcomes include:

- Smart hybrid recommendations (CF + CBF)
- Mood-aware decision-making assistant
- Simple, modern interface

Future Scope

- Add user login and movie tracking
- Integrate Large Language Models (LLMs) for chat-based movie search
- Use live APIs for dynamic data (e.g., TMDb or IMDb)

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