Movie Recommender System

Minor Project

This project leverages machine learning to create a personalized movie recommendation system.

By

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Introduction

Users are often overwhelmed by the abundance of choices in the digital world.

Personalized Recommendations

The Movie Recommender System aims to provide tailored movie suggestions based on user preferences.

TMDb 5000 Movies Dataset

The project utilizes a comprehensive dataset containing information about movie genres, keywords, cast, crew, and more.

Core Components

The system includes data preprocessing, feature engineering, machine learning, and a user-friendly web application.

Hardware and Software Requirements

The project requires specific hardware and software resources to ensure efficient execution and development.

Hardware

- Processor: Intel Core i5 or higher
- RAM: 8 GB or more
- Storage: 10 GB free space

Software

- Python: Programming language
- NumPy, Pandas, Scikit-learn, Pickle, Requests: Python libraries
- Streamlit: Web application framework
- TMDB API Key
- Pycharm, Anaconda Jupyter Notebook and vs-code

Problem Statement

The entertainment industry faces the challenge of understanding audience preferences and delivering personalized content.

1 **Identifying Movie Similarities**

The system needs to determine how similar two movies are based on their attributes.

2 **Understanding Attributes Influencing Preferences**

Movie preferences are subjective and influenced by numerous factors, such as genre, cast, director, and themes.

3 **Delivering an Intuitive User Experience**

The system must present recommendations through a visually appealing and easy-to-navigate interface.

Related Work (Literature Survey)

Recommendation systems have become an integral part of modern digital platforms.

1

Collaborative Filtering

Relies on user behavior and interactions.

2

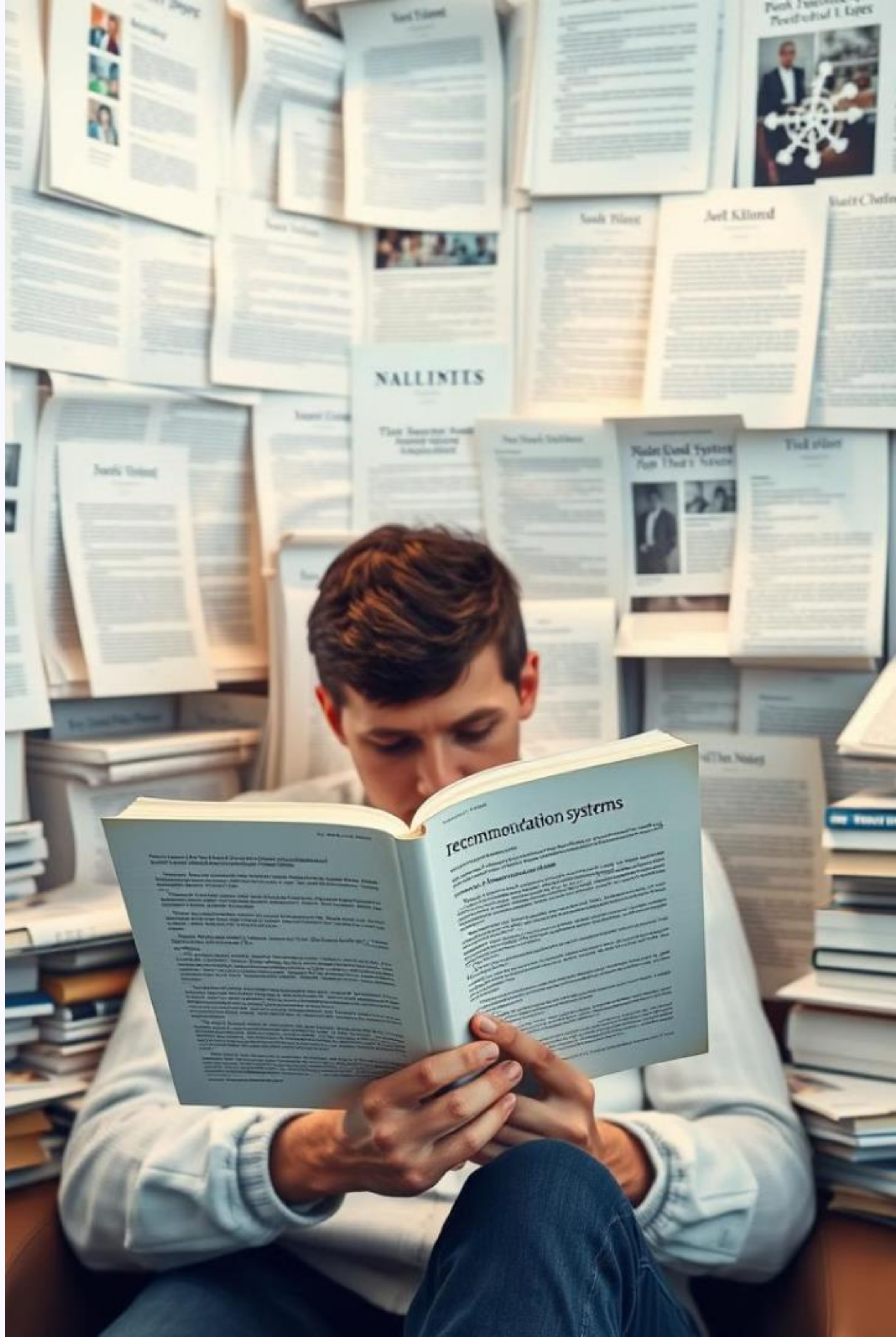
Content-based Filtering

Analyzes the features of items to find similarities.

3

Hybrid Methods

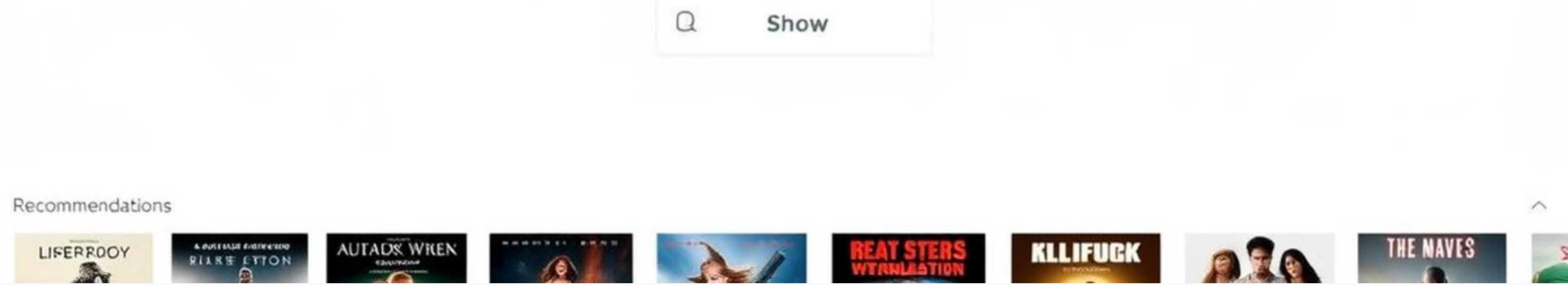
Combine collaborative and content-based filtering for enhanced performance.



Major Modules of Project

The Movie Recommender System is divided into several major modules.

Module	Purpose
Data Collection and Preprocessing	Collect and clean data for building the recommendation model.
Feature Engineering and Similarity Computation	Create feature vectors and compute similarity between movies.
Recommendation System	Recommend movies similar to the one selected by the user.
Web Interface (Streamlit)	Create an interactive user interface for selecting movies and viewing recommendations.
Deployment and Saving Models	Ensure accessibility and reusability of the application and models.



Snapshot of Portal Designed/Stimulation Performed (Till Now)

The Movie Recommender System features an interactive web interface built using Streamlit.

Movie Selection

Users select a movie from a dropdown list.

Recommendation Generation

The system generates a list of recommended movies after clicking the "Show Recommendations" button.

Displaying Recommendations

Recommendations are displayed in a grid with movie posters and names.

References

The Movie Recommender System relies on various resources for development.

1

TMDb API

Used for fetching movie details such as posters, titles, and IDs.

2

Kaggle TMDb 5000 Movies Dataset

The dataset used for training the recommendation system.

3

Streamlit

Framework used to build the interactive web interface.

4

Cosine Similarity

A technique used for computing the similarity between movies based on their feature vectors.

Source: “Cosine Similarity and its Application in Recommender Systems,” ResearchGate,
https://www.researchgate.net/publication/311795257_Cosine_Similarity_and_Its_Application_in_Recommender_Systems

5

CountVectorizer in Scikit-learn

Used for converting movie tags into a matrix of token counts for similarity computation.

Thank You

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