



NARASARAOPETA ENGINEERING COLLEGE (AUTONOMOUS)
DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

2024-2025

Batch Number	AB5
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Guide	Dr. Sireesha Moturi B.Tech, M.Tech.,Ph.D.
Title	Next-Generation Movie Recommendation Systems: A Hybrid Collaborative Filtering Approach
Domain/Technology	Machine Learning
Base Paper Link	https://doi.org/10.1109/ICSESS.2018.8663822
Dataset Link	https://grouplens.org/datasets/movielens//
Software Requirements	Browser: Any latest browser like Chrome Operating System: Windows 7 Server or later Python (JUPYTER)
Hardware Requirements	SystemType: Intel Core i5 or above Processor : Nvidia GeforceGTX RAM: 8 GB
Abstract	<p>In today's digital landscape, the overwhelming abundance of content presents users with decision fatigue when selecting entertainment options. Recommendation systems have emerged as critical tools to address this challenge, particularly in the movie streaming industry where personalization significantly enhances user experience and platform engagement. This research presents an advanced hybrid approach to movie recommendation that integrates content-based filtering (CBF) and collaborative filtering (CF) methodologies to overcome the limitations inherent in each individual approach. The content-based component analyzes movie attributes including genres, descriptions, and taglines using TF-IDF vectorization and cosine similarity measures to identify thematically similar content. Simultaneously, the collaborative component employs Singular Value Decomposition (SVD) to process user-item interaction data, achieving an impressive RMSE of 0.68 and MAE of 0.89 in rating prediction accuracy. Our proposed hybrid system implements a two-stage filtering process: pre filtering to narrow the initial database using primary contextual factors, followed by post filtering that incorporates additional contextual elements to refine recommendations. This approach is built upon the MovieLens-100k dataset, utilizing comprehensive movie metadata alongside user rating histories to generate personalized suggestions that balance content relevance with predicted user satisfaction.</p>

Signature of the student(s)

Signature of the Guide

Signature of the project coordinator