ABSTRACT —

The term anime pertains to an animation of vast variety of genres, artistic styles, and genres. Its popularity has reached a global scale due to its captivating storytelling, diverse genres, which include action, romance, fantasy, and science fiction, and its unique visual aesthetics, as well as its significant cultural impact. The charm of anime extends to viewers of all ages, as its intricate narratives and emotional depth leave a lasting impression.

Popular anime series undoubtedly receive a great deal of attention, however, there are a multitude of lesser-known anime titles that provide outstanding storytelling and creativity, despite lacking the same level of mainstream recognition. This dilemma prompts the issue of recommending anime to new viewers based on their individual interests and inclination towards these less popular titles And here comes the problem - recommending anime to new users based on their interests and preferences for less popular titles. To solve this problem, we use the available anime and user ratings dataset to create a recommendation system that focuses on suggesting anime that match users' specific interests, while also emphasizing lesser-known or underrated titles. By integrating content-based filtering, which matches anime based on their attributes, and collaborative filtering, which identifies users with similar preferences, the recommendation system aims to provide personalized and diverse suggestions to satisfy the unique preferences of new users. This approach not only helps discover hidden gems in the vast world of anime, but also improves the overall viewing experience by introducing users to a wider range of engaging and underrated anime titles

Introduction

Face the vast world where many shows are released each year and can search for films for their recommenders for their recommendations associated with their interests and play a significant role by taking advantage of the recommendation recommended here. In recent years, recommendation systems have become a staple in many online platforms, including streaming services like Netflix and Amazon Prime. These systems analyze user feedback and make recommendations based on user preferences and actions. One of the most popular techniques used in these programs is collaborative filtering, where recommendations are generated by searching for users with similar interests and preferences

Anime recommended system uses a similar approach, optimized especially for anime enthusiasts. By researching the user and applying collaborative filtering techniques, this recommendation system can propose anime titles that are more likely to match a user's tastes and interests like, if a user has ordered some high-quality animeWe can enjoy this article We will explore the importance of recommendation systems in helping users navigate the vast landscape of anime and find their next favourite show.

Literature survey

A Deep Learning Recommender System for Anime by Vidyashree Mahalingmutteppagol (2023), Proposes a deep learning-based anime recommendation system that considers both user preferences and content features.

Collaborative Recommendation System in Users of Anime Films by A.S. Girsang, M.I.A. Rizki, and D.R. Putra (2020), Develops a collaborative filtering-based anime recommendation system that takes into account user ratings and social network information.

Deep Learning-based Automated Recommendation Systems: A Systematic Review and Trends by Mehmet Fatih Aktaş and Mustafa Güneş (2020), Provides a comprehensive overview of deep learning-based recommender systems, and identifies the key trends in this research area.

A Hybrid Recommender System for Anime Based on Deep Learning and Collaborative Filtering by Yifan Hu, Yuanyuan Zhang, and Jinguang Huang (2020)

Anime Recommendation System Using Graph Neural Networks by Yuxuan Liu, Yubo Zhang, and Xiangnan He (2020)

A Personalized Anime Recommendation System Based on Deep Learning and Collaborative Filtering by Xiao Liu, Yuxuan Liu, and Xiangnan He (2019)

A Deep Learning Recommender System for Anime Based on User Preferences and Content Features by Yifan Hu, Tianyu Zhang, and Yuanyuan Zhang (2019)

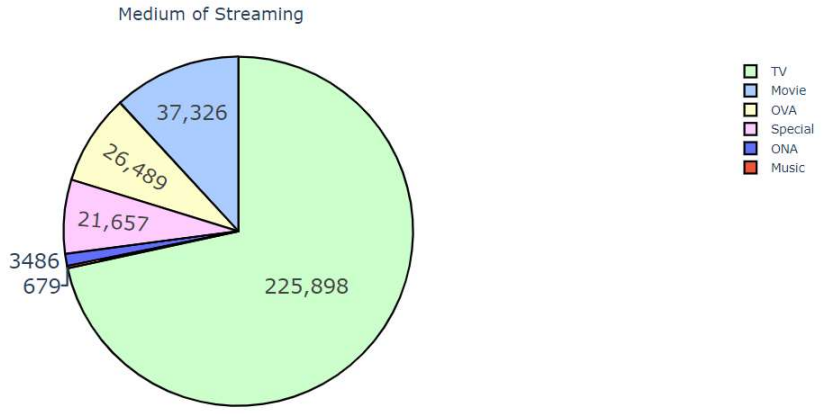
A Collaborative Filtering Recommender System for Anime Based on User-Item Interaction and Social Network by Yuyang Zhang, Jing Liu, and Qinghua Hu (2018)

Data pre preprocessing

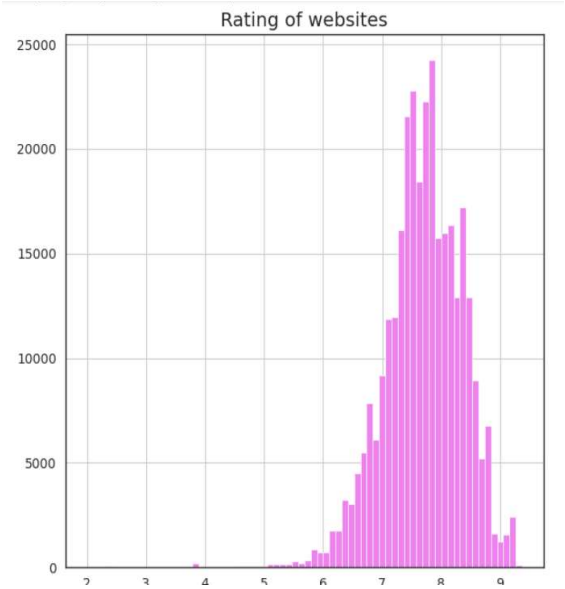
The dataset contains, two different sections 'anime_data' which contains data about anime, and the other section 'Ratings_data' which data bout ratings of anime given by users. To perform implementation on these two. we have to merge those two sections into one file .it would be easy to implement a

After merging those sections, we have to clean the data to avoid misinterpretations and wrong recommendations.

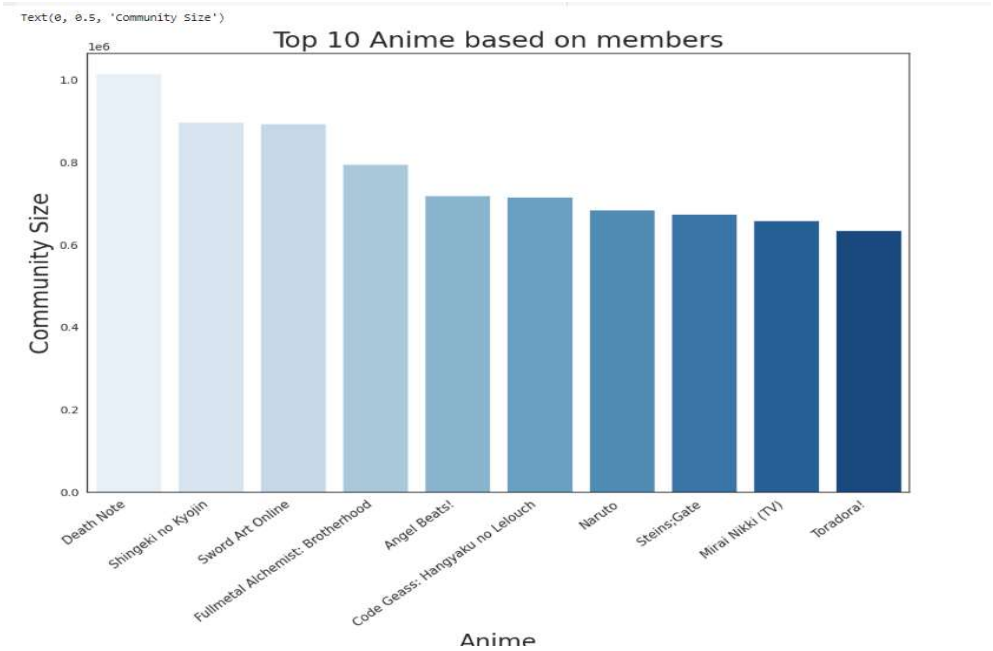
A piechart on streaming of anime



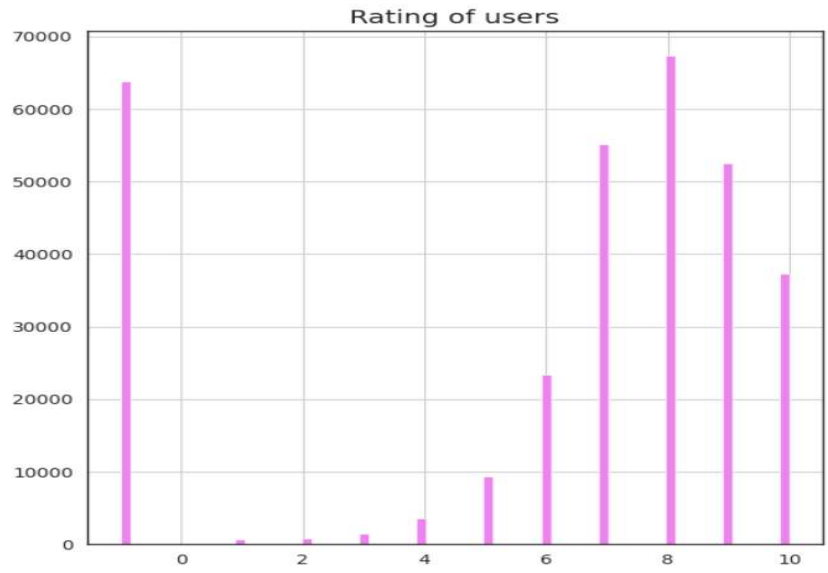
Rating of Websites



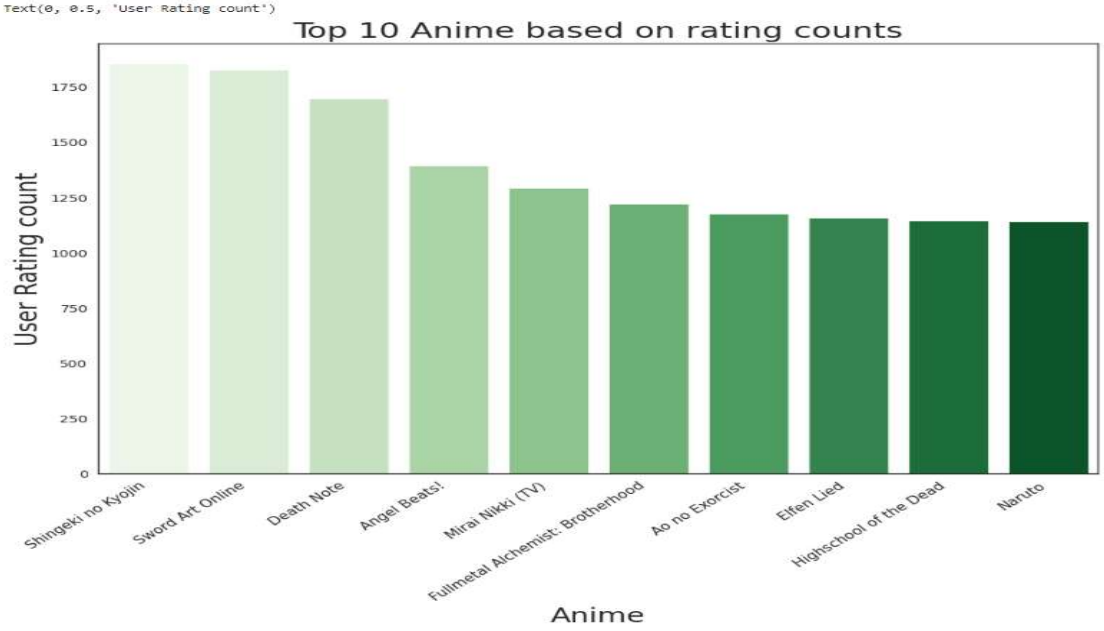
top 10 animes based on community.



Rating of users

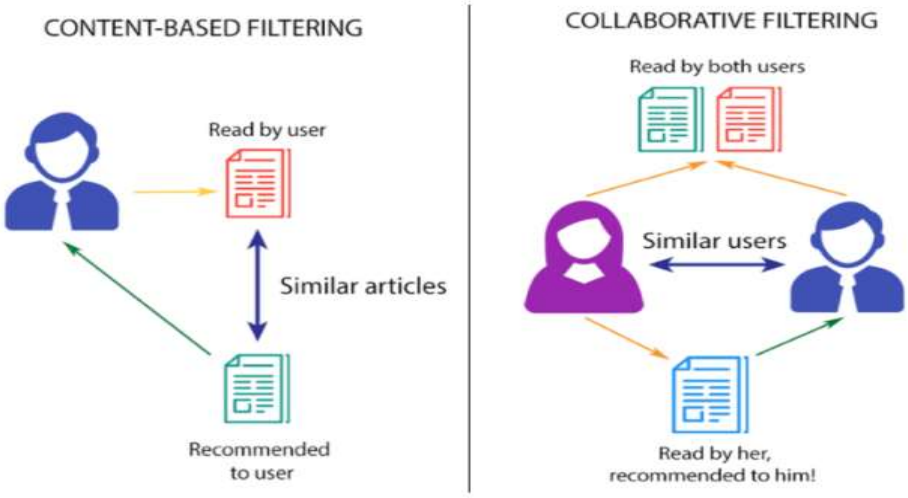


Text(0, 0.5, 'User Rating count')



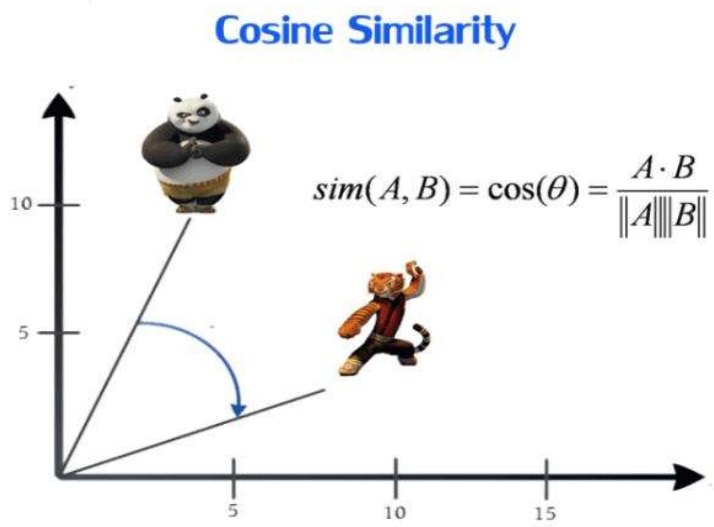
Implementation methods

Content based filtering



Collaborative filtering utilizes user interactions to offer personalized anime suggestions through user-based and item-based filtering. User-based filtering focuses on user similarity, while item-based filtering assesses anime similarity. Cosine similarity with K-nearest neighbors (KNN) is used to calculate the similarity between anime titles based on user ratings, aiding in the recommendation of titles that the user hasn't seen. The method captures user preferences but requires careful tuning of the K value.

Cosine Similarity using KNN



On the other hand, content-based filtering relies on anime content and metadata to make recommendations. It involves extracting relevant features from anime metadata, such as genres and themes, and representing them in a structured format for analysis. Recommendations are generated by ranking anime titles according to their similarity to the user profile, often using metrics like cosine similarity. Content-based filtering addresses the cold start problem for new users but may lack serendipity.

Both methods have strengths and limitations, with collaborative filtering excelling in delivering personalized recommendations, while content-based filtering offers transparency and addresses the cold start problem. Hybrid recommendation systems combining both methods enhance recommendation accuracy and robustness.

Overall, the provided information discusses the application of collaborative filtering and content-based filtering in anime recommendation systems, along with the specific techniques and processes involved in generating anime recommendations using these methods.

Future Scope:

The future scope considerations aim to elevate the recommendation system beyond conventional boundaries, embracing innovative technologies and user-centric approaches for an enriched and futuristic anime-watching experience. The integration of AI advances, AR/VR technologies, blockchain for content authentication, community-driven recommendations, predictive analytics for seasonal releases, gamification elements, voice-activated recommendations, personalized merchandise recommendations, interconnected ecosystems, continuous user engagement strategies, adaptive learning algorithms, and environmental impact considerations will contribute to a more immersive, personalized, and sustainable anime-watching experience.

Results:

The collaborative filtering recommendations for the anime "ef: A Tale of Memories. - Recollections" were determined using cosine similarity, with the top recommendation being "ef: A Tale of Memories. – Prologue", followed by other similar titles. These recommendations aim to assist users in discovering anime that share similarities with their preferred title, thereby enhancing their viewing experience.

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Recommendations for ef: A Tale of Memories. - Recollections viewers :
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No	Anime Name	Rating
1	ef: A Tale of Memories. - Prologue	7.260000
2	Kyoto Animation: Kasa-hen	6.270000
3	Zettai Shougeki: Platonic Heart Picture Drama	5.440000
4	Uchuu Senkan Yamato: Kanketsu-hen	7.110000
5	Code Geass: Boukoku no Akito 4 - Nikushimi no Kioku Kara Picture Drama	7.080000