

# Creating an Advanced Recommendation System Integrating Collaborative Filtering and Social Media Analytics for Enhanced Customer Engagement

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Abstract:

The rapid expansion of online platforms necessitates sophisticated recommendation systems to enhance user engagement. Leveraging user preferences and social interactions, the system aims to provide dynamic and tailored recommendations. Traditional recommendation systems face challenges in accuracy and personalization. Collaborative filtering struggles with the cold start problem, and social-based approaches may overlook individual preferences. Addressing these drawbacks, this paper proposes a hybrid model that combines collaborative filtering and social media analytics. This paper introduces an advanced recommendation system seamlessly integrating collaborative filtering and social media analytics to deliver real-time personalized suggestions. The novelty lies in assigning appropriate weights to recommendations based on both collaborative filtering and social influence, offering a comprehensive and accurate approach to personalized suggestions. The methodology involves defining objectives, collecting and pre-processing data, implementing the hybrid recommendation system, incorporating personalization techniques, and implementing a real-time engine. Evaluation includes key metrics such as accuracy, precision as 75%, recall as 80%, and user engagement. *A/B* testing and continuous optimization based on user feedback contribute to a comprehensive assessment, showcasing the hybrid model's effectiveness. In conclusion, this paper presents an innovative hybrid recommendation system, addressing existing drawbacks through integrated collaborative filtering and social media analytics.

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