Novelty In Recommender Systems for Effective Personalization in E-Commerce and Retail

Aariz Faizan Javed

IIM Ranchi

Syed Abdullah Ashraf

Delhi School of Business

Abstract

When trying to make recommendations to the users by leveraging users' past behavior, Recommender Systems generate item suggestions tailored to their preferences. However, users may become disenchanted with repetitive recommendations over time. To address this challenge, the inclusion of novel items becomes crucial. Novelty pertains to introducing users to previously unknown items, while serendipity adds an element of surprise to recommendations, ultimately enhancing user satisfaction. It is important to note that serendipity, due to its subjective nature, lacks a universally accepted definition. Consequently, this paper explores various perspectives on defining serendipity and examines techniques like deep learning to facilitate its incorporation into recommendation algorithms. The Social Choice Theory encompasses the study of aggregating individual preferences to make collective decisions. When incorporating Collaborative Filtering into recommendation systems, the principles of Social Choice Theory are employed. To evaluate the efficacy of a specific algorithm in delivering serendipitous recommendations, this study utilizes the Serendipity 2018 dataset, provided by the MovieLens research group. By comparing the algorithm's performance against that of other baseline algorithms, an assessment is made regarding its ability to introduce surprise elements and enhance user satisfaction. Analyzing the results offers valuable insights into the algorithm's effectiveness in generating serendipitous recommendations, thereby contributing to the advancement of recommendation systems.

This research contributes to the field by addressing the challenge of recommendation fatigue and the need for diversity in suggestions. By examining the interplay between serendipity, novelty, and user satisfaction, it provides valuable insights into the design and implementation of more effective recommendation algorithms. Ultimately, these findings have the potential to enhance user experiences in the electronic commerce and retail sectors, leading to increased engagement and customer loyalty.

Keywords: Novelty, Serendipity, E-Commerce, Retail, Recommender Systems, Artificial Intelligence

Introduction

There exists a diverse array of products available in the market, catering to the varied needs of users. However, the abundance of information surrounding these products can often result in significant confusion. To address this challenge, the concept of a Recommender system emerges as a valuable solution. Recommender systems are software applications that suggest items, thereby enhancing the value provided to marketers. These systems find widespread utilization across various online platforms, facilitating users in making better-informed choices. The notion of serendipity in recommender systems encompasses several key components, including relevance, novelty, and unexpectedness. Relevance,