Author-Oriented Book Recommendation Using Linked Open Data for Improving Serendipity
Serendipity 向上のための Linked Open Data を用いた著者指向アプローチによる書籍推薦

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In recent years, to overcome the flood of information, recommender systems (RSs) are being used in many scenarios, such as online shopping stores, movie website and so on. However, many recommendation algorithms focus on accuracy based on a user profile, which may lead to reducing the user's satisfaction. As high-accuracy based RSs suggest similar items that the user may have known before, the recommendation leads to hurt the user's satisfaction. There is a concept called serendipity which is a way to address this problem.

This thesis focuses on improving the serendipity of RSs. To improve serendipity in book RS, two approaches were used in this paper: Linked Open Data (LOD) resource and author-oriented method. For LOD resource, we used the rich structured data in LOD. For the author-oriented method, we used the relationship of authors in contrast to traditional content-based book RS.

To verify the effectiveness of our approaches. We implemented our book RS and conducted a user experiment for evaluating the serendipity in book RS. We recruit 14 users for the experiment. Besides, our book RS regarded 25,152 books in total and content-based book RS was set as a baseline for comparison. We set two metrics to evaluate whether a book is serendipitous to a user or not based on user responses to the questionnaires.

As a result, we found that the mean of serendipitous books in the top-n (n=1,2,...10) recommendation list for the proposed method is better than the baseline on both of our serendipity metrics. However, there is no significant difference according to the t-test. Also, there are 97.14% books generated by our proposed method are novel to users, which shows that our proposed method recommendations are more novel to users comparing to the baseline (92.14%) based on our definitions.

In summary, our proposed method shows an effective performance for improving serendipity in book RSs on both of our metrics, but comparing to baseline method there is no significant difference with baseline. Although there is no significant difference for Unexpectedness and Relevance, our proposed method recommendation is more novel to a user comparing to baseline with our Novelty metric. This means that our method is helpful because the method shows higher Novelty, even if Unexpectedness and Relevance are the same levels with the baseline.

Our user experiment design did not allow us to evaluate user satisfaction in each book. In the future, we will focus on the relationship between serendipity and user satisfaction.

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