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A Mathematical Approach Using Set & Sequence Similarity Measure for Item Recommendation Using Sequential Web Data

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Abstract

There has been an explosive growth of data and information in recent years with the coming of the World Wide Web. A major challenge in this arena is to serve the correct information to the correct person which adds up to a complex measure in efficient decision making. To solve these problems, the recommender system plays a vital role. Most of the e-commerce websites used today make use of recommender systems for effective decision making. Today's recommender system takes into account only the content information, ignoring the sequential details, which also play a vital role for recognizing the behavior of users. The present paper explores the different types of recommender techniques with their mathematical foundation and also discusses some of the problems in the prevailing system. Our proposed approach makes use of sequential patterns of web navigation along with the content information and is based on set and sequence similarity measure (S3M) for generating recommendations on web data. The paper makes use of mathematics involved in finding the set and sequence similarity for recommendation to user on CTI news dataset. To create suggestions for users, our proposed method uses the principle of upper approximation & singular value decomposition.

Keywords: Recommendations, e-commerce, set similarity, sequence similarity, singular value decomposition

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