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Solution for Cold - Start Problem in E-Commerce Recommendation Systems

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Abstract

In the era of overloading information, recommendation is developed to enable users to identify items of interest in e-commerce. Collaborative filtering (CF) algorithms are widely used to create advisory systems because they distinguish between collective knowledge and experience. However, they can easily fall into the trap of the Matthew effect, which recommends popular items and hence less popular items are hard to discover. Under this circumstance, most items in the list of recommendations are users already familiar, which makes the performance of finding cold items, i.e. new items and niche items seriously deteriorated. A user survey is first carried out on the online shopping habits in Sri Lanka, on the basis of which a new recommendation algorithm is proposed called innovator based Collaborative Filtering , which can recommend cold items by introducing the concept of innovators for users. Innovators are specifically a special subset of users who can find cold items without the assistance of a recommendation system. Cold items can therefore be entered into the list of recommendations by means of innovators in order to achieve the balance between serendipity and precision.

Keywords : —Cold items, collaborative filtering , innovators, recommendation systems, serendipity.