

ASSOCIATION RULE ANALYSIS FOR TOUR ROUTE RECOMMENDATION AND APPLICATION TO WCTSNOF

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ABSTRACT:

The increasing E-tourism systems provide intelligent tour recommendation for tourists. In this sense, recommender system can make personalized suggestions and provide satisfied information associated with their tour cycle. Data mining is a proper tool that extracting potential information from large database for making strategic decisions. In the study, association rule analysis based on FP-growth algorithm is applied to find the association relationship among scenic spots in different cities as tour route recommendation. In order to figure out valuable rules, Kulczynski interestingness measure is adopted and imbalance ratio is computed. The proposed scheme was evaluated on Wanggluzhe cultural tourism service network operation platform (WCTSNOF), where it could verify that it is able to quick recommend tour route and to rapidly enhance the recommendation quality.

1. INTRODUCTION

The fast-growing, tremendous amount of data in E-Tourism, which are collected and stored in large and numerous data repositories, have far exceeded users' ability for catching useful information by themselves. Users are eager to know where is popular, where to go first and where to travel next by the way, which is known as Tour Route Planning, especially when browsing E-tourism websites. However, the traditional E-tourism websites offer only the query for hot route list by number of days or Destination. The users would be caught in a route data rich but information poor situation. Therefore, by identifying the characteristics of different users' needs, information recommendation would solve this problem very well. Recommender systems (RS) is first proposed to recommend for users according to their taste (Resnick et al., 1994). A comprehensive understanding that recommendation can be given in the background of data mining is elaborated (Ricci et al., 2010). This probably due to that the existing RS is obviously not competent to process data in the speed aspect, heterogeneous data aspect or data missing aspect. Therefore, how to find an appropriate way to enable more quick recommendation seems to be especially important. What's more, the widening gap between data and information calls for data mining tools that can turn data tombs into "golden nuggets" of knowledge. Data mining is the process of extracting valid and maybe unknown information from large database and then utilizing information to make crucial business and strategic decisions. To be specific, sampling techniques and

dimensionality reduction techniques can be applied in the pre-processing step; classification method can be used to derive a model-based RS or content-based RS; Clustering algorithms is used to improve performance of RS; Association rules offer an intuitive framework for recommending items whenever there is a transaction. Association rule is first applied for recommender system (Fu et al., 2000). The user's future chose is predicted on his/her past experience. Then the items are listed for him/her with some support. In the field of E-tourism, huge amounts of transaction data bring a straightforward opportunity to obtain useful information through data mining (Liao et al., 2010; Lucas et al., 2013; Li et al., 2015).

2. LITERATURE REVIEW

Data mining refers to knowledge mining from large amount of data. Many people view data mining as a synonym for another popularly used term, knowledge discovery from data, or KDD, while others treat data mining as merely an essential step in the process of knowledge discovery. Actually industry or in the research milieu, the term "data mining" is often used to refer to the entire knowledge discovery process. Therefore, by integrating the perspectives, a broad view of data mining is adopted. i.e., Data mining is the process of discovering valuable patterns and knowledge from large amount of data. The data source can cover databases, data warehouses, Web information or other repositories.

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