A Study of Various Web Page Recommendation Algorithms

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Abstract: *Web-page recommendation plays an important role in intelligent Web systems. Recommender system apply various techniques and prediction algorithm to predict user interest on information, items and services from the tremendous amount of available data on the internet. The paper studies various algorithm in weka and the metrices used to evaluate algorithm performance. The basic algorithm or predictive model we use are – page rank, Rule mining collaborative filtering, Context matching simple linear regression, k-nearest neighbours(kNN), naives bayes, support vector machine.*

Keywords: *Web Page Recommendation, web page recommendation algorithm, web page recommendation techniques, web usage mining, rule mining*

1. INTRODUCTION

The first recommender system was developed by Goldberg, Nichols, Oki& Terry in 1992. Tapestry was an electronic messaging system that allowed users to either rate messages ("good" or "bad") Recommender system as defined by M. Deshpande and G.Karypis: A personalized information filltering technology used to either predict whether a particular user will like a particular item (prediction problem) or to identify a set of N items that will be of interest to a certain user. Web page recommendation. Recommender systems form or work from a specific type of information filtering system technique that attempts to recommend information items (movies, TV program/show/episode, video on demand, music, books, news, images, web pages, scientific literature etc.) or social elements (e.g. people, events or groups) that are likely to be of interest to the user. [1]survey

The technique we use for recommendation is data mining.   Data mining is defined as the process of discovering patterns in data. The process must be automatic or (moreusually) semiautomatic Data mining is the analysis of data and the use of software techniques for finding patterns and regularities in sets of data .Data mining provides a number of algorithms to obtain profiles of users based on historical data, which are used to predict the preferences of new users. The process of applying data mining techniques on web data in order to obtain customer usage patterns is known as web mining The process of data mining typically consists of 3 steps, carried out in succession: Data Preprocessing , Data Analysis, and Result Interpretation. [2]

The input to a Recommender System depends on the type of the employed filtering algorithm. Generally, the input belongs to one of the following categories: Ratings (also called votes), which express the opinion of users on items; Demographic data, which refer to information such as the age, the gender and the education of the users; Content data, which are based on a textual analysis of documents related to the items rated by the user.[2]

With the development of web technology, the number of web pages is on the rise. Finding useful information from massive web pages by rule mining is a great challenge. Web log analysis method has been widely used in finding web usage patterns which include statistical analysis, frequency of visits, page analysis, common access paths, association rules, and other methods. Most of data mining algorithms directly deal with raw web log data, analysis after a simple decomposition of the data, and then discover a user's usage patterns. Log data are often rough, and the patterns in the logs which can show user interests are not been found, so that the

user interests are not very accurate mining from these data. [3]

The objective of this paper is to be focus on various recommendation algorithms and recommendation techniques. The rest of the paper is organized as follows. Section 2 presents the need of recommendation system. Section 3 presents various existing recommendation algorithms. and Section 4 concludes the paper with a summary of our contributions.

NEED OF RECOMMENDATION SYSTEM

Recommender systems form or work from a specific type of information filtering system technique that attempts to recommend information items (movies, TV program/show/episode, video on demand, music, books, news, images, web pages, scientific literature etc.) or social elements (e.g. people, events or groups) that are likely to be of interest to the user. [1]

Fig:1 Architecture of Web Page Recommendation System [6]
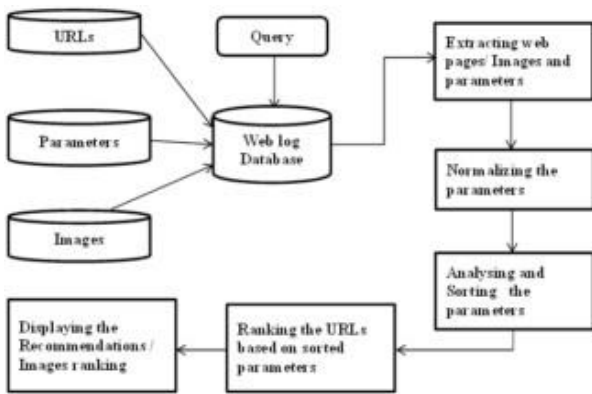
EXISTING VARIOUS RECOMMEND-ATION ALGORITHMS

Web Page Recommendation Algorithm For Collaborative Filtering: Zhongyun Ying, Zhurong Zhou, Fengjiao Han and Guofeng Zhu [4]re proposed an improved Collaborative filtering algorithm to discover the similar users interested web page sets of the target user, based on which, a target user's collaborative filtering web page set is filtered. collaborative filtering is successful approach for recommendation. It associates a user with a group of like-mined users based on their preferences over all the items, and recommends to the user the item enjoyed by others in the same group.

Recommendation Algorithm For Support Vector Machine: Dolly Sigroha, Chhavi Rana [2] proposed to improve performance and accuracy of the recommendation. The support vector machine classifier is to find a linear decision boundary that separates the data in such a way that the margin is maximized. The recommender system to improve performance and accuracy of the support vector machine algorithm.

Rough Set Web Page Recommendation using Fuzzy semantic Log: Xiong Haijun, Zhang Qi [3] proposed to improving accuracy of web page recom-mendation through data mining technology. Rule mining algorithm are used. Decision matrix is a rough set, it comes from the individual matrix, which can be calculate the decision rule and attribute reduction of information system, and calculate the most simple rule of set. Rule mining the lot of noise in the data. Fuzzy semantic log in recommendation. the ratio decline, which shows this shows this algorithm is better the users interests and effective to implement of recommendation.

A Recommendation Based Web Usage Mining for The Bisecting K-Means Clustering Algorithm: Miguel Dario Dussan-Sarria, Elizabeth Leon-Guzman[5] proposed to measure similarity using the Bisecting K-means clustering algorithm.

Web-Page Recommendations Using Radial Basis Neural Network Techniques: Pushpa C N, Ashvini Patil, Thriveni J, Venugopal K R and L M Patnaik[6] proposed to system uses the historical browsers data for provides users with most relevant web pages. this system propose to use the database and process rank.

CONCLUSION

In this paper, we have surveyed the various existing web page recommendation algorithms in to build the recommender system and to improve the performance and accuracy of the recommender system. We reviewed various algorithms such as nearest neighbor, support vector machine, naive bayes, bisecting K-Means clustering algorithm.

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