WEB-PAGE RECOMMENDATION –THE ONTOLOGY APPROACH

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Abstract

An Personalized Recommendation System is a system that makes use of representation of items and user-profiles based on Ontology in order to provide Semantic applications with personalized services. In this paper we present method supported by three new knowledge representation models and a set of Web-page recommendation strategies. The first model is an ontology-based model that represents the domain knowledge of a website.The second model is a semantic network that represents domain knowledge .The third model is a conceptual prediction model, which is a navigation network of domain terms based on the frequently viewed Web-pages and represents the integrated Web usage and domain knowledge for supporting Web-page prediction.

Index Terms-web, ontology, k-means, query.

I. INTRODUCTION

A WEB-PAGE recommendation has become increasingly popular.When a user browses a website, a sequence of visited Web-pages during a session (the period from starting, to existing the browser by the user) can be generated. There are a number of issues in developing an effective Web-page recommender system, such as how to effectively learn from available historical data and discover useful knowledge of the domain and Web-page navigation patterns, how to model and use the discovered knowledge, and how to make effective Web-page recommendations based on the discovered knowledge. A great deal of research has been devoted to resolve these issues over the past decade. It has been reported that the approaches based on tree structures and probabilistic models can efficiently represent Web access sequences (WAS) in the Web usage data.

II.CURRENT METHODOLOGY

Existing system use collaborative filtering approaches, which rely on finding similar users and using their ratings to provide recommendations.The performance of existing system depends on the size of the training set . The bigger the training dataset size is, predicted pages are limited within the discovered Web access sequences. The domain ontology can be constructed manually by experts, or by learning models (need to design and implement the learning models can only be done by professionals at the beginning).

III.MODIFIED IMPLEMENTATION

In proposed system present a personalized-recommendation system, a system that makes use of representations of items and user-profiles based on ontology's in order to provide semantic applications with personalized services.The semantics method achieved by using two different methods. A domain-based method makes inferences about user's interests and a taxonomy-based similarity method is used to refine the item-user matching algorithm, improving overall results. The recommender proposed is domain-independent, is implemented as a Web service, and uses both explicit and implicit feedback-collection methods to obtain information on user's interests.
The first step of the approach is extracting features from web documents and constructing relevant concepts. Then build ontology for the web site use the concepts and significant terms extracted from documents. According to the semantic similarity of web documents to cluster them into different semantic themes, the different themes imply different preferences.

Here, the User logs in the personalized system. Then he provides query to search for the desired results using the internet. This Query is now stored into the database of the specified user. The result is shown using Google API. These Query are saved as the user interest(list of websites). The query and the related pages are collected using the Clustering k-means Algorithm. The features are extracted from the web documents and the key words are recorded using the Stemming Algorithm. By this way the meaningful words are saved into the database of the specified user. Thereby the rating of the recommended web page is also performed according to the clustering of related web pages. Next time when the user logs in and provides the same query then the recommendation system provides the personalized recommendation list of already visited and similarly related web pages.

TWO MAJOR ALGORITHMS:

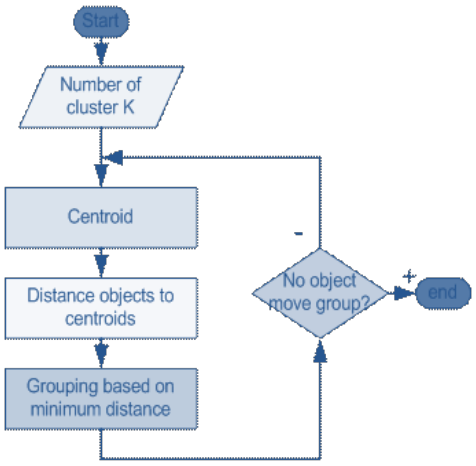
1) K-means Clustering Algorithm-

This is Partitional Clustering Algorithm. The algorithm is to cluster n objects based on attributes into k partitions, where k < n.It assumes that the object attributes form a vector space.
An algorithm for partitioning (or clustering) N data points into K disjoint subsets Sj containing data points so as to minimize the sum-of-squares criterion.

$$J = \sum_{j=1}^{K} \sum_{n \in S_j} \left| x_n - \mu_j \right|^2,$$

where xn is a vector representing the the nth data point and uj is the geometric centroid of the data points in Sj.

How K-means Algorithm Works:



2) Stemming Algorithm

Stemming is one technique to provide ways of finding morphological variants of search terms. Used to improve retrieval effectiveness and to reduce the size of indexing files.

Conditions on Stem:

1) The measure , denoted m ,of a stem is based on its alternate vowel-consonant sequences.

$$[C](VC)^{m}[V]$$

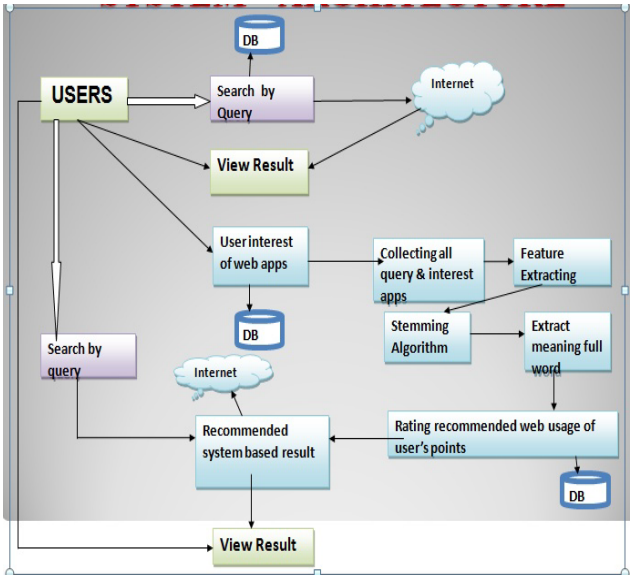
2) *<X> ---the stem ends with a given letter X.

3) *v*---the stem contains a vowel .

4) *d ---the stem ends in double consonant.

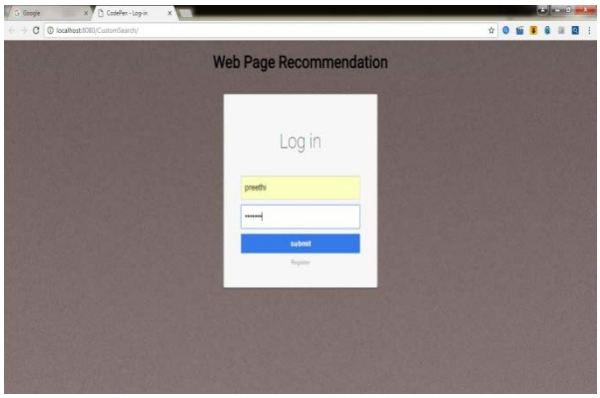
The effect of stemming is dependent on the nature of vocabulary used.There appears to be little difference between the retrieval effectiveness of different full stemmers.

IV. SYSTEM ARCHITECTURE

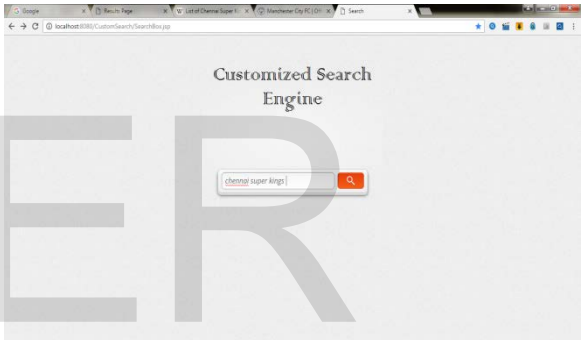


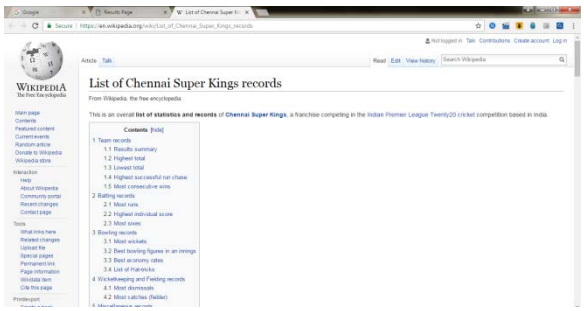
V. EXPERIMENTAL RESULTS

User Login



Customized Search Engine





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