

## Webpage Recommendation System Based on the Social Media Semantic Details of the Website

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**Abstract:** The web page recommendation is generated by using the navigational history from web server log files. Semantic Variable Length Markov Chain Model (SVLMC) is a web page recommendation system used to generate recommendation by combining a higher order Markov model with rich semantic data. The problem of state space complexity and time complexity in SVLMC was resolved by Semantic Variable Length confidence pruned Markov Chain Model (SVLCPMC) and Support vector machine based SVLCPMC (SSVLCPMC) methods respectively. The recommendation accuracy was further improved by quickest change detection using Kullback-Leibler Divergence method. In this paper, socio semantic information is included with the similarity score which improves the recommendation accuracy. The social information from the social websites such as twitter is considered for web page recommendation. Initially number of web pages is collected and the similarity between web pages is computed by comparing their semantic information. The term frequency and inverse document frequency (tf-idf) is used to produce a composite weight, the most important terms in the web pages are extracted. Then the Pointwise Mutual Information (PMI) between the most important terms and the terms in the twitter dataset are calculated. The PMI metric measures the closeness between the twitter terms and the most important terms in the web pages. Then this measure is added with the similarity score matrix to provide the socio semantic search information for recommendation generation. The experimental results show that the proposed method has better performance in terms of prediction accuracy, precision, F1 measure, R measure and coverage.

**Keywords:** Web page recommendation, socio semantic information, point wise mutual information, recommendation generation.

### 1 Introduction

World Wide Web (WWW) has become the most popular way of communicating, retrieving and disseminating information. The number of web pages keeps growing very rapidly. Web Page recommendation (Bhavsar, M., & Chavan, M. P. 2014) is developing popular websites and it links to related or similar stories, books or most visited pages at websites.

Web page recommendation system (Waykule, V., & Gupta, S. S. 2014) can be utilized to find out the personalized web service by suggesting the pages that are likely to be accessed in future. Web page recommendation system understands the user navigation pattern by exploiting the web usage mining provides personalization based on the results of mining. For the prediction of user's next link of choice and for pre-fetching links, Markov models were more popularly used (Shirgave, S. et al. 2014). But it has issues like high state space complexity, low coverage and low prediction accuracy. These issues are overcome by SVLMC model. But it doesn't consider the out link of the state that also influences the accuracy of next link prediction. This was overcome by using Confidence-Pruned Markov Model (CPMM) in SVLMC that considers both out-links and in-links of the state during pruning process estimation to rank the web pages.

In this paper, recommendation accuracy is further improved by including socio semantic information with the similarity score. A number of web pages are collected and then based on semantic information the similarity between two web pages are calculated. A composite weight for each semantic metadata in the web page is generated by using term frequency and inverse document frequency (tf-idf) and it returns the most important terms in the web pages. Then the closeness between the most important terms and the twitter terms are calculated by using Point Wise Mutual Information (PMI) and it is added with the similarity score matrix which provides socio semantic information for recommendation generation. It improves the recommendation accuracy.