USE OF ONTOLOGY FOR WEB PERSONALIZATION BASED ON THE COMBINATION OF SEMANTIC WEB TECHNOLOGIES AND USAGE MINING TECHNIQUES

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Abstract: During the past years the rapid and chaotic growth in the size and use of the World Wide Web continuously creates new great challenges and needs. Browsing can be improved and expedited by taking users' preferences in account, which results into personalization of web pages. In brief, web personalization can be defined as any action that customizes the information or services provided by a website to an individual user, or a set of users, based on knowledge acquired by their navigational behavior, recorded in the web site's logs, in other words, its usage. Semantic Web Mining is combination of two areas. One is Semantic web and second is Web Mining. The Semantic Web can make mining much easier and Web Mining can build new structure of Web. To solve this problem ontology is used to represent domain model concepts of web service. The ontology instances are used to edit the content of the web and managing consistency on the web. These ontology instances are also used to provide content personalization on web.

I. INTRODUCTION

In today's world, information is the most important resource available. In the World Wide Web[2] information is presented in natural human language which is not rich enough to convey formal meaning and therefore it is not machine process able. This current web contains millions and millions of resources such as HTML files, documents, images and graphics, and media files. These resources contain huge amounts of information scattered in various web pages and documents. The current web is a web of documents and understandable only to humans. This makes information retrieval processes very hard; humans alone cannot deal with this huge amount of resources on the web.

II. OBJECTIVE

In this paper our objective is to propose a personalization system which is less complex, more efficient. Although our main concentration during this study is on solving the problem of consistency management and content editing in personalization systems. Our proposed systems makes use of both semantic web [1] technologies and web usage mining techniques. Personalization based on Web usage mining can enhance the effectiveness and scalability of collaborative filtering.

III. PROPOSED SOLUTION

The proposed solution to the problem stated in previous chapter is: the combination of personalization and content

management approach. So in this thesis a combined approach is proposed. In ontological structure based websites management of contents mainly consists of content editing and content presentation. Content editing means editing concept instances that is inserting, updating, and removing instances of ontology concepts.

IV. METHODOLOGY

The proposed system is implemented using the following tools:

- Protégé Ontology Editor
- MySQL Server- 5.0
- SQLyog
- Java netbeans IDE- 6.1

V. EVALUATION

To evaluate the results of the system being implemented we carried out an experiment. We tested simple personalized system and ontological personalized system in terms of navigation links. For this experiment we have taken the website of Shekhawati Educational city, Dundlod (SECD). The experiment is performed by five users using both systems. During this experiment, five different users were asked to find the answers to five different questions. In this experiment no time limit was placed. For each user the total no. of links followed to find the correct answer is calculated. All users performed this task firstly on simple personalized web of different universities and then this task is performed on ontological personalized web of different universities. The results obtained from the simple personalized web of SECD are summarized in table 8.1.

Users	No. of Links followed
U1	4
U2	6
U3	4
U4	5
U5	3

Table 1: Navigation Results for simple web of SECD

The results obtained from the simple web of SECD shows that links followed to find particular information is varied from one user to another. The results obtained from the ontological personalized web of SECD are shown in table 4.4.

Users	No. of Links Followed
U1	4

U2	4
U3	4
U4	4
U5	4

Table 2: Navigation Results for Ontological web of SECD

The results obtained from the ontological system of SECD shows that links followed to find particular information is constant for all users. In this type of system our main aim is to reduce the no. of links followed to find particular information to as minimum as possible. In our case the results of ontological system shows that the links followed to find particular information are reduced to three.

VI. CONCLUSIONS

From the design and implementation of the proposed system we can conclude that the ontological personalized system is better than the simple personalized system in terms of navigation.

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