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Auto-Tagging for Reducing Complexity Levels of Learning Materials

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Abstract— *E–learning is commonly used for learning and teaching process via electronic technology. As learning materials and assets are expanding rapidly in web day to day, it is entirely hard to discover suitable materials in view of learner's need. Recommender frameworks offer learners some assistance to find learning materials which suits their needs. This paper examines about the customized suggestion frameworks in e-learning. It involves 2 steps. They are Learner's prerequisites and Customized proposal strategy. Personalized e-learning recommender system is a kind of service provided by the e-learning platform, which makes all the available learning resources to the users. By this learning materials are prescribed to learner in view of the learner's need. Based on relationship between learning objects and the learner's need, framework can choose the suitable materials and suggest to the learner. Auto suggestion and tagging techniques are used to reduce complexity level of materials.*

Index Terms: E-Learning System, Personalization, Auto-tagging, recommended System.

I. INTRODUCTION

Personalized Learning is a process of customizing teaching methods, educational programs and learning situations to address the issues and learning styles of individual learners. Personalization is more extensive than just individualization or separation. Also it manages the learner a level of decision about what, when and how it is learned. “Components of customized e-learning” basically, empowers to alter an assortment of the components included in the online training procedure. It implies they are requested to set their own particular objectives, go at their own pace, and communicate with instructors and students to customize the learning procedure.

In a perfect world, a student is put accountable for dealing with his/her own particular learning and has the capacity to redo the experience by having an immediate say in the procedures and substance that is being given. Key components that are adapted in personalized e-learning are the pace of taking in, instructional methodology, and lessons and exercises that draw upon the learners experience and interests. In genuine customized e-learning atmosphere students are allowed to learn what they want, when they need, and even the way for learning! This regularly prompts enhanced learning results. “Mechanics of customized learning” A lot of the personalization that is done in e-learning settings is based upon criticism. Criticism can either be express (as a composed recommendation) or understood (as activities on the framework). The criticism can be either physically or consequently handled to help with the personalization of the stage – and in a perfect world this ought to be an essential piece of the learning stage. A versatile framework makes this one stride further. They comprise of databases with learning materials, split into little lumps or pieces. Every learning material is labeled. At the point when a learner begins a learning background, his learning need is followed and coordinated to these "savvy" learning materials. This offers a major point of interest in having considerably more customized learning way, however it requires that all learning materials are labeled consequently in light of particular scientific categorizations and then Courses will get smarter, and learning paths more flexible based on a personalized learning profile and knowledge preferences and test results.

II. LITERATURE REVIEW

The Personalized instructing recommendation system based on web mining (PIRS) system determines the sequence patterns from the web browsing history and different learning styles based on this result provide personalized recommendation

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to the web users by using an item based algorithm [1]. The SCORM standard is used to organize all the resources provided by the itinerary. It means detailed information about the resources and places it. This combination is used for teachers, experiments on learner behavior[2].To assist the auto recommendation for learners based on their navigation scheme[3]. The usage of concept maps to identify the related information for the action[4]. The learning is based on the summation of the user profiles and domain ontology[5].The association rules are playing major role in the selection of a course in a virtual environment[6]. The concept maps and collaborative tagging algorithms are used to personalize their recommendation [7]. Fuzzy theory and association and clustering techniques are applied to assess the supported learning materials in learning [8].SBACPSO algorithm to provide most advantageous recommendations to users in blog assisted learning [9].To provide suggestions to the students by analyzing their test results and related concepts [10].Individualized learning paths are modeled by graph theory. The main problem is query and ranking problem, To enhance the personalized the tag recommendation using graph based ranking. Based the query results we ranking for the solutions and these solutions are suggest to the users[11]. Compare the time complexity for pattern matching and the keyword tagging gradually it decreases[12]. A document centered approaches are more proficient to prepare tag recommendations in an effective manner [13].The sentiment based personalized system is used to address the problem in collaborative tagging[14]. In the material recommender system uses collaborative filtering with multi dimensional attributes. In sequential pattern mining method uses modified a priori is used to generate association rules and prefix span algorithms to find the pattern tree. Leaner Preference Tree (LPT) is constructed based on the input taken from different learners' preferences and user rating for materials [15]. The sequential based and ABR are combined with the cascade, mixed, weighted to generate final recommendation [16]. To improve the CF algorithm, so we work on Genetic algorithm and K-NN and after evaluating the performance parameter are precision, recall are measured. [17].To avoid cold start and sparsity problems we introduce new similarly having two modules, the first module is represented about the weight of attributes are taken as chromosomes in a genetic algorithm for optimizing weights. This optimized weight is considered as learner's opinion according to the NNA. The second module deals about the preference matrix learner's interest based on explicit attributes of learning materials[18].

III.PROPOSED WORK

Due to the growth of information technology E-Learning has become one of the emerging technology. They overcome learning problems the challenges are taken as

1. User profile module
2. Learning content module
3. Learner performance
4. Auto suggesting and auto tagging

The system shows the proposed methodology is

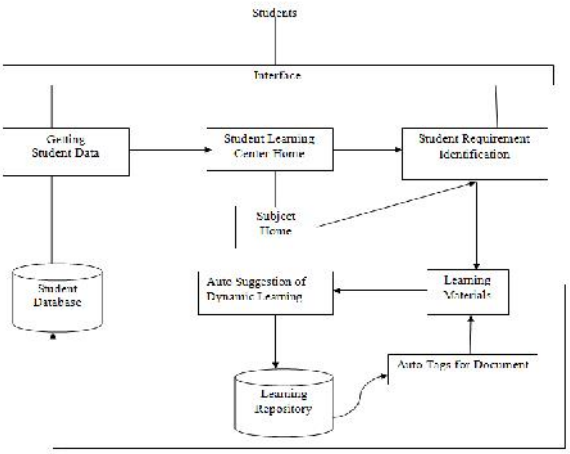

Fig 3.1 workflow of system

User Profile Module:

The learners' information is stored in the database. A profile can be used to store the description of the characteristics of personhood. This information can be exploited by systems taking into account the persons' individuality and preferences. Profiling is the process that refers to the construction of a profile via the extraction from a set of data.

Learning Content Module:

Learning modules are methods for presenting course materials in a linear manner, with a table of contents and the ability to control the release of the material one screen at a time. The materials are

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displayed it terms of text, audio, video and so on. In view of the client needs then pick materials from the tree structure.

Learner Performance:

This module mainly deals with the performance of the students in respective areas. The test is conducted for the enroll students. For example, 20 students enroll a subject after they select the course a preliminary test is conducted and the score is obtained. Based on the result we analyze the student knowledge level. The rule based association is used to examine the grades and if then rules are generated. If the student attempts 20 questions. In this basic is 5 and intermediate is 10 so it may be better knowledge on this topic. The confidence value is measured. If the confidence value is high the student is success. Otherwise it has a problem with the topic so suggest the materials automatically. This is mainly helps us to increase knowledge in less time.

Auto Tagging:

At the point when client transfers another document, e.g. Document1.docx, how would I be able to consequently produce labels in light of the record's substance? At the end of the day no client data is expected to figure out what the record is about. In the event that assume that Document1.docx is an examination paper on information mining, then when client scans for information mining, or research paper, or document1, that record ought to be returned in indexed lists, since information mining and research paper will in all probability be potential auto-produced labels for that given archive.

Algorithm:

1. Get all user details from registration page.
2. If user is valid then enroll the course

   Otherwise register for the course
3. After validation is successful, he select the subject from the list of available courses
4. All the session details and relative materials are shown in the learning center home page
5. User take the exam
6. Identifying the user performance based on result
7. If the user performance is low then the system itself suggests some tags without user intervention based on tagging algorithm.

   or

If the user performance is low then the page itself generates the tags based on the generation of tags to suggests the user to improve the knowledge level.

a. Remove all articles and non descriptive words and question words and white spaces.

b. Finally get all keywords in text file and apply stemming and chunking.

$$T_w=\{w_1, w_2, w_3, \ldots\ldots\ldots w_n\}$$

c. Find the tendency frequency (TF) term for the keywords in the T_w and count single word frequency using n-gram model.

Unigram $P(w_i)=Count(w_i)/N$

Where ,w_i is starting word

N is number of words

d. Next sequence of word count also measure i.e. $P(w_i,w_{i-1})=Count(w_{i-1},w_i)/Count(w_{i-1})$

For n-gram: Calculates counts of n word and n-1 word strings

$$P(W_i \mid W_{i-n+1}\ldots W_{i-1})=\frac{C(W_{i-n+1}\ldots W_i)}{C(W_{i-n+1}\ldots W_{i-1})}$$

e. All possible words are tagged.

8. If the user click on the tag, it links to the related documents

IV. Simulation

In his module the user opts the file on which he wants to search for. If suppose the user wants to go with operating system it mainly tries to display the topics those which were related to this.

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This figure shows about the examination conducted to the learner.

This figure shows result of the learners and link to the tagging page

This figure shows the tagging page to generate tags.

V. Conclusion

We simulate that the e-learning platform tries to reduce the time complexity for the user in searching a particular query; we provide tutorials depending on their respective statistical report. Auto–tagging is an added advantage for the user which resolves his complex phases and makes a better understanding the document.

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