

Enhancing Recommender system through Domain Knowledge, Availability and User Satisfaction

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ABSTRACT

Existing system described a recommender system considering the degree of knowledge and availability of the user to answer the question over a e-learning platform. Later the recent system taken the third attributes in to account and obtained the user reputation for recommendation. The reputation of the user is calculated based on the use Recommendation Systems past interaction. Proposed system takes into account the domain knowledge instead of just a degree of knowledge; proposed approach obtains the user interest in a particular domain, along with its overall availability for answering the question. Proposed approach consider commendation Systems the user satisfaction as major attribute for recommendations. Proposed system checks all these values are above the threshold value in order to recommend that user to the questioning user.

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I. INTRODUCTION

VLE is a set of teaching and learning tools designed to improve a student's learning experience by including computers and the Internet in the learning process. A learning platform is an online system that allows teachers to share educational materials with via the web. Examples include Moodle, WebCT and Blackboard. For a student to be able to access a 'Virtual' room as either a duplicate or extension of their physical classroom is a clear advantage for learners and teachers alike. For every educational establishment ought to integrate a VLE into their lessons and allow it to become second nature to learners and educators instead of classroom.

E-learning is nothing but learning system based on formalized teaching with the help of electronic resources. Teaching can be based in or out of the classrooms, using computers and the Internet forms the major component of E-learning. It can also be termed as a network enabled transfer of skills and knowledge, also the delivery of education is made for the large number of recipients at the multiple times.

A recommender system or a recommendation system is a system that take the input and predict the "rating" or "feedback " of item which is given by user I .In the recent years Recommendation systems have become increasingly

popular, and also used in a variety of areas including movies, music, news, books, research articles, search queries, social tags, and products. Also recommendation systems for experts, collaborators, jokes, restaurants, garments, financial services, life insurance, twitter pages also for romantic partners.

II. LITERATURE SURVEY

1. User Recommender based on information from forums [2], this system provides a methods for VLP that recommends users who have acknowledge about a subject [2]this method of recommendation takes into account the users' knowledge about a subject and future availability of candidate user based on past interactions and a text mining method to obtain user information from forums. This user recommendation system was implemented in the Moodle platform to improve the feasibility of proposed system.. Drawbacks of system are this system not considered the reputations of candidate user, also satisfaction of the end user are not implemented [2].

2. Attribute-based Recommender System for Learning Resource by Learner Preference Tree[3]a personalized recommender system is an mechanism to reduce

information overload occurred in new learning environments and also providing suitable learner resources to learners. So that users express their opinions based on some specific attributes of items, In this paper considers contextual information including attributes of learning resources and rating of learner simultaneously to address some problem such as scarcity and cold start problem and also enhance the quality of recommender System[3]. Learning Tree (LT) can model the interest of learners using learner historical accessed resources based on attributes of learning resources in multidimensional space. Then, recommender Systems are generated using a new similarity measure between learners. Drawbacks of this system are availability of candidate user are not considered, domain knowledge and user satisfaction are also not considered [3].

3. Recommendations in Online Discussion Forums for E-Learning Systems[4] The importance of discussion forum for e-learning applications is provided by this system. Recommender system are required in order to help learners finding relevant information within a forum Because of weak structure or size of the discussion forum [4].We are evaluate the framework based on recommender system architecture for the e-learning focused discussion forum Comtella-D and also present a generic personalization framework. In evaluation, we observe the required amount of user interaction and different sources of user feedback to provide recommender system. The result of the evaluation provide as a source for a personalization rule, which selects the most suitable recommender system strategy based on available user input data [4].Drawbacks of this system include Number of user groups, different kind of input data becomes too large to create personalization rule,also data mining methods are not used to personalize content according to user input date or no personalization rules are provided for mining the input data[4].

4. Enhancing E-Learning Through Teacher Support: Two Experiences [5] candidate user means teachers in e-learning play a important role for providing the support to student learning experiences [5]. A teacher also needs to monitor, understand and evaluate the activity of the students. Apart from this e-learning can be improved if tools for supporting teachers in this task are provided perfectly. Two experiences are presented to show the convenience of providing teachers with such tools[5], These experiences proved that providing support to teachers allowed them to assess the students more closely .Result shows that students' dropout rate in a postgraduate course was reduced and the number of students who passed a physics course in secondary education was increased [5]. Drawback of this system is teacher does not usually analyzed activities in e-learning due to lack of data analysis tools [5].

5. The Effectiveness of Personalization in Delivering E-learning Classes[6] This system present a methodology of personalized delivery of multimedia resources in an e-learning platform that takes advantage of web 2.0 technologies and its standards, including (i) RSS and Atom feeds are used for streaming(ii) meta-data search engine used for searching (iii) ubiquitous computing is used for delivery purpose(iv) personalized learning System

framework has a different phases including:(1) for each student model ,preferred delivery mechanism is considered, (2) measuring the effect of the semantic profile time window parameter, (3)similarity metrics is used for clustering student model (4)result comparison for personalized and non-personalized delivery. This system is the combination of personalization and the data driven extraction of the students models based on similarity metrics [6]. Drawbacks this system does not use any method for finding specific domain knowledge and user, also personalization features like availability and user satisfaction was provided[6].

III. EXISTING SYSTEM

Exiting system described so called recommender system where the user recommendations are made taking into account the degree of knowledge for subject and candidate user availability to answer questions from student. This new approach is used to make the recommendations is added to the system it also obtain the reputation of the candidate users in the forms [1].feedback terms means reputation is calculated based on past interactions, for the satisfaction of the user who ask the question.

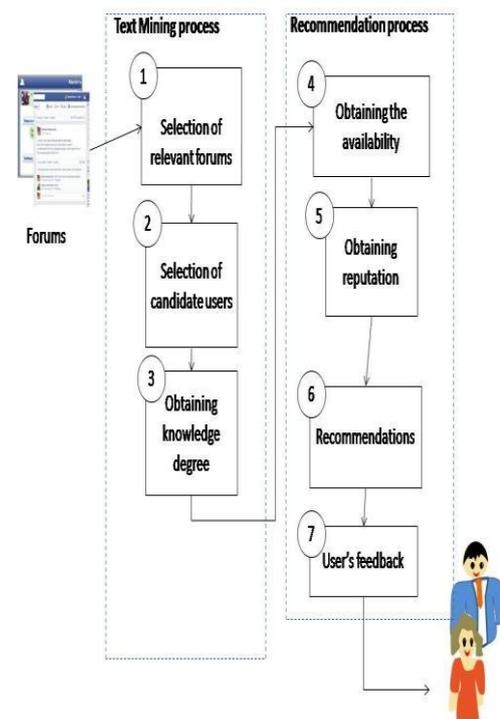


Fig 1: Existing system architecture

Drawbacks of this system are it uses the subject specific knowledge using tf-idf and it only considered keyword based knowledge of subject and user reputation. It does not consider the domain knowledge and user satisfaction [1].

IV. PROPOSED SYSTEM

- Domain Knowledge of user candidate.
- Availability of user candidate.
- User satisfaction

1. System Design:

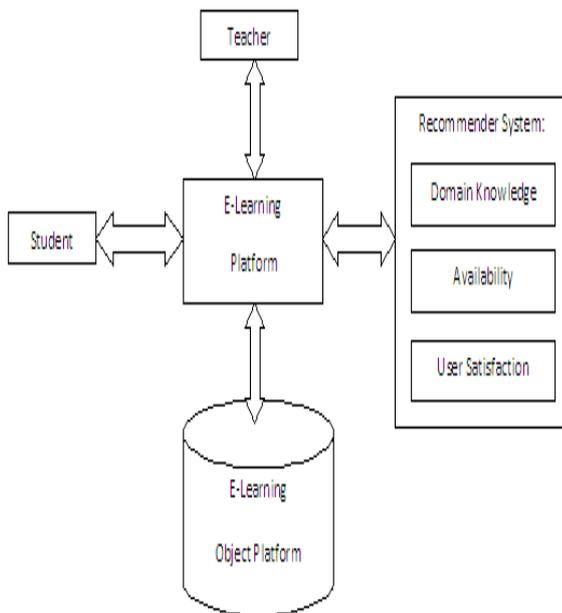


Figure 2: Proposed System Architecture

Proposed system is developed to improve the recommendation over e-learning platform. In the world of information and communication technology, e-learning has grown to the greater extent with more advantageous way. But at the same time it brings some challenges like, how to learn, how to select a proper teacher over a e-platform. Here, the role of recommender system start. When a student ask a question over forum, teacher responds with the answer to the question. After getting answer from teachers the student gives feedback in the form of ratings to teacher for knowledge.

Recommendation system, studies the domain knowledge of the teacher (user) using the previously answered questions and their domains. After obtaining the domain knowledge about of teachers, it finds the availability of the teachers using the number of questions are asked and number of questions answered. At last system obtains the user satisfaction for the particular teacher by using the feedback from the students.

Now, recommendation system has the all values which need to be above the respective threshold values. if the values are above threshold values then it recommend that teacher for a student.

Advantages of proposed system

1. This system uses the domain specific knowledge method which is very helpful for giving the correct answer with in short period of time.
2. Checking the availability of candidate user provide more satisfaction to end user.
3. Positive feedback method helps for finding which candidate user positively responded to the end users

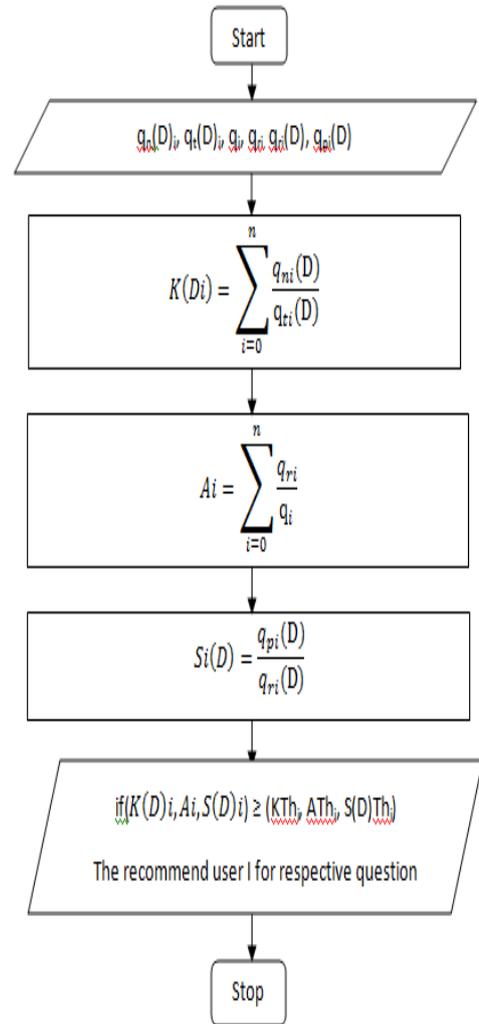


Fig 3 Flowchart

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REFERENCES

[1] Silvana V. Aciar, Gabriela I. Aciar, Cesar. A. Collazos, and Carina S. González “User Recommender System Based on Knowledge, Availability and Reputation from Interactions in Forums”. Citation information: DOI 10.1109/RITA.2016.2518441, IEEE Revista Iberoamericana de Tecnologías del Aprendizaje
 [2] Aciar, S., Aciar G., Collazos C., and González C. 2014. User Recommender based on information from forums. In Proceedings of the XV International Conference on Human Computer Interaction (Interacción '14). ACM, New York, NY, USA
 [3] Primo, T.T.; Vicari, R.M.; Bernardi, K.S. "User profiles and Learning Objects as ontology individuals to allow reasoning and interoperability in recommender systems",

Global Engineering Education Conference (EDUCON), 2012 IEEE, On page(s): 1 – 9.

[4] Abel, F.; Bittencourt, I.I.; Costa, E.; Henze, N.; Krause, D.; Vassileva, J. "Recommendations in Online Discussion Forums for E-Learning Systems", Learning Technologies, IEEE Transactions on, On page(s): 165 - 176 Volume: 3, Issue: 2, April-June 2010

[5] Gaudio, E.; Hernandez-del-Olmo, F.; Montero, M. "Enhancing E-Learning Through Teacher Support: Two Experiences", Education, IEEE Transactions on, On page(s): 109 - 115 Volume: 52, Issue: 1, Feb. 2009

[6] Zhuhadar, L.; Romero, E.; Wyatt, R. "The Effectiveness of Personalization in Delivering E-learning Classes", Advances in Computer-Human Interactions, 2009. ACHI '09. Second International Conferences on, On page(s): 130 – 135.