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Online Based Social Question and Answer System

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Abstract:
Question Answer (QA) is a new research area in the field of Information science which comes into focus in last few decades. In this paper we are going to introduce a QA System which reduces the search time to get exact answer to the question. The primary objective is to improve the performance of QA systems by actively forwarding questions to users who are capable and willing to answer the questions. To this end, we have designed and implemented Online based Social QA system which leverages the social network properties of common-interest and mutual-trust friend relationship to identify a user, who are most likely to answer the question. Our results suggest that social networks can be leveraged to improve the answer quality and asker's waiting time. OAuth is an open standard authorization protocol or framework that describes how unrelated servers and services can safely allow authenticated access to their assets without actually sharing the initial related, single logon credential. In authentication parlance, this is known as secure, third-party, user-agent, delegated authorization.

Keywords: community based question answering, user interest analyzer, query user network, question categorizer, question user mapper

1. INTRODUCTION

A large amount of information returned by the web search engines like Google, yahoo etc, users become overloaded to find the correct information from the web. Our Question-Answer (QA) system solves this problem. Yahoo Answers (YA) is a large and diverse question-answer forum [1], acting not only as a medium for sharing technical knowledge, but as a place where one can seek advice, gather opinions, and satisfy one's curiosity about a countless number of things. QA system is a simply an Information Retrieval system in which a query is stated to the system and it transfer the closest or correct results to the specific question asked, an open domain question answering system aims at returning an answer in response to the user's question. The answer which we get in return is in the form of short texts rather than a list of relevant documents. QA system plays a vital role in our daily life for information and knowledge sharing. Users post questions and pick questions to answer in the system. Due to the rapidly growing user population and the number of questions, it is unlikely for a user to stumble upon a question by chance that he can answer. Also, altruism does not encourage all users to provide answers, not to mention high quality answers with a short answer wait time. The primary objective of this paper is to improve the performance of QA systems by actively forwarding questions to users who are capable and willing to answer the questions. Online QA leverages the social network properties of common-interest and mutual-trust friend relationship to identify an asker through friendship who are most likely to answer the question, and enhance the user security [2]. We also improve Social Question &Answer with security and efficiency enhancements by protecting user privacy and identifies, and retrieving answers automatically for recurrent questions. We describe the architecture and algorithms, and conducted comprehensive large-scale simulation to evaluate Online QA in comparison with other methods. Our results suggest that social networks can be leveraged to improve the answer quality and asker's waiting time. We also implemented a real prototype of Online QA, and analyze the QA behavior of real users and questions from a small-scale real-world Online QA system.

In this system we are developing two networks,

- One is social network site –which we can connect to people and can post our updates.
- Another is Query user network –where we log in with social network id and post our questions and the user who is capable and interested will answer to that question. In this network we have recommendation (from the settings of social network user can apply) module where the user gets the questions which are related to him .

2. SOFTWARE REQUIREMENT ANALYSIS

2.1 Existing System

Current Question and Answer systems may not meet the requirement of providing high quality answer with a short answer wait time, though users wish to receive satisfactory answers quickly. This is confirmed by the study. It found that for Yahoo! Answers, only 17.6% of questions were answered satisfactorily; for the remaining 82.4%, one fifth of the questions remained unanswered [2]. Thus, there is an increasing need for an advanced QA system that can decrease the number of unanswered questions, enhance the answer quality and decrease the response time. In addition, the privacy of the QA system is very important.

Disadvantages

Now a day's many users may ask or answer questions related to sensitive topics such as health issues, political activism. Although the user may want the response as soon as possible, he/she still needs the privacy protection to avoid potential disclosure of personal information. Since Online QA is built upon social networks [4]. The asker and answerer are social close to each other. Therefore, protecting the privacy is important and challenge.

2.2 Proposed System: We propose Online QA, an online social network based QA system, that actively forwards

questions to those users with the highest likelihood (capability and willingness) of answering them with expertise and interest in the questions' subjects. The design of Online QA is based on two social network properties. First, social friends tend to share similar interests (e.g., lab members majoring in computer systems). Second, social friends tend to be trustworthy and altruistic due to the property of "friendship fosters cooperation". Accordingly, Online QA favours routing queries among friends and identifies a question's potential answerers by considering two metrics: the interest of the friend towards the question and the social closeness of the friend to the asker/forwarder. Thus, the answer receivers have high probability of providing high-quality answers in a short time. Different from the existing QA systems, due to the importance of users privacy, we future introduce security and efficiency enhancement to protect users privacy while users using social network answering questions.

Advantages: The contributions of this work are as follows:

The design of Social Question &Answer is composed of three components:

- The design of security and efficiency enhancement methods.
- Comparative trace-driven experiments, the development of a real-world Online QA.
- The analysis of the data from real Online QA.

3. MODULES AND FUNCTIONS

3.1 Architecture

Online QA system is developed with two application systems namely Social networking system and user-query system. The registered users of social networking system are only allowed to register with user-query system who are then able to answer the queries posted. A user can post the query in QA system and it will be directed and displayed on to the answer-capable person's page in social networking system. High-level architecture of Online QA system and the interaction between the core components: User Interest Analyzer, Question Categorizer, and Question-User Mapper is shown in fig. 3.1. User Interest Analyzer analyzes data associated with each user in the social network to derive user interests. Question Categorizer categorizes the user questions into interest categories based on the Category Synsets, which stores the synonyms of all categories' keywords from Word-Net. Question-User Mapper connects these two components by identifying potential answerers who are most likely to be willing to and be able to provide satisfactory answers [5].

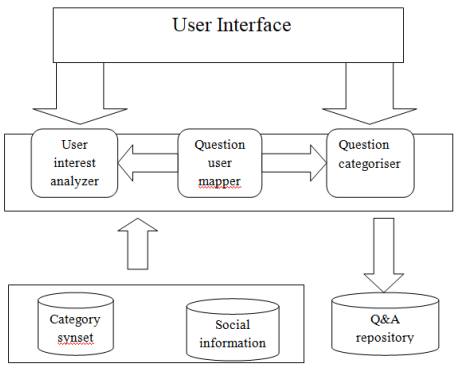

Figure.1. Architecture of Online QA system

3.2 User Interest Analyzer

User Interest Analyzer utilizes each user's profile information in the social network and user interactions (answers provided and questions asked) to determine the interests of the user in the predefined interest categories. This is because if a user asks or answers questions in an interest category, he is likely to be interested in this particular category.

Algorithm 1 - User Interest Analyzer
Input: A user's profile, questions and answers
Output: The user's interest vector VUj =< Ii;WIi >
1: Parse the "interests" field to generate a token stream TI
2: Parse the "activities" field to generate a token stream Ta
3: Use the inputs from the user's selection from the Music, Movie, Television and Book fields to generate token streams Tmu, Tmo, Tt and Tb
4: **for** each token stream Tx (Tx=TI , Ta, Tmu, Tmo, Tt, Tb) **do**
5: Check each token in the Synset
6: **if** a matching interest category Ii exists **then**
7: Update interest weight: WIi++ (e.g., Wmusic++)
8: **end if**
9: **end for**
10: Keep updatingWIi based on questions asked and answered and profile update
11: Periodically update WIi using WIi =WIiold music, classic music, action movie, thriller movie, news, shows and story), the interests of user Uj are represented by a user interest vector VUj=<Ii, WIi> (i = 1; 2:::),
where Ii represents an interest and WIi represents the weight (degree) of the user's interest in interest Ii. WIi = 0 indicates that the user does not have the corresponding interest. WIi is incremented by 1 for each appearance of the interest in the parsed information from a user's profile and interactions. When a user registers for Online QA, he will be given the option of entering his interests and to mark predefined interest categories to add to his interest list. Online QA uses WordNet to parse these text fields to token streams for every token [6], its matching interest category is located in the Synset and corresponding weight is updated.

	Rock	Classic	Action	Thriller	News	Shows	Story
User i	2	0	3	0	1	0	4

Figure.2. User interest vector

For accurate user interest reflection, Online QA keeps track of profile changes, the questions asked and answered by a user to update his/her interest vector. A user can indicate the interest tags for his/her questions. In the indicated tags and parsed interests,

3.3 Question Categorizer

The primary task of Question Categorizer is to categorize a question into predefined interest categories based on the topic(s) of the question. We also allow users to input self defined tags associate with questions, which are analyzed in question parsing. Question Categorizer generates a vector of question Qi's interests, denoted by VQi, using a similar algorithm as Algorithm 1. While processing a question, Online QA uses WordNet to examine the tags and text of the question and generates a token string. The tokens are then compared to Online QA's Synset to determine the categories where the question belongs. We have calculated the interest weight without normalization in order to predict the user intelligence to answer a question of Interest.

3.4 Question-User Mapper

Question-User Mapper identifies the appropriate answerers for a given question. The potential answer providers are chosen from the asker's friends in the online social network. Note that the changes in a user's friends in the online social network do

not affect the performance of Online QA as it always uses a user's current friends. To check the appropriateness of a friend (Uk) as an answer provider for a question,
Two parameters are considered:

- The interest similarity between the interest vectors of the friend and the question and
- The social closeness between the friend and the asker

The former represents the potential capability of a friend to answer the question, and the latter represents the willingness of a friend to answer the question In the online social network, a user's friends with more common interests, frequent interactions or common friends (i.e., higher social closeness) are more willing to respond to the user's question, we consider three metrics:

- Similarity between their interest vectors
- Their asking and answering interaction frequency and
- Number of their common friends.

The pseudocode of the Question-User Mapper is shown in Algorithm 2. Social distance between two nodes is the number of hops in the shortest path between them in the online social network. If no one responds during a specific time period, Online QA can try the nodes in 2-hop social distance from the asker, and then in 3-hop social distance, until the nodes in Time-To-Live (TTL)-hop social distance.

Algorithm.2.- Question-User Mapper.
Input: Interest vectors of a user, his/her friends and question
Output: A list of potential answer providers
1: **for** each friend Uk in the friend set of Uj **do**
2: Compute I;Uk based on Eq. (1)
3: Compute PSUk, PAUk and PCUk based on Eq. (2)
4: Compute C;Uk based on Eq. (3)
5: Compute Uk based on Eq. (4)
6: **end for**
7: Order the friends in descending order of Uk
8: Notify the top N friends

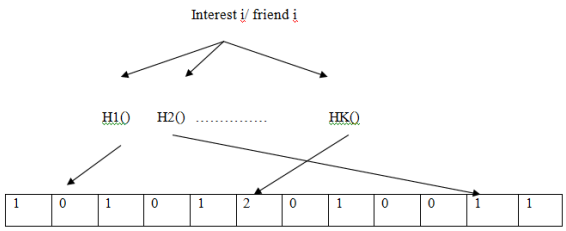

Figure.3. Example for counting Bloom filter

An example of the counting bloom filter is shown in fig 3.1. A question receiver can forward the question if he cannot answer it. The question-user mapper algorithm is called while asking or forwarding questions. When forwarding a question, the asker's information is replaced by the forwarder's information. The Question-User Mapper can be executed in either a centralized manner or a decentralized manner [7,8]. In the centralized manner, the centralized server selects the potential answerers for each question and sends the question to them. In the decentralized execution, each node autonomously determines the potential answerers for the question initialized or received by itself to send the question. If there are not enough N selected friends through the Question-User Mapper, the remaining answerers are randomly selected from all users having such interests [9]

4.2.4 Category Synset: The category synset is which stores the synonyms of all categories

4. CONCLUSION: QA systems are used by many people for purposes such as information retrieval, academic assistance, and discussion. To increase the quality of answers received and decrease the wait time for answers, we have developed and prototyped an online social network based QA system, called Online QA. It utilizes the properties of a social network to forward a question to potential answer providers, ensuring that a given question receives a high-quality answer in a short period of time. It removes the burden from answer providers by directly delivering them the questions they might be interested in. The bloom filter based enhancement methods encrypt the interest and friendship information exchanged between users to protect user privacy, and record all n-grams of answered questions to automatically retrieve answers for recurrent question. The onion routing based answer forwarding protects the identities of askers and answers. Our comprehensive trace driven experiments and analysis results on the real-world QA activities from the Online QA prototype show the promises of Online QA to enhance answer quality and reduce answer wait time in current QA systems, and demonstrate the secure and efficiency improvement achieved by the enhancements. Since some questions may be presented very differently, the same might be answered differently in different situation.

5. REFERENCES

[1]. Bolanle Ojokoh1 , Peter Ayokunle "Online Question and Answer System", International Journal of Computer Science Research and Application, 2013, vol.3, issue 3, 02-09.

[2]. Haiying Shen, Guoxin Liu, Haoyu Wang, Nikhil Vithlani, "SocialQ&A: An Online Social Network Based Question And Answer System", IEEE, Explore, vol.3, issue 1, 2017, 91-106.

[3]. A. Chandra Obula Reddy, Dr. K. Madhavi, "A Survey on Types of Question Answering System Research Scholar", Department of Computer Science & Engineering, JNTUA, Ananthapuramu - 515002, A.P., India.

[4]. Anjali Saini,, P.K.Yadav, "A Survey on Question–Answering System", International Journal Of Engineering And Computer Science, March 2017, 20453-2045702,

[5]. Comparative Study on Question Answering Systems and Techniques**,** International Journal of Advanced Research in Computer Science and Software Engineering, 4, 11, November 2014, 775-778.

[6]. Youzheng, Hori, Hisashi**,** *Leveraging Online QA collections for improving complex question answering***,** Computer Speech and Language, 29, 2015, 1–19.

[7]. Amit Mishra, Sanjay Kumar Jain, *A survey on question answering systems with classification***,** Journal of King Saud University – Computer and Information Sciences , 28, 2016 , 345–361.

[8]. Sreelakshmi, Sangeetha, *Open Domain Question Answering System Using Semantic Role Labeling***,** IJRET: International Journal of Research in Engineering and Technology, 03, 15, Dec-2014, 104-107

[9]. Lin, J., Katz, B.: Question answering techniques for the World Wide Web. In: proceedings of the 11th Conference of the European Chapter of the Association of Computational Linguistics