

Social Network Question and Answer System

Sweta Giri, Ritu .R Yadav, Sneha Yangantiwar, Apurwa Siraskar.

^{1,2,3,4}Student, Ballarpur institute of technology, Chandrapur, India

Corresponding Author: Sweta Giri

Date of Submission: 03-06-2020

Date of Acceptance: 18-06-2020

ABSTRACT: In today's digital world, numerous people stumble upon the questions which they don't have answers to, and as the world is shifting more and more on digital platforms, many individuals take their questions directly on the many of the questions and answers forum. Individual's who has knowledge on the asked question can write an answer relevant to questions. In this paper, the proposed primary objective of the paper is to take those questions and make a social QnA system which can take the questions asked by people and forward it to the right person who has the right skills and knowledge to answer the asked question. The system utilizes the common mutual trust among the network, and common-interest identifying the relationships of the asker with the answerer through their friendship and the right person most likely to answer the question, also cementing the security of the user. The paper describes the architecture, algorithms, implementation and a comprehensive large scale simulation to evaluate questions and answers in comparison with other methods. The security and the efficiency of the users, both questioner and answerer is maintained in the system protecting their privacy and identities, furthermore the answers to recurrent questions are retrieved automatically. The system also analyses the QnA behavior of real users and questions from a small scale real world QnA system.

KEYWORDS: Questions and answers, Social Network, Information search, Information collection.

I. INTRODUCTION

The internet is a valuable source of information if used correctly; many users and surfers on the internet tend to search for the information regarding their problems. Internet, besides being the vast ocean of information, sometimes the information can get lost and user searching for the information may drift aside from the original questions (s)he having and may not get the correct satisfactory information. Many search engines like Google and Bing (by Microsoft)

provide users the information they need to search for. But these search engines heavily rely on the keyword search, and sometimes may not be able to provide the exact answers the questioner is seeking. Many researches and analysis have resulted in incomplete information or not matching the exact information user is searching for turning it futile for the person. Many question and answer forums like Quora, Baidu Stack Exchange, and Yahoo! Answers let users to ask questions and other users can answer the questions. These forums are used by large majority of the users around the globe.

With large population comes the large pool of questions, which these questions and answers forum fail to answer because of the increasing questions every minute in clock. Analysis has shown that only 17% of the answers asked are answered, resulting in 83% of the questions unanswered. Also these questions posted online sometimes lacks the tags related to the category of the question asked, making them hard to put in right category by the system and the question remain unanswered. As a result, current QnA system fails to address the problem of thousands of questions not answered or lacking the high quality answers due to which the questioner may not be satisfied.

In addition to these problems, privacy of the QnA system is an important aspect to keep in mind. Many users seek answers to questions which can be sensitive, or may contain revealing too much personal information in the answers or sexual orientation, which the answerer doesn't want to reveal. To mask this problem, the privacy and identity of the person answering the questions must be properly hidden. These questions can be answered by the person who is close to the questioner so that both the parties are satisfied not revealing too much information. This problem is addressed in the system, which protects the privacy of the both questioner and answerer.

To erase this problem further, we have implemented a system which is SocialQ&A, an online social network based on the question and answer system, which will actively forward questions to those users with highest likelihood of

answering question. The design of SocialQ&A is based on two principles. First the friends who tend to share similar interests, and second who tend to be trustworthy due to the property of “Friendship foster cooperation.” The existing system do not provide high privacy in the question and answer system, which we have proposed in the system furthering and advancing the security of the system to ensure complete safety of identities of both the questioner and answerer.

The design of Social Q&A is composed of three components: User interest Analyzer, Question Categorizer, and Question-user Mapper. User interest analyzer associates each user with a vector of interest categories. Question Categorizer associates vector with interest category of each question. Then based on both the vectors, Question-user Mapper identifies the potential answerers to each question. Also the security of the system is well designed so that only socially connected friends can answer the questions protecting their identities, also making them feel safe for answering the relevant questions.

II. RATIONALE OF SOCIAL Q&A DESIGN

A real social life network is formed by the people who share same interest or mutual interest

regarding each person as a node in the system with social relationships. The network is featured by social similarities like a computer science department, a Football club, or it can be a talk group of similar thinking people. We rely for answers based on these features, which makes it easy for other person to answer the questions as soon as possible. For example, “When are the qualifiers beginning?” This question can be answered by the people who are in same football club and likely to share the field together, making it easier for the members of the club easier to answer the questions. Similarly, many questions regarding inter-departmental activities or inter-group activities questions can be asked by many people who are easier to sort and forward to relevant people of the same group.

An online social network connects friends with real-life relationship and online friendship, which share similarity to the real-life questions. Friends in an online network tend to share similar interests and trust each other. Utilizing these facts, Social Q&A incorporates an online network to improve the quality of the answers decrease answer response time. The system will forward a user’s question to the right person in his/her social group who have common interest and close social relationship.

III. DESIGN OF SOCIAL Q&A

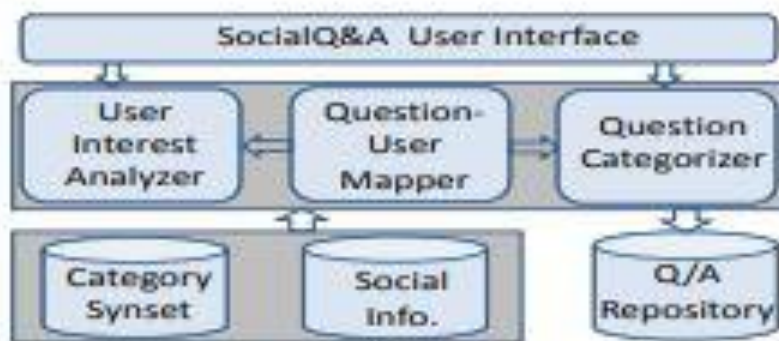


Fig. 1: The architecture of SocialQ&A.

Similar to all social networks, the each user will have a profile which will store the information about user’s interest, education, hobbies, and etc. Social Q&A will have pre-defined categories and sub-categories to categorize the questions based on the tags of the category the question is asked in. The categories will include books, movies, sports, and drama. These categories are just example. When a person will ask a

question, the question will be sorted in the category and will be forwarded to the user who matches the categories, making it possible for the other person to answer the question as soon as it is forwarded.

The algorithm for User Interest Analyser:

Input: A user’s profile, questions and answers

Output: The user’s interest vector $VU_j = \langle I_i, WI_i \rangle$




Parse the “interests” field to generate a token

stream TI
 Parse the “activities” field to generate a token stream Ta
 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
 for each token stream Tx (Tx=TI , Ta, Tmu, Tmo, Tt, Tb) do
 Check each token in the Synset
 if a matching interest category Ii exists then
 Update interest weight: Wli++ (e.g., Wmusic++)
 end if
 end for
 Keep updating Wli based on questions asked and answered
 nd profile update
 Periodically update Wli using $Wli = \alpha * Wliold$
 Algorithm for Question-user Mapper:
 Input: Interest vectors of a user, his/her friends and

question
 Output: A list of potential answer providers for each friend Uk in the friend set of Uj do
 Compute $\Psi_{I,Uk}$ based on Eq. (1)
 Compute $PSUk$
 , PAUk
 and PCUk
 based on Eq. (2)
 Compute $\Psi_{C,Uk}$ based on Eq. (3)
 Compute Ψ_{Uk} based on Eq. (4)
 end for
 Order the friends in descending order of Ψ_{Uk}
 Notify the top N friends

IV. RESULTS AND EVALUATION

As we have implemented this system for Social Media Questions and Answers, we are presenting some resultant screenshots for the final paper.

All Users Document			
Username :	Document Category :	Document Content :	Upload Image :
shubham	Student	Safety or lack of concrete consequences in the life of women is the main reason of harassment of girls. There are instances when the harassment of girls was done by their neighbours while they were on the way to school or there was a lack of safety that created a sense of fear in the minds of small girls who throughout their lifetime suffer due to that one instance that happened in their lives where they were forced to do something unacceptable or was sexually harassed by one of their own neighbor or any other unknown person.	
shubham	Student	Safety or lack of concrete consequences in the life of women is the main reason of harassment of girls. There are instances when the harassment of girls was done by their neighbours while they were on the way to school or there was a lack of safety that created a sense of fear in the minds of small girls who throughout their lifetime suffer due to that one instance that happened in their lives where they were forced to do something unacceptable or was sexually harassed by one of their own neighbor or any other unknown person.	
ram	Engineer	Safety or lack of concrete consequences in the life of women is the main reason of harassment of girls. There are instances when the harassment of girls was done by their neighbours while they were on the way to school or there was a lack of safety that created a sense of fear in the minds of small girls who throughout their lifetime suffer due to that one instance that happened in their lives where they were forced to do something unacceptable or was sexually harassed by one of their own neighbor or any other unknown person.	

MENU

Home

Back

Social Q&A: An Online Social Network Based Question And Answer

User with Same Question and their Answers

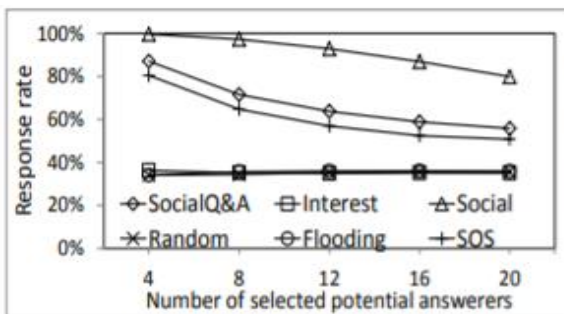
User Name :	Question Category :	Questions :	Answers :
ram	Doctor	what is cancer	skjkk
ram	Engineer	what is java	java is a object oriented programin language
shubham	Developer	what is c sharp	c sharpis most used programming language for web development
wisbo	Developer	what is c sharp	c sharpis most used programming language for web development
sandeep	Developer	what is c sharp	c sharpis most used programming language for web development
ajay	Developer	what is c sharp	c sharpis most used programming language for web development
Chetan	Developer	what is c sharp	c sharpis most used programming language for web development
shubham	Developer	what is c sharp	
vikas	Developer	what is c	

MENU

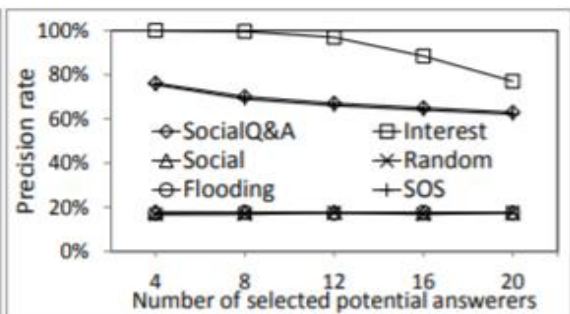
Home

Back

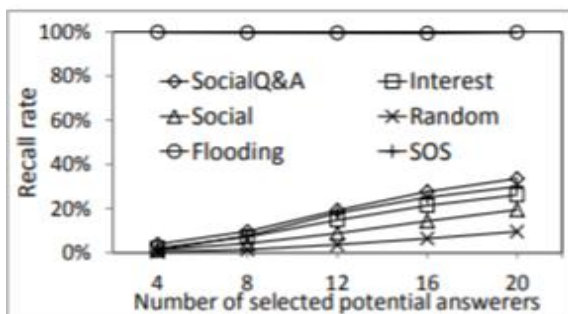
As we can see, many users can share multiple answers on our platform in their category. This system makes it easy to ask question and answer the questions for answerers.



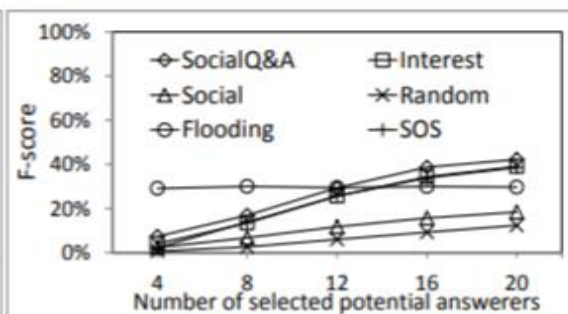
(a) Response rate



(b) Precession rate



(c) Recall rate



(d) F-score

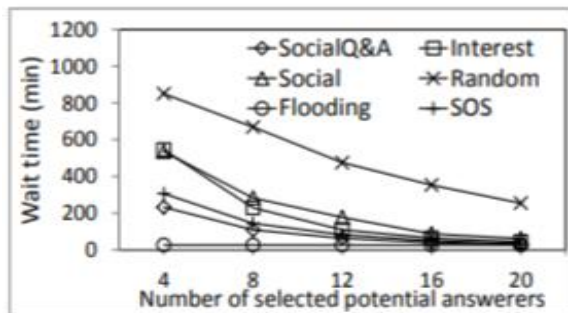


Fig. 5: Wait time.

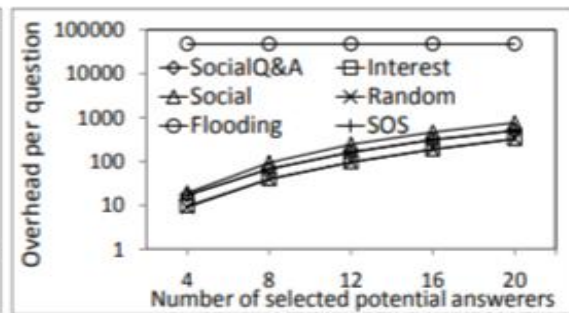


Fig. 6: System overhead.

V. CONCLUSION

Social QnA has changed how question and answer system used to work on social media. We have implemented a system in which many users are getting the answers they really need maintaining complete privacy of the profiles. Also maximum users have found our system quite useful in comparison to other question and answer system out there. We have successfully implemented a complete Question and Answer system which can outperform its competition keeping all factors integrated.

REFERENCES

- [1]. D. Kornack and P. Rakic, "Cell Proliferation without Neurogenesis in Adult Primate Neocortex," *Science*, vol. 294, Dec. 2001, pp. 2127-2130, doi:10.1126/science.1065467.
- [2]. M. Young, *The Technical Writer's Handbook*. Mill Valley, CA: University Science, 1989.
- [3]. R. Nicole, "Title of paper with only first word capitalized," *J. Name Stand. Abbrev.*, in press.
- [4]. K. Elissa, "Title of paper if known," unpublished

Sweta Giri, et. al. "Social Network Question and Answer System." *International Journal of Advances in Engineering and Management (IJAEM)*, 2(1), 2020, pp. 63-67.



**International Journal of Advances in
Engineering and Management**

ISSN: 2395-5252



IJAEM

Volume: 02

Issue: 01

DOI: 10.35629/5252

www.ijaem.net

Email id: ijaem.paper@gmail.com