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REVIEW OF INTEGRATED QUESTION ANSWERING SYSTEM BASED ON CROWDSOURCING

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Abstract- *Proposed system is used to solve the problem and deficiencies which come across in search engine, which produces a suitable answer for the received question and present to the questioner using crowd sourcing. Using crowd sourcing increases scalability due to assigning tasks to crowd. The purpose of this work is to combine strong human capability to understand computer science algorithm. Also, it provide the way by using which any user can ask his question without bothering about its answer. It uses internet facility for answer retrieval.*

KEYWORDS *- Mysql, JDBC, API, RDBMS, publisher(requester), subscriber(crowd worker), CQA(Community Question Answering) site, Tomcat Server, Bootstrap Template, Eclipse, JDK, Servlet, MongoDB, crowd sourcing.*

1. Introduction

As the Internet is a junction of different types of users, each user usually uses different websites to search appropriate answers for their questions. But suppose, if a particular user is searching his answer and he will fail for getting the exact answer then he assumes that he will not find the answer of his question by searching directly in the search engine. This is the problem that real human being can understand better than the computer. In such a case, a user wouldn't refer to ask query to search engine rather than he would ask his question to some other community question answering site. The most common CQA is Yahoo. In this way user can get his answer with the help of other user. Also if the user wants to frequently ask the question in the search engine, he should use some special keys which is not use by other user.

Internet is a junction of user increasing per unit time, this leads to increasing number of questioners at a single time but the site contain limited number of accounts. Due to this maximum no. of questions are unanswered. The report shows that the result of search on Yahoo gives 15% of exact answer and 25% of answer are repetitious. Further, the percentage of other categories answer is very less. For example, if the question asked is about Persian or greek language then it will not answered since internet has very low content about Persian or greek language. Therefore, users unable to benefit from the advantages of feature which CQAs offer.

2. Literature survey

The paper "Crowd sourcing for relevance evaluation" by O.Alonso, D.E.Rose and B.Sterwart shows the importance of relevance evaluation for the development and maintenance of information retrieval system. The paper describes a new approach to the evaluation called TERC which is based on the crowd sourcing paradigm in which many on-line user performs a small evaluation task [10].

Muhammad Asaduzzaman Ahmed Shah Mashiyaty Chanchal K. Roy Kevin A. Schneider in their work "Answering Questions about Unanswered Questions of Stack Overflow" has mined data on unanswered questions from Stack Overflow. Then they conduct a qualitative study to categorize unanswered questions, which reveals characteristics that would be difficult to find otherwise. And finally they conduct an experiment to determine whether they can predict how long a question will remain unanswered in Stack Overflow [1].

In the work "A Survey of Crowd sourcing Systems" presented by Man-Ching Yuen1, Irwin King1,2, and Kwong-Sak Leung they give a survey on the literature on crowd sourcing which are categorized according to their applications, algorithms, performances and datasets. This paper provides a structured view of the research on crowd sourcing to date [11].

The paper "Developer Recommendation for Crowd sourced Software Development Tasks" presented by Ke Mao*, Ye Yang†, Qing Wang‡, Yue Jia*, Mark Harman employs content-based recommendation techniques to automatically match

tasks and developers. The approach learns particular interests from registration history and mines winner history to favor appropriate developers. They measure the performance of our approach by defining accuracy and diversity metrics. They evaluate our recommendation approach by introducing 4 machine learners on 3,094 historical tasks from TopCoder. The evaluation results show that promising accuracy and diversity are achievable (accuracy from 50% to 71% and diversity from 40% to 52% when recommending reliable developers). Then they also provide advice extracted from their results to guide the crowd sourcing platform in building a recommender system in practice [4].

The paper "Pricing Crowd sourcing-Based Software Development Tasks" presented by Ke Mao*†, Ye Yang*, Mingshu Li and Mark Harman they evaluate their predictive models on TopCoder, the largest current crowd sourcing platform for software development. They also analyses all 5,910 software development tasks (for which partial data is available), using these to extract their proposed cost drivers. In their work they evaluate their predictive models using the 490 completed projects (for which full details are available). Their results provide evidence to support our primary finding that useful prediction quality is achievable (Pred(30)>0.8). They also show that simple actionable advice can be extracted from their models to assist the 430,000 developers who are members of the TopCoder software development market [4].

2.1 Limitations of Existing System

Question answering is one of the major components of such personal assistants. Existing techniques already allows users to get direct answers to their factoid questions. To cater to these informational needs, community question answering (CQA) sites emerged, such as Yahoo! Answers and Stack Exchange. These sites provide a popular way to connect information seekers with answerers.

Advantages:

- These sites provide a popular way to connect information seekers with answerers.
- It can take minutes or hours, and sometimes days, for the community to respond.
- Some questions are left unanswered altogether.
- Existing system is not limited to particular area of interest.

Disadvantages:

- However, there is still a large number of more complex questions, such as advice or accepted general opinions, for which users have to dig into the "10 blue links" and extract or synthesize answers from information buried within the retrieved documents.
- The existing system only allows users to ask question without providing.
- An additional data like documents in form of attachment.
- The existing system doesn't have any chat room functionality.

3. Problem formulation

Modern search engines have made dramatic progress in the answering of many user's questions about facts, such as those that might be retrieved or directly inferred from a knowledge base. However, many other questions that real users ask are more complex, such as asking for opinions or advice for a particular situation, and are still largely beyond the competence of the computer systems.

As conversational agents become more popular, QA systems are increasingly expected to handle such complex questions, and to do so in (nearly) real-time, as the searcher is unlikely to wait longer than a minute or two for an answer.

One way to overcome some of the challenges in complex question answering is crowd sourcing. We explore two ways crowd sourcing can assist a question answering system that operates in (near) real time: by providing answer validation, which could be used to filter or re-rank the candidate answers, and by creating the answer candidates directly. Specifically, we focus on understanding the effects of time restrictions in the near real-time QA setting.

The main objective is to make an application that will allow user to post the question in a specific category where he/she get a quick answer from crowd workers. Once the question is published in a particular category, the system sends the notification to its subscriber about the new question. This will done after the admin approval

4. Proposed Work

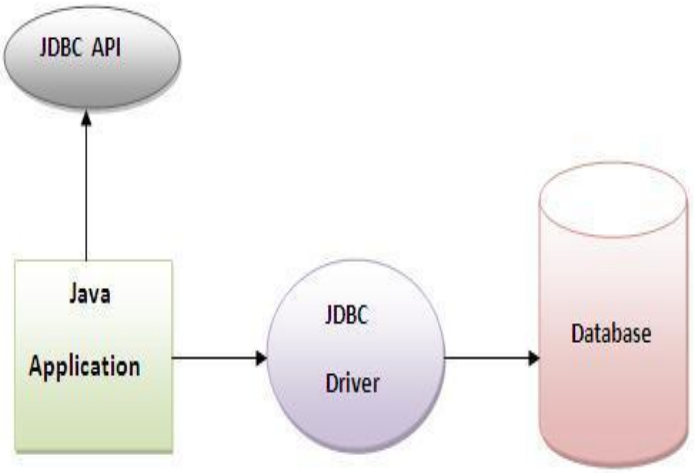
The main purpose of this research was proposing a QA system based on crowd sourcing platform using java technology. Our CRQA (Crowd-powered Real-time Question Answering) system represents a hybrid system, which will includes an automatic question answering and crowd sourcing modules.
In this work we will implement following modules

Modules:
Web Application:
Admin, Publisher (requester), Subscriber (crowd worker),
Categories Service, Questions Service, Answers Service.
The database will be as follow

Database Design:
Question table, Answer table, Admin table, User table.

5. Design Description

This system will be developed using J2EE of java. In this system will use bootstrap & jquery for developing the client ui. The client request and response will be handling by the service layer which will be implemented using Java servlet API. Servlet technology is robust and scalable because of java language. On the database side this system is going to use MySQL database server which is an open-source relational database management system (RDBMS). For database connectivity this system will use JDBC which is a java API to connect and execute query with the database. JDBC API uses jdbc drivers to connect with the database. In another word Java Database Connectivity (JDBC) is an application programming interface (API) for the programming language Java, which defines how a client may access a database.



The jdbc is a low level data accessing api which allows application to connect with database. JDBC is part of the Java Standard Edition platform, from Oracle Corporation. In this application the term “requester” will be used for a user who is going to post a question using publisher modules functionality and “crowd worker” is one who is going to answer that questions using subscriber module.

6. Conclusion

This system intend to provide a new QA system which will be designed using Java J2EE. This system will be crowd sourcing platform that will allow user to submit a question where crowd worker will answer that question as per there level of knowledge. The system will also be integrated with admin functionality which will act as a site administrator, who will monitor all the posted questions. Once a question is posted by the publisher, the admin will get a notification and after admin approval the question is available for subscriber to answer that question. In this system the publisher can also be a subscriber and a subscriber can also be publisher.

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