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Multimedia Question Answering System

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Abstract:

Over the past year Community question answering (cQA) services have Achieved popularity. It allow members to post and answer questions as enables general users to seek information from comprehensive set of well-answered questions. But Still, existing cQA forums usually only provide textual answers, for many questions which are not informative enough. In this paper, we propose a schema that is able to enrich textual answers in CQA with Appropriate media data. For multimedia search, and multimedia data selection and presentation our scheme consists of three components: answer medium selection, question base classification ,query generation, MM data selection and presentation. This method automatically decides which type of media information should be added for textual answer. It then automatically gathers data from the web. Our approach can enable a novel multimedia question answering (MMQA) approach by processing large set of QA pairs and adding them to the pool. users can find multimedia answers by matching their questions with those in a pool. Our approach is based on community-contributed textual answers and thus it is able to deal with more complex questions.

Keywords — **Reranking, CQA.**

I. INTRODUCTION

In most of the cases automated approaches cannot give the suitable answer for user as good as those generated by human intelligence [2]. As compared to question answering system,community question answering system receives answers with better quality,which is generated by human intelligence [3].For example yahoo, one of the most well known community question answering(CQA) system. The answer can be described by very long sentences but when we accompanying videos and images that will visually demonstrate the good quality of answers.So, user satisfaction will be obtained by it.For these purpose we are using Multimedia Based Question Answering System in the form of image+text, video+text and image+video+text. It has 3 steps:

1)Question base classification: Classifies a various types of questions.

2)Query generation: We can collect relevant data(images video) from the web. Select the question and appropriate answer for that question.

3)Multimedia data selection and presentation: That is based on the generated queries, we vertically collect image and video data with multimedia searching engines.We then perform reranking and duplicate removal to obtain a set of accurate and representative images.

Difference between the conventional MMQA approaches and an MMQA framework based on our scheme. It is noting that, although the proposed scheme is automated, we can further involve human interactions.

II. RELATED WORK DONE

Automatic multimedia QA only work in a specific domains and can hardly handle complex question. Different from these works, our scheme is built based on the cQA. Instead of directly collecting multimedia data for answering questions, our method only finds images and videos to enrich a textual answers provided by humans. This make our approach able to deal with more general question in order to achieve better performance.

III. EXISTING SYSTEM

In the existing system, information seekers can post their specific questions on any topic and obtain answers provided by the other users. By leveraging community efforts, they are able to get better answers than simply using search engines.Existing system like stack overflow,quora that systems provide information but only in textual format that is not efficient for user.They better understand with images or video in some cases.

A. *DISADVANTAGES*

1)Fully automated QA also faces challenges that are hard to tackle, such as a deep understanding of complex questions and the sophisticated semantic , syntactic and contextual processing to generate answers for the questions[1].

2)Existing QA forums mostly support only textual answers, textual answers may not feed sufficient natural and easy- to grasp information.

IV. PROPOSED SYSTEM

In this paper, we propose a unique plan which can advance community contributed textual answers in cQA with proper media information. It contains 3 main components:

1) Answer medium selection:Given a QA pair, it predicts whether or not the matter answer ought to be enriched with media info, and which sort of media knowledge ought to be additional. Specifically, we are going to categorise it into one among the four classes: text, text+videos, text+images, and text+images+videos[1].It means the theme can consequently collect images, videos, or the mix of images and videos to complement the first textual answers.

2) query generation . so as to gather multimedia information, we want to come up with informative queries. Given QA pair, this part extracts 3 queries from the question, the answer, and also the QA pair, severally. the foremost informative question are hand-picked by a three-class classification model.

3) Multimedia data selection and presentation. supported the generated queries, we have a tendency to vertically collect video and image data with multimedia search engines. we have a tendency to then perform re-ranking and duplicate removal to get a collection of correct and representative pictures or videos to complement the textual answers.

Our projected approach during this work doesn't aim todirectly answer the queries, and instead, we have a tendency to enrich the community-contributed answers with multimedia contents. Our approach splits the massive gap between question and multimedia answer into 2 smaller gaps, i.e.a gap between questions and textual answers and also the gap between textual answers and multimedia answers. In our theme, the primary gap is bridged by the crowd-sourcing intelligence of community members, and therefore we will target finding the second gap. Therefore, our theme may also be viewed as Associate in Nursing approach that accomplishes the MMQA downside by together exploring human and pc.

A. *ADVANTAGES*

1) System provides multimedia answers along with images and videos.

2) System provide free service to users.

3) Answer quality is better than exiting system.

V. MODELS
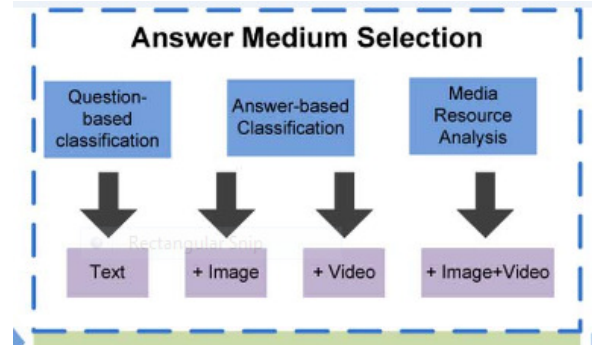
A. ANSWER MEDIUM SELECTION

Fig. 1. Answer Medium Selection

In answer medium selection, we are selecting the media which is suitable for answer. For example consider the question how to make a cake? .

Interrogative word	Category
Be, can, will, have, when, be, there, how+adj/adv	Text
where, what, which, how why, to, who, etc	Need further classifications

TABLE I
REPRESENTATIVE INTERROGATIVE WORDS

Categories	Class specific-related word list
Text	Name, population, period, time, country, height,website, birthday, age, date, rate, distance, speed, religions, number
Text+image	Color, pet, look like, cloths, who, image, appearance, largest, pictures, band, surface, photo, capital, figure, what is a, symbol, whom, logo, place
Text+video	How to, how do, how can, invented, film, story, song, tell, music, recipie, differences, ways, steps, dance, first, said
Text+image +video	President, king, prime minister, kill,issue, nuclear, earthquake, single, battle, event, war, happened

TABLE II
REPRSETATIVE CLASS-SPECIFIC RELATED WORDS

we can use this question for better answered with the

help of video clips. For answer classification there are the following steps we are use:
1) Input=Question and Output=Dataset.
2) Calculating term frequency by removing stop words.
3) Compare TF value of words in question + dataset.
4) Select medium occurrence frequency of terms for all words of TF.
5) Select category Form=text, text+image ,text+video ,text+image+video.

B. QUESTION BASED CLASSIFICATION
Question based classification is based on the following types of the question categories:
1) yes/no type question e.g=do you like mango?
2) Quantity=How much?
3) Descriptive type=How we install windows 7 ?
4) Choice =Rose or tulip?
For example question can be categorized into the quantity class if the interrogative is how+adj-adv or when.
For choice question and quantity question we need text+image+video,text+image answers. Therefore 1st step is we judge whether the textual answer based on the interrogative words [4],if it is not then we can classify by using Naive Bayes classifier. It includes set of a text features,bigram text features ,head words and list of class specific related words. Head word is which gives the sufficient information,for questionwhat is the population of India? ,here head word is population which represent all information about question. Therefore it is easy to use textual answer medium.

C. QUERY GENERATION FOR MULTIMEDIA SEARCH
Query generation task can be completed in 2 steps: 1).Query extraction:Generally textual questions and answers are com
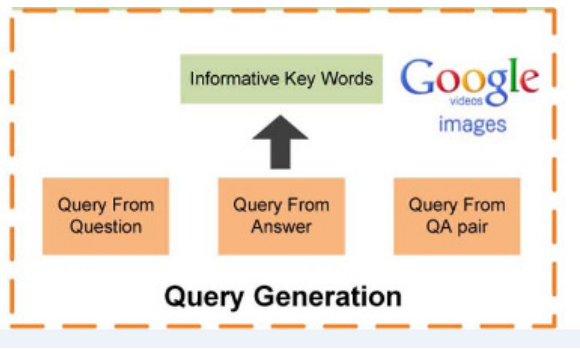

Fig. 2. Query Generation

plex sentence and hence search engine does not work well with such a type of complex queries. Therefore from the questions and answers we need to extract set of informative keywords. For multimedia search we have to collect relevant data , for example = image , videos from web .For this purpose following steps are considered
1)Select questions and textual answers for that questions.
2)Select query based on question based answer medium selection.

3)Select answer, answer type from answer where question like Q.

D. MULTIMEDIA DATA SELECTION AND

REPRESENTATION

Fig. 3. Search and Presentation

1)Pseudo relevance feedback approach : The pseudo relevance feedback approach [12], [13] regarding top results as the relevant samples and then collect some samples that assumed to be irrelevant. A classification model is learned based on pseudo relevant and irrelevant samples and the model is used to rerank original search result. It is in contrast to the relevance feedback where users explicitly provides feedback by labeling the results as a relevant or irrelevant.
2)Graph-based reranking approach: The graph-based rerankig approach [14], [15] usually follow two assumptions. First, disagreement between initial ranking list and refined ranking list should be small. Second, the ranking position of the visually similar sample should be close. Generally, this approach constructs graph where the vertices are images or videos and the edges reflect their pairwise similarities. A graph-based learning process is then formulated based on the regularization framework.

E. LOGIN AND REGISTRATION
This will provide the login for the users andadministrator. The administrator will define or creates the user logins. Using the user login the user can pose a question on the web. The users having the user-login are only authorized to provide the answers to the questions. There is no limit on the ques- tions by a user. The questions or answers will be validated by the administrator; until the administrators validation the contents will not get displayed.
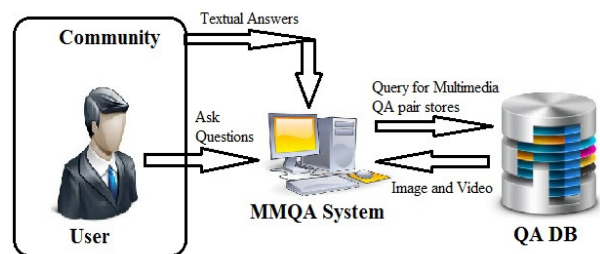
VI. SYSTEM ARCHITECTURE

Fig. 4. System Architectute

The below architecture clearly describes that the unregistered user can ask the question on the community but only the registered user can answer the questions.

Initially the question is to be asked, and accordingly theterms of the questions and the dataset are matched for deciding the type of answer to be provided to the asked question. The question terms are separated and the TF IDF value is computed to count the number of terms matching in the dataset and the question. Based on the TF count, the vales are filtered from the answers and the respective answers are displayed to the user.

VII. IMPLEMENTATION

In this project, we are going to use interactive module for successful completion. The application will have the different modules. In our system we are going to provide authentication by login module. The privilege of login is given to administrator and every user. The administrator can manage the ranking of answers.

1) User: The user can ask a question on forum. User canalso respond to the questions asked by other users using his unique login id.

2) Administrator: The administrator is having his own login id and through which he can re-rank the answers provided to questions. The administrator is privileged by having control over the both questions and answers.

A. STEP BY STEP DESCRIPTION

1) The user will first login to the system and ask the question.
2) The system will accept question and answers from user.
3) The system will automatically decides answer medium for the question.
4) Query generation.
5) Multimedia data selection and presentation for reranking purpose.
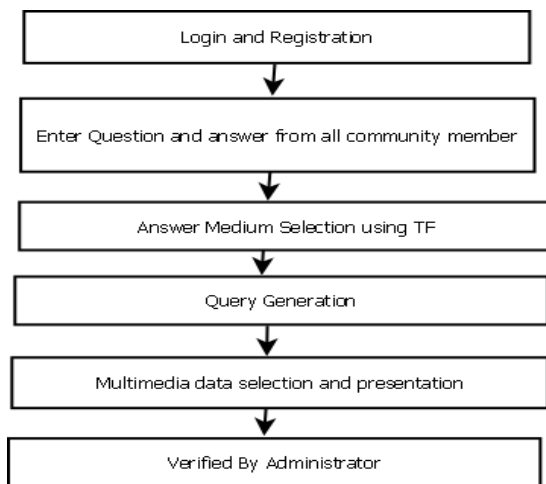6) The administrator will verify the final answer and present to the user.

Fig. 5. System Flow

A. *RESULTS*

The AskQuestion.jsp is the page which is used by registered as well as unregistered user for asking question to the system.the user is expected to enter the question in text box and click on the submit button.
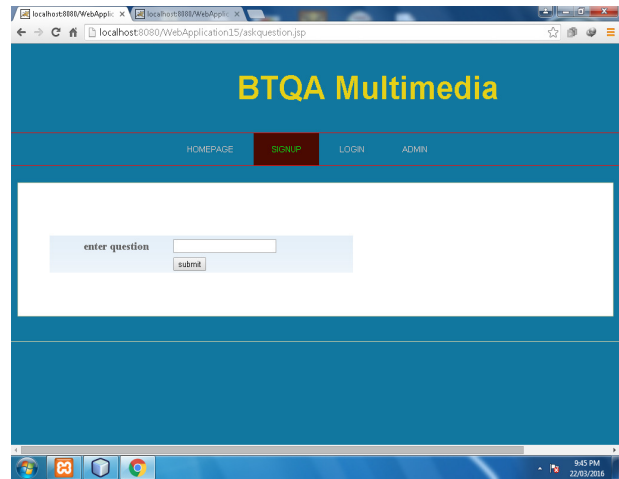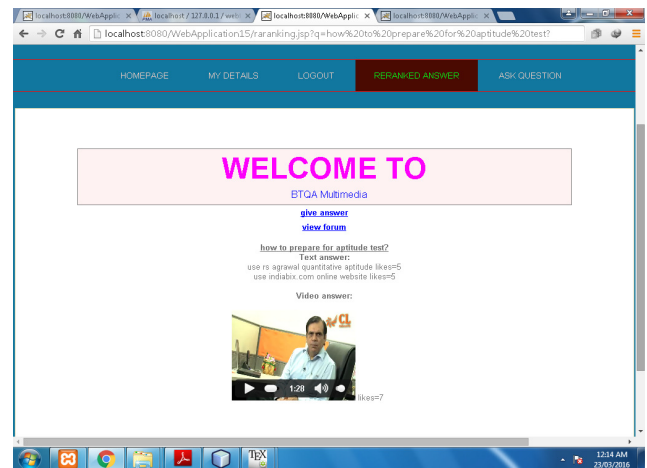

Fig. 6. AskQuestion.jsp

Fig. 7. Reranking.jsp

The reranking.jsp is the page which display all the reranked answer from the system for the questions and which is verified by the administrator.

VIII. CONCLUSION

Hence the propose system avails user with obtaining multimedia supported answers to users questions based on the type of Answer detected through the answer medium selection and thus user gain the efficient and informative answer for their quetions.

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