



Automated Multiple Choice Question Creation from Text Mining: a Survey

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AUTOMATED MULTIPLE CHOICE QUESTION CREATION FROM TEXT MINING: A SURVEY

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Abstract. We introduce a model system for smart question paper generation of universities. The structure behind this system is that many random question papers are generated along with the complication level of the questions in terms of percentage. Examination process is an crucial activity for educational institutions to determine student performance. Preparing the exam questions is very challenging, tedious and time consuming for the instructors. So with the help of this system we present the solution in form of Automatic Question Paper Generator System (QGS) which makes use of LDA and postagging. Question Paper Generator is disburse and unique system, which used in school, institutions, colleges, test paper setters who want to have a huge database of questions for frequent generation of question. This system can be complete in various medical, engineering and coaching institutes for theory paper. We can enter unlimited units and chapter depending upon the system storage, capacity and as per the requirement.

Keywords. Difficulty level estimation, Item response theory, Question generation, Automatic Quiz Generation, Difficulty Ranking, Semantic Similarity.

1. Introduction

Question obstacle is crucial in test creation and question analysis. Nowadays, it is widely identified that test construction is really time-consuming for teachers.

The use of Computer Assisted Assessment reduces considerably the time spent by teachers on constructing examination papers.

There are numerous types of assessment or 'testing' to access student's learning curves. However, written examination is the most common approach used by any higher education institutions for students' assessment. Question is an component that is intertwined with the examination. Questions raised in the paper plays an essential role in achievement to test the students' comprehensive cognitive levels held each semester. Effective style of questioning as characterize by Swart is always an issue to help students arrive to the desired learning outcome. Furthermore, to make it adequate,

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balancing between lower and higher-level question is a must. Bloom's Taxonomy, created by Bloom, has been widely accepted as a guideline in designing reasonable examination questions belonging to various cognitive levels. The hierarchical models of Bloom's are widely used in education fields design questions to ensure balancing and student cognitive mastery.

Consistently, question generation (QG) approaches have largely focused on retrieving questions from raw text, databases and other non-semantics based data sources. However, since these sources do not capture the explanation of the domain of discourse, the generated questions cannot be machine-processed, formulation them less employable in many of the real-world applications. For example, questions that are initiated from raw text are applicable only for language learning tasks. Using semantics-based knowledge sources in QG has various advantages, such as in ontologies, we model the semantic relationships between domain entities, which help in develop essential and machine-processable questions ontologies enable standard reasoning and querying services over the knowledge, providing a framework for bring about questions more easily. Many achievement in the ontology-based QG are accompanied by approach for automating the task of difficulty-level estimation. In the E-ATG system, a state-of-the-art QG system, we have recommended an interesting method for anticipate difficulty-level of the system generated factual questions. To recall, in that method,

Assign a relatively high difficulty score to a question, if the concepts and roles in the question form a rare combination/pattern. For example, considering movie domain, if a question contains the roles: is based on and won oscar, which rarely appear together, the question is likely to be more difficult than those questions which are formed using a common role combination, say, is directed by and is produced by. Even though this method can correctly predict the difficulty-levels to a large extent, there are cases where this method fails. This is because there are other factors which influence the difficulty-level of a question.

2. Literature Survey

2.1 Hochschule fur Technik Stuttgart Schellingstr(2017)

Empirically check that Bloom's taxonomy, a standard tool for difficulty estimation during question creation. Question difficulty estimates guide test formation, but are too valuable for small-scale testing. We provisionally verify that Bloom's Taxonomy, a standard tool for difficulty estimation during question creation, reliably predicts question difficulty observed after testing in a short-answer corpus. We also find that difficulty can be approximated by the amount of variation in student answers, which can be computed before grading.

We show that question difficulty and its approximations are effective for automated grading, allowing us to determine the optimal feature set for grading each question even in an unseen-question setting. Testing is a bottom line component of teaching, and many tasks in NLP for education are concerned with creating good questions and accurately grading the answers. We attention at how to estimate question difficulty from question wording as a link between the two tasks. From a test creation point of view, knowing question complication levels is imperative: Too many easy questions, and the test will be unable to distinguish between the more able test-takers,

who all achieve fairly good results. Too many hard questions, and only the most able test-takers will be clearly distinguishable from the (low-performing) rest.

2.2 Neung Viriyadamrongkij and Twittie Senivongse (2017)

In[2], Online inquiry communities such as Question-Answer Communities (QAC) have catch significance of online users as they can share and search for any information from any place in the world. The number of questions and answers submitted to a popular community can raise rapidly, and that can make it ambitious for users who look for the "right" questions to answer. That is, from the view of knowledgeable experienced users, they contribute to look for hard challenging questions as an opportunity to share their knowledge and to frame respect with the community. Hence it is desirable to distinguish difficult questions from easy ones. Current researches appraisal complexity of questions based on the investigation of the features of the QAC without considering the contents of the questions.

This paper presents a approach to measure question difficulty levels based precisely on the question contents. In appropriate, we consider the difficulty of terms that arrive in a JavaScript-related question, based on the proposed JavaScript concept hierarchy. In an evaluation of the performance of the question difficulty estimation, our approach based measure gives similar achievement to that of the existing measure based on the features of the QAC, but when they are used together, the achievement can be enhanced.

2.3 Sasitorn Nuthong, Suntorn Witosurapot (2017)

In[3], This Automatic Quiz Generation system is thoroughly handy for reducing teachers' workloads in quiz creation. Nevertheless, by exploiting a coarse-granular involvement inside difficulty ranking mechanism, only a few number of automatic generated quizzes can be achieve. In order to increase the number of usable quizzes, we suggest how a 5-level complication ranking score using a hybrid similarity measurement approach together with property filtering of the key data can be potential for serving this propose. Based on experiment results, our proposed analogy measure outperforms three other candidates. Enabling users with finer options of making sensible quiz generation. Hence, this mechanism can be regarded as a synergistic technology for developing teachers' quality of life for the future.

2.4 Surbhi Choudhary, Abdul Rais Abdul Waheed, Shrutika Gawandi, Kavita Joshi (2015)

In[4], In this modern world e-book has become a basic requirement for the candidates to appear and prepare for their competitive exams within college premises. In this paper we are proposing a model system for smart question paper generation of universities. The mechanism behind this system is that many random question papers are achieve onward with the complication level of the questions in terms of percentage. After formation that particular question is then mailed to the respective university. In this system administration of the database inputs set of question paper with an option of check box to tick the appropriate answer. More ever weightage of the particular question in terms of marks and hours and the complication of the question is determined. After this process whole question paper onward with the weightage is stored in the database. In order to make question paper for 100 marks, admin sets all

the weightage and complication to solve the problem. As soon as the complication and weightage is stated a pre doc le as per selected format will be downloaded to the admin and an electronic mail will be triggered. Range of complication may vary from easy, intermediate and hard

2.5 PawelJurczyk ,EugeneAgichtein (2007)

In[5], Question-Answer portals such as Naver and Yahoo! Answers are quickly becoming rich sources of knowledge on many topics which are not well served by general web search engines. Unfortunately, the quality of the submitted answers is uneven, ranging from excellent detailed answers to snappy and insulting remarks or even advertisements for commercial content. Furthermore, user feed-back for many topics is inadequate, and can be insufficient to reliably describe good answers from the bad ones. Hence, guessing the authority of users is a crucial task for this emerging domain, with potential applications to answer ranking, spam detection, and incentive mechanism design. We present an analysis of the link structure of a general-purpose question answering community to discover authoritative users, and promising experimental results over a dataset of more than 3 million answers from a popular community QA site. We also characterize structural differences between question topics that correspond with the success of link analysis for authority discovery.

3 Existing System

There are very few analogous system previous applicable like a method was proposed based on Measuring Difficulty Levels of JavaScript online Questions in Question-Answer Community Based on Concept Hierarchy.

4. Proposed System

We present a system to automate paper setting and to measure the difficulty levels of questions in an Engineering subjects by analyzing the Terminology that emerge in the questions.

5. Advantages Of Proposed system

The advantage of generating questions based on LDA enables to achieve the questions that help to assess learning ability of the students. The proposed framework helps in question generation by deploying agents, the agents will behave various operations like document processing, information classification and question generation. In Document preparing post tagger tool and stemming process is done to eliminate the human process. Information classification takes an list of keyword generated by Data Processing and notice the category of those words, by searching relevant action verb in the repository which fits with the given keyword. Question generation component takes the output of Information classification as input to generate questions.

6. Conclusion

The leading purpose of this application is to characterize automatic question paper generator using LDA and NLP algorithm. This system is web-based application system with several features primarily generating unduplicated sets of exam paper.

The result shows the potential proofs of employment of such algorithm for this type of system. Our future effort is to employ different types of randomization as well as in addition to question generation we can augment the same software by making provision to produce questions from simple online text, which can be achieved using natural language processing algorithms.

7. Future Scope

This is a web-Based System. Our future effort is to employ distinct types of randomization as well as addition to Question Generation, we can intensify the same software by making provision to produce question from online test. This system can emphasize more percentage of difficulty when question papers are referred from this repository.

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