

An Automatic Generator of Multiple Choice Question with Radom Answer Key.

¹Musale Ashish Rambhau, ²Shafali Gupta, ³Meghana Phadatore, ⁴Ishwari Jadhav, ⁵Bhujbal Omkar Vaibhav,

Abstract:

Research studies on multiple question generation (MCQ) are helpful for various educational purposes such as knowledge assessment or intelligent tutoring systems. There are several works on question generation use different natural language processing or related techniques to generate various forms of questions, like multiple choice question or tutorial dialogues in a Socratic manner, to serve multiple purposes

Automatic Multiple alternative Question (MCQ) assembly from a text could also be a typical examination space. MCQs are extensive acknowledged for large-scale assessment in varied domains and applications. However, manual generation of MCQs is expensive and time-consuming. Therefore, researchers were involved towards routine MCQ generation since the delayed 90's. Since then, many systems are developed for MCQ generation. we've a bent to perform a scientific review of those systems. This paper presents our findings on the review. we've a bent to define a generic advancement for Associate in Nursing automatic MCQ generation system. The advancement consists of six phases. for every of these phases, we discover and discuss the list of techniques adopted within the literature. we've a bent to additionally study the analysis techniques for assessing the quality of the system generated MCQs. Finally, we've a bent to determine the areas wherever this analysis focus need to be directed toward enriching the literature.

Keywords: Automatic Question Generation, Multiple Choice Questions, Natural Language Processing, Text Analysis.

Introduction:

A question is an essential tool to assess the knowledge or understanding of a learner. Assessment is crucial in learning and question is essential for assessment. Multiple choice questions (MCQ) is the most widespread form of a question for various levels of assessment. MCQs have many advantages including quick evaluation, less testing time, consistent scoring, and the possibility of an electronic evaluation. Many examinations use MCQ based question papers through a computerized environment. However, manual preparation of MCQs is time-consuming and costly. Therefore, the research community devoted substantial effort to find the techniques for the automatic generation of MCQs. The investigate on regular MCQ generation started at least 20 years ago. As an early challenge, we discover the system developed by Coniam David in 1997 [1]. Since then, lots of MCQ generation system have been developed in a variety of languages and domains, and for different applications.

Related work

Normalization refers to a conversion of the input text into the required format and removal of unnecessary content from the text. This step identifies the chapters, sections, subsections, paragraphs, and other relevant tags in the text. a number of author get help of such structural information in MCQ generation. It involves splitting up the document text into a stream of words, symbols, and numbers.

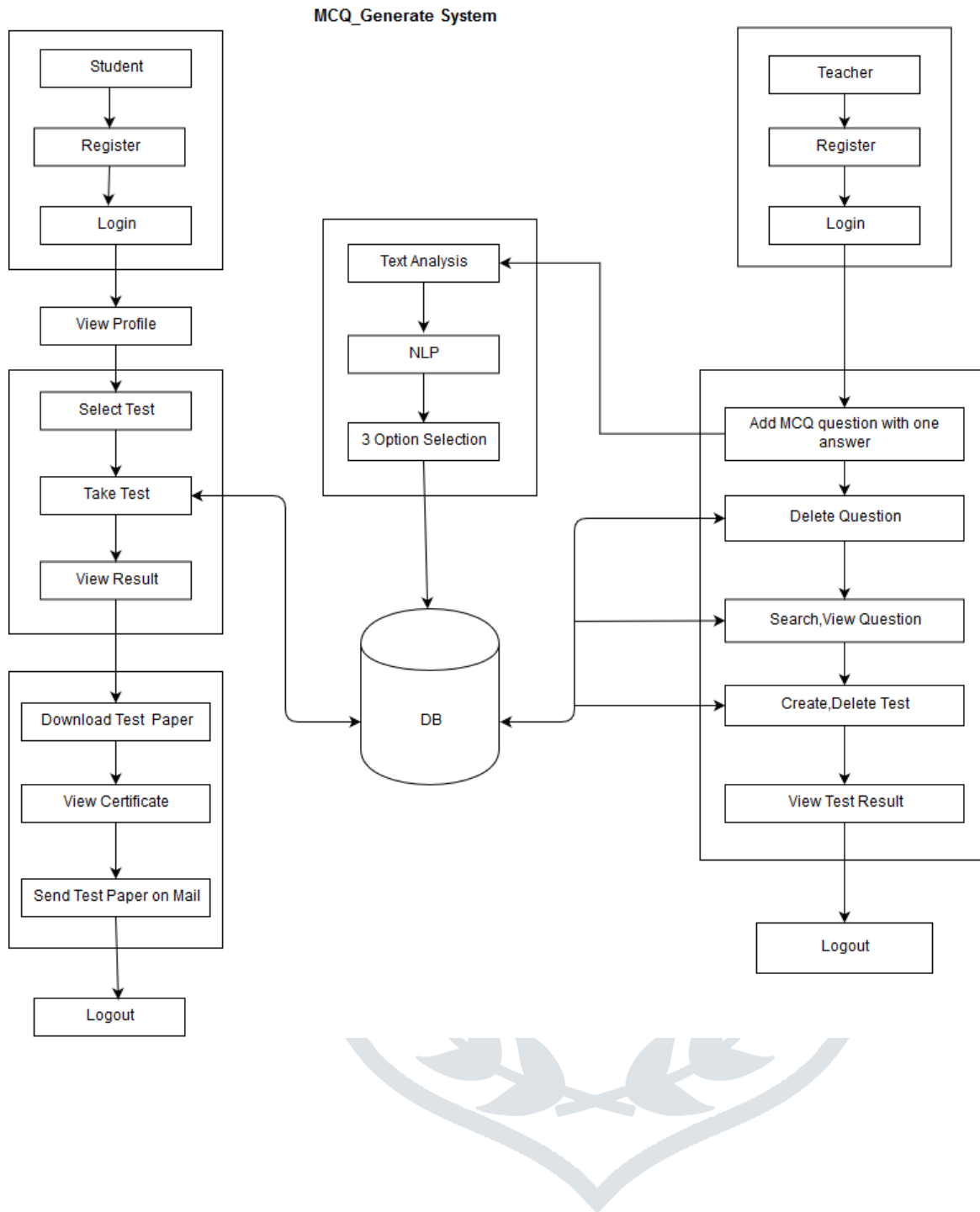
It is observed that a particular part-of-speech or parse category becomes dominating as a potential keyword in some specific domains or applications. If the transformation is not done, then the sentence remains in its original form, and a blank replaces the key. As a result, it becomes a fill in-the-blank type question with distracters. However, we found several works containing the transformation from the declarative to an interrogative sentence. Post-processing is the final phase that aims to improve the quality of the system generated MCQs. These are, post-editing of ill-formed questions, question ranking, and filtering of unacceptable questions.

The Questioner Operatives' main goal is to support testing in the software engineering education by using ontologies. The proposed test environment can work with different ontologies in different areas, but our prototype works

Motivation:

We found that the researchers were primarily motivated by the methodology expected to follow for manual preparation of MCQs from a text. For the manual preparation of MCQs, the person first needs to acquire the information embedded in the input text. As one MCQ primarily demands one informative sentence, he also identifies the sentences that contain any questionable fact or information

Preparing assignments and assessments is a time-consuming task for instructors. Automatic Item Generation (MCQ) was used to create a tool that automatically generates programming practice exercises thus relieving the instructor from having to generate them.



System Architecture:

Mathematical Model

Mathematical model set theory $S = \{s, e, X, Y, \Phi\}$

s= Start of the program

1. Register/Login into the system

2. Select a test for exam and start the exam.

e= End of the program

Identify the Exam

X= input of the program= {P, R, Q}

P= Question

R= Answer

Q=Result of exam

Y= Output of program= best answer

First, users provide feedback for specific answer out offs (1-5).

Let R be the set of Answer

$R = \{R_1, R_2, R_3 \dots R_n\}$

Let A be the set of categories

therefore,

$A = \{A_1, A_2, A_3 \dots, A_m\}$

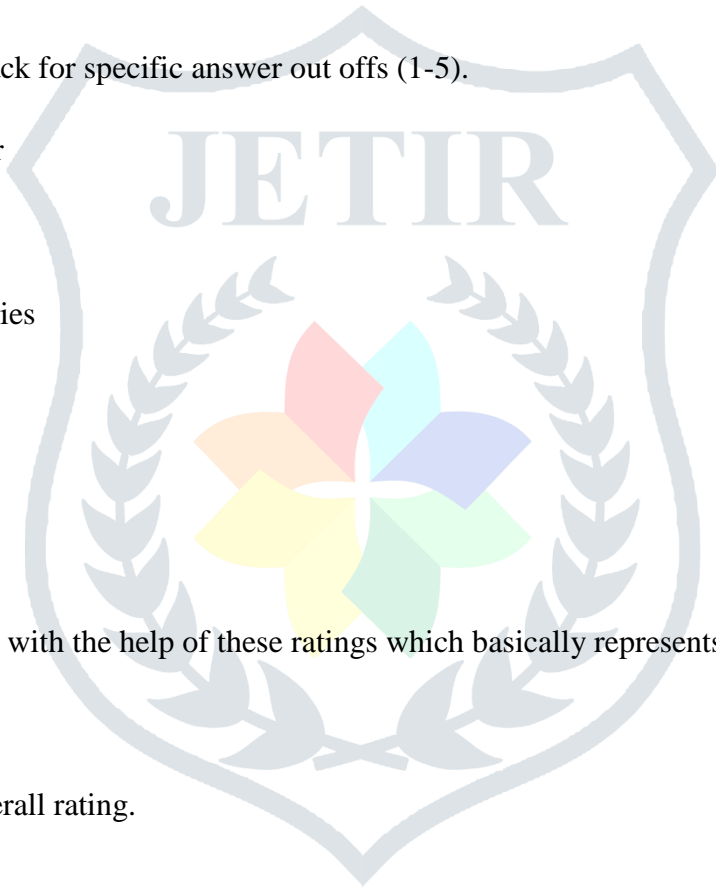
$E = \{E_1, E_2, E_3, \dots, E_m\}$

Overall rating is evaluated with the help of these ratings which basically represents quality of the answer.

$Y = E_1 + E_2 + \dots + E_m / m$

Where m is number of overall rating.

Output



Questions	Correct Answer
which statement is used for print statement in java?	System.out.println()
Which of these is used to perform all input & output operations in Java?	streams
Which of these classes are used by Byte streams for input and output operation?	InputStream
After compilation of a Java program which code generated?	Byte Code (.class)
Which is a primitive data type?	byte
Which of these classes are used by character streams for input and output operations?	Writer
Which of these data types is used to store command line arguments?	String
How many arguments can be passed to main()?	Infinite
Which of these interface is not a member of java.io package?	ObjectFilter
Encapsulation concept in java is	Hiding complexity
Polymorphism types in Java is/are	Compile time

Conclusion:

In this System, we reviewed the works presented in the literature of automatic MCQ generation from a text. We discussed the existing approaches for MCQ generation. We established a generic workflow consisting of six broadly classified dependent phases, namely, pre-processing, sentence selection, key selection, question formation, distract or generation, and Post-processing

Question types, such as Image hot spot, that require visualization (for recognizing the UML elements, for example) are currently not supported, since the ontology doesn't contain such information. Questions, requiring cardinality or making a sequence, such as Slide and Order object, are not supported in test environment either. The reason for this is that the UML domain doesn't give suitable information for such questions.

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