

Automatic Question Generation

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Abstract:- Learning through the internet become popular nowadays due to the Covid situation. Internet learning facilitates leaners to learn anything, anytime, anywhere from the web resources. Assessment is most important in any learning system. Preparing question manually takes mush time and labor.

Preparing a set of questions for assessment can be time-consuming for teachers while getting questions from external sources like assessment books or question banks might not be relevant to content studied by students.

To reduce the time consuming and to identity the questions fast Automatic question generator method is used. This method can be used in both private(company selection processing questions) and government sectors(group exams and UPSC,GATE ect).

I. INTRODUCTION

Generally, individuals ask the question to each other to asses or to improve the student or candidate. Exam style questions are a fundamental education tool serving a variety of purposes.

Some of the benefits of using questions are 1.giving a opportunity to practice retrieving information from memory. 2. Providing feedback to the candidate in improve themselves. 3. Learning by repeated core concept. 4. Motivating learners to engage in learning activities.

Preparing questions for assessment can be time consuming for teachers as they need to refer external sources like assessment books or question banks which sometimes it might not be relevant to content studied by students.

Automatic question generation techniques emerged as a solution to the challenges facing test developers in the process of constructing a large number of good quality questions. AQG is built with a constructing algorithms producing questions from knowledge source, which can either be structured or

unstructured. Structured methods are template based approach where fixed set of patterns were predefined whereas in unstructured method are formed without any predefined templates.

It is difficult for teachers to perform so many task such as making questions and evaluating them for each student therefore this system will save more time. Automatic question generation has got great consideration from researchers in the field of data science. Till now they have used template-based approach were fixed set of patterns were predefined and there will be less accuracy of generating question.

II. LITERATURE SURVEY

[1].The obvious problem is how to automatically produce test questions that adhere to the Outcome Based Education (OBE) criteria. This research will look into different multi-constraint genetic algorithm ways for creating test questions automatically (AGEQ).

[2]. In this study, they developed an adaptive question bank management system that selects questions from a wealth of data (question bank) intelligently and represents the question model in accordance with inputs or parameters supplied by the question paper designer (QPD). The programee uses a database to store questions and a graph to create concept maps.

[3]. The system can extremely automatically process several distinct collections of papers. This solution uses SQL queries to address the issue of constantly randomising the questions. System for automatically generating test questions. A powerful and practical web-based solution for creating test questions.

[4].The question paper in this system was generated using Asp.net's fuzzy logic and randomization. The paper uses four restrictions to show the algorithm: the format of the question paper, the syllabus it covers, the difficulty levels it covers, and the cognitive level it covers. The proposed approach can be expanded to meet a wide range of user given constraints.

[5]. There are two ways to pick keys: manually, or using a system that makes use of Stanford CoreNLP tagger. The right word is chosen in this context by considering the relationships between the subjects, verbs, and objects. The use of

dependency-based patterns, semantic-based transformations, syntactic transformations, and discourse connectives can also be considered.

[6]. A methodology based on templates is used to ask questions about the generation of structured data (Data Table). While connectives play a crucial part in the text's coherence and can be used to quickly create wh-type queries.

[7]. The currently available tools are inflexible and only support extremely simple or few tags. A question bank with semantically labelled questions will automatically be generated by the system.

III. ARTIFICIAL INTELLIGENCE

Artificial intelligence plays a vital role nowadays. Automatic question generation is also a part of artificial intelligence. Natural language processing is an python library and a branch of AI which is used to understand the text and spoken words in much the same way of human. Automatic question generation will be developed using this functions.

IV. QUESTION GENERATION METHODS :

There are two main approaches for generating question:

- A. Text Base Approach
- B. Image Based Approach

A. Text Based Approach:

One of the basic methods is text based approach. A paragraph is given as an input in as a format of document or direct input text. The role of the AI is to read the paragraph fully and to create possible set of question from the paragraph. wh-questions, when, how questions will be generated.

This method concentrate in the preparation of easy question and possible number of question so that it will be useful to pick right question instead referring in the external source.

B. Image Base Approach

If an document in an input has image's the question will be generated from the image. For this type of method OCR (object character recognition) is used. The function of OCR is to convert the image into text as paragraph and from that the questions will generate by the process of text based approach.

V. SOFTWARE USED

- Anaconda Navigator
- Spyder
- NLP(python library)
- OCR(python library)

VI. WORKFLOW

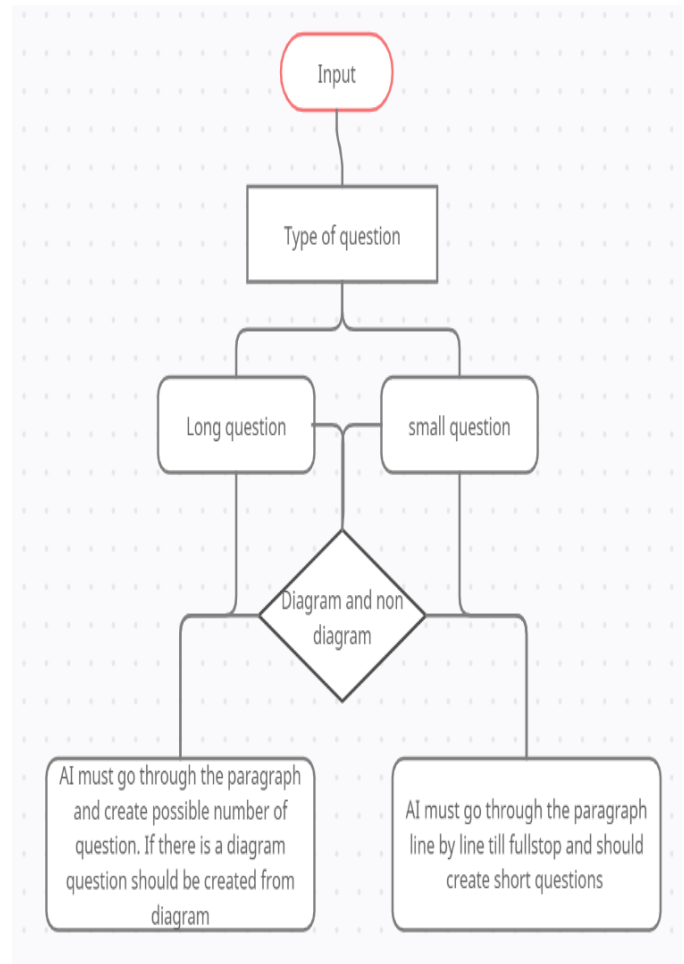


Fig 1:- Workflow

➤ *Working Model:*

The type of assessment mode should be selected first , weather it is online or offline. And then we need to select what type of question we prefer. MCQ or theoretical questions. Since we concentrate on theory question we go with theory question.

The paragraph is taken as input. The AI should read the paragraph fully to create question based on the input. Section of the question type is important to create the question based on the mark.

If it is a long question , the AI should prepare single brief questions about the paragraph and if there is any diagram , questions should be created on the diagram using the key words.

Creating questions on diagram should be done carefully, since many mistakes occurs . If it is short questions, the AI should create questions in which the answer should be in two or more lines.

VII. FEATURES OF AUTOMATIC QUESTION GENERATION

- Work becomes very speedy.
- Easy to update information
- Accuracy in work.
- Decrease the load of the person involve in existing manual system.
- Easy and fast retrieval of information

Books for School-Level Evaluation” - Springer Nature Singapore 2018

VIII. CONCLUSION

The paper reviews various methods for autonomously generating questions and answers from paragraphs of text. The majority of algorithms are based mostly on natural language processing. The work has essentially been donated for the creation of questions in the English language that fall into the multiple choice, factoids, and gap-fill categories. We might think of future generation of FAQ, TRUE/FALSE questions and answers as examples of how this motivating field of Automatic Questions Answers Generation (AQAN) has to be continuously improved.

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