

**Research Article:**

**IMPLEMENTATION ON QUESTION GENERATION BASED ON ENCODE-  
DECODE AND MACHINE LEARNING TECHNIQUES**

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Text Rank

**Abstract**

Education is the backbone of education means the study, assessments, and examination system is also there to evaluate the student's improvement. Here, to support this process and organizations in the post-pandemic scenario we are developing a system that will design automatic questions with the help of a new machine-learning algorithm. We are developing a system that will give you different types of questions according to the requirement using key summarization techniques and domain-wise question generation. We used randomization and shuffling techniques. We have used the encoder-decoder method to convert the given text into our expected format which means we are expecting questions from the given input text. So, the text will be in a document or pdf. Using the text rank algorithm, we are giving rank to the words which we are extracting from the text summarization techniques. Here, to reduce the employee task we can design the multiple questions set within less period. The system will improve the speed and accuracy of question formation.

## INTRODUCTION

If we talk about examination process then then most tedious task is to prepare questions from a vast eBook. Right now, it's very important to find the solution on it because it the task which is mandatory for every exam and in every institute. A structure of a suitable automated system for creating question papers and managing related information may prove vital in an Educational Institute. We will first generate the questions according to the domain [1]. Here, we have proposed a combined automated system that collects questions related to that specific domain and displays a question paper based on its syllabus and curriculum in the system. Here, the system includes most of the questions containing verbs that play an important role in terms of finding the cognitive level of such a question in the system [4]. It increases its speed, which leads to the higher quality of test papers being designed that can collaborate with the needs of automatic test paper generation-most success rate.

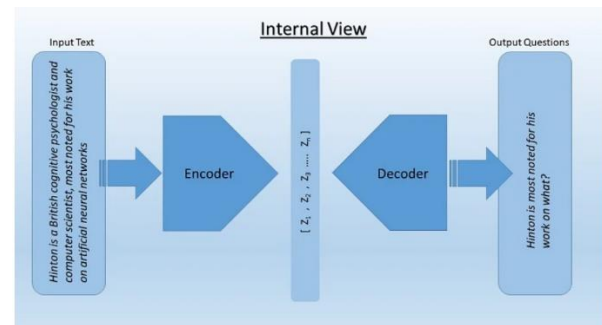
## PROBLEM STATEMENT

To save time and to increase the accuracy of question generation with the help of techniques like key summarization, domain identification, ant colony algorithm, and our new machine learning algorithm we are going to generate a system that will generate a question based on the given input text.

## OBJECTIVES

1. To design user-specific learning assessments from input documents based on the bloom taxonomy classifier.
2. To analyze summarized keywords and identify the domain of the document based on the dictionary learning approach using the text summarization technique.

## PROPOSED SYSTEM



**Fig.1 Automated Question Paper Generation System**

In our system, as we talk about the generation of questions initially, we need to apply the text summarization technique to the given document and using encoder-decoder techniques we form a questions with tagging method and at the same time, we applied domain identification then using the ant colony algorithm we can set the path of question generation [2].

## METHODOLOGY

For text summarization and domain identification we will apply the following algorithm:

1. TextRank Algorithm
2. Randomization algorithm
3. Ant colony algorithm

### a. TextRank Algorithm:

Text summarization is divided into two categories

1. Extractive Summarization
2. Abstractive Summarization.

Here we are focusing on the **extractive summarization** technique.

In the text rank algorithm before getting started with the Text Rank algorithm we should become familiar with the PageRank algorithm [3]. Actually, this is coming from Text Rank only. **PageRank is used basically for ranking web pages in online search results.** Instead of using webpages, we use sentences in our application.

### b. Ant colony algorithm:

It is used to set the path of question generation so that every time we use the algorithm, we got questions with different levels. This algorithm acts like an ant which are creating a path for every other ant. We are using these techniques for generating a paper format using our generated questions.

## RESULT ANALYSIS

Here, the system will generate the questions based on the given contents and the supporting dataset will be there for keywords. the questions are taken randomly each time from the repository of the system [5]. Hence, the user will get a different and unique set of questions for the same specifications from the system. Here, if we take the parameters like hamming loss, accuracy, ranking loss, and 0/1 loss. we got some results as follows.

**TABLE I: Performance evaluation of multi-label classifiers.**

Multi-label Classifiers	Hamming Loss	Accuracy	Ranking Loss	0/1 Loss
BCC	0.263	0.654	0.444	0.419
CC	0.2	0.729	0.381	0.391
PCC	0.616	0.6164	0.851	0.959
RT	0.154	0.694	0.181	0.388
Majority Labelset	0.298	0.7024	0.706	0.744

## VII. CONCLUSIONS

Here, an automated model for Question Paper Generation is proposed which is implemented as a real-time application on the given content Here, the system has given an efficient algorithm that is randomized and removes repetition of question papers from the data or content, For making it impossible to process any pattern in the papers of the system.

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