IJCRT.ORG ISSN : 2320-2882

INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

AN INTELLIGENT SECURE QUESTION PAPER GENERATION SYSTEM

[1]Abhishek Sasale, [2]Prof.Pramod Patil, [3]Abhishek Rathi [4]Vinit Salve,[5]Sanket Gite

[1,2,3,4]Student,[5]Professor,[1,2,3,4,5]Computer Engineering

[1,2,3,4,5]Sandip Institute of Technology and Research Centre, Nashik, Maharashtra, India

Abstract: The necessity of education system is one of the most important feature of our social orders at all levels in the area of education. As a result, only an examination or evaluation may be used to evaluate a student's performance. Exams are extremely important since they provide a method of assessing pupils' performance. Aside from the students' performance, the quality of the examination questions prepared will also determine the students' quality. However, the most important yet difficult task is the creation of the examination questions paper, which is known to be very tedious, time consuming, and costly, so it should be prepared with full focus, proper formatting, and question selection. Teachers face a difficult task in covering all areas of the course goals while avoiding question duplication in subsequent tests. Because there are no defined techniques, the quality of the question paper is entirely dependent on the experience and skill of each individual instructor. In rectangular brackets, variety all the reference gadgets in order. The author's name, however, might be inserted in the running text with the reference number. The running text should have the same order of references as the reference list at the conclusion of the article.

Index Terms **– Bloom's Taxonomy, Randomization Algorithm, Waterfall Model, Automation and Security.**

I. INTRODUCTION

(a) The present methods are inflexible and unable to accept all forms of tags, the resulting question paper may not be completely aligned with its stated goals. Our system is flexible enough to allow users to provide requirements for each tag/property in the form of lower and upper boundaries. A range is defined for each property, indicating that the value should not be less than the minimum value and should not exceed the maximum value of the range. It's also a rule-based system that accepts all possible tag combinations and creates output depending on the rules that apply. The output is in xml and word document formats. Making of Question Papers Exams serve a vital characteristic in checking students' educational boom in ultra-modern aggressive environment, and the generation of records era has been changed via way of means of efficient utility of era. As a result, creating value from knowledge is critical for society's transformation into a "Information Society." Teachers must prepare a variety of question papers based on independent college norms and assessment needs for numerous tests held throughout the year in any academic degree. Teachers find it challenging to address all aspects of the course goals while avoiding question duplication in subsequent assessments. Since there is no systematic approach, the quality of the question paper is solely dependent on the expertise and competency of the particular instructor. This entire factor can sometimes lower the question paper's standard. A quality question paper, according to study, is a true combination of questions overseen by many factors such as difficulty level, mark distribution across the question paper in the form of paper design, and kind of examination. The process of composing a fair examination paper by an impartial examiner is difficult and complicated. The standard of the examination paper is based on a variety of specifications, thus taking into consideration the various levels of learners is also an important element to consider, as are the course goals when preparing a systematic question paper. Associating the subject's learning result with the test paper is also a fantastic task. With the widespread adoption of technology in the field of education, acquiring technology to streamline the process of examination paper creation is a no-brainer, and the creation of a massive question bank and automatic exam paper generation provides a critical solution to the problem of manual examination paper composition. The automated development of examination papers provides a stage for creating a well-organized examination paper, as well as a smoother integration of many variables that determine the quality of a question paper. The following module's structure is designed to automate the process of creating examination papers. The system would be made up of a series of questions, each of which would be regulated to generate a question paper. This system's tasks are automated, and as a result of the increased storage space, security is no longer an issue. The proposed approach is based on Natural Language Processing and is quick owing to computer-assisted automation, streamlined, randomized, and impartial, secure, and creates unique questions, as well as overcoming the issues associated with human-assisted paper production. The suggested system is built using natural language processing (NLP) technology.

(b) Motivation:

This is a difficult technology because of the increase within side the subject of laptop technology and call for we're going through today. As a result, exams are critical in evaluating a student's success. That is why it is critical to have a smart development question model in place for students' growth as well as to assess their learning abilities, allowing for the monitoring of student performance. Until recently, the only way to generate question papers was by hand. The question paper is chalked out in this fashion by selected personnel. However, due to prejudice, repetition, and security problems, this strategy can be ineffectual at times. We've presented a Question Paper Generation system that's quick, simple, randomized, and secure.

(c) Document convention:

The goals are to create question papers with a variety of questions that fulfil the course's learning goals. To come up with a strategy for creating a clever question creation system for academic purposes. Within a few seconds, the question paper was generated from the teacher's specifications. To cover all areas of the course goals while avoiding question duplication in subsequent tests.

II. Literature Review

1. 1. Starting in 1948. A group of educators was tasked with categorizing education aims and objectives. The purpose turned into to create a categorization device for 3 awesome domains: cognitive, emotional, and psychomotor. Bloom's taxonomy of the cognitive area turned into completed with inside the 1950s. Bloom's taxonomy has six levels. a)Knowledge level: It is sometimes referred to as 'rote learning or memorization.' This is the lowest or first level of the hierarchy. It is a level at which pupils remember or memorize things or recall previously learned information. Recalling particular input from earlier lessons, defining or explaining computing concepts, technique, and process, providing relevance description for a topic area, idea, or term, and specifically identifying information from questions are all required for programming questions in this category. [1] List all of the nodes with inside the left subtree of node J, for example. b) Explain the fundamental characteristics of a binary tree. b) Create a JAVA method. b) Comprehension-stage: This stage is described because the capacity to realize the that means of information. These levels' principles include the ability to understand, translate, extrapolate, classify, and explain. Translation of algorithms (e.g., writing output of a program), describing the processes and flows of a program, and offering examples to illustrate a concept or an algorithm are examples of programming problems in this area. What is the output of the following code section, for example? b) Describe what happens in the following C++ code in words. c) At the application level, the notion is determined by how it is applied to a specific context. Understanding the idea and making use of it to a brand new algorithm, in addition to adjusting controls, are the standards for programming issues on this area. Examples: a) Declare a variable, employees, to represent 120 employee records; b) Change the for loop to a while loop. d) Evaluation-level: This is the ultimate level, which involves judgement, criticizing, and defending or supporting one's own position. The programming question is deciphered by examining the code to see if it meets the testing strategy's requirements. This level also includes commenting code quality against standards or execution criteria. Example: a) Explain inheritance and provide an example of code to demonstrate your point. e) Synthesis-level: If a student reaches this level, he or she should be able to mix and integrate ideas or concepts by rearranging components into a new whole. Students should be instructed to develop codes based on previous levels by writing a complete program or creating new alternative ways or algorithms to tackle problems in this level's programming questions. If the statements from lines 22 to 34 were to be executed in a function, write the definition of the function Output Time. b) Create a software that asks the user for the masses of the bodies as well as their distance apart. The force between the bodies is then output by the program. These questions might be classified as either higher order or lower order. In light of Bloom's taxonomy, this article seeks to distinguish between these two types of questions, with related notions such as deep and surface learning being discussed.
2. Several data preparation techniques are used to a feature set, including word extraction, stop word removal, stemming, and vector representation, before the content of a question item is translated into a numeric form, referred to as a feature vector. Because neural networks have limited scalability on high-dimension input spaces, several feature reduction approaches have been investigated to lower the feature space's dimensionality. The results of the experiments show that the suggested model can speed up convergence. The findings also show that document frequency reduction is the most efficient feature reduction strategy since it preserves classification precision while speeding up convergence. However, the identification of the cognitive question level is incorrect. This may result in test questions being miscategorized, and as a result, failing to achieve the subject's examination standard.
3. In this proposed method, a stop-to-stop automated cloze query producing device is proven that uses a semi-structured technique to produce CQs by utilizing a knowledge base retrieved from a Cricket site. In addition, unlike earlier systems, when producing a CQ, we give context to the inquiry sentence. This is done to clarify the topic and avoid situations when a question has many answers. In Example 1, we clarified the topic by placing it in the context of the World Cup final. A CQG system like this may be implemented in a variety of applications, including quizzing systems, trivia games, and assigning fan ratings on social media by asking game-related questions.
4. We investigate whether the questions generated by our system may be successfully used as pre-questions, thereby assisting creators of assessment materials, in this suggested approach. There are two sorts of pre-questions investigated: text-based and image-based pre-questions. This experiment also examines the impact of pre-questions on test-takers' performance on a comprehension test about a scientific video documentary when used in conjunction with audio-visual learning material rather than reading material; we examine the impact of pre-questions on test-takers' performance on a comprehension test about a scientific video documentary. We also look at whether the psychometric properties of questions generated automatically (by two systems) are the same as those generated manually. Question psychometric factors, such as discrimination power, are one of the most important indicators of question quality.
5. This device gives a version for a couple of desire query generator that asks approximately labels and entities retrieved from a given text using Semantic Role Labeler (SRL) and Named Entity Recognizer (NER). The sentence's distractors are picked based on the string similarity between the question sentence and the rest of the data set's sentences.

6. This system discusses a technique that may be used to generate a question bank automatically using a collection of pre-defined templates. The performed algorithm's number one goal is to supply a large variety of questions withinside the question bank. The essential characteristic of a question bank is that it covers all levels of knowledge for all topics in a course at various degrees of difficulty. This functionality permits us to provide a massive range of questions in a web asynchronous education course, along with biology. This functionality also allows us to provide different paper tests at the same level.
7. This suggested system focuses on numerous strategies that aid in the generation of various sorts of questions as defined by Gaesser and Pearson's Taxonomy. For diverse goals such as academic writing or reading comprehension, there are many techniques to creating trigger questions, generic questions, or factual questions.

III. Problem Statement

To access a student's learning curves, there are several methods of assessment or 'testing.' Written examinations, on the other hand, are the most prevalent method for evaluating students at higher education institutions. A question is a component of the examination that is linked. The paper's questions are crucial in efforts to assess students' overall cognitive levels each semester. To help students attend to the desired learning outcome, effective questioning style is always a challenge. Furthermore, it is necessary to balance lower and higher-level questions in order for it to be effective. Bloom's Taxonomy has long been used as a guideline for creating appropriate examination questions for different cognitive abilities. Bloom's hierarchical models are commonly used in education to build questions, assure balancing, and ensure student cognitive mastery. The taxonomy improves curriculum design and assessments in the computer science domain. Normally, academicians would manually categorize a topic according to its Blooms cognitive level; however, not everyone can correctly identify a question's cognitive level. This may result in exam questions being miscategorized and, as a result, failing to achieve the subject's examination standard. Furthermore, there is no considerable agreement among academics on how to employ Bloom's taxonomy in student education. The goal of this system is to present a rule-based method for assessing the Blooms taxonomy cognitive level of examination questions using natural language processing. Exam questions will be analyzed, and each one will be classified according to Bloom's taxonomy cognitive level. Academicians will be able to set up appropriate smart exam question paper generating based on the requirements.

IV. Objective

The following are the objectives:

1) Create question papers with a variety of questions that address the course's learning goals.
2) To develop a method for creating intelligent questions for academic purposes.
3) To produce a question paper from the teacher's specifications in a matter of seconds.
4) To cover all areas of the course goals while avoiding question duplication in subsequent tests.

V. Methodology

Bloom's Taxonomy is a taxonomy of tutorial gaining knowledge of goals that educators assign to pupils. During a written examination, the cognitive domain of this taxonomy is used to validate a student's cognitive level. Educators may occasionally find it difficult to determine if their assessment questions meet the Bloom's taxonomy's standards at various cognitive levels. Based on this taxonomy, this study suggests an automated analysis of exam questions to find the proper category. This rule-based method uses Natural Language Processing (NLP) approaches to find crucial keywords and verbs that can help define the question's category. This challenge specializes in the sphere of computer programming. The study currently employs a set of 100 questions (70 training questions and 30 test questions). According to preliminary findings, the guidelines may be useful in accurately identifying the Bloom's taxonomy category in test questions.

1) Data mining: Data mining is the computational manner of locating styles in massive records gadgets the use of techniques that combine device mastering, records, and database systems.

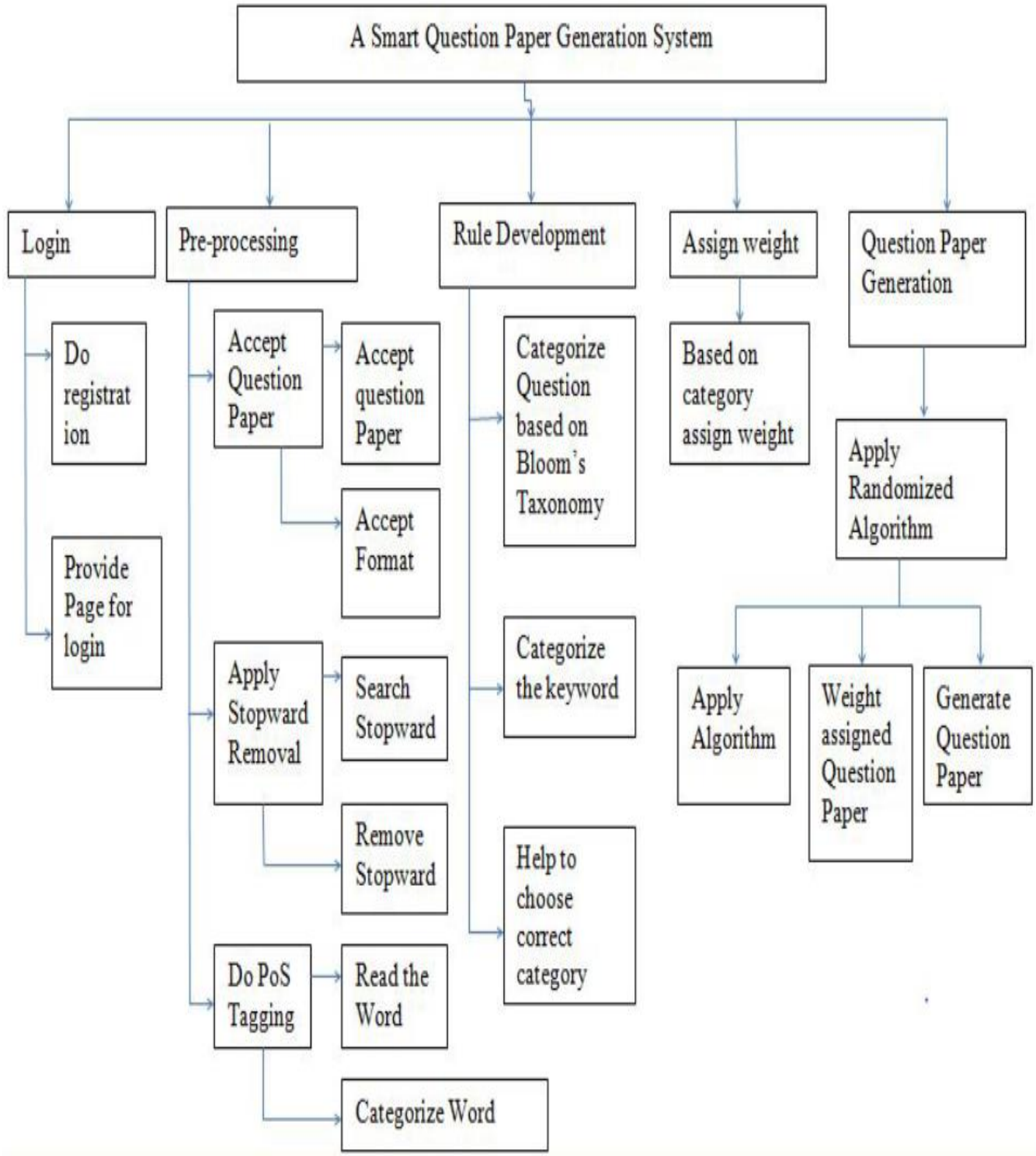
2) Blooms Taxonomy: Blooms Taxonomy is a categorization gadget for the numerous pursuits and talents that educators assign to their learners (mastering objectives). Benjamin Bloom, an educational psychologist from the University of Chicago, created the taxonomy in 1956.

3) Natural Language Processing: Natural Language Processing, or NLP for short, is a department of studies that makes a specialty of human-laptop interactions.

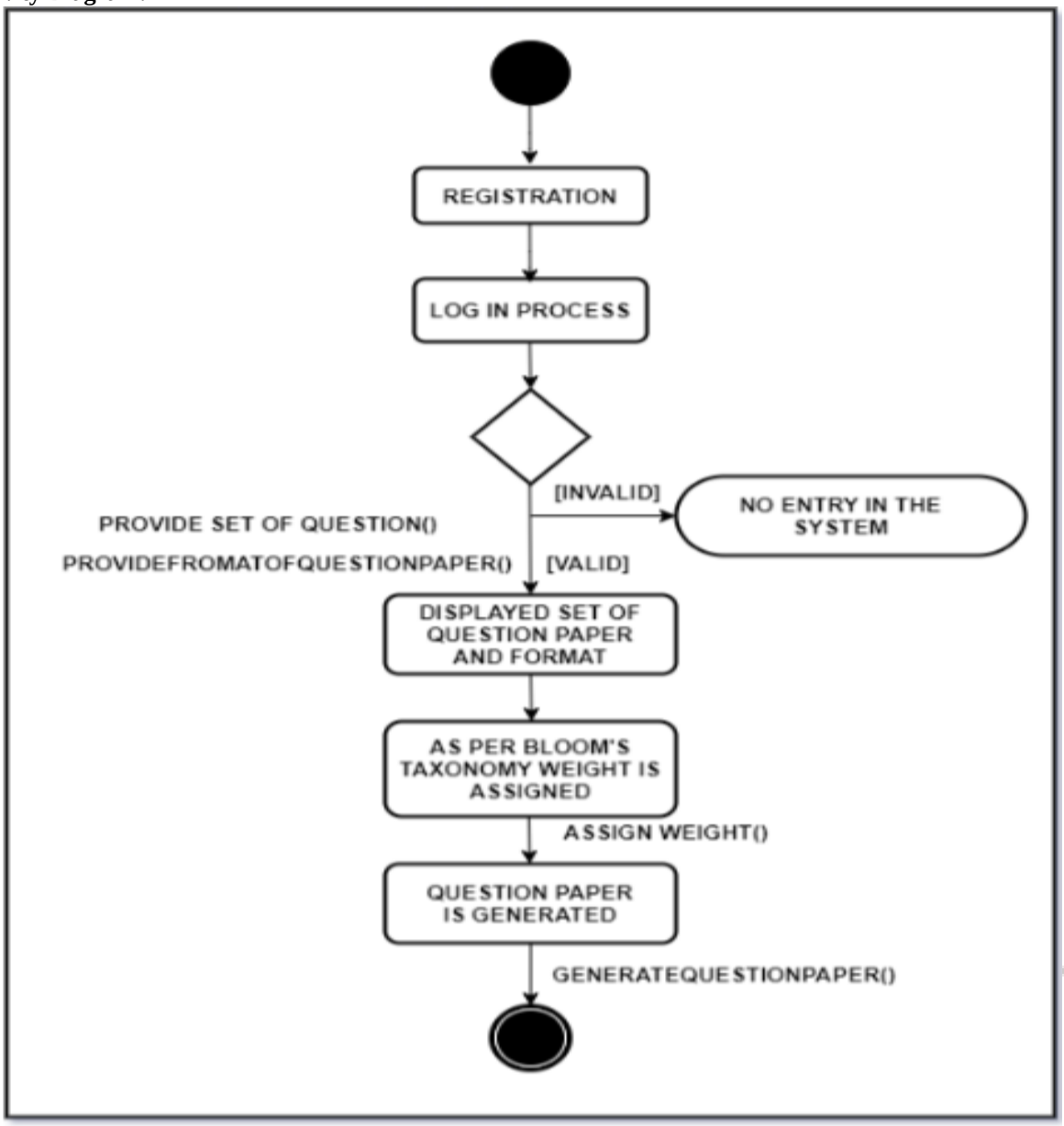
4) Randomized Algorithm: A randomized set of policies is one which incorporates some unpredictability into its logic. The overall performance of the set of rules might be a random variable dictated through the random bits; consequently, the walking time or output (or both) is probably random variables.

VI. System Architecture

The purpose of this method is to propose a rule-based way for employing natural language processing to analyze the Blooms taxonomy cognitive level of examination questions. Exam questions will be examined and classified using Bloom's taxonomy. Educationists will be able to create relevant smart exam question papers based on the needs.


A Smart Question Paper Generation System
Login
Pre-processing
Rule Development
Assign weight
Question Paper Generation
Do registration
Provide Page for login
Accept Question Paper
Accept question Paper
Accept Format
Apply Stopward Removal
Search Stopward
Remove Stopward
Do PoS Tagging
Read the Word
Categorize Word
Categorize Question based on Bloom's Taxonomy
Categorize the keyword
Help to choose correct category
Based on category assign weight
Apply Randomized Algorithm
Apply Algorithm
Weight assigned Question Paper
Generate Question Paper

Activity Diagram:



VII. Applications

1) It will assist universities and colleges in forecasting student achievement.
2) Students' performance must be evaluated in order to determine whether or not improvement is possible.
3) Encryption for increased security 4) It can be beneficial to a variety of educational and non-profit organizations.

VIII. Conclusion

Bloom's Taxonomy is a taxonomy of instructional mastering targets that educators assign to students. To automate the process of categorizing examination questions depending on their cognitive levels using Bloom's Taxonomy. The use of rules can help to increase the accuracy of the outcome. A smart model for question paper generation will be implemented as a real-time application in this system. The suggested work describes a smart system that transitions from a traditional way of paper generation to a smart process by allowing control access to resources.

REFERENCES

[1] Swart,Author James. Evaluation of final examination papers in engineering: A case study using Blooms Taxonomy. Education, IEEE Transaction on 53, no.2, p.257- 264, 2010.

[2] Yusof,Norazah, Chai Jing Hui.Determination of Blooms cognitive level of question items using artificial neural network. In intelligent system design and application (ISDA),2010,10th International conference on,pp. 866-870,2010.

[3] Manish Agarwal, Rakshit Shah and PrashanthMannem,"Automatic Question Genera- tion using Discourse Cues ",June-2011.

[4] Andreas Papasalouros, KonstantinosKanaris, KonstantinosKotis,"Automatic genera- tion of multiple choice questions from domain Ontologies",July-2008.

[5] AnnamaneniNarendra, Manish Agarwal and Rakshit shah LTRC,"Automatic Cloze Questions Generation", IIIT-Hyderabad, India,Sept 2013.

[6] Yvonne SKALBAN , Le An HA , Lucia SPECIA , Ruslan MITKOV,"Automatic question generation in multimedia-based learning",Dec-2012.

[7] Manish Agarwal, Rakshit Shah and PrashanthMannem,"Automatic Question Genera- tion using Discourse Cues ",June-2011.

[8] Ming Liu and Rafael A. Calvo,"G-Asks: An Intelligent Automatic Question generation System for Academic Writing Support",2012.

[9] kithsiri jayakodi,madhushi bandara,Indika pereca.An automatic classifier for exam qua- tions in engineering :A process for Blooms taxonomy. IEEE international conference on Teching,Assessment and learning for Engineering(TALE).PAGE:195-202,2015.

[10] Ibrahim EldesokyFattoh ,"Automatic Multiple Choice Question Generation System for Semantic Attributes Using String Similarity Measures in journal Computer Engineer- ing and Intelligent Systems" www.iiste.org ISSN 2222-1719 (Paper) ISSN 2222-2863 (Online) Vol.5, No.8,2014

[11] Ahmed EzzAwad and Mohamed Yehia Dahab,"Automatic Generation of Question Bank Based on Pre-defined Templates",in International Journal of Innovations Ad- vancement in Computer Science IJIACS ISSN 2347 8616 Volume 3, Issue 1 April

[12] Ms.Deepshree S. Vibhandik, Prof. Mrs.Rucha C. Samant,"An Overview of Automatic Question Generation Systems",in International Journal of Science, Engineering and Technology Research (IJSETR), Volume 3, Issue 10, October 2014 .

[13] Bloom, Benjamin S.Longman," Taxonomy of educational objectives: The classification of education goal .Cognitive domain. Handbook",1956.

[14] Lister, R., and Leaney, "Introductory programming,criterian-referencing , and Bloom.proceedings of the 34th SIGCSE technical symposium on computer science education",Reno,Nevada,USA,SCM Press,2003.

[15] Pramod Patil, Ankita Kashmire, Pooja Kute, Pradnya Rathor, Anam Shaikh, "Tract Angle using Machine Learning" International Journal for Research in Applied Science & Engineering Technology (IJRASET), ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.177, Volume 8 Issue I, Jan 2020