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A Survey on Automated Assessment Questions Generation System Using Supervised Algorithms

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Abstract: ***The only method for gauging the effectiveness of a teacher's lessons and the learning results of students is examination. Creating the questions and then randomly assigning them to the test are processes in the manual production of test papers. It takes a lot of time and effort to manually create test papers that match the standards of a good test paper. Mainly generating the test papers to evaluate the student technical skills is more time taking and the recruiters always want to know the students in better way by conducting the tests in the technical concepts. Our system helps in generating the questions automatically from the database which consists of the questions of the various technical concepts. To store the data and access the information from the database we are using MYSQL.***

To generate the test paper with the questions based on the skills known by the candidates we are using the classification algorithm like Naive Bayes Classifier, Random Forest Classifier and the Decision Tree. Naive Bayes, Random forest and Decision tree ,all are supervised algorithms. Giving the questions depending upon the candidate skills in the test paper will effectively evaluate the knowledge of the candidate in the skills that they know rather than testing their knowledge in completely unknown domain, the recruiters will also get the chance to know the candidate capabilities accurately and they can use the skills of the candidates in the better way and they can allocate the work to the candidates based on their performance in the particular skill. To know the performance of the candidate in the test , we have provided the graphical user interface (GUI) which was designed using the HTML and CSS concepts, where the questions are generated depending upon the classified results of the candidates.

Keywords: Automated questions generation, Naive Bayes classifier, MYSQL, Random Forest Classifier, Decision Tree Algorithm, MYSQL.

I. INTRODUCTION

In daily life, the automation system performs a number of functions. The exponential rise of this technology across several fields saves time and provides reliable advantages. To automate the system and provide efficient results in our system, we use machine learning techniques. Machine learning aids in automating systems, forecasting outcomes, and teaching machines. In general, machine learning uses a wide variety of classifiers. The strangest thing is that e-learning and e-education are heavily affected. For several components of the education system, there is a transition from manual to automated systems. The best approach for recruiters to understand candidates' skills is to administer high-quality tests, and they have long desired to assess candidates' test results. Our technology will successfully address this issue by illuminating the best course of action. We offer a user interface (GUI) in our system that is very user-friendly and may help recruiters learn more about a candidate's abilities through tests. It is also useful for applicants to learn more about their strengths in terms of the talents they are most familiar with.

II. LITERATURE SURVEY

S. Pandey and K. Rajeswari [1]: The new methodologies and approaches to show a solution to the manual preparation of the question papers are clearly viewed in this research . They projected the system to produce test paper automatically with the help of the Bloom's Taxonomy (BT) which in turn produces the distinct questions to the distinct student.. This framework generates the questions by the agents which are used for organizing, and they will accomplish numerous operations like document dispensation ,classifying information and generation of questions.

D. Liu, J. Wang and L. Zheng [2]: The framework proposed by them is the first system to generate a question paper using the Ant Colony algorithm. This system involves the coding of the test papers. The binary coding mode is deployed in this system to code test papers as it is the commonly used representation form of the data. The entire binary code is again divided into the functional blocks depending upon the type of question.

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The generation of the test paper using this algorithm takes long time and quality of the test paper generated is not efficient as another systems. This system does not include the questions of different difficulties and levels which can be the drawback that decreases the entire performance of the system.

K. Naik , S. Sule, S. Jadhav and S. Pandey [3]: The author came up with the idea which takes help of the shuffling algorithm to overcome the specified problem. This algorithm's task is to offer the test using the randomization technique, which it does by creating different tests with different questions at random. Additionally, this system automatically verifies that the questions that must be generated do not duplicate or repeat previous questions.

Havan, Aishwarya[4]: They proposed the solution for the automatic generation of the questions by employing the Fuzzy and the Apriori algorithms. These algorithms always depends upon the prior knowledge or the previous knowledge. This system helps in generating the question papers easily and quickly. This system helps in generating the questions randomly and evenly from all the topics of the most chapters at various levels and mail them to the institutes.

Ashraf, Amria[5]: This research offered a system depending upon the classification algorithm i.e. Naive bayes, support vector machine algorithm and K-nearest neighbor algorithm. This is the only system that came with the idea of classification of the questions and then generating the test papers depending upon that classification. This system effectively covered all the basic requirements and fundamental requirements to create the test papers automatically.

B.S.A. Shanthi and L.J. Rego [6]: In this research paper the author came with the proposal of the system is which generates test questions automatically and valuable for the teachers and the students. In their context they alienated the proposed work into phases like development, generation of questions and using genetic algorithm for automatic question generation stage and that is the last stage. Dividing the work into stages they made the system simplified and efficient. They also used the simple GUI in their framework to generate test papers quickly and randomly.

Abd.Rahim [7]: The author proposed the system using the different agents like Utility Based and Learning , and used BT to evaluate the questions' degree of difficulty and employed a variety of algorithms to create the best possible set of questions. This technique aids in creating question sets for eminence tests that adhere to high standards. The utility agent is used to provide the selection function depends upon user's requirements. The main aim of using learning agent is to learn and train the system from its experience.

Year	Technique /methodology	Pros	Cons
2013	Bloom's Taxonomy, Using multiple agents.	It is a multi agent system.	Takes more time foe processing of documents and classification.
2013	Ant Colony algorithm.	It includes binary coding mode to code the system.	This system does not generate questions with different difficulty levels.
2014	Shuffling algorithm and randomization technique.	Repetition and duplication of questions are handled effectively.	Focused a lot on the randomization of the questions than the performance of the system.
2016	Fuzzy and Apriori algorithms	Questions are evenly generated from the most of the topics.	Complex to understand.
2018	Naive Bayes, Support Vector Machine (SVM), K-nearest neighbor algorithms.	Fundamental requirements of the system are covered efficiently. Performance and accuracy of the system is great.	-

2019	Genetic Algorithm	Provided GUI, system is divided into simple stages.	Performance of the system is not great.
2020	Utility based agents ,Learning agents	Generated questions of good standards.	Otimization of questions consuming more time.

III. CONCLUSION AND FUTURE SCOPE

The proposed system can solve the main aim of generating questions in test papers automatically according to the skills of the candidates and we are providing the user interface which is very simple to use. We are using the different algorithms to classify the students depending on their skills with the great accuracy. In future, by adding the more features of the assessments like proctoring and other concepts ,we can also make the system more powerful and secured.

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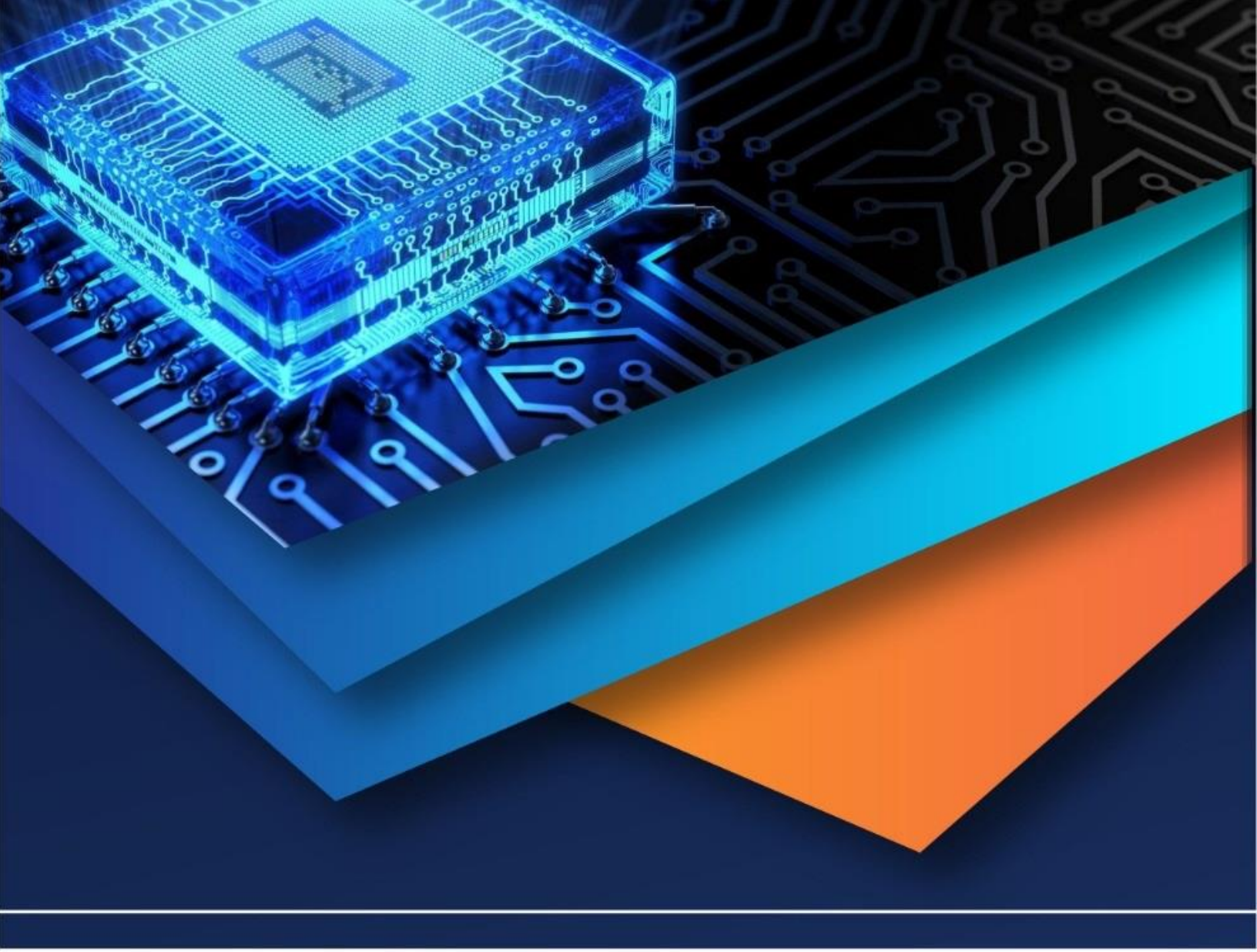

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