Kalyani Goswami, 2022, 10:3
ISSN (Online): 2348-4098
ISSN (Print): 2395-4752

Acute Portal Evaluator by Using NLP & ML

Kalyani Goswami, Achal Zade, Rajashri Thombare, Asst. Prof. Prof. R. B. Ghate
Department of Computer Engineering,
Bapurao Deshmukh College of Engineering,
Sewagram, Wardha, Maharashtra, India,
kalyanigoswami07@gmail.com, achalzade8@gmail.com, rajshrithombare1@gmail.com, ghaterashmi0@gmail.com.

Abstract- Nowadays, automated grading of subjective or descriptive responses is required. As a result, we're developing software to automate the evaluation of responses through natural language processing and machine learning. Each response is graded based on the number of words used, their relevance, and the sentence's grammatical meaning. We can save money by automating the manual checking procedure while also reducing the instructors' workload. This program also cuts down on assessment time.

Keywords- Word Net, Cosine-Similarity, Contradiction, Antonyms, Synonyms, text summarization, Machine Learning, NLP, Contextual Similarity, Semantic Analysis Grammatical Correction.

I. INTRODUCTION

Manually reviewing responses is time-consuming. Manual checking takes time and a large number of people to complete. Furthermore, the paper checker is unable to distribute marks consistently. Examination scores, which can be subjective or objective, are frequently used to assess students' academic achievement. During the Covid 19 epidemic, everyone is working online these days. Manual examination of subjective responses is a time consuming task in today's environment. There are several methods for quickly evaluating objective or multiple choice questions.

After proposing a pre-defined correct solution, these tactics are evaluated in computers. It is, however, only applicable to judging competitive or objective tests. Subjective tests are the foundation of all university and board level exams. A large number of students are drawn from independent tests. The president will know how much information the student has gained during his or her study based on the descriptive answer, to which the president will assign marks.

Self-assessment of independent responses is a time consuming and labor-intensive task that requires a large number of people. The response test varies from president to president depending on their assessment method, attitude during the test, and interaction between student and president. This has an effect on the learner's grade. The research goal is to use machine learning and natural language processing to automatically perform a test process in order to obtain specific answers.

The standard work that is used in numerous areas in the evaluation of understudies learning process is PC-based assessment of understudy responses. The brilliant idea of incorporating PCs into the learning system has transformed the world of education. The PC-assisted appraisal strategy was designed to dissect single-word responses, such as those found in various decision questions. It is also possible to break down passage responses, such as clear responses, based on watchword coordinating. The major flaw with this approach is that students cannot see their mistakes and thus do not attempt to correct them.

Subsequently, the proposed exceptional strategy of examining the understudy distinct response utilizing Natural Language Processing and Artificial Neural Networks calculations will be used to assist understudies in working on their English and syntactic abilities.

Many specialists in this subject only attempt to create grades, and understudies won't know about their mistakes if they use this methodology, and they will rehash similar mistakes on subsequent tests, It will not assist the understudy in reviewing information. As a result, regular language handling

and phone neural organizations are used to evaluate understudy reactions. To survey understudy reactions, the instructor poses questions and faces serious consequences regarding text mining.

Message mining is accomplished using standard language processing and word net devices. The three types of catchphrases that were separated are compulsory watchwords, subordinate catchphrases, and specialized catchphrases. The WordNet innovation is used in subordinate terms to provide comparative equivalents to strict words.

Educators can now provide qualified expressions for understudy assessment in the various classifications to the servers. The primary goals of this research are to audit understudy elucidating type reactions utilizing NLP and ANN calculations, as well as to build a tool for assessing understudy unmistakable sort answers utilizing NLP for Grammatical checking and creating imprints, and ANN for ordinary response correlation and delivering marks.

II. LITERATURE SURVEY

The proposed system will award points based on the percentage of correct answers. This is a software system in which users are authenticated via user login. As a result, after authentication, users will be presented with questions. The proposed system is designed to evaluate responses from five different users.

The standard response is saved in the database, along with the description, meaning, and keywords. Then it will compare each response to the standard response by matching the keywords or key concepts as well as their synonyms. It will also check the grammar and spelling of the words.

Following the evaluation, the correctness of the answer will be graded.

Using the semi-automated evaluation technique, a model for judging subjective papers was developed. They begin by developing a question base, which includes question types, subtypes, questions, and marks. The model answer is then used to create an answer base. The hash index, also known as the question number, is used to map the evaluated answer. The semantic meaning and sentence length are used to evaluate the scholar's response.

There are two login options in the proposed system. The login that has been assigned to the student is the login that has been assigned to them. You will be prompted to enter your login ID and password when you click the student login button.

For verification, the system will look for the ID and display the student's name, email address, and phone number. The user who logs in will be able to write responses to the questions that have been uploaded. The system will display your score as soon as you press the next button.

Teachers will be able to access the site via the admin login. The admin logins will each have their own password and ID to login with. The administrator has the ability to add or remove questions, view students' grades, and so on.

The system requires you to keep the original answer for the system. This feature is only available to administrators. Administrators can insert questions and subjective answers into the system. These responses are saved in the form of notepad files. When a user takes the test, he is presented with a series of questions and a space to type in his responses.

The system compares the answers entered by the user to the original answers stored in the database and assigns marks accordingly. Both responses do not appear to be word for word identical. The system is built with artificial intelligence sensors that verify answers and assign appropriate marks just like a human would.

[8] Created an algorithm to evaluate theoretical answers and assign grades based on keyword matching, reducing manual work and saving time through faster result evaluation. Someone should go get the student's answer copy and scan it. The machine will take the image as input and evaluate the answer based on the length of the answer and the important keywords covered, which the teacher will specify for each answer to be evaluated.

The handwritten text image provided as input to the handwriting conversion module is extracted and converted to machine-encoded text using the Optical Character Recognition (OCR) algorithm. The machine-encoded text is fed into the evaluation module. The Evaluate module scores the answer

International Journal of Science, Engineering and Technology

An Open Access Journal

based on the grammatical meaning of the sentences and the number of keywords matched.

III. EXISTING SYSTEM

- Manual evaluation takes a significant amount of time and effort.
- Subjective answers can be evaluated using a variety of criteria, including the question's specific content and writing style.
- The quality of the evaluation may vary depending on the person's emotions.
- Instead, this system can be used to alleviate their burden. It will save the teacher a lot of time and effort, as well as repetitive tasks.
- Human errors can be reduced in order to obtain an unbiased result. The system computes the score and returns results in a fair and timely manner.
- Because of the limited data resources available for training, the learning may be less accurate.
- The evaluation rules may be restricted depending on the module or algorithm used. A lack of testing may be detrimental to future development.

IV. PROPOSED SYSTEM

The proposed system aims to implement an application that can evaluate a descriptive answer to a question. It will assign marks based on the percentage of accuracy in the answer. This is a software system that uses user login to authenticate users.

Following authentication, users will be the questions are provided. The proposed system is intended to evaluate responses. The standard response is saved in the database that contains the description, meaning, and keywords.

Then it will compare each answer to the standard answer by matching the keywords or key concepts as well as its synonyms. It will also check the words' grammar and spelling. Following the evaluation, the answer will be graded based on its correctness. The entire process is divided into three major steps: keyword and synonym extraction, keyword matching, keyword weighting, and score generation. The number of keywords matched will be used to grade the answers in this system.

V. ARCHITECTURAL DIAGRAM

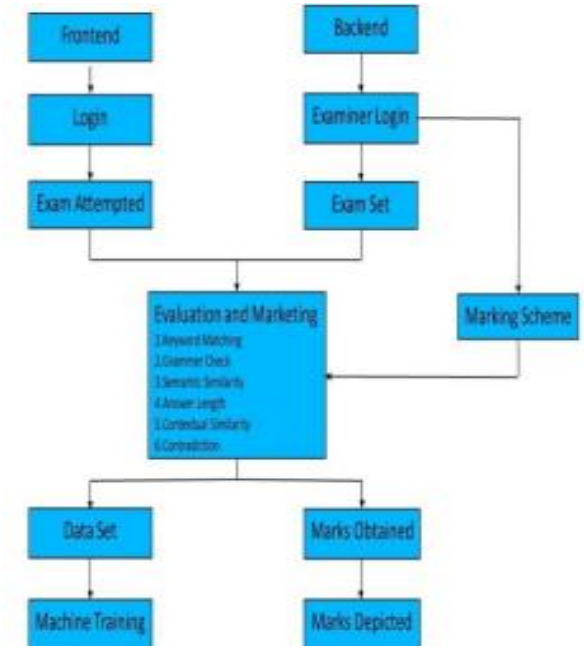

Fig 1. Architectural Diagram of Subjective Answer Checker System.

VI. FLOWCHART

Fig 2. Flowchart of Subjective Answer Checker System.

VII. OBJECTIVES OF SYSTEM

- To automate evaluation process for subjective answer using ML and NLP.
- To checks the answer sheet of the student and provides marks.
- To reduce manual work and saves time with faster result evaluation.
- To check whether student covers all important concept in his answer or not.

VIII. METHODOLOGY

We presented a framework that included the following components: It is divided into two sections, one for instructors and one for students. Both the understudy and the instructor can use the login page to create a record if they haven't already. Educators can assign the test paper to the instructor's segment.

To do so, they should first create a test by entering the test name, date, and time. Following the creation of the test, the instructor should include questions, marks, and a model solution for each question. Understudies should sign up for the class to take the test in the understudy area.

Once the understudy has joined the class, the test will be shown. There will be a clock to ensure that the test begins and ends on time. After you have completed the test, you should submit it. Following the completion of the test, the responses will be compared to the model arrangement provided by the paper setter. To compare these responses to the model response, answer length, Keyword Check, Grammar Check, Context and Semantic Similarity, and Cosine Similarity will be used.

When we have all of the qualities for the above boundary, we will run it through an AI model to get an exact score for the understudy's reaction. In this methodology, marks are dissected for each question, and when the result is given, marks are allocated based on the exactness of the understudy response as compared to the model response. If the instructor discovers that the response does not correspond to the model response provided by Algorithm, the imprints may be physically different.

After This study evaluates the understudy's reaction by utilizing a typical language handling (NLP) strategy. The interaction begins with the creation of a test response sheet and a watchword dataset. Understudies answer the inquiries on the assessment site, and these datasets are kept in information stockpiling. After the understudy enters a reaction text, the framework utilizes two NLP calculations to work out the outcome consequently.

Before this survey interaction, the response is exposed to the pre-handling method. In this situation, we recognize punctuation shortcomings utilizing a characteristic language handling (NLP) method and record the outcomes in an information base.

IX. CONCLUSION AND FUTURE SCOPE

We considered developing a Subjective Answer Checker System based on Natural Language Processing and Machine Learning for online university, high school, and college exams. For online university, school, and college exams, a Subjective Answer Checker System based on Natural Language Processing and Machine Learning will be used. During the COVID-19 pandemic, most educational institutions are administering exams online, but these exams only contain multiple-choice questions.

Our software assigns a grade to a subjective question based on the length of the answer, keyword matching, grammatical check, cosine similarity, and contextual resemblance to the faculty's model answer and the student's answer. We also developed an algorithm to detect assertions from student responses that contradict the model answer.

Even if the student's answer does not exactly match the model answer provided by the teacher, our technology can recognize it based on context. Many educational institutions administer exams online, but these exams consist primarily of multiple-choice questions that assess a student's ability rather than essential conceptual understanding.

As a result, descriptive responses are required for online exams. The keywords are used to evaluate the answer in our proposed system. The student's performance is graded in relation to the reference answer. The student will receive the most points if they provide grammatically correct responses that include all of the keywords specified in the referred

answer.

In the future, we will be able to extract handwritten text from photos rather than printed text. This is more practical and beneficial. To train our model, we can use a recursive neural network and a variety of handwriting. As a result, the accuracy of our model will improve. The model can be taught several Indian languages. We can now collect handwritten datasets in a variety of languages. As a result, answers written in languages other than English can be evaluated. The technology will also analyze rewritten alphabets and other words precisely. Instead of only checking one response, the software can be programmed to check the entire document.

As a result, the software will grade the responses based on the answer sheet response number. The model can be taught to analyze schematics and assign appropriate grades. Descriptive responses Natural language processing is used in evaluation to assess the student's descriptive answers. This project is only used to evaluate text-based responses. The keywords are extracted from the text and marks are assigned based on the keywords.

Following that, marks are assigned based on the number of words. The third criterion is to check the text for grammar and spelling errors. This project only evaluates text based responses. So, the future scope of this project is to build a system to evaluate graphs, pictures, and diagrams, among other things.

REFERENCES

[1] Abhishek Girkar, Mohit khambayat, Ajay Waghmare, Supriya Chaudhary "Subjective Answer Evaluation using Natural Language Processing and Machine Learning" (IRJET) Volume: 08 Issue: 04 | Apr 2021.

[2] Aditi Tulaskar, Aishwarya Thengal, Kamlesh Koyande, "Subjective Answer Evaluation System", International Journal of Engineering Science and Computing, April 2017 Volume 7 Issue No.4.

[3] Asmita Dhokrat, Gite Hanumant R.,C.Namrata Mahender (2017), "Automated Answering for Subjective Examination", (IJCA).

[4] Chhanda Roy, Chitrita Chaudhuri, "Case Based Modeling of Answer Points to Expedite Semi-Automated Evaluation of Subjective Papers", in Proc. Int. Conf. IEEE 8th International Advance Computing Conference (IACC), 2018, pp. 85-9.

[5] G. Abdul Robby, Antonia Tandra, Imelda Susanto, Jeklin Harefa, Andry Chowanda, "Implementation of Optical Character Recognition using Tesseract with the Javanese Script Target in Android Application", Procedia Computer Science, vol. 157, 2019, pp. 499-505

[6] Jentrisi Priyatno, Moch Arif Bijaksana, "Clustering Synonym Sets in English WordNet", in Proc. 7 th Int. Conf. on Information and Communication Technology (ICoICT), 2019, pp.1-4.

[7] Jie Mei, Aminul Islam, Abidalrahman Moh'd, Yajing Wu, Evangelos Milios, "Statistical learning for OCR error correction", Information Processing and Management, vol. 54, Nov. 2018, pp. 874-887.

[8] Merien Mathew, Ankit Chavan, Siddharth Baikar, " Online Subjective Answer Checker", International Journal of Scientific & Engineering Research, 2017. [9] Ms. Sharmeen J. Shaikh , Ms. Prerana S. Patil , Ms. Jagruti A. Pardhe , Ms. Sayali V. Marathe , Ms. Sonal P. Patil (2021) "automated descriptive answer evaluation system using machine learning" IJARIIE.

[9] Nandita Bharambe, Pooja Barhate, Prachi Dhannawat "Automatic Answer Evaluation Using Machine Learning" (IJIT) – Volume 7 Issue 2, Mar - Apr 2021.

[10] Prince Sinha, Sharad Bharadia, Ayush Kaul, Dr. Sheetal Rathi, "Answer Evaluation Using Machine Learning" Conference McGraw-Hill Publications March 2018.

[11] Rahul Pramanik, bSoumen Bag, "Shape decomposition based handwritten compound character recognition for Bangla OCR", Journal of Visual Communication and Image Representation, vol. 50, 2018, pp. 123-134.

[12] Rosy Salomi Victoria D, Viola Grace Vinitha P, Sathya R," Intelligent Short Answer Assessment using Machine Learning" International Journal of Engineering and Advanced Technology (IJEAT) , Volume-9 Issue-4, April 2020.

[13] S. Praveen, "An Approach to Evaluate Subjective Questions for Online Examination System", International Journal of Innovative Research in Computer and Communication Engineering, vol. 2, Issue 11, 2014.

[14] Sakshi Berad, Pratiksha Jaybhaye, Sakshi Jawale,"AI Answer Verifier", International Research Journal of Engineering and Technology (IRJET), Volume: 06 Issue01; Jan

2019.

[15] Saloni Kadam, Priyanka Tarachandani, Prajakta Vetaln and Charusheela Nehete,"AI Based E-Assessment System", EasyChair Preprint ,March 18, 2020.

[16] Sk Asif Akram, Mousumi Saha and Tamasree Biswas, "Evaluation of descriptive answer sheet using machine learning", in International Journal of Engineering Sciences \& Research Technology (IJESRT), April 2019, pp. 184-186.

[17] Shweta Deotare, Rubeena A. Khan (2019) "Automatic Online Subjective Text Evaluation using Text Mining" International Journal of Recent Technology and Engineering(IJRTE).

[18] V. Lakshmi and Dr V. Ramesh, "Evaluating students descriptive answer using natural language processing and artificial neural networks", in International Journal of Creative Research Thoughts (IJCRT), Volume 5, Issue 4, December 2017, pp. 3168-3173.

[19] Vishal Bhonsle, Priya Sapkal, Dipesh Mukadam, Prof. Vinit Raut, "An Adaptive Approach for Subjective Answer Evaluation" VIVATech International Journal for Research and Innovation Volume 1, Issue2(2019)