SUBJECTIVE ANSWER EVALUATION USING MACHINE LEARNING

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Abstract: How abstract papers are presently evaluated isn't great. It is essential to examine the biased responses. A person's opinion of something can be affected by how they feel about it. Everything in Machine Learning is determined by the user's input of data. NLP and machine learning are utilized to address this issue in the proposed approach. To determine how people feel, our system uses wordnetting, tokenizing words and sentences, tagging parts of speech, chunking, chinking, and lemmatizing words. Alongside it, our proposed gauge shows how significant the circumstance is regarding meaning. There are two components to our System. The first is arranging the information from the viewed pictures in the right order. The second step involves giving impressions to the text that was found in the first step by utilizing ML and NLP.

Index Terms:Nave bayes, Cosine Similarity, Classifier, Semantic Checking, Machine Learning.

1. INTRODUCTION

With the manual technique, it requires a great deal of investment and work for the commentator to pass judgment on one-sided deals with master subjects. Several factors, including the subject of the question and the manner in which it was written, can be used to evaluate subjective responses. The task of evaluating biased responses is very important. A person's opinion of something can be affected by how they feel about it. Because all students use the same approach to arrive at their conclusions, clever methods used to evaluate students on computers ensure that each student receives the same grade. Everything in Machine Learning is determined by the user's input of data. Simulated intelligence and NLP are utilized in our proposed structure to deal with this issue. Our computation does an errand like tokenizing words and sentences, naming linguistic structures, piecing, chinking, lemmatizing words, and word cross section to sort out how individuals feel. Alongside it, our proposed gauge shows how significant the circumstance is regarding meaning. There are two components to our system: utilizing machine learning and natural language processing to organize the data from the scanned images and mark the text that was discovered in the initial step. The software will use a printed copy of the answer to separate the test from the answer after the preparation step. In order to construct a model of watchwords and skills, this text will discuss dealing once more.

People's energy and time spent on this tedious task could be saved and used more effectively elsewhere. Human errors can be made less perceptible with the goal that a fair outcome can be reached. The framework, which receives answers quickly, determines the score. This technique can be involved a ton in instructive settings like schools, colleges, showing focuses, and establishments to check answer sheets. Groups that conduct tests to determine who is

the best can also make use of it. The item will involve the tried duplicate of the response as information, and after the planning step, it will dispose of the tried duplicate of the reaction. In order to construct a model of watchwords and skills, this text will discuss dealing once more. The input will also include model answer sets and watchwords that have been marked as references. The Classifier will then award points to each response based on the training. The final outcome will be the number of points awarded to each response.

Fig 1 Example Figure

The input will also include model answer sets and watchwords that have been marked as references. The coder will then assign marks to the answers based on what he or she has learned. The final outcome will be the number of points awarded to each response. To circumvent the issues with the current system, online testing was required in large part. The primary objective of the task is to ensure that the client has

code that is simple to use and comprehend. Identifying all significant marking systems can be accomplished much more quickly and clearly by using an online evaluation. It makes it much simpler to comprehend how we check responses now. When the responses have been assembled, they will be placed into an information base. The way the database is set up makes it easy to use. The principal objective of the modern and innovation changes has been to make regular positions simpler to do via mechanizing them. Teachers can spend a lot of time checking a lot of response sheets that almost all have the same answer. All things considered, they can utilize this strategy to make less work independently. Teachers will save a lot of time and effort as a result.

2. LITERATURE SURVEY

Case Based Modeling of Answer Points to Expedite Semi-Automated Evaluation of Subjective Papers

Test system automation has been the subject of previous and current research. In any case, the majority of them are based on online tests that have decision-based questions or answers that are very brief and interesting. The primary objective of this paper is to propose a method for working semi-automatically with the evaluation method by improving literary papers that are prepared for emotional questions with model answer focuses. Plans for rewards and punishments are also included in the suggested system. Examiners who gave the test more positive feedback would receive additional checks as part of the prize plan. The inspector can make the actual checking process more equitable by adding these additional answer points to the inquiry case base. Using seat plans as a local map, the penalty plot reveals the wrongdoings of those sitting

next to each other. By keeping track of how similar the connected answer scripts are, the amount of punishment can then be determined in an equitable manner. The main question bank and model answer points are kept current with Case-Based Reasoning.

AI Based E-Assessment System

We have observed that various undergraduates apply for various tests, some of which are significant and others that are not. On important tests, the majority of multiple-choice questions (mcqs) are easy or contain a lot of them. Today, it's important to think about how to automatically score answers that are subjective or detailed. The goal of this paper is to develop an effective algorithm for automatically grading students' responses and assigning them scores based on developments in computer-based intelligence that are roughly equivalent to human scores.

Intelligent Short Answer Assessment using Machine Learning

Human progress is important because of education. A student's grade is what defines them. Being a teacher involves evaluating student work, which can have significant effects on students. No one knows whether teachers' feelings influence how they evaluate their students' work, even though they use a variety of criteria. There are additionally a few slip-ups made at the workplace, such as amounting to blunder or really looking at bungles. We are developing programs that automatically grade responses using AI and NLP in this manner. There are two phases. In the first, we extract a handwriting font from the posted file using optical character recognition. In the second, the response is reviewed in light of various elements. The significance of each

word to the sentence as a whole, its usage, and how it is used in the answer are all taken into consideration. We can make teachers' jobs easier and save money on the cost of manually checking answers by streamlining the process. The test time is also cut down when this tool is used.

.**High accuracy optical character recognition algorithms using learning array of ANN**

The most common way for machines to change, view, or arrange written or printed text is through "optical person recognition." Models from how OCR functions currently are utilized to show and make sense of the genuine slip-ups and issues with the pictures that occur in acknowledgment. An OCR application interface will be constructed using a fictitious brain network in this piece. This is done so that there will be a high rate of recognition. The recommended method, which has a high rate of accurate character recognition, makes use of the brain network theory. The proposed way is tested and tried on a little person informational collection comprised of English characters, numbers, and characters that are just utilized on consoles.

3. METHODOLOGY

With the manual technique, it requires a great deal of investment and work for the commentator to pass judgment on one-sided deals with master subjects. Several factors, including the subject of the question and the manner in which it was written, can be used to evaluate subjective responses. The task of evaluating biased responses is very important. A person's opinion of something can be affected by how they feel about it. Because all students use the same approach to arrive at their conclusions, clever methods used to evaluate students on computers ensure that each student receives the same grade.

Drawbacks:

1. Learning difficult subjects requires a significant amount of time.
2. Assessing the emotional answers is vital.

Our system for resolving this issue makes use of AI and natural language processing. Our Computation does things like tokenizing words and sentences, stamping punctuation shapes, lumping and chinking, lemmatizing words, and wordneting to quantify the profound response. Close to our proposed surmise, we make sense of what the circumstance implies concerning meaning. Two parts make up our system: One uses machine learning and natural language processing to group the data from the scanned photos, and the other marks the text that was found in the first step. The software will pull out the test using a scanned copy of the answer after the planning step. This data will be managed at least a few times with the goal that a model of watchwords and capacities can be made. phrases and illustrations of responses

Benefits:

1. The primary objective of the project is to develop software that is more fun to play with and easy to use.
2. Taking the exam online is a much quicker and easier way to explain all of the important stamping plans.
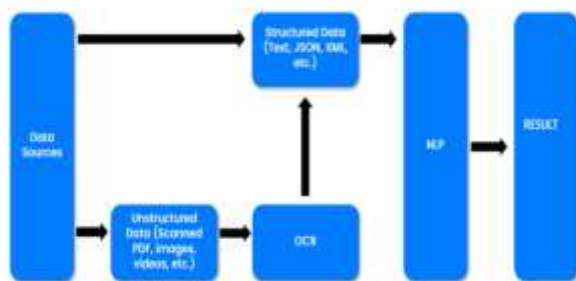

Fig 2 Proposed Architecture

Modules:

- **Upload Prebuilt Answers:**

Users post teacher-provided answer files in this module.

- **Preprocess Dataset:**

The dataset is cleaned up in this module.

- **Text Extraction using OCR:**

Information taken from a picture is extracted in this module.

- **Build NLP Model:**

The NLP model is built during this module.

- **Upload Student Answer Image:**

Students can upload a picture of their answers to this module.

- **Evaluate Answer:**

Create a vector for both the instructor's and the student's responses. The score will be determined by evaluating the vectors' proximity to one another.

4. IMPLEMENTATION

Algorithms

Natural Language Processing

Computers can understand, interpret, and handle human languages like English and Hindi using normal language processing (NLP), which is part of artificial intelligence. This allows computers to figure out what words mean and how important they are. By assisting them in activities such as analyzing, summarizing, recognizing named content, identifying relationships, recognizing conversation, and distinguishing subjects, NLP aids designers in organizing information.

1) Even though the stem is not a legal word in the language, it is the most common way to shorten a word's form (prefix, suffix), like when you group words into a single stem. Except for a word's lemma, or word stem, which is connected to any suffixes, prefixes, or word roots, it gets rid of everything. Stemming will remove the prefix and addition from the word.

2) Creating a lemma It is essential to examine each word's grammatical structure in order to locate the phrase that is associated with it. A lemma that refers to a different word is produced through lemmatization, which is distinct from stemming. How lemmatization is done is through phonetics.

3) In all natural languages, stopwords are the words that are used the most frequently. These stopwords probably won't make the record more important when breaking up text data and making NLP models.

OCR:

The process of converting text from a picture into text is known as optical character recognition (OCR). OCR can be utilized in numerous ways and locations. Therefore, the OCR covers a wide range of items, including checking records, bank statements, receipts, translated reports, coupons, handwriting, documents, and so on. Most of the time, it is used to convert checked archives into read-able text files. It harms the technology for seeing-based object recognition. The OCR tool will be enhanced with additional growth highlights to expand its capabilities. This example can likewise assist with diminishing the size of filed records, which makes them more straightforward to send and share. Because paper records are frequently converted into computer files, it also saves a lot of time.

5. EXPERIMENTAL RESULTS

Double-click the "run.bat" file after setting up the files to run the code and see the screen below.

Click the "Transfer Prebuilt Replies" button and transfer the document that the instructor offered you with the responses.
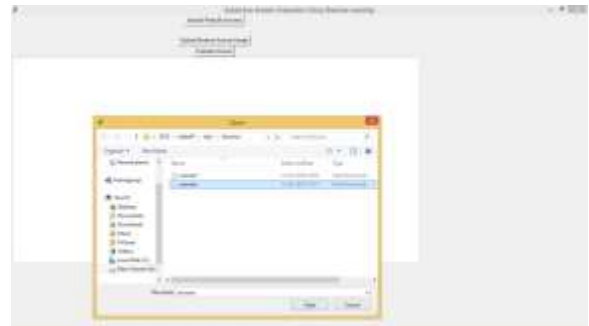
To include a picture of a student's answer, click the "Upload Student Answer" button now.

The data will be printed from the textarea when the picture is uploaded.

Now, to create a vector from the teacher's and student's responses, click the "Evaluate" button. Marks will be given based on how close the two vectors are to one another.

Similar to this, you can create multiple teacher responses in the Answers folder and upload them to create a vector. After that, you can use any image as a student response to check for similarities and award points.

6. CONCLUSION

The "Abstract Response Assessment Using AI" job was covered in great detail in this paper. The objective is to devise a plan that will make it simple to evaluate the clarifying response. Up to 90% of the time, Human Performance should agree with the methods discussed and used in this project. Just like a real person would, the length of the answer, the number of keywords, and how those keywords are used are all taken into consideration. Utilization of

Regular Language Handling, solid grouping strategies, checks for watchwords, and the capacity to specifically request things are also required. Students will have some leeway when writing their responses because the system will check for buzzwords, synonyms, proper word meaning, and coverage of all topics. It is anticipated that the outcomes will be acceptable because ML methods take into account the entire picture. By providing it with a large and precise training sample, its accuracy can be improved. The topic can be grouped in a variety of ways depending on how the details change. By taking into consideration the opinions of all parties involved, including students and teachers, the system can be improved.

7. FUTURE SCOPE

This model is adaptable to the majority of languages in the future. We are able to supply data sets for a wide range of handwriting languages. Along these lines, answer can be decided for dialects other than English. Additionally, we can instruct the machine to rate math classes.

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