AI BASED EVALUATION SYSTEM FOR SUBJECTIVE ANSWERS

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ABSTRACT

Nowadays, we have seen that the descriptive answering systems are replaced by objective type of examinations. But when the universities, and institutions want to check the actual and deep knowledge of a student the descriptive answering system plays an important role. Checking of the descriptive answers are a hectic job for the teachers hence we require some automatic system for Checking of the descriptive answers to reduce this hectic Work. Descriptive paper evaluation is a tricky and tiresome task to do by manual labor. The AI based automatic digital answer evaluation system for descriptive answering is an automatic system which checks the descriptive type of answers on its Based on given input Keywords.

The Various machine learning, natural language processing techniques, and tools such as Wordnet,word2vec,Word Mover's Distance(WMD),Multinomial Naive Bayes(MNB) are used to evaluate descriptive answers automatically.

1.Introduction

Open-ended, subjective questions and answers might evaluate a student's performance and abilities. Naturally, there are no restrictions on the responses, so students are free to compose them whichever best suits their understanding of the material and perspective. Having said that, there are a few more crucial distinctions between subjective and objective responses. They are significantly lengthier than the objective questions, to start. Secondly, writing them requires more time. Additionally, they require the teacher grading them to focus intently and be objective. It is difficult to evaluate such queries using computers, mostly because to the ambiguity of spoken language. Before working on the data, a number of preprocessing procedures must be completed, such as cleaning and tokenization.
The use of cutting-edge technologies is causing a rapid evolution in the educational scene. The evaluation of subjective responses is one of the most important problems in education, and it usually takes a lot of time and work from teachers. In addition to being time-consuming, traditional methods of grading essays, short responses, and open-ended questions are also subject to bias and inconsistency on the part of humans. One ground-breaking approach to addressing these issues is the development of AI-based automatic subjective response evaluation systems. In order to evaluate and rank subjective answers, these systems make use of artificial intelligence and natural language processing (NLP) techniques. They handle vast amounts of text rapidly and reliably, giving users immediate feedback and scoring.

These systems' fundamental parts are machine learning algorithms that have been trained and natural language processing (NLP), which allows the system to comprehend and analyze human language.

2.SYSTEM DESIGN

The automated subjective paper assessment system employs cutting-edge machine learning and natural language processing algorithms to effectively manage the evaluation of descriptive answers. It is organized around a modular architecture. The system is essentially made up of a number of interdependent parts, each of which has a distinct

function to perform in order to guarantee correct assessment and smooth operation.
The main point of contact between the system's users, who are mostly students, is the User Interface component. Students can submit their descriptive answers for evaluation and view their related grades using its user-friendly and intuitive interface. Usually, desktop or web-based programs are used to implement this component, making it accessible on several platforms and devices.
The Admin Module, which gives administrators typically educators or instructors complete control over the system, enhances the User Interface.
Labeled training is one of the administrative chores that this module makes easier. information for the machine learning model, parameters and grading criteria configuration, and system performance tracking. Administrators have the ability to modify parameters and settings to customize the assessment process to meet certain needs or preferences.
The Machine Learning and Natural Language Processing Component, at the center of the system, is in charge of carrying out the actual evaluation of descriptive responses. This component measures a response's similarity to solution statements or keywords, extracts characteristics from submitted replies, and classes responses according to predetermined grading standards using a combination of advanced machine learning algorithms and natural language processing techniques. Within this component, methods like Word2Vec, TF-IDF, cosine similarity, and multinomial naive Bayes are frequently used to produce accurate and trustworthy evaluation findings. Furthermore, the component is taught using labeled training data that administrators supply, which enables it to continually advance and adjust to changing student response patterns and subtleties.
The system includes a Database Component, which acts as the main repository for all pertinent data, to enable effective data management and retrieval. This comprises user data, such as submitted answers and accompanying grades, system configurations and parameters, in addition to the training data supplied by administrators. The Database Component makes it possible for rapid and dependable access to data for analysis, reporting, and system maintenance by storing it in an ordered and structured manner.
Lastly, the Feedback and Reporting Component is essential to the system's continuous optimization and improvement. This part gathers comments from administrators and users (students), providing insights into the functionality, correctness, and performance of the system. Feedback can be utilized to pinpoint problem areas, improve assessment standards, and increase the efficacy of the system as a whole. The component also produces reports on system performance, giving administrators useful information and metrics to support strategic planning and decision-making.

2.1 SYSTEM ARCHITECTURE

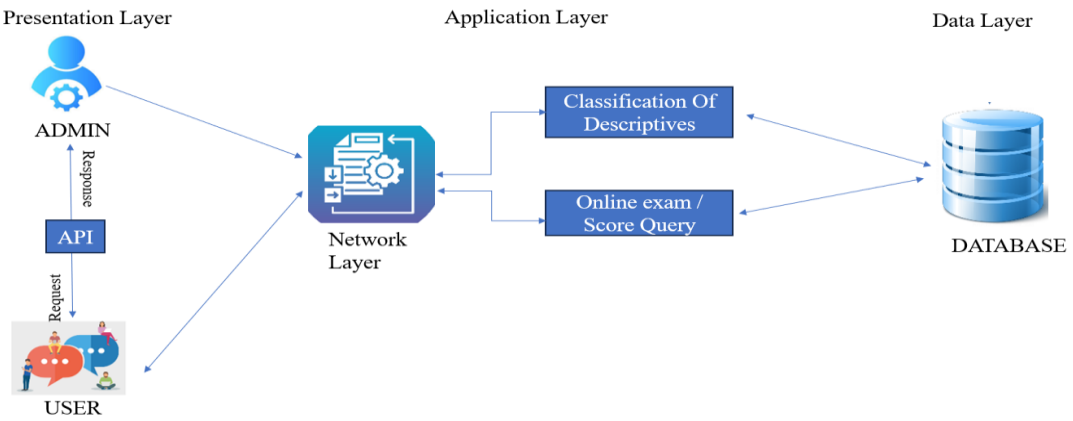

Fig 1: System Architecture

3. MODULES

1.User module:

- Login with login credentials.
- Train the data set.
- Upload the answer sheet.

2.Evaluation Module:

- Takes the reference answer sheet.
- Takes the student answer sheet.
- Comperes the student answer with the student answers.
- Displays the results.

3.Database Module:

- Stores the datasets.
- Stores the reference answers.
- Stores the answer to be evaluated.

4. RESULTS

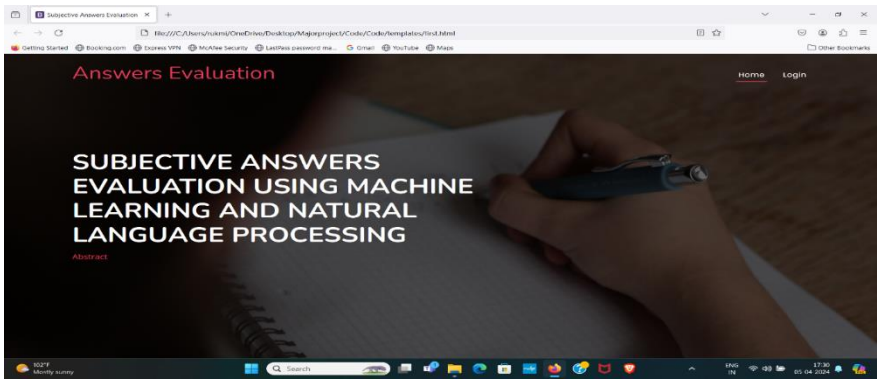

Fig 2: Interface

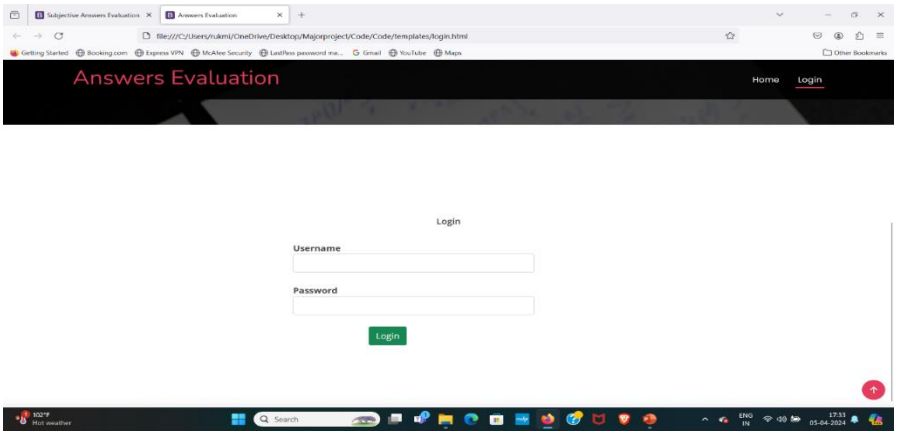

Fig 3: Admin logins

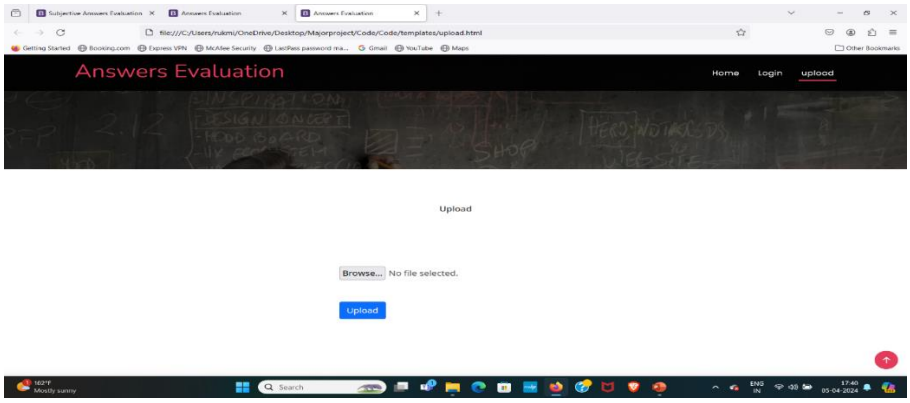

Fig 4: Upload The Dataset

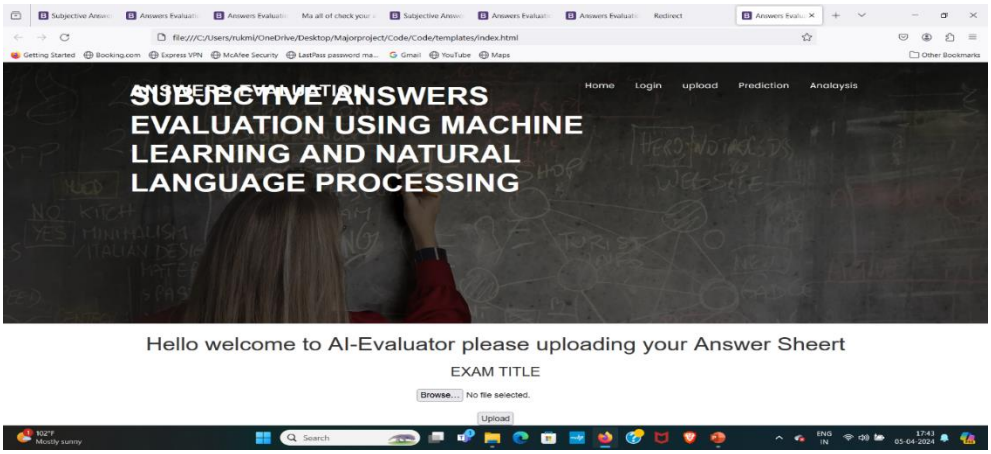

Fig 5: Upload the Answer Script

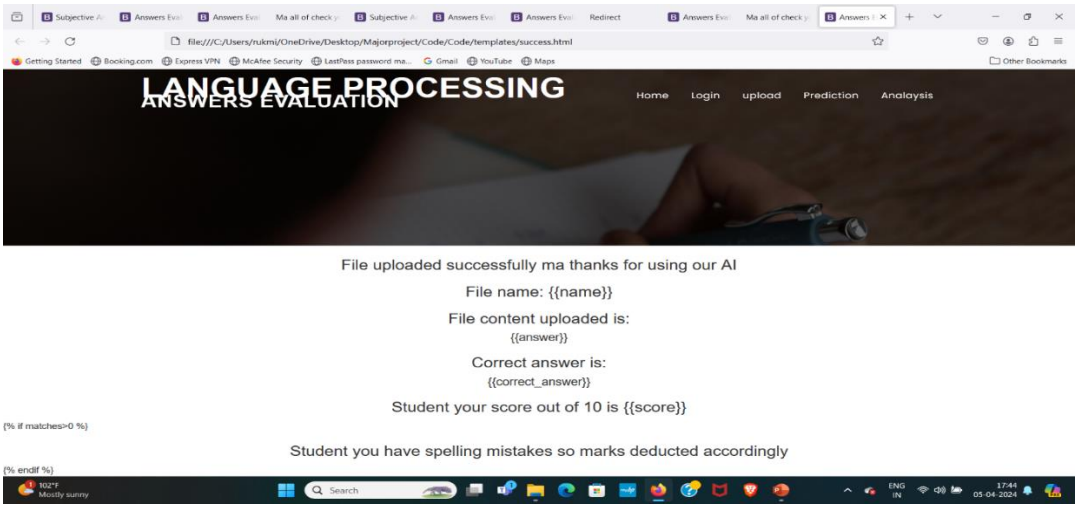

Fig 6: Displays the result

5. conclusion

In summary, artificial intelligence (AI)-driven automated subjective response assessment systems are a game-changer for educational technology. Through the use of artificial intelligence and natural language processing, these systems offer a scalable, reliable, and effective way to evaluate opinions. Fair and accurate assessments are ensured by mitigating human biases and addressing the time-consuming nature of conventional evaluation procedures. Students learn in a more efficient and adaptable manner because to these technologies' instantaneous feedback. These systems offer benefits including increased efficiency, consistency, and scalability, which highlight their potential to dramatically improve educational outcomes despite limitations like assuring evaluation correctness and maintaining algorithm transparency. Technology has the potential to become an essential component of contemporary education as it develops and becomes more refined.

6. References

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