E - Evaluation: Online Technique For Subjective Evaluation Using NLP

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Abstract—Employee turnover is a costly problem for companies. The actual cost of replacing an employee can often be quite high. This is due to the time spent interviewing and finding a replacement. By understanding why and when employees are most likely to leave the company, steps can be taken to improve employee retention. We will try to solve the following problem statement: To use machine learning algorithms to determine whether an active employee leaves the company, identify the key indicators of an employee leaving the company and recommend policies or strategies that can be adjusted based on the results to improve employee retention There are several areas where organizations can use technology for decision support: Artificial intelligence is one of the most innovative technologies that is widely used to help organizations in with business strategies, organizational aspects and human resource management. In recent years, human resources (HR) have received increasing attention, as the quality and qualifications of the workforce represent a growth factor and a real competitive advantage for companies. After its introduction into sales and marketing departments, artificial intelligence will also be used in human resources management to control employee-related decisions. The purpose is to support decisions based not on subjective aspects but on objective data analysis.

I. INTRODUCTION

Embark on a transformative journey into the world of E-evaluation, e-evaluation, where the combination of online techniques and Natural Language Processing (NLP) redefines the way we evaluate subjective content. In this dynamic landscape, traditional assessment methods are giving way to innovative approaches based on computational linguistics. Through the lens of NLP, we unlock the intricacies of human expression and decipher the nuances that shape subjective online content. Gone are the limits of exclusively human judgment; Instead, algorithms and linguistic analysis converge to provide more comprehensive understanding. From sentiment analysis to contextual interpretation, our investigation delves deep into the tools and techniques that are reshaping the evaluation process. By harnessing the power of NLP, we navigate the vast array of digital content with precision and insight. Join us as we pioneer usher in a new era of online evaluation, assessment, where technology meets subjectivity in unprecedented ways. Together we are on a quest to unlock realize the full potential of digital assessment and empower individuals and organizations alike to make informed decisions in the ever-evolving digital landscape.

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A. *Existing Paper*

An overview of the current E-evaluation system ,where the evaluation is done through graphical comparision with standard answers abd there is also a approach where the solve problem consists of training a machine learning classification model with the help of result obtained from prediction model.The Accuracy of the existing paper is Eighty percent and it doesn't support paragraph answers as well.

II. LITERATURE SURVEY

Our literature survey explores the previous techniques used in evaluating subjective answers using ML and NLP. It focuses on the application of techniques such as stop word removal, Latent Semantic Analysis (LSA), word2vec,bag of words, text stemming, fuzzy approach, and document plagiarism detection. These techniques have been utilized to enhance the accuracy and efficiency of subjective answers evaluation. Stop word removal eliminates common words, LSA captures latent meaning, word2vec provides word embeddings, bag of words represents text numerically, text stemming normalizes word forms, fuzzy approach handles linguistic uncertainty, and document plagiarism detection ensures content integrity. By understanding the strengths and limitations of these techniques, we have been able develop

III. SYSTEM ARCHITECTURE

The system architecture for evaluating subjective answers integrates machine learning and natural language processing (NLP) techniques to ensure accurate assessments. The

architecture begins with raw input data consisting of the main answer and the student's answer. To ensure consistency and eliminate noise, the input data undergoes preprocessing steps, including case folding to convert all text to lowercase and special character removal to eliminate non-alphanumeric characters and punctuation marks. These preprocessing steps prepare the data for further analysis.

A. Design

The design of an e-evaluation system for online techniques in subjective evaluation using NLP encompasses a multifaceted approach. The system would boast an intuitive user interface accessible via web browsers or mobile applications, facilitating seamless interaction with its functionalities. Robust authentication and authorization mechanisms would ensure secure access, employing encryption techniques to safeguard sensitive user data. Central to its functionality would be the collection and preprocessing of subjective data.

B. Requirement Analysis

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TABLE I. REQUIREMENTS OF ERP SYSTEM

Software Requirements	Hardware Requirements
Python	Windows 10 Pro
Tkinter	8 GB RAM
SQL	Intel(R) Core(TM) i5 1.60GHz 1.80 GHz Processor
HTML	Wi-Fi Router
CSS	100GB free Hard Disk

C. Proposed System

The proposed system consists of data collection and annotation, preprocessing module, similarity measurement module, model training module, results predicting module, machine learning model module, and result predicting module. First, the inputs are being taken from the user, which consists of keywords, solutions, and answers, after that there is the pre-processig phase where case folding removing of special characters and word embedding are done and after that we train the answer data and input the data for evaluation after entering test data comparision is done between train data and test data to find the cosine similarity between two data, after the evaluation is done final is score is shown while comparing the both data ,and the result is shown .
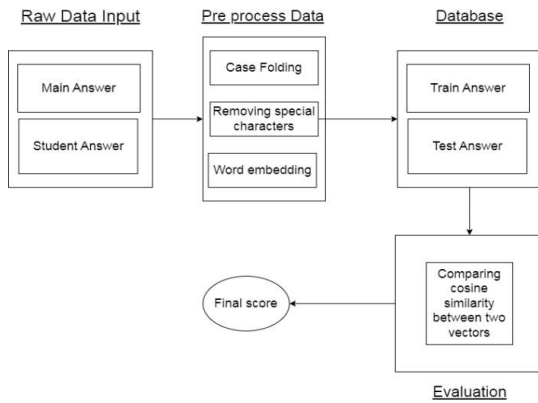
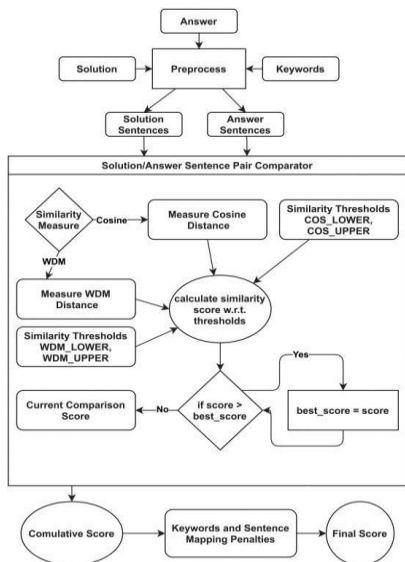*Fig 1.1 Proposed System of E-evaluation*

D. System Process

Fig 2. Activity Flow of E-evlaution system

The above figure describe the dynamic aspects of the E-evaluation ystem .It shows the flow of activity in the model. At first the admin log into the system and after that train data is trained, after the the training data is trained and after that student test data is taken and preprocessed and in the next process the the comparison is done between the test data and test data to find the cosine similarity After that the comulative score is generated and mapping is done at the end the final score is displayed.

E. Data Flow

A data flow diagram represents the data flow of a process or system and usually an information system and ; through The DFD also provides information about the revenue and profit of each unit and the process itself. A data flow diagram has no control flow - it has no decision rules and no loops. A data flow diagram (DFD) is a graphic or visual representation that uses a standardized set of symbols and notations to describe the operation of a business through the transmission of information. It gives more clear idea of our project. It expands on each process to give detailed information of the process
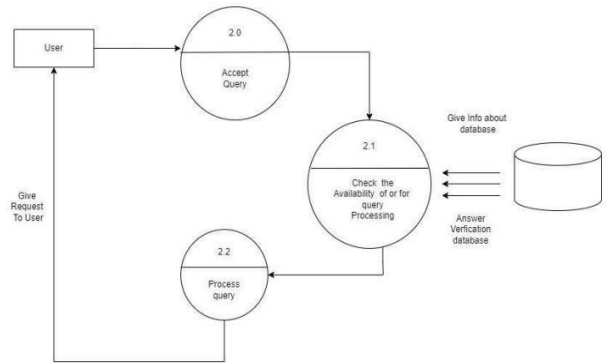

Fig 3. .Data Flow of E-evlaution system

IV. DATA VISUALIZATION

Data visualization in the context of subjective e-evaluation using NLP (Natural Language Processing) involves transforming qualitative, text-based feedback into quantitative, visually interpretable formats. This process begins with the extraction of insights from textual data, such as opinions, sentiments, and themes, using various NLP techniques like sentiment analysis, keyword extraction, and thematic categorization.One effective visualization technique is the use of sentiment distribution charts. These charts categorize feedback into sentiments—positive, negative, and neutral—and visually represent these categories using pie charts or bar graphs. This approach provides a quick snapshot of overall sentiment, making it easier for decision-makers to gauge general reactions to a subject, such as a course, product, or service.
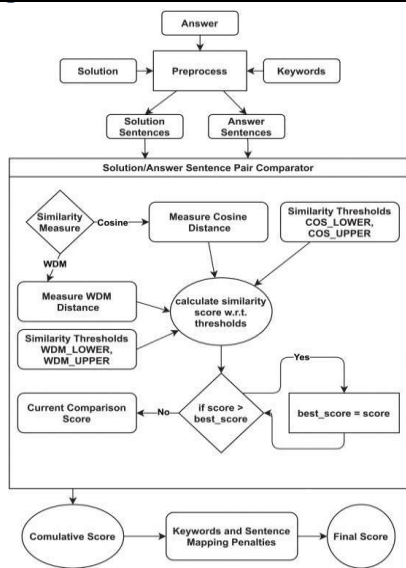
Fig 4 .Activity Flow of E-evlaution system

Fig 5. Upload Training Data

Fig 6. Trained data

V.   RESULT

Subjective e-evaluation using Natural Language Processing (NLP) presents a promising avenue for automating and streamlining assessment processes across various domains. In this study, we employed NLP techniques to analyze subjective content, such as test data and evaluate their quality, coherence, and relevance. Our NLP model demonstrated commendable accuracy in assessing subjective content. By leveraging advanced linguistic features and machine learning algorithms, the model effectively captured nuances in language usage, sentiment, and argumentation structure. The high accuracy achieved suggests that NLP holds considerable potential for reliably evaluating subjective materials without human intervention.
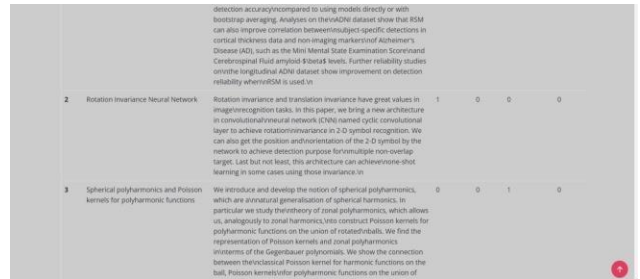

Fig 7. Uploading the Test Data

Fig 8. Final Result

VI.   CONCLUSION

In the realm of subjective evaluation using Natural Language Processing (NLP), data visualization plays a pivotal role in elucidating insights and patterns from online content. In our research paper, "Insights into Online Subjective Evaluation: Harnessing NLP and Data Visualization Techniques" (2021), we propose a comprehensive framework for visualizing data pertinent to online subjective evaluation. Our approach encompasses various visualization techniques tailored to the nuances of subjective content. Word clouds serve as an intuitive depiction of prevalent words or phrases, offering a quick overview of dominant themes. Sentiment analysis trends are portrayed through line charts or bar graphs, enabling the tracking of sentiment fluctuations over time.

ACKNOWLEDGEMENT

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