

Automatic Subjective Evaluation System

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Abstract: *Evaluating subjective or descriptive answers performs a critical part in assessing a student's conceptual understanding, reasoning ability, and clarity of expression. Unlike objective-type questions, subjective answers allow diverse ways of presenting the same idea, which makes manual evaluation both time-consuming and prone to inconsistencies. Human evaluation is further affected by bias, fatigue, and personal interpretation, creating the need for a reliable and unbiased automated system.*

This project presents an Automatic Subjective Answer Evaluation A system that incorporates natural language processing(NLP) and Machine Learning (ML) techniques for effective assessment of descriptive responses. The system preprocesses answers using tokenization, stop- word removal, lemmatization, and TF-IDF representation.

Similarity metrics like cosine similarity are then applied to compare student responses with reference answers. Based on this analysis, responses are categorized as correct, partially correct, or incorrect, thereby ensuring fairness and consistency in grading. By automating the evaluation process, the proposed system reduces the workload of educators, accelerates result generation, and provides reliable outcomes even in large-scale assessments. It is especially more helpful in online classes studies platforms and competitive examinations where rapid, unbiased, and scalable evaluation is essential. This 35 piece of work shows that incorporating NLP and ML into academic assessments increases the review process's overall credibility in addition to its efficiency.

Keywords: Automatic subjective answer evaluation, NLP,ML, TF-IDF, Cosine similarity, Semantic similarity, Automated grading, Educational technology, Online examination, Assessment systems

