Automated Answer Grading System is a machine learning-based Django

Abstract:

Automated answer grading systems have the potential to revolutionize the way teachers evaluate student work. This paper presents a machine learning-based Django solution for automated answer grading that uses natural language processing and deep learning techniques. The system can analyze free-form text answers and provide scores based on various criteria such as accuracy, relevance, and language proficiency. We evaluate the performance of the system using a large dataset of student responses and demonstrate that it achieves high accuracy and consistency compared to human graders.

Introduction:

Evaluating student work is a time-consuming and laborious task for teachers. With the increasing demand for personalized and effective learning, there is a growing need for automated answer grading systems. Such systems can provide instant feedback to students, reduce teacher workload, and increase consistency in grading. This paper presents a machine learning-based Django solution for automated answer grading that uses natural language processing and deep learning techniques.

Methodology:

The proposed system uses a combination of natural language processing and deep learning techniques to grade student answers. The system first preprocesses the text data by removing stop words, stemming, and lemmatizing. It then uses a convolutional neural network (CNN) to extract features from the preprocessed text data. The CNN is trained on a large dataset of student responses, which has been manually graded by human experts. The system then uses the extracted features to predict scores for various criteria such as accuracy, relevance, and language proficiency.

The system is built using the Django web framework, which allows for easy integration with other web applications. The front-end of the system is designed using HTML, CSS, and JavaScript. The system provides a user-friendly interface for teachers to upload student responses and view the grades.

Results:

We evaluated the performance of the proposed system using a large dataset of student responses. The dataset consists of responses from multiple choice and free-form text questions. The system achieved high accuracy and consistency compared to human graders. The system was able to grade responses in a fraction of the time required by human graders, and the grades provided by the system were consistent across multiple graders.

Conclusion:

In conclusion, the proposed machine learning-based Django solution for automated answer grading is a promising approach for evaluating student work. The system uses natural language processing and deep learning techniques to analyze free-form text answers and provide scores based on various criteria such as accuracy, relevance, and language proficiency. The system achieved high accuracy and consistency compared to human graders and can significantly reduce teacher workload while providing instant feedback to students. Future work could focus on improving the system's performance on specific subject areas or developing new features such as personalized feedback.