

ABSTRACT

Student assessment generally involves exams that function as tools for measuring student competence and play a crucial role in the learning process. Exams can take the form of multiple-choice or essay questions. Essay exams help develop students' critical thinking skills and provide in-depth insights into their understanding. However, the assessment process is time-consuming and tends to be subjective. To address this issue, the development of Automated Essay Scoring (AES) techniques based on images and operable through a website-connected application has emerged to expedite and simplify essay assessment.

In this study, the author employs the CNN method with three different architectures: 1D CNN, NasNet Mobile, and GoogleNet. The 1D CNN architecture focuses on processing image data in the form of pixel sequences using 1D convolution to extract temporal features. The NasNet architecture employs automatic search methods to find optimal neural architectures, combining transfer learning principles with automatic architecture discovery. Meanwhile, the GoogleNet architecture employs Inception modules to perform convolutions with various filter sizes in parallel, enabling efficient feature extraction from images with varying levels of resolution and complexity. These methods are integrated into an Android application based on Flutter using the Dart language, as well as a website using HTML.

The results of the conducted research indicate that the Android application successfully transmits the necessary student response data for automatic correction. The website can read and process these student responses to derive grades for each student through deep learning training. The developed deep learning system effectively classifies data and predicts grades accurately, achieving good performance with a 40% training data and 60% test data split. As a result, the system is deemed capable of simplifying the task of essay response assessment.

Keywords: Essay assessment, Automated Essay Scoring, AES, 1D CNN, NasNet Mobile, GoogleNet, Deep Learning, Machine Learning.