

Pengembangan Sistem Penilai Esai Otomatis (SIMPLE-O) Bahasa Jepang menggunakan unsupervised machine learning, Latent Semantic Analysis (LSA), dan analisis morfologi = The development of automated essay grading (SIMPLE-O) for japanese language using unsupervised machine learning, Latent Semantic Analysis (LSA), and morphological analysis.

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Abstrak

Sistem penilai otomatis SIMPLE-O untuk bahasa Jepang telah diteliti selama beberapa tahun belakangan. Namun, penilaian yang dilakukan belum mencakup nilai morfologis, padahal morfologi merupakan hal yang penting dalam ujian sastra. Penelitian ini melakukan clustering pada 215 jawaban mahasiswa dan mengelompokkannya ke 6 cluster berdasarkan topiknya. Berdasarkan hasil, didapatkan bahwa K-means clustering mengelompokkan dengan lebih baik dibanding hierarchical agglomerative clustering (HAC), terutama dengan penambahan Romanisasi. K-means clustering dengan Romansasi menunjukkan 96.5% precision dan 96% recall, sementara HAC memiliki 95% precision dan 93.7% recall. Pada proses penilaian, jawaban dinilai pertopik atau nomor soal dan dicari rasio antara nilai yang didapat dari LSA dengan nilai morfologi dengan akurasi tertinggi. LSA memiliki rata-rata akurasi 79.92%. Penambahan analisis morfologi pada nilai akhir mendapatkan akurasi tertinggi sebesar 78.77% dengan bobot 10% nilai morfologi dan 90% nilai LSA.

.....The research on automated grading system SIMPLE-O for Japanese language has been done for a few years. However, in the grading system, there is still no means to grade the morphological component even though it is an important part of language test. This research groups 215 student answers to 6 cluster according to the topics. According to the results, K-means clustering performs better than hierarchical agglomerative clustering (HAC) especially with Romanization. K-means clustering with Romanization shows 96.5% precision and 96% recall while HAC has 95% precision and 93.7% recall. For the grading process, the answers will be scored by its topic or question number and the ratio between similarity measurement score and morphological score with the highest accuracy will be selected. LSA has the average accuracy of 79.92%. With the addition of morphological analysis on the final score, the highest average accuracy of 78.77% is selected with the ratio of 10% morphological score and 90% LSA score.