

ASSESSMENT ENGINE FOR MATHEMATICAL EXPRESSIONS



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ABSTRACT

In this research an assessment engine that emulates human marking processes in checking the correctness of student-constructed responses in a free-response mathematics assessment setting. The assessment engine is incorporated with the computational techniques that were constructed in this research. The techniques have succeeded in enabling the engine to implement step-by-step correctness checking of constructed responses in a scheme of worked solutions and to “award” scores that indicate the degree of correctness of each step. The domain of the mathematical problem chosen for this research involved solving linear algebraic equations in one variable.

In providing the process framework for the construction the computational techniques, basic processes and methods from the field of textual information retrieval have been adapted. In providing the method for the determination of the degree of correctness, the method of exact pattern matching and approximate string matching were adapted.

Nine questions on solving linear algebraic equations in one variable which are of different form and level of difficulty were used the testing of the precision of the automated marking implement by the engine. The scores indicating the degree of correctness evaluated by the assessment engine is benchmarked against the scores

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**LAPORAN AKHIR PENYELIDIKAN “ASSESSMENT ENGINE FOR
MATHEMATICAL EXPRESSIONS”**

Merujuk kepada perkara di atas, bersama-sama ini disertakan 4 (empat) naskah berserta CD Laporan Akhir Penyelidikan bertajuk “Assessment Engine for Mathematical Expressions”.

Sekian, terima kasih.

Yang benar,

ARSMAH IBRAHIM
Ketua
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