

## Hybrid Four-Phase Approach for Structured Query Language Evaluation

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**Abstract :** This research aimed to provide a convenient and secure web-based environment for students to practice Structured Query Language (SQL) through online assignments, enabling them to enhance their performance with immediate feedback from an automatically evaluating system. Additionally, the system allows students to take exams online with automatic performance evaluation. Our methodology consists of four phases: firstly, execution and comparison of student answers with model answers; secondly, direct comparison without execution which is useful for database-altering queries; thirdly, matching student answers with historically evaluated answers; and finally, manual evaluation by the teacher if prior phases fail. Applied practically, the methodology achieved excellent

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