

# **Abstract**

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## **Mining Students' Attempts in Multiple Choices Exams to Understand Students' Learning**

This paper uses an exploratory data mining methodology to analyze students' learning behavior using students' interactions during Multiple Choice (MC) online quizzes of computer science students. The core algorithm employs association rules technique to find out the relationships between each pattern of students' behavior, finding students' misconceptions that often occur together and measuring the effectiveness of teacher's given feedback. The paper presents Intelligent Examination System (I-EXAM), which supports teachers in E-learning environments. Experiments were carried out using real data collected from a group of students who used I-EXAM. Using generated rules, teacher can make decisions to modify course contents in order to improve the learning outcomes. Based on the evaluation made by educational experts, the results showed that teacher can understand student's behavior during MC quizzes, discover students' misconceptions, and evaluate the effectiveness of the given feedback.