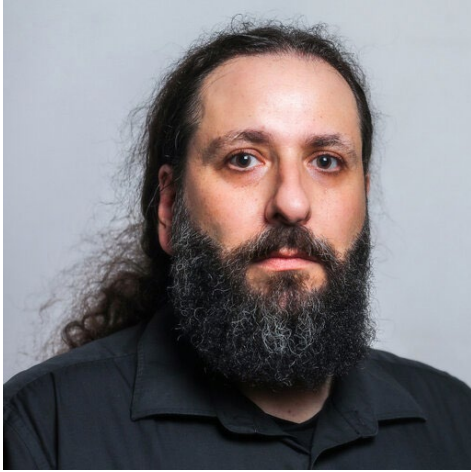# Event Log Collection and Processing in Educational Environments: Discovering Usage Patterns for Learning Management Systems

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Abstract: The widespread adoption of Learning Management Systems (LMS) in higher education, coupled with the increasing acceptance of e-learning, distance learning, and hybrid educational models, has significantly raised the expectations and performance metrics for students. This research, conducted at the Faculty of Informatics in Pula, aims to uncover the process models and usage patterns of the LMS in an educational setting, specifically focusing on the online course Business Information Systems. The primary data source is an event log collected from the Moodle LMS used in this course.

By employing process mining techniques for process discovery and model analysis, we developed a set of procedures within the Python programming environment to create a process model, process map, and process tree. The findings from this research demonstrate that a better understanding of e-learning usage patterns can contribute to the development of intelligent systems, such as recommendation systems, intelligent agents, and personal assistants, which can enhance the personalization of the learning experience for students.

Keywords: usage patterns, process mining, process discovery, learning management systems