

ABSTRACT

ANALYSIS AND APPLICATION OF MINING PROCESS TO EVENT LOG IN DETERMINING HYBRID LEARNING ASSESSMENT USING FUZZY MINING ALGORITHM (CASE STUDY OF TELKOM UNIVERSITY E-LEARNING)

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The rapid development of the digital world in the modern era has a significant impact during the pandemic which limits activities outside the home, including lecture activities at Telkom University. In the even semester of the 2021/2022 academic year, the learning process has started to be carried out using Hybrid Blended Learning. The hybrid learning process certainly affects the activities and learning patterns of students who are relatively new. To study the effectiveness of hybrid lectures during the pandemic, research was conducted on student activities recorded on the learning management system (LMS) application. The research was conducted by process mining on the event log of professional ethics courses with online learning and hybrid EAI courses to determine the process model of hybrid learning activities which were then compared with online learning activities. With complex activity data (real-life activity) it is necessary to simplify the process model to avoid spaghetti processes, for that the Fuzzy Miner algorithm is used with the concept of a roadmap in process mining. The process model is obtained by the discovery process in the event log to generate an initial process model using disco tools, as well as conformance and enhancement with ProM to produce a process model according to the actual activity conditions. The performance of the process model is described by the resulting conformance value. In professional ethics courses, the best conformance is 100% and the detailed model is 62.74% with Preserve Threshold (PT) 0.25 and Ratio Threshold (RT) 0.95 in the Binary Conflict Resolution process. In the Edge Filtering process, the Edge Cutoff (EC) value is 0.75 and the Utility Ratio (UR) is 0.05. Then in the Node Aggregation and Abstraction process the Node Cutoff (NC) value used is 0.95. Meanwhile, in the EAI course, the PT scores were 0.05, RT 0.95, EC 0.95, UR 0.85, and NC 0.25 with a log conformance of 96.48% and a detailed model of 90.89%. Based on event log data in professional ethics and EAI courses, it is known that the LMS application can be used for several activities such as quiz, assignments, courses, forums, files, other, and URLs. In online learning, the main activity carried out in the LMS application is quiz, while in hybrid learning the main activity carried out is the course.

Keywords: *Event log, Process mining, Fuzzy Miner, Hybrid*