

ABSTRACT

Academic information system is a system that can help the process of running education at a university. At Telkom University, there is an academic information system called the Integrated Academic Information System (i-Gracias). i-Gracias has various features that can be used by lecturers, students, employees, and even student guardians. One of the features contained in i-Gracias is to support the lecture process carried out by the front during the semester. This feature supports lecturers in carrying out processes such as scheduling schedules, attendance, and so on. Then i-Gracias can record the activities carried out by each lecturer in the form of an activity log. Based on the activity log contained in i-Gracias, it was found that the conditions that existed in the lecture process at Telkom University were the habits of the lecturers who were different from each other in carrying out the lecture process. This is because the lecturers do not have clear guidelines in carrying out the lecture business processes. This will also be a challenge in developing and developing the existing conditions of the lecture process. So it is necessary to conduct an analysis to obtain information from the lecture process that can be done to start the evaluation of the lecture process. Analysis can be done by processing the activity logs that have been obtained into usable information. A special method for processing data from activity logs so that it can be analyzed further, one of the methods is process mining. The goal of process mining is to use event logs to extract process-related information. Process mining was chosen because of its ability to process event log data as this study found. Unlike Business Process Management (BPM) techniques which create models manually, process mining can generate models automatically based on the behavior recorded in event logs. When carrying out the mining process, certain algorithms are needed that have been designed in such a way to get the desired mining process results. There are many process mining algorithms that can be used in the implementation of process mining and each algorithm has its own advantages and needs to be adapted to the event log data obtained. event log data obtained with different lecturers' habit patterns so that they do not have a clear main flow, the heuristic miner algorithm was chosen because of its ability to handle event logs with noise, and can display the main behavior of the existing

process model. This research is supported by various applications that support this research, such as Jupyter Notebook and Disco Tools which are used for pre-processing data and ProM which is used to perform process mining with the Heuristic Miner algorithm. The mining process consists of three stages, namely discovery, conformance, and enhancement. In this study, the implementation of the mining process will be carried out to the suitability stage to determine the ability of the Heuristic Miner algorithm in handling the data in this study. The data in this study uses recovery process data from 2018 to 2020 and is divided into two parts of data, namely data for the pre-UTS lecture process and data for the pre-UAS lecture process. The results obtained from the level of conformity are for the pre-UTS lecture process with fitness 0.9738, precision 0.4071, generalization 0.6496, simplicity 0.5454. while for the pre-UAS lecture process with fitness 0.97129, precision 0.4459, generalization 0.6075, simplicity 0.5220. This research is expected to contribute to adding new insights regarding the implementation of the mining process in the field of education and knowing the activities carried out by lecturers through I-Gracias Telkom University.

Keywords— lecture business processes, I-Gracias, process mining, event log, heuristic miner