

Abstract

VINST is a system used by Volvo IT Belgium to record all activities related to the incident and problem management in that company. In this VINST system, there are activities collection that consists of several attributes, such as serial number, change date and time, status, and any other attributes needed, which is stored in the event log. In a series of interconnected activities recorded on this VINST, there are some specific knowledge that is not explicitly described in the event log. To find some of the necessary knowledge, there is an idea for extracting knowledge from the event log, by using process mining. Heuristic mining algorithms are implemented in the application of process mining for the case that described before, because this algorithm has advantages compared to other methods, such as it's ability of calculating process frequency, handling noise, and combining events and trace frequency in the event log to build a process model. The steps being taken in this study begin with the discovery process, followed by conformance checking, and completed with process model extension in enhancement step, to find some knowledges from analysis of process model and event log. This study was conducted using a program designed to support the completion of the desired goals. In this study, event log used is VINST incident cases with 149 cases consisting of 2.771 events recorded. Using heuristic mining algorithm, a process model can be formed with value of precision = 0,9889, recall = 0,972934, and f-measure = 0,980899. Knowledge gained from this process model extension is the analysis from time perspective in form of bottleneck analysis sorted by longest average time of its dependency event that potentially create bottleneck in Volvo IT Belgium business process, analysis from organizational perspective which are three importance categorization of actor or division associated with activities recorded in event log, analysis of timestamp-impact attribute relation in form of average time calculation for each case based on impact level, and lastly, analysis of originator-impact attribute relation in form of originator involvement in event based on impact level.

Keywords : *process mining, knowledge extraction, VINST, heuristic mining algorithm, process model extension*