APPLYING ASSOCIATION RULE MINING TO DETERMINE LOSSES OCCURRENCES ON SISTEM OPERASI TERPADU (SOT) DATA

By

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STATEMENT BY THE AUTHOR

I hereby declare that this submission is my own work and to the best of my knowledge, contains no material previously published or written by another person, nor material which to a substantial extent has been accepted for the award of any other degree or diploma at any educational institution, except where due acknowledgement is made in the thesis.

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ABSTRACT

APPLYING ASSOCIATION RULE MINING TO DETERMINE LOSSES OCCURRENCES ON SISTEM OPERASI TERPADU (SOT) DATA

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SKK MIGAS as a supervisor to control the activities of upstream oil and natural gas made by PSC (Production Sharing Contractor) need some method to perform data analysis from Sistem Operasi Terpadu (SOT) data to discover knowledge. Based on that, this research will focus on analyzing loss production opportunity of SOT data using Association Rule Mining (ARM) Techniques. ARM is one of the most significant and well researched techniques of data mining for discovering interesting correlation or association among sets of data to maximizing the knowledge discovered in SOT data. This research utilizes Rapid Miner as data mining open source software to produce ARM rules. However, the ARM result produces thousands of rules that are redundant. The post processing analysis needs to be done to reduce redundant rules and to sort the rules by their priority. Since production loss can be determined as a risk, then risk probability and impact matrix analysis used to prioritize rules. The objective interestingness measure also used by using support and confidence value to sort rules. The final results are encouraging and also produced valuable information to identify sets of loss that cause highest impact on financial value for every occurrence of this set.

Keywords : Association Rule Mining, Loss Production Opportunity, Objective Interestingness Measure, Rapid Miner, and Risk Matrix.

DEDICATION

I dedicate this thesis to my family, my parents and faculty of engineering and information technology in SGU (Swiss German University), Tangerang - Indonesia and Kelompok Kerja Pengolahan Data & Informasi Sub Kelompok Kerja Pengelolaan SKK MIGAS.

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