

## **ABSTRACT**

Transaction data that exist in a company, especially in the retail store must be reprocessed so it will not be vain. Based on results from previous research, apriori has a weakness in rule extraction which only uses a minimum support parameter that causes rules to become too many in large-scale datasets. In this research, we proposed a genetic algorithm to perform optimization and selection for rules generated by apriori. We use an objective function parameter to determine the strength of the rules. The object is a dataset from the UCI Machine Learning Repository by Dr. Daqing Chen with the subject Online Retail Data Set. Results are expected to have fewer rules with more optimal value ranges so they can be used as an effective result interpretation. From the experiment with only apriori performed, we got 958 rules and a 0,7529 range value. Meanwhile, with using apriori and a genetic algorithm, we got 624 rules and a 0,278239 range value. Based on this result, we can say that the combination of apriori and a genetic algorithm produces more optimal rules than the apriori result.

**Keyword :** Apriori, Association Rule, Genetic Algorithm, Optimization