ABSTRACT

EVALUATION PERFORMANCE OF GENETIC ALGORITHM (GA) WITH REPAIRING STRATEGY IN KNAPSACK PROBLEM

by

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Packing, frequently encountered problems, optimizing the total value of several items that priority will be packing a sack without exceeding its capacity. This issue is known to Knapsack Problem. For small problems, Knapsack problem is easier to solve. However, for the issue of the number of goods that very much will be very difficult to resolve.

Some previous research has been developed. Bellman dynamic programming theory was first used to settle the issue of 0-1 KP then Kolesar (1967) tried to finish 0-1 KP using Branch and Bound algorithm, and Gupta using a Genetic Algorithm (GA) with fchek operation to overcome a solution that does not meet barrier function. One method used is the Genetic Algorithm (GA).

However, the issue of constraint Knapsack has a function that will divide the space into two solutions: solutions feasible and not feasible. To overcome this obstacle, the function fchek added at one stage GA. Repeating previous studies; this research will overcome these obstacles. However, this study uses chromosomal repair strategy at this stage of the evaluation.

This research aims to implement GA with chromosomes improvement strategies. The method developed was tested in several test test data (test problem). This method of performance will be evaluated by comparing the performance of GA with penalty strategy.

Keywords: Combinatorial Optimization, Genetic Algorithm (GA), Knapsack Problem, Repairing Strategy