Distribution problem is an important thing which has to be considered by companies in a supply chain. It is because distribution costs give 30% of product cost and have important role in deciding price. There are many transportation dan distribution problems can be modeled as transportation problems with fixed costs. Transportation problems with fixed costs is an expansion from classic transportation problems which fixed costs on every supply is formed for every supply which is used as a solution.

In this final project, it is proposed the using of genetic algorithm for solving two-stage supply chain distribution problems associated with fixed costs. Two kinds of costs which is considered in transportation problem with fixed costs are (i) variable costs which is costs that raised pace up with amount of products which is distributed from the source to the destination, (ii) fixed costs which is costs that formed when transportation problems for a number of products from a source to the destination. The result that is wanted to reach is for minimalizing total distribution problems.
The result that is reached from this final project is an implementation of a genetic algorithm for solving two-level supply chain distribution problems which is affected by fixed costs. The result of this genetic algorithm will be compared with a solution that is obtained by using software TORA so it can be informed that this algorithm can solve this problem well. This result is expected to be input for solving distribution and transportation problems in companies'/industries’ supply chain management.

**Kata Kunci:** Distribution problem, Supply chain Genetic Algorithm, Fixed charge.