

## **ABSTRACT**

*PT XYZ is a company that handles Third Party Logistic finished goods owned by PT ABC. In the existing condition indicates that the warehouse XYZ experiencing over capacity. However, after doing the calculations in mind that the utilization of the warehouse that used to have a utility of 53%. This happens due to the lack of proper settlement layout. The first error occurred on the main aisle size is too large. The next mistake is the use of rack that is not in accordance with the rotation system existing warehouse movements in the warehouse. The type of rack used is double deep rack, while the rotational movement of the warehouse system in force is First-Expired-First-Out (FEFO). The suitability does not have an impact on the occurrence of double handling activities. Double handling is a repetitive activity that takes Occurs in or handles the product. Tus, to reduce double handling activity is required for the replacement of the type of rack in accordance with the rotation system there young. Type rack in accordance with the rotation system is that is selective, where if you use reviews Reviews These types of pallet rack position number will be reduced from the existing number is 4100. Thus Spake the need for a combination of the rack, with adding a type of the rack in accordance with existing conditions namely gravity rack. With reviews Reviews These problems, then designing a mathematical models of using multiple knapsack problem (MKP) using linear relaxation. Objectives Achieved is combining three types of rack chosen in order to meet the needs of pallet corresponding requirement, with attention to the Lowest investment costs, the cost of cross-aisle and double handling costs are lower. After that, the search for optimum results using LINGO software.*

*The modeling results obtained from the increase of 17.71% warehouse utilization and reduce double handling costs 55%*

*Key Word : racking system, racking selection, storage utilization, knapsack problem*