

## **ABSTRAK**

*PT. XYZ is a company engaged in cargo shipping services intended specifically for international shipping in and out of Indonesia who are in one of the airport in Jakarta as storage facilities before the goods are distributed to the customer. Import Warehouse PT. XYZ has a wide area of the warehouse is 864 m<sup>2</sup>. In the existing condition indicates that the warehouse PT. XYZ experiencing over capacity. However, after doing the calculations in mind that the utilization of the warehouse that used to have a utility of 42%. The lack of warehouse capacity is in contrast to the small utility shed much below 80%, this is due to the limitations of maximum accumulation of the product led to the use vertically warehouse area can not be utilized properly.*

*Steps being taken to solve the problem the first step is to measure the dimensions of a shelf that will be proposed to the corresponding existing warehouse. Furthermore, the design of mathematical models using multiple knapsack problem (MKP). Objectives achieved is pengkombinasikan three types of rack chosen in order to meet the needs of ssesuai pallet pallet requirements, taking into account the lowest investment costs. After that, the search for optimum results using LINGO software.*

*Based on calculations, increasing capacity by 202% to 442 pallets and utilities increased by 13%*

*Keywords : racking system, racking selection, warehouse, storage utilization, knapsack problem.*