ABSTRACT

PT XYZ is a manufacturing company which produced wafer, biscuit, snack, dan confectionary. PT XYZ has theirown warehouse to store the finished goods and using the First-Expired-First-Out system in their rotational movement of the warehouse system. However, as a result from the production department who implementing a push system production while the warehouse has not implementing the Storage Racking System, it experiencing over capacity.

Based on these problem, then the calculation of the mathematical models using a Dynamic Programming Algorithm with Knapsack Problem approach.objectives achieved is combining the number of lanes between selective racks and non-selective "Drice-thru" racks so that meet the capacity needs of the appropriate amount of stock every month by paying attention on demand rate, production rate, cycle time, and production time for each SKUs. After that, the search for optimum results using Matlab software.

The modeling results obtained the storage capacity increased by 93% from 2.520 pallets position become 4.864 pallets position and the utilization for each racks are 67,8 % for non-selective racks and 20,5 % for selective racks.

Key Word : racking system, storage capacity, warehousing, dynamic programming