UNIVERSITI TEKNOLOGI MARA

MINIMIZING WAREHOUSE HANDLING COST USING COMBINED CLASS-BASED AND CLOSEST OPEN LOCATION STORAGE POLICY (A CASE STUDY AT WAREHOUSE XYZ)

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Dissertation submitted in partial fulfillment
of the requirements for the degree of
Master of Science

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AUTHOR'S DECLARATION

I declare that the work in this dissertation was carried out in accordance with the regulations of Universiti Teknologi MARA. It is original and is the results of my own work, unless otherwise indicated or acknowledged as referenced work. This dissertation has not been submitted to any other academic institution or non-academic institution for any degree or qualification.

I, hereby, acknowledge that I have been supplied with the Academic Rules and Regulations for Post Graduate, Universiti Teknologi MARA, regulating the conduct of my study and research.

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ABSTRACT

Storage Location Assignment Problems (SLAP) is one of the main concerns in many warehouse management researches. This is because, the decision on storage policy implemented by a warehouse will highly affect its profit. The main problem faced by a warehouse researcher is to determine the most profitable storage strategy where it concerns with the assignment of incoming products to storage locations in storage departments. Failure to solve the storage location assignment problems will not only affect the high operating cost in warehouse but also reduce the efficiency of operation flow in a warehouse. Hence, the objective of this study is to minimize total handling cost using class based storage policy by considering assignment of every incoming product based on closest open location policy each class. Criteria used to assigned a product to each class are based on its popularity. A mixed integer programming model Class Based Storage Location Assignment with Closest Open Location (CB_COL) is proposed to minimize the storage total travel distance, thus minimize total handling cost. The model also considers the number of levels at each storage location for storage of unit load (pallet) and the model is solved using Microsoft Excel Adds-In Solver. Computational experiment using one-month collected data from warehouse XYZ is based on 12 storage locations with the implementation of three classes. The results show that the proposed model (CB_COL) contribute in small amount of in total handling cost as compared to the classical class based storage location assignment policy with random open location (CB_RAN).

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