Universiti Teknologi MARA

Festive Season Balancing Groceries Optimization

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ABSTRACT

This research uses Genetic Algorithms concept and technique to solve an optimization problem in shortage in supply-demand during festive season which is during Hari Raya Aidilfitri. An Artificial Intelligence method or technique is selected to provide a solution to this problem. The cause of the shortage in supply-demand is taken to be implemented in the Genetic Algorithms optimization concepts. The objective of this research is gained from the understanding of the problem statement. The main idea of this research is to create a system prototype that uses Genetic Algorithms process engine that can calculate an optimization of the customer demand. The methodology of this project is divided into several phases. The phases are information gathering, system requirement, data collection, system design and implementation, result analysis. The most important part is during system design and implementation. In this phase, method use in Genetic Algorithm to optimize the system prototype is Rastrigin's function to calculate the fitness of the chromosomes.

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CHAPTER 1

INTRODUCTION

1.1   PROJECT BACKGROUND

Today's business world depends on customer demand. Efficient supply & demand management system can reduce the operating cost and achieve the ideal goal of real time response to customer demand. Efficient integration of supply & demand chain is considered to be the best solution.

Classically, the management of a supply chain (SC) relied mainly on monitoring sales, demand, and inventory levels data so as to react appropriately when needed. The objectives of supply chain management (SCM) are multidimensional and include cost minimization, increased levels of service, improved communication among partners, and increased flexibility in terms of delivery and response. Currently, in these global markets, competition is ever increasing and companies are widely adapting customer focused strategies in integrated systems approaches (Rabelo, L.; Helal, M.; Lertpattarapong, C.; Moraga, R.; Sarmiento, A.;, 2008)

There are primary producer co-operatives which supply input and do marketing and processing of products for farmers, fisherman, and forestry workers. They include some of world's biggest businesses including conglomeration of farmers, ranchers and primary co-operatives whose success. Some are cooperatives of small farmers struggling to survive in a tough market where prices paid by supermarket chains are falling and farm subsidies are being cut. In UK, there is a co-operative that operates 400 markets on behalf of 65 co-operative market societies, through which 12, 000 producers can sell direct to consumers (Background paper on co-operatives, 2010)