

The Management of Stock Data with an Object-Oriented Database

김형민, 허순영

한국과학기술원 산업경영학과

Abstract

Financial analysis of stock data usually involves extensive computation of large amount of time series data sets. To handle the large size of the data sets and complexity of the analyses, database management systems have been increasingly adopted for efficient management of stock data. Specifically, relational database management system is employed more widely due to its simplistic data management approach. However, the normalized two-dimensional tables and the structured query language of the relational system turn out to be less effective in accommodating time series stock data as well as the various computational operations.

This paper explores a new data management approach to stock data management on the basis of an object-oriented database management system (ODBMS), and proposes a data model supporting time series data storage and incorporating a set of financial analysis functions. In terms of financial stock data analysis, it specially focuses on primitive set of operations such as variance of stock data. In accomplishing this, we firstly point out the problems of relational approach to management of stock data and show the strength of the ODBMS. We secondly propose an object model delineating the structural relationships among objects used in the stock data management and behavioral operations involved in the financial analysis. A prototype system is developed using a commercial ODBMS.