

Abstract

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A MULTI INTELLIGENT AGENT SYSTEM FOR MAXIMIZING adatawarehouse investements

Abstract: Data analysis and mining technologies help bring business intelligence into organizational decision support systems (DSS). While a lot of data Warehousing and mining technologies are commercially available today, organizations are seeing a growing gap between powerful storage (data warehouse) systems and the business users' ability to analyze and act effectively on the information they contain. We contend that to narrow this gap that can support business users to work comfortably. This paper illustrates how to maximize data warehouse investment using intelligent software agents, we represent three models of agents ranging from primitive agent that use relational database to more advanced agents that use Data Mining over data warehousing database, agents are represented over Web-based application and it is intended to provide an organization-wide decision support capability for business users. Agents are implemented using Dot Net Framework and XML Web Services over Microsoft analysis services which are the core of Data warehouse using OLAP and Mining Tools, three data mining techniques used by those agents models Decision Trees, Naïve Bayes and Time Series techniques, all techniques are used for the purpose of prediction, Decision Trees are used in conjunction with Naïve Bayes and proved to give better prediction accuracy after checking lift chart diagram for both algorithm, on the other hand two Time Series algorithms for sales forecasting problems ARIMA (Auto Regressive Integrated Moving Average) and ARTXP (Auto Regression Trees with Cross Predict), ARIMA proved to be suitable for long future forecasting series while ARTXP proved to be more accurate with short future forecasting series after checking deviation ratio for both algorithms, our Intelligent agent models are proved to simplify the complexity of data analysis and mining activities, techniques, and methods from the business users, for easy and effective use of the warehouse data. Keywords: Data Warehousing, Data Mining, Business Intelligence, Intelligent Agents, Decision Trees, Naïve Bayes, ARIMA, ARTXP