Abstract

In multi-item inventory with very large number of items in retail sale stores, purchase dependency in demand amongst the items can be described by association rules mined from sale transaction data. With the knowledge of association rules, inventory replenishment policy can be designed which will result in low inventory cost and better profitability. The relevant inventory costs include the cost of lost sale along with other conventional inventory costs. Various inventory replenishment policies can be simulated on synthetic data for a particular purchase pattern. Using sequence of random numbers, future demand data can be generated to depict purchase dependency in demand given by an association rule observed in the past sale transaction data. To learn the cost effectiveness of different inventory replenishment policies, simulation is conducted on the generated future demand data. Based on cost-benefit analysis of all the applicable inventory replenishment policies, the best one can be selected for implementation.

References

An Inventory Replenishment Model under Purchase Dependency in Retail Sale

- Peter, L.J. 2004. A multi-echelon multiitem inventory replenishment policy with generalized service level constraints. OR&IE Seminar, School of ORIE, Cornell University.

Index Terms

Computer Science
Operations Research
Keywords
Data Mining  Association rule  Purchase Dependency  Retail sale  Multi-item inventory