Retail Sales – The Data Warehouse Toolkit

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# Case Facts

The below summary of case study is for AllStar Grocery. AllStar Grocery is a business that has one hundred stores, each with several departments, across five states. The grocery store chain offers approximately 60,000 products, or stock keeping units (SKUs). The following is a brief overview of a suggested data warehouse design focused on capturing transaction data at the point of which an item is sold.

When an item is scanned on a POS terminal and the transaction between the store and the customer is complete, the transaction will be recorded on the most granular level. Similar to an itemized receipt, the data will be stored at the item level. Raw data components or facts such as the time, regular unit cost, discounted unit cost, and quantity of the item purchased will captured. Additional qualitative, or dimensional, information such as the date, which store the item was purchased at, which employee performed the transaction, which department the item came from, etc. will also be stored. The qualitative items will be stored on dimensional tables with primary keys that are referred to in the fact table as foreign keys.

The combination of the information captured will allow management to decide which factors they would like to analyze in order to make decisions about their customers, advertisements, promotions, and products.

# Data Warehouse Concepts

## Step 1: Select the Business Process

* Management decides which products to apply a promotion to and the advertising methods.
* Customers select and purchase goods through a cashier that scans in each individual item, sums the total of the products, collects the money from the customer, and prints a receipt.

## Step 2: Declare the Grain

* One row per item sold in a transaction.

## Step 3: Identify the Dimensions/Attributes

* Store: Store ID (PK), Store Number (NK), Store Name, Store Street Address, Store City, Store County, Store City – State, Store Zip Code, Store Manager, Store Open Date (FK)
* Cashier: Employee Key (PK), Employee Name, Employee Title
* Department: Department Key (PK), Department Name, Department Description
* Date: Date Key (PK), Calendar Date YYYY-MM-DD, Day of the Week, Quarter, Season, Holiday, Weekend
* Payment Method: Payment Method Key (PK), Payment Method Description
* Promotion: Promotion Key (PK), Promotion Description
* Advertisement: Advertisement Key (AK), Advertisement Description

## Step 4: Identify the Facts

* Time the item was purchased
* Store Cost of the Item
* Dollar Amount of discount/promotion applied
* Discount Unit Price
* Net Unit Price
* Regular Unit Price
* Quantity of the item purchased
* Extended Discount Dollar Amount
* Extended Sales Dollar Amount
* Extended Cost Dollar Amount
* Extended Gross Profit Dollar Amount

# Summary

The above describes the beginning of data warehouse design that will enable AllStar Grocery Store to store the raw transaction data in order data slice and perform analysis in a variety of ways. For example, management can compare promotion success per year, quarter, month, day of the week, weekends, or holidays. In addition, analysis can be performed on different types of advertisements applied on a product-promotion combination. These are just a few examples that might be of interest to management in order to make business decisions with this design.