**Data Warehousing and Data Mining**

*Case Study (Summary)*

**Problem Statement**: Today, companies face too many problems in extracting important information out of the huge customer database and product feature database which they have got by investing heavily in data collection activities. The whole focus is to find a way to get relevant information for getting ahead of the competition in the market and to form policies to gain profit.

**Data Collection:** Market Basket Analysis is a process to gather the required data which can be used to extract valuable information like :

* attachment rates
* demographic baskets
* brand switching
* customer loyalty
* core items
* items per basket
* in-basket price
* revenue contribution
* shopper penetration etc.

Market Basket Analysis gives answer to the following question: *which goods are sold together within the same transaction or to the same customer?*

**Analysis:** Market basket analyses are an important component of analytical system in retail organizations. It targets customer baskets in order to monitor buying patterns and improve customer satisfaction.

What could be gained from Market Basket Analysis:

* We get the ability to learn more about customer behaviour.
* We can make more informed decisions about product placement, pricing, promotion and profitability.
* We can find out which products perform similarly to each other.
* We can determine which products should be placed near each other.
* We can find out which products should be cross-sold.
* We can find out if there are any successful products that have no significant related elements.

The complete Market Basket Analysis was divided into two major processes:

1. Discover the selling documents (transactions) with the item, for which we want to perform market basket analysis.
2. Discover all the items in relevant selling documents and their selling quantities, prices, number of transactions and other relevant data.

**First Step** divided the whole data into: Process, Org. Units, Date, Document No. and No. of transactions.

**Second Step** modified the data into detailed one. Now the data was divided into following columns: Item Description, UM, No. of Transactions, Quantity Sold, Revenue, Margin and % of Total Margin.

Following objectives were concluded:

* **Provide system solutions**: It is used to combine more items in a set or a system, because the majority of customers are interested in buying and using them at a time or in a short period of time after the purchase of a particular item.
* **Promote sales:** The main goal of a campaign is to entice customers to visit retail centre and buy more than they usually do.
* **Placement of goods in retail stores:** People usually buy two goods together, therefore this analysis helped the retail stores to place complimentary goods near to each other to increase sales.
* **Educating sales persons:** All the employees must be aware of the results and they should use them in the process of selling.
* **Segmenting customers:** This analysis helped retail stores to group customers so the buying patterns can be analyzed and thus offers and discounts and other policies can be made.It also helped to get the answer to the questions like why customer group bought product X in the period 2 etc.

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**Conclusion:** The whole case study talks about data gathering and pattern recognition using **Market Basket Analysis Process**. After taking all the necessary steps (i.e. gathering the required data, analyzing the data and creating reports), lot many things were concluded by this study. This study generated detailed tables of the products and buying patterns of the customer which helped the company to achieve **Provide system solutions, Promote sales**, **Placement of goods in retail stores, Educating sales persons and Segmenting customers.**