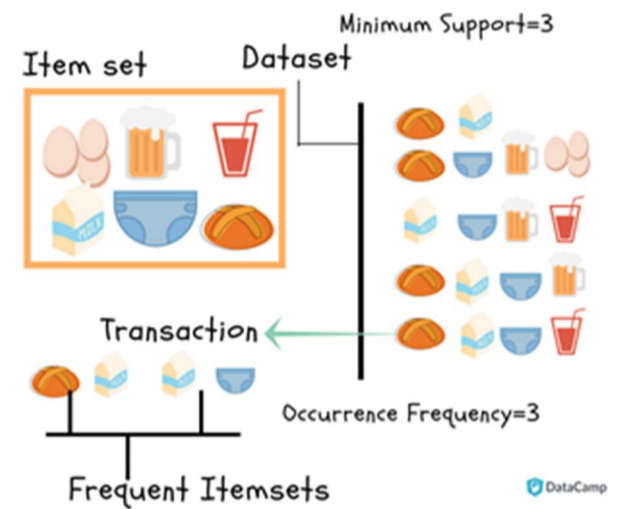


In the retail and restaurant businesses, Market Basket Analysis (MBA) helps to set of statistical affinity calculations that MANAGERS use to understand and ULTIMATELY serve based on their CUSTOMER'S purchasing patterns. It shows what COMBINATIONS of products MOST frequently occur together with orders. These relationships can be used to increase profitability through cross-selling, RECOMMENDATIONS, PROMOTIONS, or even the PLACEMENT of ITEMS on a MENU or in a store. MBA allows COMPANIES to identify the keystone products, those that differentiate THEM in the MARKET and could potentially hurt business if they were unavailable or are MORE expensive The probability that a CUSTOMER will purchase a drink on the condition of purchasing a sandwich and cookies is referred to as the confidence of the rule. Confidence can be used for product PLACEMENT strategy and increasing profitability.

Implementation

- **Apriori algorithm:** This is a COMMONLY-APPLIED technique in COMPUTATIONAL statistics identifies ITEMSETS that occur with a support greater than a pre-defined value (frequency) and calculates the confidence of all possible rules based on those ITEMSETS.
- **Association Rules:** These are widely used to analyze retail basket or transaction data, and are intended to identify strong rules discovered in transaction data using MEASURES of interestingness, based on the concept of strong rules. Uses Frequent ITEM SETS to generate association rules.
- **Quality Parameter:** Range of support, Confidence and Lift

Algorithm



Results and Discussion

- MBA is applicable in MANY other areas:
- Manufacturing: predictive analysis of EQUIPMENT failure
- PHARMACEUTICAL/BIOINFORMATICS: discovery of co-occurrence relationships AMONG diagnosis and PHARMACEUTICAL active ingredients prescribed to different patient groups
- FINANCIAL/CRIMINOLOGY: fraud detection based on credit card usage data
- CUSTOMER Behavior: associating purchases with DEMOGRAPHIC and socio- ECONOMIC data

Graph for 10 rules

