

Write a brief report about MBA. The report should answer the following questions:

What is Market basket Analysis and how does it work?

An algorithm that calculates the correlations between features based on their occurrences in the data set. MBA study attributes that being together are able to generate hidden patterns in big data. This algorithm works by taking the transaction history of a store, which contains all the products containing each transaction, then determining the relationship of what products were purchased with which other products. These relationships are then used to build rules containing the antecedent and the consequent product(s). The association rules use 3 different metrics that will indicate the strength of the relationship in the rule. These metrics are; Support, confidence and lift.

What is support?

Support is the frequency that the antecedent and consequent appears together in the same transaction on the whole dataset. The higher the support, the more frequently the itemset occurs. Rules with higher support are more likely to be applicable to a large number of future transactions.

What is a rule?

MBA algorithm's output are rules that were identified. These rules are associations that were frequently found in the history of transactions, that are possible to keep happening in the future.

How do you measure the importance of a rule?

The lift ratio is a measure that tells us the likelihood of two products being bought together. If a lift ratio is higher than 1, then we can say that there is a positive relationship between them and that they appear together more often than by chance. On the other hand, if the lift is equal or less than 1, means that they appear together only or less often than by chance.

How do you use all these concepts in a real scenario?

This algorithm is mainly used by retailing companies, discovering relations within their products that their customers buy. Knowing this, the store could take advantage of this information and arrange the products on the store in a strategic way. Otherwise, if they didn't buy the product in the same transaction, the store can then design a marketing campaign based on this analysis and send it to those customers. For online retailers, using MBA could be used by developing a more effective recommendation engine of products after a customer has made a purchase. In the Banking industry MBA can be used to analyze credit card usage of customers and build profiles for fraud detection purposes or cross selling opportunities.