**What is lift and why is it important in Association rules?**

Lift is a measure of the strength of the association between two items, taking into account the frequency of both items in the dataset. It is calculated as the confidence of the association divided by the support of the second item. Lift is used to compare the strength of the association between two items to the expected strength of the association if the items were independent.

A lift value greater than 1 indicates that the association between two items is stronger than expected based on the frequency of the individual items. This suggests that the association may be meaningful and worth further investigation. A lift value less than 1 indicates that the association is weaker than expected and may be less reliable or less significant.

**What is support and Confidence. How do you calculate them?**

**Support**

Support is a measure of how frequently an item or itemset appears in the dataset. It is calculated as the number of transactions containing the item(s) divided by the total number of transactions in the dataset. High support indicates that an item or itemset is common in the dataset, while low support indicates that it is rare.

Support ({x} ->{y}) = Transaction containing both X and Y / Total number of transactions

**Confidence**

Confidence is a measure of the strength of the association between two items. It is calculated as the number of transactions containing both items divided by the number of transactions containing the first item. High confidence indicates that the presence of the first item is a strong predictor of the presence of the second item.

Confidence ({x} ->{y}) = Transactions containing both X and Y / Transactions containing X

**What are some limitations or challenges of Association rules mining?**

Association rule mining algorithms need to be configured before to be executed. So, the user has to give appropriate values for the parameters in advance (often leading to too many or too few rules) in order to obtain a good number of rules