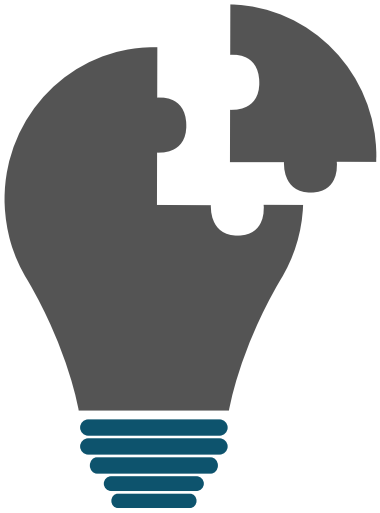
MARKET BASKET INSIGHT

INNOVATION



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INTRODUCTION

ASSOCIATION RULES

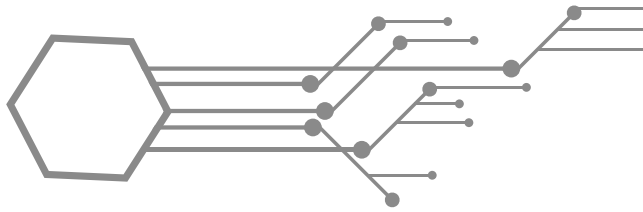
Association rules are a powerful tool for discovering relationships in data sets.Association analysis involves exploring the dataset to identify meaningful patterns in item combinations based on statistical significance.Association rules play a vital role in Machine Learning by exploring intriguing relationships within dataset variables. Their significance extends across various domains, from data mining, where they uncover patterns, to continuous production, where they optimize processes.Association Rule Mining is sometimes referred to as “Market Basket Analysis”, as it was the first application area of association mining.

USES OF ASSOCIATION RULE

Association rules are widely used in various applications, including market basket analysis, recommendation systems (to suggest related products), fraud detection, and more, to reveal valuable insights and drive data-driven decision-making.

- ## MARKET BASKET ANALYSIS

Market basket analysis is one of the most popular examples and uses of association rule mining. Big retailers typically use this technique to determine the association between items



An association rule consists of three components:

- Antecedent (Left-hand side, LHS): This represents the items or products that are observed or considered as a premise.
- Consequent (Right-hand side, RHS): This represents the items or products that are observed or expected as a consequence.
- Support, Confidence, and Lift: These are statistical measures associated with the rule, quantifying the significance and strength of the association between the antecedent and consequent.

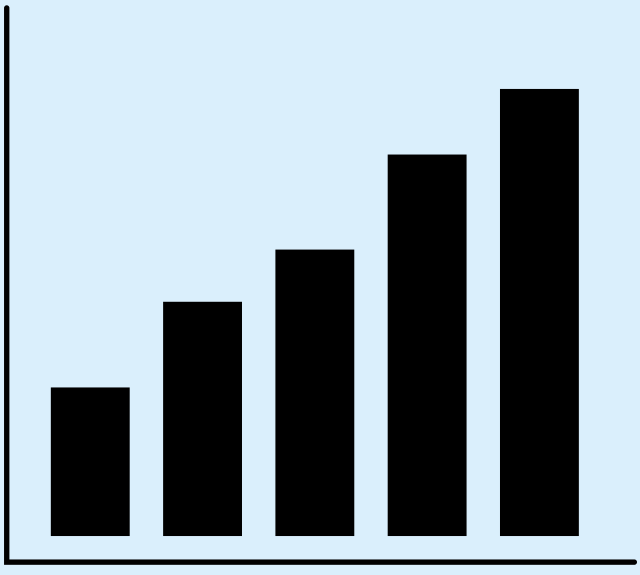
VISUALISATION

Association rule visualization is the graphical representation of association rules discovered through techniques like the Apriori algorithm or FP-growth in data mining and market basket analysis. The purpose of visualization is to make complex patterns and relationships among items or attributes more accessible and understandable for human interpretation.

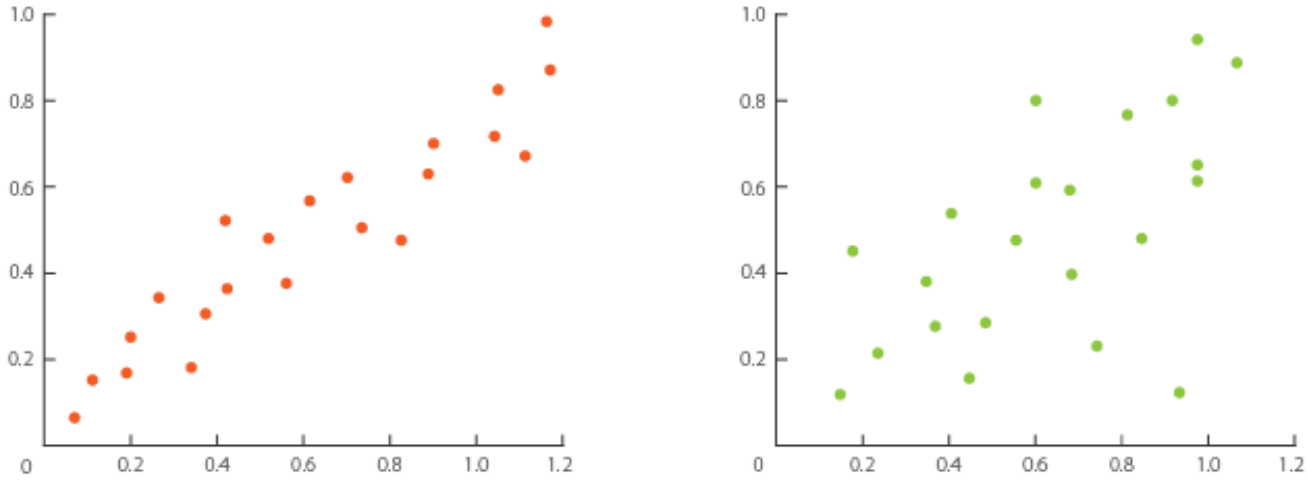
The choice of visualization method depends on the nature of your data, the number of rules, and the specific insights you want to gain. Effective visualization can help data analysts and decision-makers quickly grasp important patterns and relationships within the association rules, making it a valuable tool in market basket analysis, recommendation systems, and various other applications.

TYPES OF VISUALISATION

- Scatter plot
- Graph
- Matrix visualisation



SCATTER PLOT



Scatter plots are not typically used to visualize association rules directly since association rules consist of categorical data (itemsets) and their corresponding metrics (support, confidence, lift), which makes them less suitable for traditional scatter plots. However, you can create scatter plots to visualize certain aspects of association rule analysis or to visualize metrics related to association rules.

MATRIX VISUALISATION

The matrix visual is similar to a table. A table supports two dimensions and the data is flat, meaning duplicate values are displayed and not aggregated. A matrix makes it easier to display data meaningfully across multiple dimensions.The matrix automatically aggregates the data and enables you to drill down.

GRAPH

Graph is a essential way for representing a data set after analysing and performing association rules

VISUALISATION TOOLS

Several visualization tools can be used for Market Basket Analysis and the visualization of association rules. These tools can help you better understand and communicate the relationships between products or items in your transactional data.

Popular visualisation tools

- Tableau
- PowerBI
- Excel

Thank You!