NAAN MUDHALVAN PROJECT (IBM)
IBM AI 101 ARTIFICIAL INTELLIGENCE-GROUP 1
Title: Market Basket Analysis

Team name: unknown

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Problem Statement: Unveiling Customer Behaviour through Association Analysis: Utilize market basket analysis on the provided dataset to uncover hidden patterns and associations between products, aiming to understand customer purchasing behaviour and identify potential cross-selling opportunities for the retail business

Challenges:

Large dataset Market Basket Analysis can be computationally demanding when dealing with large datasets.

Efficient algorithms and scalable techniques are required to handle such data.

Sparse data problem When transactional data is sparse, meaning there are many items but few frequent item sets, Market Basket Analysis becomes more challenging.

Techniques like FP-growth algorithm can be utilized to address this problem. Interpretation of results Understanding and interpreting the generated association rules require domain knowledge and careful analysis.

False positives and irrelevant rules can mislead decision-making if not properly evaluated.

METHODS FOR MARKET BASKET ANALYSIS:

Apriori algorithm The Apriori algorithm is a widely used method for Market Basket Analysis.

It scans the transactional data to discover frequent item sets and generate association rules.

It is efficient in handling large datasets and is highly interpretable.

GOALS:

1. Association Rule Discovery: Implement the Apriori algorithm to identify frequent item sets and generate meaningful association rules based on support, confidence, and lift.

2. Insightful Interpretation: Interpret the generated association rules to understand the relationships between products and their significance, translating them into actionable business strategies.

3. Business Recommendations: Provide clear and actionable recommendations to businesses based on the derived insights, empowering them to make informed decisions for marketing campaigns, inventory management, and customer experience enhancement.

4. Enhanced Sales and Customer Satisfaction: Ultimately, the goal is to enhance sales by optimizing product offerings and improving customer satisfaction through personalized recommendations and strategic business decisions

CONCLUSION:

Market Basket Analysis using AI is a valuable tool for businesses to gain a deeper understanding of customer behaviour and optimize sales strategies. By leveraging powerful algorithms and techniques, businesses can uncover hidden patterns and associations in customer purchase data, leading to improved decision-making, enhanced customer experience, and increased sales.