UNIVERSITI TEKNOLOGI MARA

# MENU RECOMMENDATION FOR RESTORAN JANNAT SABA USING MARKET BASKET ANALYSIS

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#### ABSTRACT

In this fast-evolving world, businesses are rapidly leveraging their data-driven solutions to enhance operational efficiency and decision-making, and the food and beverage industry is no exception. This project focuses on a Middle Eastern restaurant, Restoran Jannat Saba, located in Selangor. Despite its reputation for authentic cuisines, this restaurant has identified three problems, such as difficulty in selecting an item from the menu for the customer to place an order, the lack of menu recommendations, and the absence of a systematic approach to analysing transactional data. These problems unintentionally affect customer satisfaction and business operations. This project aims to identify associations between menu items, which help optimise menu offerings by applying CRISP-DM methodology and Market Basket Analysis. By utilising the sales data, MBA is performed to uncover frequent itemsets and generate association rules based on the confidence and lift metrics. The FP-Growth algorithm has been employed for its effectiveness in identifying frequent itemsets and association rules in transactional data. In conclusion, there were three experiments conducted in this project, with the result of the best support, confidence and lift of 0.064 (6.4%), and 0.882 (88.2%). {Kebab Lamb Sandwich, Molouah Large}  $\rightarrow$  {Garlic Sauce Large} is the best association rule which suggests that customers frequently pair Kebab Lamb Sandwich and Molouah Large with Garlic Sauce, which highlights an opportunity to introduce a meal combo to enhance sales and customer satisfaction. A comprehensive dashboard is developed to provide actionable insights by visualising the results, enabling better menu offerings and enhanced operational efficiency. Expert evaluations were conducted with four professionals to validate the dashboard's learnability, design, user satisfaction, functionality, content, and overall impact. The experts gave constructive feedback and suggestions such as instruction should be given for some visualisations for ease of use. Overall, the project showcases the power of data analytics in optimising operations and customer satisfaction, with plans to integrate real-time data and expand analysis for seasonal trends and customer demographics for specialised recommendations.

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