

UNIVERSITI TEKNOLOGI MARA

**FOOD RECOMMENDATION BASED ON THEIR
NUTRITION USING K-MEANS ALGORITHM**

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BACHELOR OF SCIENCE COMPUTER (Hons.)

JANUARY 2025

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ABSTRACT

The food recommendation system is designed to help users find foods with similar nutritional content. The user only needs to input a food item, and the system will suggest other foods with similar nutritional profiles. K-means clustering is utilized to group foods based on their nutrient levels, enabling the system to identify foods that share comparable nutrition. Once the user inputs a food item, the system calculates the closest match from the clusters and suggests foods that align with the nutritional characteristics of the input food. Additionally, the system evaluates the nutrient levels of each food item, categorizing them as low, medium, or high in terms of specific nutrients (such as calories, protein, fats, etc.).

The performance of the recommendation system is evaluated using key metrics like precision, recall, and F1-score. The system has achieved impressive results with a precision of 94%, recall of 94%, and F1-score of 94%, indicating that the system is highly accurate in providing relevant and accurate food recommendations based on nutritional content. This approach demonstrates the practical application of K-means clustering for food recommendation systems, making it easier for users to select foods that align with their dietary preferences and nutritional needs.

ACKNOWLEDGEMENT

The study was successfully conducted within the designated timeframe, and I express gratitude to Allah for His magnificence and the abundant blessings bestowed upon me. Firstly, I would like to extend my appreciation to my supervisor for his invaluable guidance and support throughout this process. This research would not have been achievable without the invaluable support and guidance provided by Sir Ahmad Nadzmi. His assistance not only facilitated the completion of this study but also demonstrated his unwavering commitment, time and dedication. Furthermore, I would like to extend my sincere appreciation to Madam Ummu Fatihah, who fulfilled the role of my instructor for CSP600 and CSP650. Throughout the entire semester, she generously imparted her expertise, offered unwavering support, and served as a source of inspiration. Other than that, I would like to thank all my lecturers that have been consistently reminding, encouraging and ideas sharing throughout the journey.

My family members also have played a crucial role in supporting me throughout every step of this project. I would like to express my profound gratitude towards my parents for their unwavering provision of support both physical and mental aspects, as well as their consistent encouragement and financial aid during times of utmost necessity. I also would like to extend my gratitude to my esteemed friends for their invaluable assistance and unwavering emotional support, which played a pivotal role in the successful completion of my final year project. Finally, may this project become one of my practices where I can share my knowledge with the readers, to the best of my knowledge.