

UNIVERSITI TEKNOLOGI MARA

**SALES PREDICTION OF ONO CAFÉ
USING LINEAR REGRESSION**

**DANIAL SHAH IMAN BIN MOHAMAD NOOR
KHAIRUL AZHILLAH**

**BACHELOR OF INFORMATION SYSTEMS
(HONS.) BUSINESS COMPUTING**

JULY 2025

ACKNOWLEDGEMENT

Alhamdulillah, praises and thanks to Allah because of His Almighty and His utmost blessings, I was able to finish this research within the time duration given. Firstly, my special thanks goes to my supervisor, Dr. Arifah Fasha Binti Rosmani for their invaluable guidance, continuous support, and encouragement. Their insights and expertise have been instrumental in shaping the direction and outcome of this project.

Special appreciation also goes to my beloved parents, Mohamad Noor Khairul Azhillah Bin Samuri and Norhashilawati Binti Che Hassan for patience and understanding have been a constant source of motivation. Their encouragement has helped me to stay focused and determined throughout this journey.

Last but not least, I would like to give my gratitude to my dearest friends, Muhammad Harith Hakim, Najwa An-Nisa, Amer Iezlan, Nafiz Danial and Muhammad Amier Latieff their support and encouragement. Their patience, understanding, and motivation have been crucial to my success and well-being during this journey.

Finally, I would like to thank all those who, in one way or another, have contributed to the completion of this thesis. Your assistance and encouragement have been invaluable.

ABSTRACT

The goal of this project was to provide Ono Cafe with a comprehensive sales prediction dashboard. The main objective was to enhance decision-making and optimize production and inventory management by utilizing past sales data from 2023 and 2024 through predictive analytics. The project began with exploratory data analysis (EDA) to identify trends and patterns in the historical data, followed by the development of predictive models using RapidMiner, specifically applying linear regression analysis to forecast sales for 2025.

To ensure accurate predictions, the model was tested using three different data splits: 90/10, 80/20, and 70/30. The 80/20 split demonstrated the best performance, achieving the lowest Root Mean Squared Error (RMSE) of 172.679, Mean Absolute Error (MAE) of 125.279, and a high R^2 value of 0.991, indicating strong predictive accuracy and generalization. Comparatively, the 90/10 and 70/30 splits performed slightly less effectively, with higher error values and reduced variance explanation. Therefore, the 80/20 split was selected as the optimal configuration for the predictive model.

The dashboard features a user-friendly interface that allows users to filter data by month, category, and demand rank. This functionality offers actionable insights into sales trends, helping Ono Cafe manage raw materials and production planning efficiently. Expert evaluations focusing on design, satisfaction, functionality, and accuracy were conducted, providing critical feedback that informed final improvements. Ultimately, the project successfully met its objectives, demonstrating how predictive analytics can support strategic planning and operational excellence in the food and beverage industry.

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