

UNIVERSITI TEKNOLOGI MARA

**THE PREDICTION OF STOCK
MANAGEMENT FOR FARMASI
CHENDERING**

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August 2025

ACKNOWLEDGEMENT

Alhamdulillah, all praises and gratitude belong to Allah SWT, the Most Merciful and Benevolent, whose countless blessings, wisdom, and grace enabled me to complete this research within the stipulated timeframe. Without His divine guidance and sustenance, this journey would not have been possible.

Foremost, I extend my deepest appreciation to my dedicated supervisor, Pn. Nurhilyana Binti Anuar, whose expertise, patience, and unwavering commitment profoundly shaped this project. Her invaluable guidance—from refining research objectives to navigating methodological challenges—provided clarity and direction at every stage. Her constructive critiques, timely encouragement, and intellectual generosity not only strengthened the quality of this work but also inspired resilience during moments of uncertainty. For her mentorship, I am eternally grateful.

To my beloved parents, Gamal Bin Sapar and Siti Sabariah Binti Yusof, I owe immeasurable gratitude. Their unconditional love, sacrifices, and steadfast belief in my potential fueled my perseverance. Through sleepless nights and daunting deadlines, their prayers were my anchor, and their unwavering support reminded me of the purpose behind this pursuit. This milestone is as much theirs as it is mine, a testament to their enduring faith in my journey.

My heartfelt thanks also go to my dearest friends, whose camaraderie and encouragement transformed this arduous process into a shared endeavor. Their willingness to listen, brainstorm ideas, and offer moral support during moments of frustration kept my spirits uplifted. Whether through late-night study sessions or lighthearted breaks, their positivity and solidarity made this academic voyage enriching and memorable.

Lastly, I acknowledge the College of Computing, Informatics, and Mathematics at Universiti Teknologi MARA for providing the resources and academic environment essential for this research. To all individuals who contributed directly or indirectly, I extend my sincere thanks. May this achievement serve as a stepping stone to greater endeavors, and may the kindness shown to me be repaid manifold in blessings.

Thank you.

ABSTRACT

In the retail pharmacy sector, data analytics is crucial for enhancing inventory control and operational efficiency. This project focuses on Farmasi Chendering, aiming to develop a predictive stock management system using ABC-VEN analysis and the J48 decision tree algorithm. The adapted CRISP-DM methodology guided the development process, encompassing data preparation, modeling, evaluation, and deployment. Historical sales data comprising 2 years of transactions were analyzed in two experimental setups: one without ABC-VEN classification and one with it. After balancing the dataset using SMOTE, the ABC-VEN-enhanced model achieved an improved prediction accuracy of 79.11%, compared to 73.41% without ABC-VEN. This confirmed the model's effectiveness in refining stock forecasts. An interactive dashboard was developed to visualize 2023 sales data, inventory classification, and 2024 stock predictions, enabling informed and timely restocking decisions. Expert evaluations involving pharmacy professionals highlighted the dashboard's practicality, with overall positive feedback and suggestions for minor enhancements, such as more detailed summaries. In conclusion, this project demonstrates how integrating predictive analytics and inventory classification can improve stock management in community pharmacies. Future improvements may include real-time data integration, expansion to mobile platforms, and broader product coverage to support sustainable decision-making.

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