CHAPTER 1 INTRODUCTION

1.1 Research Background

Skincare products are increasingly popular, especially among the younger generation who prioritize the convenience of shopping through e-commerce platforms such as Shopee[1]. Based on the Indonesian e-Commerce map according to iPrice, Shopee is the second marketplace with the highest number of visitors per month reaching 131.296 million visitors per month with the second quarter in 2022. Shopee provides daily necessities, one of which is beauty or skincare products.

Skincare is a series of skincare products used regularly with various purposes to care for or protect our skin. Skincare also plays a very important role, especially for women, as they pay great attention to their appearance. All skincare products available in Indonesia are of good quality, including Skintific, Avoskin, Wardah, Emina, Daviena, and others.

One skincare brand that has recently gained public attention is Daviena Skincare. This local skincare brand has been accused of using fake buyers to purchase its products. Fake buyers are often used by businesses that are still in their early stages to attract potential customers. Due to these allegations, there have been many comments and reviews about Daviena products, both on social media and in purchase reviews on e-commerce platforms.

However, the large volume of reviews in an unstructured format and the presence of various sentiments (positive, negative, neutral) make manual analysis challenging[2]. Text mining techniques on consumer reviews enable clustering and feature extraction from review text, thereby generating information of business value. This helps merchants and e-commerce platforms to design relevant service improvement strategies, drive business growth, and increase customer satisfaction.

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[1] Prisma Miardi Putri and R.A Marlien, "Pengaruh Digital Marketing Terhadap Keputusan Pembelian Online," *Jesya (Jurnal Ekonomi & Ekonomi Syariah)* 5, no. 1 (January 2022): 25–36, https://doi.org/10.36778/jesya.v5i1.510.

[2] Amjad Iqbal et al., "Sentiment Analysis of Consumer Reviews Using Deep Learning," *Sustainability* 14, no. 17 (August 2022): 10844, https://doi.org/10.3390/su141710844.

Sentiment analysis is a sub-field of natural language processing (NLP) that aims to automatically classify sentiment from free text, and has been widely applied to understand consumer opinions on e-commerce platforms and social media[3]. Frequently used machine learning methods include Naive Bayes, Support Vector Machine (SVM), and deep learning methods such as Long Short-Term Memory (LSTM) and Convolutional Neural Networks (CNN)[4]. Naive Bayes is known for its simplicity and efficiency, while SVM is often chosen for its ability to handle imbalanced data and provide high accuracy. On the other hand, deep learning methods are gaining popularity due to their ability to capture complex relationships in text data and produce more accurate predictions in some cases.

However, sentiment analysis still faces challenges, especially in handling unstructured and informal text such as product reviews and comments on social media. The lack of a corpus and domain-specific lexicon often degrades model accuracy[5]. Grammatical errors and the use of unfamiliar terms also affect the analysis results. To address these issues, future research is expected to utilize more advanced data preprocessing techniques, the use of more complex deep learning models, as well as the application of semi-supervised or unsupervised learning methods to improve sentiment analysis performance.

In line with this, Allah explains about differences of opinion written in the Qur'an, namely:

يٰٓاَيُّهَا الَّذِيْنَ اٰمَنُوْا كُوْنُوْا قَوَّامِيْنَ لِلّٰهِ شُهَدَاۤءَ بِالْقِسْطِۖ وَلَا يَجْرِمَنَّكُمْ شَنَاٰنُ قَوْمٍ عَلٰٓى اَلَّا تَعْدِلُوْاۗ

اِعْدِلُوْاۗ هُوَ اَقْرَبُ لِلتَّقْوٰىۖ وَاتَّقُوا اللّٰهَۗ اِنَّ اللّٰهَ خَبِيْرٌۢ بِمَا تَعْمَلُوْنَ

It means "O you who believe, be you upholders (of the truth) for the sake of Allah (and) witnesses (who act) fairly. Do not let your hatred of a people encourage

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[3] Christopher C. Yang et al., "Understanding Online Consumer Review Opinions with Sentiment Analysis Using Machine Learning," *Pacific Asia Journal of the Association for Information Systems*, 2010, 73–89, https://doi.org/10.17705/1pais.02305.

[4] Dkk Rika Widianita, "SENTIMENT ANALYSIS OF E-COMMERCE PRODUCT REVIEWS FOR CONTENT INTERACTION USING MACHINE LEARNING," *AT-TAWASSUTH: Jurnal Ekonomi Islam* VIII, no. I (2023): 1–19.

[5] Anastazia Zunic, Padraig Corcoran, and Irena Spasic, "Sentiment Analysis in Health and Well-Being: Systematic Review," *JMIR Medical Informatics* 8, no. 1 (January 2020): e16023, https://doi.org/10.2196/16023.

you to be unjust. Be just, for that is closer to piety. Fear Allah. Verily, Allah is mindful of what you do." (QS. Al-Maidah Verse 8).

Research by Lestari et al. (2024) also confirmed the superiority of SVM, recording an accuracy of more than 80% in analysing sentiment towards skincare products[6]. Meanwhile, M. Fauzi (2019) explored the use of Word2Vec as a feature in sentiment analysis with SVM, although the results were still lower than other methods[7]. In another study, Elik Hari (2020) conducted an NLP approach to sentiment analysis, resulting in an accuracy of 76.92%[8].Several studies have compared SVM with Naïve Bayes in the context of e-commerce, such as on earphone products on Tokopedia[9], and on Shopee application reviews that achieved 84.71% accuracy[10]. The SMOTE technique was also used in combination with SVM, which increased the accuracy to 92%[11].

From these studies, it can be seen that although many studies have been conducted using SVM methods in the context of sentiment analysis, there is still a lack in terms of specific application to certain product categories such as Daviena skincare and local e-commerce platforms such as Shopee. This research aims to close that gap by providing an in-depth analysis of consumer sentiment towards Daviena skincare products through a focused approach.

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[6] Vety Bhakti Lestari and Dini Amalia, "Support Vector Machine for Sentiment Analysis of PT. Paragon Technology and Innovation (Case Study of Brand Make Over and Emina Product Users on Female Daily Page – Beauty Review)," *Journal of Applied Statistics and Data Science* 1, no. 1 (March 2024): 9–19, https://doi.org/10.21776/ub.jasds.2024.001.01.2.

[7] M. Ali Fauzi, "Word2Vec Model for Sentiment Analysis of Product Reviews in Indonesian Language," *International Journal of Electrical and Computer Engineering (IJECE)* 9, no. 1 (February 2019): 525, https://doi.org/10.11591/ijece.v9i1.pp525-530.

[8] Elik Hari Muktafin, Kusrini Kusrini, and Emha Taufiq Luthfi, "Analisis Sentimen Pada Ulasan Pembelian Produk Di Marketplace Shopee Menggunakan Pendekatan Natural Language Processing," *Jurnal Eksplora Informatika* 10, no. 1 (2020): 32–42, https://doi.org/10.30864/eksplora.v10i1.390.

[9] Rika Widianita, "SENTIMENT ANALYSIS OF E-COMMERCE PRODUCT REVIEWS FOR CONTENT INTERACTION USING MACHINE LEARNING."

[10] Suswadi Suswadi and Moh. Erkamim, "Sentiment Analysis of Shopee App Reviews Using Random Forest and Support Vector Machine," *ILKOM Jurnal Ilmiah* 15, no. 3 (December 2023): 427–35, https://doi.org/10.33096/ilkom.v15i3.1610.427-435.

[11] Dody Indra Sumantiawan, Jatmiko Endro Suseno, and Wahyul Amien Syafei, "Sentiment Analysis of Customer Reviews Using Support Vector Machine and Smote-Tomek Links For Identify Customer Satisfaction," *J. Sistem Info. Bisnis* 13, no. 1 (2023): 1–9, https://doi.org/10.21456/vol13iss1pp1-9.

The main objective of this research is to apply the Support Vector Machine (SVM) method in analysing the sentiment of Daviena skincare product reviews on the Shopee e-commerce platform. It is hoped that the results of this study can provide useful insights for manufacturers and marketers in understanding consumer views and improving the quality of their products and services based on the feedback obtained from these reviews.

1.2 Research Problem

Based on the background, the problem formulation is as follows:

The presence of various positive, negative, and neutral comments, as well as the lack of sentiment analysis on reviews of Daviena products.

1.3 Research Objectives

Based on the problem formulation, the research objectives are as follows:

Classification of customer review sentiments for Daviena Skincare products on Shopee using the Support Vector Machine (SVM) method to determine positive, negative, and neutral sentiments.

1.4 Research Limitation

For a more specific problem formulation, the limitations of this research are as follows:

1. This research only uses data to be classified from Daviena products within Daviena Skincare on Shopee.
2. The method used for this analysis is the Support Vector Machine method to analyze positive, negative, or neutral reviews.

1.5 Research Benefits

The benefits of this research are as follows:

1. For Students

This research is useful for expanding knowledge and deepening the understanding of sentiment analysis, especially using the Support Vector Machine method, and for drawing conclusions from sentiment classification results.

2.	For the University

It serves as an evaluation material for students in applying the knowledge and competencies they have learned.

3.	For Society

By understanding the positive and negative responses to reviews of Daviena Skincare products, it is hoped that society will become more prudent in using social media.

4.	For Future Research

It provides a reference for subsequent research, taking into consideration further studies on related topics.

1.6 Systematics of Discussion

This section outlines the structure of the thesis, from the introduction to the conclusion, along with a brief explanation for each chapter. This explanation is expected to help readers understand the flow of the discussion in this thesis.

This research will follow the writing systematics as outlined below:

CHAPTER 1 INTRODUCTION

1.1 Research Background

1.2 Research Problem

1.3 Research Objectives

1.4 Research Limitation

1.5 Research Benefit

1.6 Systematic Of Discussion

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Previous Research

Theoretical

CHAPTER 3 RESEARCH METHODS

3.1 Time And Location Of Research

3.2 Research Tools And Material

3.3 Research Model

CHAPTER 4 RESULT AND DISCUSSION

Result

Discussion

CHAPTER 5 CONCLUSION

5.1 Conclusion

5.2 Suggestions

References

Appendices