

DAFTAR PUSTAKA

- [1] A. N. Ihsan and S. Tresnawati, “Analisis Sentimen Pada Platform X Terhadap Layanan Provider Tri Menggunakan Naïve Bayes Dan Support Vector Machine,” *Jurnal Informatika dan Teknik Elektro Terapan*, vol. 12, no. 3S1, Oct. 2024, doi: [10.23960/jitet.v12i3s1.5264](https://doi.org/10.23960/jitet.v12i3s1.5264).
- [2] We Are Social and Meltwater, “Digital 2025: Indonesia,” Feb. 2025. Available: <https://datareportal.com/reports/digital-2025-indonesia>
- [3] I. Villanueva-Miranda, Y. Xie, and G. Xiao, “Sentiment analysis in public health: a systematic review of the current state, challenges, and future directions,” *Front. Public Health*, vol. 13, p. 1609749, Jun. 2025, doi: [10.3389/fpubh.2025.1609749](https://doi.org/10.3389/fpubh.2025.1609749).
- [4] M. Kholilullah, M. Martanto, and U. Hayati, “Analisis Sentimen Pengguna Twitter(X) Tentang Piala Dunia Usia 17 Menggunakan Metode Naive Bayes,” *JATI (Jurnal Mahasiswa Teknik Informatika)*, vol. 8, no. 1, pp. 392–398, Feb. 2024, doi: [10.36040/jati.v8i1.8378](https://doi.org/10.36040/jati.v8i1.8378).
- [5] M. Amien, “Sejarah dan Perkembangan Teknik Natural Language Processing (NLP) Bahasa Indonesia: Tinjauan tentang sejarah, perkembangan teknologi, dan aplikasi NLP dalam bahasa Indonesia,” *arXiv (Cornell University)*, Mar. 2023, doi: 10.48550/arxiv.2304.02746. Available: <http://arxiv.org/abs/2304.02746>
- [6] A. Kiftiyah, F. A. Palestina, F. U. Abshar, and K. Rofiah, “Program Makan Bergizi Gratis (MBG) dalam Perspektif Keadilan Sosial dan Dinamika Sosial – Politik,” *Pancasila: Jurnal Keindonesiaan*, vol. 5, no. 1, pp. 101–112, Apr. 2025, doi: [10.52738/pjk.v5i1.726](https://doi.org/10.52738/pjk.v5i1.726).
- [7] E. B. I. Panjiwinata, “Kebijakan MBG: Menabur janji manis, menuai ekonomi kritis,” *Panjiwinata | Konferensi Nasional Ilmu Administrasi*, Oct. 18, 2025. Available: <http://knia.stialanbandung.ac.id/index.php/knia/article/view/1197>
- [8] Badan Gizi Nasional, “BGN: Dari Rp268T, 93% Anggaran Digunakan Langsung untuk Bantuan MBG.” *bgn.go.id*, Mar.2026. Available: <https://www.bgn.go.id/news/siaran-pers/bgn-dari-rp268t-93-anggaran-digunakan-langsung-untuk-bantuan-mbg>
- [9] W. Ningsih, B. Alfiana, R. Rahmadden, and D. Wulandari, “Perbandingan Algoritma SVM dan Naïve Bayes dalam Analisis Sentimen Twitter pada 50 Penggunaan Mobil Listrik di Indonesia,” *MALCOM: Indonesian Journal of*

Machine Learning and Computer Science, vol. 4, no. 2, pp. 556–562, Feb. 2024, doi: [10.57152/malcom.v4i2.1253](https://doi.org/10.57152/malcom.v4i2.1253).

- [10] Hunga Baba, U. R. (2024). Analisa Sentimen Menjelang Pemilihan Umum Presideen 2024 di Indonesia Menggunakan Perbandingan Performa Support Vector Machine (SVM) dan Naïve Bayes. *Innovative: Journal Of Social Science Research*, 4(3), 11972–11990. Available: <https://jinnovative.org/index.php/Innovative/article/view/10761>
- [11] L. Luthfanida, “Analisis Sentimen Data Twitter Menggunakan Metode Naive Bayes Dan Support Vector Machine (Svm) Tentang Presiden Jokowi 3 Periode,” *Djtechno Jurnal Teknologi Informasi*, vol. 3, no. 1, pp. 5–11, Jul. 2022, doi: [10.46576/djtechno.v3i1.2143](https://doi.org/10.46576/djtechno.v3i1.2143).
- [12] Ramadhani, A., Permana, I., Afdal, M., & Fronita, M. (2024). Analisis Sentimen Tanggapan Publik di Twitter Terkait Program Kerja Makan Siang Gratis Prabowo–Gibran Menggunakan Algoritma Naïve Bayes Classifier dan Support Vector Machine. *Building of Informatics, Technology and Science (BITS)*, 6(3), 1509–1516. <https://doi.org/10.47065/bits.v6i3.6188>
- [13] B. Liu, “Sentiment Analysis and Opinion Mining,” Morgan & Claypool Publishers, 2012.
- [14] M. A. Subarkah, W. M. Rahmawati, S. R. Wardhana, and R. K. Hapsari, “Analisis sentimen terhadap video ulasan produk menggunakan metode Support Vector Machine dengan sequential Minimal optimization,” *KERNEL Jurnal Riset Inovasi Bidang Informatika Dan Pendidikan Informatika*, vol. 3, no. 2, pp. 17–24, Dec. 2022, doi: [10.31284/j.kernel.2022.v3i2.4039](https://doi.org/10.31284/j.kernel.2022.v3i2.4039).
- [15] T. Juniardi and C. A. Sugianto, “Analisis Sentimen Tim Nasional Sepak Bola Indonesia Di Turnamen Piala Dunia U-17 Indonesia Pada Twitter (X) Menggunakan Algortima Naïve Bayes,” *Jurnal Informatika dan Teknik Elektro Terapan*, vol. 12, no. 3S1, Oct. 2024, doi: [10.23960/jitet.v12i3s1.5188](https://doi.org/10.23960/jitet.v12i3s1.5188).
- [16] E. Saputri, “Teknik dan aplikasi data mining di Indonesia: tinjauan literatur satu dekade (2015-2024),” *IT-Explore: Jurnal Penerapan Teknologi Informasi dan Komunikasi*, vol. 4, no. 2, pp. 138–149, Jun. 2025, doi: [10.24246/itexplore.v4i2.2025.pp138-149](https://doi.org/10.24246/itexplore.v4i2.2025.pp138-149).
- [17] P. W. Rahayu et al., *Buku ajar data mining*. PT. Sonpedia Publishing Indonesia, 2024. [Online]. Available: [\(Pdf\) Buku Ajar Data Mining](#)
- [18] H. Mondal *et al.*, “Science communication on X (formerly Twitter): A H. Mondal et al., “Science communication on X (formerly Twitter): A picture is

- worth a thousand characters?,” *Exploration of Digital Health Technologies*, pp. 28–34, Nov. 2023, doi: [10.37349/edht.2023.00005](https://doi.org/10.37349/edht.2023.00005).
- [19] R. Mustaqilillah, O. Widyaningtyas, and T. Wantoro, “Efektivitas penggunaan Twitter Sebagai Sarana Peningkatan Berpikir Kritis Mahasiswa Ilmu Komunikasi,” *MUKASI Jurnal Ilmu Komunikasi*, vol. 2, no. 1, pp. 18–28, Feb. 2023, doi: [10.54259/mukasi.v2i1.1346](https://doi.org/10.54259/mukasi.v2i1.1346).
- [20] D. S. Nugroho, I. F. Hanif, M. A. Hasbi, F. Fredianto, A. M. Saputra, and R. Zildjian, “Analisis Sentimen Dugaan Pelanggaran Pemilu 2024 Berdasarkan Tweet Menggunakan Algoritma Naïve Bayes Classifier,” *MALCOM: Indonesian Journal of Machine Learning and Computer Science*, vol. 4, no. 3, pp. 1169–1176, Jul. 2024, doi: [10.57152/malcom.v4i3.1496](https://doi.org/10.57152/malcom.v4i3.1496).
- [21] Aprillia, N. P. ., & Azzahra, M. U. D. . (2025). Program Makan Bergizi Gratis (MBG): Antara Legacy Project dan Solusi Stunting. *Journal of Information Systems and Management (JISMA)*, 4(5), 19–22. Available: <https://jisma.org/index.php/jisma/article/view/1229>
- [22] H. A. Rahmah, A. Anggraini, Y. P. Nilasari, and E. P. Salsabilla, “Analisis Efektivitas Program Makan Bergizi Gratis Di Sekolah Dasar Indonesia Tahun 2025,” *Integrative Perspectives of Social and Science Journal*, vol. 2, no. 2, p. 2855, 2025. Available: <https://ipssj.com/index.php/ojs/article/view/380>
- [23] W. Widyananda, Maskur, and A. Fauzi, “Machine Learning and Transformer-based Model for Sentiment Analysis of Indonesian ECommerce Reviews,” *The Indonesian Journal of Computer Science*, vol. 14, no. 4, Aug. 2025, doi: [10.33022/ijcs.v14i4.4980](https://doi.org/10.33022/ijcs.v14i4.4980).
- [24] C. Adiwinata and A. Afiyati, “Sentiment analysis of X users toward electric motorcycles using SVM and BERT algorithms,” *JUITA Jurnal Informatika*, pp. 119–126, Aug. 2025, doi: [10.30595/juita.v13i2.26152](https://doi.org/10.30595/juita.v13i2.26152).
- [25] N. A. Salsabila, Y. A. Winatmoko, A. A. Septiandri, and A. Jamal, "Colloquial Indonesian Lexicon," in 2018 International Conference on Asian Language Processing (IALP), Bandung, Indonesia, Nov. 2018, pp. 226–229, doi: [10.1109/IALP.2018.8629151](https://doi.org/10.1109/IALP.2018.8629151). Available: <https://github.com/nasalsabila/kamus-alay>.
- [26] Wibowo, H. A., Nityasya, M. N., Akyürek, A. F., Fitriany, S., Aji, A. F., Prasojo, R. E., & Wijaya, D. T. (2021). *IndoCollex: A Testbed for Morphological Transformation of Indonesian Colloquial Words*. Findings of ACL-IJCNLP 2021, 3170–3183.

- [27] Kralj Novak, P., Smailović, J., Sluban, B., & Mozetič, I. (2015). *Sentiment of Emojis*. PLOS ONE, 10(12), e0144296.
- [28] M. Adriani, J. Asian, B. Nazief, S. M. M. Tahaghoghi, and H. E. Williams, "Stemming Indonesian: A confix-stripping approach," *ACM Transactions on Asian Language Information Processing*, vol. 6, no. 4, pp. 1–33, Dec. 2007, doi: [10.1145/1316457.1316459](https://doi.org/10.1145/1316457.1316459).
- [29] A. S. Rizkia, W. Wufron, and F. F. Roji, "Analisis Sentimen Coretax: Perbandingan Pelabelan Data Manual, Transformers-Based, dan LexiconBased pada Performa IndoBERT," *MALCOM: Indonesian Journal of Machine Learning and Computer Science*, vol. 5, no. 3, Jul. 2025, doi: [10.57152/malcom.v5i3.2151](https://doi.org/10.57152/malcom.v5i3.2151).
- [30] A. R. Ismail dan R. B. F. Hakim, "Implementasi Lexicon Based Untuk Analisis Sentimen Dalam Mengetahui Trend Wisata Pantai Di DI Yogyakarta Berdasarkan Data Twitter" *Emerging Statistics and Data Science Journal*, vol. 1, no. 1, pp. 37–46, Jan. 2023, doi: [10.20885/esds.vol1.iss.1.art5](https://doi.org/10.20885/esds.vol1.iss.1.art5).
- [31] M. F. N. Fathoni, E. Y. Puspaningrum, dan A. N. Sihananto, "Perbandingan Performa Labeling Lexicon InSet dan VADER pada Analisa Sentimen Rohingya di Aplikasi X dengan SVM," *Modem: Jurnal Informatika dan Sains Teknologi*, vol. 2, no. 3, pp. 62–76, Jul. 2024, doi: [10.62951/modem.v2i3.112](https://doi.org/10.62951/modem.v2i3.112).
- [32] Y. Mao, Q. Liu, and Y. Zhang, "Sentiment analysis methods, applications, and challenges: A systematic literature review," *Journal of King Saud University - Computer and Information Sciences*, vol. 36, no. 4, p. 102048, Apr. 2024, doi: 10.1016/j.jksuci.2024.102048.
- [33] T. Wilson, J. Wiebe, and P. Hoffmann, "Recognizing contextual polarity in phrase-level sentiment analysis," in *Proceedings of Human Language Technology Conference and Conference on Empirical Methods in Natural Language Processing*, 2005, pp. 347–354. [Online]. Available: [ACL Anthology](https://aclanthology.org/W05-0834/).
- [34] J. Wiebe, R. F. Bruce, and T. P. O'Hara, "Development and use of a gold-standard data set for subjectivity classifications," in *Proceedings of the 37th Annual Meeting of the Association for Computational Linguistics*, 1999, pp. 246–253. [Online]. Available: [ACL Anthology](https://aclanthology.org/W99-0134/).
- [35] R. Artstein and M. Poesio, "Inter-coder agreement for computational linguistics," *Computational Linguistics*, vol. 34, no. 4, pp. 555–596, 2008, doi: [10.1162/coli.07-034-R2](https://doi.org/10.1162/coli.07-034-R2).

- [36] J. Cohen, "A coefficient of agreement for nominal scales," *Educational and Psychological Measurement*, vol. 20, no. 1, pp. 37–46, 1960, doi: [10.1177/001316446002000104](https://doi.org/10.1177/001316446002000104).
- [37] J. R. Landis and G. G. Koch, "The measurement of observer agreement for categorical data," *Biometrics*, vol. 33, no. 1, pp. 159–174, 1977, doi: [10.2307/2529310](https://doi.org/10.2307/2529310).
- [38] E. Riloff, A. Qadir, P. Surve, L. De Silva, N. Gilbert, and R. Huang, "Sarcasm as contrast between a positive sentiment and negative situation," in *Proceedings of the 2013 Conference on Empirical Methods in Natural Language Processing*, 2013, pp. 704–714. [Online]. Available: [ACL Anthology](https://aclanthology.org/W13-1060).
- [39] N. V. Chawla, K. W. Bowyer, L. O. Hall, and W. P. Kegelmeyer, "SMOTE: Synthetic minority over-sampling technique," *Journal of Artificial Intelligence Research*, vol. 16, pp. 321–357, 2002, doi: [10.1613/jair.953](https://doi.org/10.1613/jair.953).
- [40] G. E. A. P. A. Batista, R. C. Prati, and M. C. Monard, "A study of the behavior of several methods for balancing machine learning training data," *ACM SIGKDD Explorations Newsletter*, vol. 6, no. 1, pp. 20–29, 2004, doi: [10.1145/1007730.1007735](https://doi.org/10.1145/1007730.1007735).
- [41] J. E. Bartlett II, J. W. Kotrlik, and C. C. Higgins, "Organizational Research: Determining Appropriate Sample Size in Survey Research," *Information Technology, Learning, and Performance Journal*, vol. 19, no. 1, pp. 43–50, 2001. [Online]. Available: <https://www.opalco.com/wp-content/uploads/2014/10/Reading-Sample-Size1.pdf>
- [42] Y. A. Singgalen, "Analisis Sentimen Wisatawan Melalui Data Ulasan Candi Borobudur di Tripadvisor Menggunakan Algoritma Naïve Bayes Classifier," *Building of Informatics, Technology and Science (BITS)*, vol. 4, no. 3, Dec. 2022, doi: 10.47065/bits.v4i3.2486.
- [43] A. Pamuji, "Prediksi Otorisasi Pengguna Sistem Berkas pada Algoritma Klasifikasi dengan Teknik Naïve Bayes," *Infomatek*, vol. 24, no. 1, pp. 35–44, Jun. 2022, doi: [10.23969/infomatek.v24i1.4604](https://doi.org/10.23969/infomatek.v24i1.4604).
- [44] L. Nursinggah, R. Ruuhwan, and T. Mufizar, "Analisis Sentimen Pengguna Aplikasi X Terhadap Program Makan Siang Gratis Dengan Metode Naïve Bayes Classifier," *Jurnal Informatika dan Teknik Elektro Terapan*, vol. 12, no. 3, Aug. 2024, doi: [10.23960/jitet.v12i3.4336](https://doi.org/10.23960/jitet.v12i3.4336).
- [45] W. M. P. Dhuhita and F. Zone, "Perbandingan Kinerja Algoritma Multinomial dan Bernoulli Naïve Bayes dalam Mengklasifikasikan

- Komentar Cyberbullying,” *Komputika: Jurnal Sistem Komputer*, vol. 12, no. 2, pp. 109–117, Oct. 2023, doi: [10.34010/komputika.v12i2.9767](https://doi.org/10.34010/komputika.v12i2.9767).
- [46] A. M. Yolanda, R. T. Mulya, and R. T. Mulya, “Implementasi Metode Support Vector Machine untuk Analisis Sentimen pada Ulasan Aplikasi Sayurbox di Google Play Store,” *VARIANSI: Journal of Statistics and Its Application on Teaching and Research*, vol. 6, no. 2, pp. 76–83, 2024, doi: [10.35580/variensiunm258](https://doi.org/10.35580/variensiunm258).
- [47] P. Chowdhuri, P. Pal, and T. Si, “A novel steganographic technique for medical image using SVM and IWT,” *Multimedia Tools and Applications*, vol. 82, no. 13, pp. 20497–20516, Jan. 2023, doi: [10.1007/s11042-022-14301-0](https://doi.org/10.1007/s11042-022-14301-0).
- [48] S. D. Wahyuni and R. H. Kusumodestoni, “Optimalisasi Algoritma Support Vector Machine (SVM) Dalam Klasifikasi Kejadian Data Stunting,” *Bulletin of Information Technology (BIT)*, vol. 5, no. 2, pp. 56–64, 2024, doi: [10.47065/bit.v5i2.1247](https://doi.org/10.47065/bit.v5i2.1247).
- [49] M. Q. Alqowiy and E. Utami, “Parameter Optimisation of Support Vector Machine using Genetic Algorithm for Cyberbullying Detection,” *SISTEMASI*, vol. 14, no. 1, p. 332, Jan. 2025, doi: [10.32520/stmsi.v14i1.4870](https://doi.org/10.32520/stmsi.v14i1.4870).
- [50] A. A. Baskara, N. M. Piranti, and M. F. Romdendine, “Framework Data Mining: Sebuah Survei,” *JATI (Jurnal Mahasiswa Teknik Informatika)*, vol. 9, no. 3, pp. 4886–4895, May 2025, doi: [10.36040/jati.v9i3.13803](https://doi.org/10.36040/jati.v9i3.13803).
- [51] S. Pambudi, P. Setiaji, and W. A. Triyanto, “Sentiment Analysis of Fizzo Novel Application Using Support Vector Machine and Naïve Bayes Algorithm with SEMMA Framework,” *Jurnal Teknik Informatika (Jutif)*, vol. 6, no. 4, pp. 1861–1880, Aug. 2025, doi: [10.52436/1.jutif.2025.6.4.4875](https://doi.org/10.52436/1.jutif.2025.6.4.4875).
- [52] L. Hakim, A. Sobri, L. Sunardi, and D. Nurdiansyah, “Prediksi penyakit jantung berbasis mesin learning dengan menggunakan metode k-nn,” *Jurnal Digital Teknologi Informasi*, vol. 7, no. 2, p. 14, Feb. 2025, doi: [10.32502/digital.v7i2.9429](https://doi.org/10.32502/digital.v7i2.9429).
- [53] M. N. Hidayat and R. Pramudita, “Analisis Sentimen Terhadap Pembelajaran Secara Daring Pasca Pandemi Covid-19 Menggunakan Metode IndoBERT,” *Information Management for Educators and Professionals, Journal of Information Management*, vol. 8, no. 2, pp. 161–170, 2023, doi: [10.51211/imbi.v8i2.2719](https://doi.org/10.51211/imbi.v8i2.2719).

- [54] M. Sokolova and G. Lapalme, "A systematic analysis of performance measures for classification tasks," *Information Processing & Management*, vol. 45, no. 4, pp. 427–437, May 2009, doi: [10.1016/j.ipm.2009.03.002](https://doi.org/10.1016/j.ipm.2009.03.002).
- [55] A. U. E. Majid and R. Nuari, "Performance Comparison Of Bert Metrics And Classical Machine Learning Models (SVM, Naive Bayes) For Sentiment Analysis," *INOVTEK Polbeng - Seri Informatika*, vol. 10, no. 2, pp. 741–752, May 2025, doi: [10.35314/wmh3rg23](https://doi.org/10.35314/wmh3rg23).
- [56] A. Sultoni, D. A. Putra, H. N. Wahidah, M. M. Arief, P. J. P. RM, and S. B. Utami, "Public Sentiment analysis and distribution optimization of Indonesia's Makan Bergizi Gratis (MBG) program," *Sultoni | Jurnal Matematika Thales*, Oct. 2025, doi: [10.22146/jmt.108835](https://doi.org/10.22146/jmt.108835).
- [57] D. Septiani and I. Isabela, "Analisis Term Frequency Inverse Document Frequency (TF-IDF) Dalam Temu Kembali Informasi Pada Dokumen Teks," 2022. Available: <https://journal.unj.ac.id/unj/index.php/SINTESIA/article/view/39364>
- [58] W. Wijiyanto, A. I. Pradana, S. Sopingi, and V. Atina, "Teknik K-Fold Cross Validation untuk Mengevaluasi Kinerja Mahasiswa," *Jurnal Algoritma*, vol. 21, no. 1, May 2024, doi: [10.33364/algoritma/v.21-1.1618](https://doi.org/10.33364/algoritma/v.21-1.1618).
- [59] R. Kohavi, "A Study of Cross-Validation and Bootstrap for Accuracy Estimation and Model Selection," in *Proceedings of the 14th International Joint Conference on Artificial Intelligence (IJCAI)*, Montreal, Canada, 1995, pp. 1137 - 1145.
- [60] J. A. Wibowo, V. C. Mawardi, and T. Sutrisno, "Visualisasi Word Cloud Hasil Analisis Sentimen Berbasis Fitur Layanan Aplikasi Gojek Dengan Support Vector Machine," *Jurnal Serina Sains, Teknik dan Kedokteran*, vol. 2, no. 1, pp. 61–70, Mar. 2024, doi: [10.24912/jsstk.v2i1.32058](https://doi.org/10.24912/jsstk.v2i1.32058).
- [61] M. G. Pradana, "Penggunaan Fitur Wordcloud Dan Document Term Matrix Dalam Text Mining," *Jurnal Ilmiah Informatika*, vol. 8, no. 01, pp. 38–43, Mar. 2020, doi: [10.33884/jif.v8i01.1838](https://doi.org/10.33884/jif.v8i01.1838).
- [62] M. Sivakumar, S. Parthasarathy, and T. Padmapriya, "A simplified approach for efficiency analysis of machine learning algorithms," *PeerJ Computer Science*, vol. 10, p. e2418, Nov. 2024, doi: [10.7717/peerj-cs.2418](https://doi.org/10.7717/peerj-cs.2418).
- [63] N. A. Semary, W. Ahmed, K. Amin, P. Pławiak, and M. Hammad, "Enhancing machine learning-based sentiment analysis through feature extraction techniques," *PLoS One*, vol. 19, no. 2, p. e0294968, Feb. 2024, doi: [10.1371/journal.pone.0294968](https://doi.org/10.1371/journal.pone.0294968).

- [64] L. B. Ilmawan and M. A. Mude, "Perbandingan Metode Klasifikasi Support Vector Machine dan Naïve Bayes untuk Analisis Sentimen pada Ulasan Tekstual di Google Play Store," *ILKOM Jurnal Ilmiah*, vol. 12, no. 2, pp. 154–161, Aug. 2020, doi: [10.33096/ilkom.v12i2.597.154-161](https://doi.org/10.33096/ilkom.v12i2.597.154-161).
- [65] A. R. D. P. A. Rama and A. Afyati, "Comparative Sentiment Analysis of Indonesian Leadership Transitions on Platform X Using LSTM and Naïve Bayes," *Jurnal Teknologi Dan Open Source*, vol. 8, no. 2, pp. 639–649, Dec. 2025, doi: [10.36378/jtos.v8i2.4596](https://doi.org/10.36378/jtos.v8i2.4596).
- [66] D. A. P. Hapsari, W. K. Nofa, dan S. Santoso, "Analisis Kompleksitas Algoritma Filter IIR Shen-Castan untuk Deteksi Tepi pada Citra Digital," *CCIT Journal*, vol. 12, no. 2, pp. 218 - 228, 2019.
- [67] B.-M. Hsu, "Comparison of supervised classification models on textual data," *Mathematics*, vol. 8, no. 5, p. 851, May 2020, doi: [10.3390/math8050851](https://doi.org/10.3390/math8050851).
- [68] V. Cutting and N. Stephen, "A Review on using Python as a Preferred Programming Language for Beginners," *International Research Journal of Engineering and Technology*, 2021, [Online]. Available: [A-Review-on-using-Python-as-a-Preferred-Programming-Language-for-Beginners.pdf](https://www.researchgate.net/publication/354123456/A-Review-on-using-Python-as-a-Preferred-Programming-Language-for-Beginners.pdf)
- [69] T. Hidayansyah and S. Budi, "Analisis eksploratif terhadap faktor kunci pada dataset pemesanan hotel," May 23, 2025. Available: <https://strategi.it.maranatha.edu/index.php/strategi/article/view/582>.
- [70] F. Pedregosa et al., "SciKit-Learn: Machine Learning in Python," arXiv (Cornell University), Jan. 2012, doi: [10.48550/arxiv.1201.0490](https://doi.org/10.48550/arxiv.1201.0490).
- [71] Google Research, "Colaboratory Frequently Asked Questions," 2024. Accessed: May 17, 2026. [Online]. Available: <https://research.google.com/colaboratory/faq.html>
- [72] M. R. Saputra and P. Parjito, "Analisis Sentimen Twitter Terhadap Konflik Di Papua Menggunakan Perbandingan Naive Bayes Dan Svm," *JUPI (Jurnal Ilmiah Penelitian Dan Pembelajaran Informatika)*, vol. 10, no. 2, pp. 1197–1208, Mar. 2025, doi: [10.29100/jipi.v10i2.6180](https://doi.org/10.29100/jipi.v10i2.6180).
- [73] J. Vallen and A. H. Azizah, "Analisis Sentimen Media Sosial X Program Makanan Sehat Gratis dengan Support Vector Machine dan Naive Bayes," *Jurnal Ilmiah Sistem Informasi Dan Ilmu Komputer*, vol. 5, no. 3, pp. 308–318, Oct. 2025, doi: [10.55606/juisik.v5i3.1665](https://doi.org/10.55606/juisik.v5i3.1665).
- [74] R. W. Harwenda, M. D. Angelo, I. Budi, A. B. Santoso, and P. K. Putra, "Sentiment Analysis on Government Public Policies: A Systematic Literature Review," *Dinasti International Journal of Education*

Management and Social Science, vol. 6, no. 5, pp. 4192–4211, Jul. 2025, doi: [10.38035/djemss.v6i5.4699](https://doi.org/10.38035/djemss.v6i5.4699).

- [75] H. Satria, "Tweet-Harvest," GitHub repository, 2024. Available: <https://github.com/helmisatria/tweet-harvest>
- [76] Puspitasari, L., Sumbodo, Y. P., & Rofi'ah, R. A content analysis of public discourse on Indonesia's free nutritious meal program (Makan Bergizi Gratis) on platform X. *SOSIOHUMANIORA: Jurnal Ilmiah Ilmu Sosial Dan Humaniora.*, 12(1). 54-70. <https://doi.org/10.30738/sosio.v12i1.20432>.
- [77] I. Mozetič, L. Torgo, V. Cerqueira, dan J. Smailović, "How to evaluate sentiment classifiers for Twitter time-ordered data?" *PLoS ONE*, vol. 13, no. 3, art. e0194317, 2018, doi: [10.1371/journal.pone.0194317](https://doi.org/10.1371/journal.pone.0194317).
- [78] A. Alves, C. de S. Baptista, D. O. Serrano de Andrade, M. G. de Oliveira, dan A. B. de Oliveira, "A spatiotemporal approach for social media sentiment analysis," *First Monday*, vol. 26, no. 8, 2021, doi: [10.5210/fm.v26i8.10757](https://doi.org/10.5210/fm.v26i8.10757).
- [79] M. N. Y. Utomo, "python-sentianalysis-id," GitHub repository, 2017. Available: <https://github.com/yasirutomo/python-sentianalysis-id>.
- [80] F. Koto dan G. Y. Rahmaningtyas, "InSet Lexicon: Evaluation of a Word List for Indonesian Sentiment Analysis in Microblogs," 2017 International Conference on Asian Language Processing (IALP), Singapura, 2017, pp. 391 sampai 394, doi: [10.1109/IALP.2017.8300625](https://doi.org/10.1109/IALP.2017.8300625).
- [81] O. Kolchyna, T. T. P. Souza, P. C. Treleaven, dan T. Aste, "Twitter Sentiment Analysis: Lexicon Method, Machine Learning Method and Their Combination," arXiv preprint arXiv:1507.00955, 2015. <https://doi.org/10.48550/arXiv.1507.00955>.
- [82] D. Suhartono, W. Wongso, and A. T. Handoyo, "IdSarcasm: Benchmarking and Evaluating Language Models for Indonesian Sarcasm Detection," *IEEE Access*, vol. 12, pp. 87323–87332, 2024. <https://doi.org/10.1109/ACCESS.2024.3416955>.
- [83] S. Rony dan J. Patman, "Standard Occupation Classifier - A Natural Language Processing Approach," arXiv preprint arXiv:2511.23057, 2025. <https://arxiv.org/pdf/2511.23057>.
- [84] H. He and E. A. Garcia, "Learning from Imbalanced Data," *IEEE Transactions on Knowledge and Data Engineering*, vol. 21, no. 9, pp. 1263–1284, 2009, doi: [10.1109/TKDE.2008.239](https://doi.org/10.1109/TKDE.2008.239).
- [85] R. K. Shyrokykh, M. Girnyk, and L. Dellmuth, "Short text classification with machine learning in the social sciences: The case of climate change on

Twitter,” *arXiv (Cornell University)*, Oct. 2023,
doi: [10.48550/arxiv.2310.04452](https://doi.org/10.48550/arxiv.2310.04452).

- [86] Python Software Foundation, “time—Time access and conversions,” *Python Documentation*, bagian “time.perf_counter.” [Online]. Available: https://docs.python.org/3/library/time.html#time.perf_counter.
- [87] A. Mueller, “wordcloud.WordCloud,” *WordCloud Documentation*. [Online]. Available: https://amueller.github.io/word_cloud/generated/wordcloud.WordCloud.html
- [88] Scikit-learn developers, “Common pitfalls and recommended practices,” *Scikit-learn documentation*. Accessed: Sep. 14, 2026. [Online]. Available: Dokumentasi pencegahan data leakage https://scikit-learn.org/stable/common_pitfalls.html#how-to-avoid-data-leakage